

BUILDING ON OUR ASSETS

Economic Development & Job Creation in the East Bay

A regional economic assessment
prepared for



October 2011

ABOUT THIS REPORT

The purpose of this report is to better understand the dynamics of the East Bay economy in order to provide a basis for identifying the region's opportunities and challenges for future growth. The project team conducted an in-depth analysis of employment, business, workforce, infrastructure, and land use characteristics, augmented with interviews with business executives. On the basis of the analyses, this study provides recommendations for elected officials, workforce development and education board members, city managers, city and regional planners, economic development specialists, regional agency commissioners, state officials, business leaders and other decisionmakers to plan for a prosperous region.

This report is a summary of all of the research and analysis undertaken as part of this project. Additional, more detailed information from the project is available at www.eastbayeda.org/research_facts_figures.

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EXECUTIVE SUMMARY



The Great Recession exacted a heavy toll on the East Bay economy. The bursting of the housing bubble and the ensuing financial crisis contributed to the East Bay's loss of one out of every ten jobs since 2007. Many companies and the families that depend on them have suffered in this period.

Yet the challenges wrought by the Great Recession also present opportunities. We can emerge on the other side of this crisis stronger than we were. Reflecting on our core economic strengths – as well as our challenges – can contribute to our resilience. If we understand how our most significant assets contribute to our success, we can revitalize our prosperity by shoring up those assets and rededicating ourselves to their excellence. These assets include:

1. **A highly diversified labor force** providing both highly educated professionals and technically skilled workers;
2. **World-class research and development institutions**, including the University of California Berkeley and the Lawrence Berkeley, Lawrence Livermore, and Sandia National Laboratories;
3. **Growing innovation industries** in sectors including engineering, scientific research and development, biotechnology, pharmaceuticals, biofuels, and other clean energy activities, which provide higher than average wages and attract venture capital funding and other investments to the region;
4. **A central location** in the Bay Area and Northern California mega-region and **extensive physical infrastructure** providing connectivity for workers and goods within the region as well as to global markets – particularly Asia;
5. A wide variety of **communities providing diverse housing options**, open space and recreational opportunities for workers and residents at all income levels.

This report takes stock of the East Bay's economy and illustrates the essential role played by these core assets in the region's ability to support business growth and job creation. It also identifies areas where these assets are under threat and suggests what might be done to protect and strengthen them going forward. Below is a summary of this report's key findings.

WHAT IS DRIVING OUR ECONOMY

The East Bay's strategic advantages in the innovation economy include top-level research institutions contributing to private sector development of new processes and products. In addition to direct employment, these activities directly and indirectly support other economic activities, the diversity of which keeps the East Bay thriving and growing.

Professional, scientific and technical services (PSTS) industries are strong and growing

East Bay employment growth in the PSTS sector (which includes much of the region's engineering, life science, biotechnology, renewable energy and clean technology activities) has outpaced that in the Bay Area, state, and national economies over the last 15 years. The sector contains over 80,000 jobs, making the East Bay 53 percent more concentrated in these activities than the typical U.S. region.

Manufacturing – especially advanced manufacturing – still matters in the East Bay

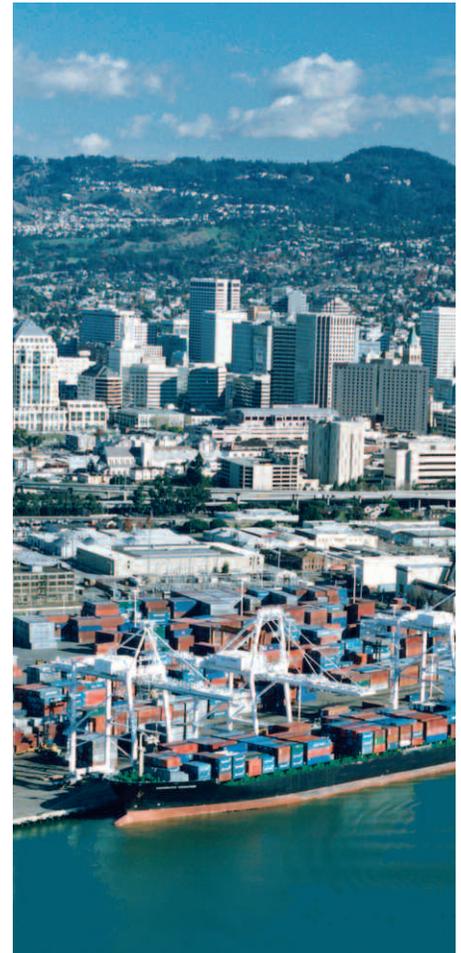
Despite declines in employment overall, manufacturing remains a source of high-wage jobs and continues to play a critical part in the East Bay economy. The East Bay has seen its concentration (share of total employment) in manufacturing jobs increase relative to the U.S., California, and the rest of the Bay Area since 1995. This is particularly true for specialized and advanced manufacturing activities that support the high-tech sectors.

Advanced manufacturing success is linked to strength in innovative PSTS industries

The region's success in certain advanced manufacturing and PSTS subsectors is not a coincidence; they are interrelated industries that provide a core of strength upon which the East Bay can build over time. The East Bay's strength in subsectors like biotechnology and pharmaceuticals is tightly connected to its strength in medical equipment manufacturing activities, for example.

12 industries help “drive” the East Bay economy

The East Bay has a larger share of its total employment in 12 interrelated sectors than does a typical U.S. region. These sectors also exhibit high levels of productivity and pay wages much higher than the regional average. These indicators are evidence that these sectors help drive the



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economy by bringing investment and wealth into the East Bay rather than re-circulating it within the region. These sectors include:

- Computer Systems Design and Related Services
- Scientific Research and Development Services (including biotechnology and clean energy)
- Architectural, Engineering, and Related Services
- Management, Scientific, and Technical Consulting Services
- Petroleum and Coal Products Manufacturing
- Semiconductor and Other Electronic Component Manufacturing
- Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
- Medical Equipment and Supplies Manufacturing
- Bakeries and Tortilla Manufacturing
- Pharmaceutical and Medicine Manufacturing
- Industrial Machinery Manufacturing
- Computer and Peripheral Equipment Manufacturing

The East Bay's innovation economy attracts substantial venture capital investments, particularly in the clean energy and biotechnology industries

In a 2010 national ranking of U.S. counties, Alameda County was in the top 10 in receipt of VC funds in 9 of the 14 industries tracked. It ranked second in three industries – just behind Santa Clara County in each case. In three of those industries – industrial (or clean) energy, semiconductors, and electronics instrumentation – East Bay firms received more than 11 percent of all such investments nationwide.

Construction is highly concentrated in the East Bay and likely to grow rapidly as the economy rebounds

Another significant driver of the East Bay economy is the construction sector. Unfortunately, the combined impacts of the collapse of the housing market and the Great Recession resulted in the East Bay losing 36 percent of its construction jobs – more than 25,000 jobs over the last four years. Even so, the share of East Bay employment in construction is 25 percent more than in the U.S. and 22 percent more than in the Bay Area.

Regional-serving industries employ half of the East Bay's workers

Half of the East Bay's jobs are in four, regional-serving industries: health care, retail, education and food services.

Health care and educational services are poised to grow in the region

Employment in health care and social assistance and educational services has been on an upward trajectory that is largely matched by trends in the U.S. and California economies, but is exceeding growth in the rest of the Bay Area.

BUSINESSES AND JOB CREATION IN THE EAST BAY

The Bay Area has a strong, dynamic entrepreneurial climate. It is one where potential funding sources exist in unusual numbers, technology transfer from government research organizations and universities happens at a high rate, and where there is an abundant source of business support services for new firms. The East Bay shares in and plays a vital role in this support structure for business formation and growth.

Business leaders are most concerned about state governance...

All of the East Bay business executives interviewed for this report (while not a representative sample) indicated that the state's business climate was far worse than that of their local community or the East Bay region. Among their concerns about the state business climate, regulatory issues, the impact of the state's fiscal crisis, and broken governance systems were most frequently cited.

...while citing local regulatory hurdles as a key factor in location and expansion decisions

Business leaders interviewed for this report commented that the permitting process in many East Bay cities is so lengthy that it adds to business costs and delays and can dissuade them from expanding in the region.

Companies moving in and out contribute little to employment

The vast majority of jobs are created by establishments that start and expand in the East Bay. Although companies moving in and out of the region tend to get more attention in the media, they contribute only 6.6 percent of the region's new jobs in an average year. This represents 7,600 jobs flowing in, or less than 0.7 percent of all jobs in the region, in an average year. Job losses due to companies leaving are even smaller: 5,400 jobs moving out each year represent less than 0.5 percent of all jobs.

Small and mid-sized companies employ the most people

As in most regions, most of the employment in the East Bay is created by small to mid-sized establishments with 3 to 100 employees. Very small firms of one to two employees comprise two-thirds of all businesses but create only 15 percent of the region's jobs. One-third of the East Bay's jobs are created by establishments that employ more than 100 people.





The East Bay is like most regions in its rate of new business formation and survival

California has an 11 percent rate of business starts in a given year (1995-2008); the East Bay and greater Bay Area regions have a startup rate of 10 percent. The ability of East Bay businesses to survive past their 5-year anniversary is also comparable to firms in the state. Slightly more than half (54 percent) of the East Bay's new business establishments survive more than 5 years, compared to California's survival rate of 53 percent.

Survival rates among the East Bay's key "drivers" is much higher

Among the East Bay's key innovation subsectors, survival rates are much higher – all but two have above-average survival rates.

Existing manufacturing establishments generate the largest number of new jobs through expansion and destroy the largest number of jobs through contraction

Professional, scientific, and technical services (PSTS) and the information sector have also been important contributors to expanding employment at existing establishments. Each year, both sectors contribute between 1,500 and 1,800 net new jobs to the region through expansions.

The East Bay is a net importer of jobs

The East Bay attracts more jobs from other regions through establishment movements than it loses. Santa Clara County is the largest trading partner with the East Bay. Alameda County is also Santa Clara's largest trading partner, and the only county to which Santa Clara sends more jobs than it receives. The same is not true of San Francisco, which is a sizable net exporter to multiple counties, including Alameda, Contra Costa, and Marin counties.

Companies started here tend to employ locally...

Businesses that start in the East Bay – and have neither moved out of the East Bay nor been bought by some company headquartered elsewhere – employ the vast majority of their workers locally.

...but Alameda County is second only to S.F. in not capturing its own expansions

After 10 years in operation, Alameda County companies employ 81.4 percent of their workforce in Alameda County. Relative to other counties in the state, this is a low percentage but on par with other centers of innovation like Santa Clara and San Francisco.

THE EAST BAY WORKFORCE

The East Bay's highly skilled workforce is its most significant asset. It is one of the region's major competitive advantages in attracting new investments and business expansion in the region. It is essential to the success of employers and job seekers alike. The region's ability to increase the supply of skilled workers and help match workers and employers more easily is critical to its future prosperity.

The East Bay workforce is well educated...

The existing East Bay workforce has above-average levels of education and income and below-average poverty levels.

...and the East Bay labor market is a robust part of the Bay Area labor market

The East Bay's commute patterns are better than other Bay Area subregions because a larger share of residents (43 percent) both live and work in the East Bay. Nevertheless, the East Bay's labor market is deeply connected with that of the larger Bay Area, with workers migrating in (26 percent) and out (31 percent) of the region every day. As a result, East Bay residents have a broad variety of job markets from which to choose.

Baby boom retirements will create job openings in every occupation...

Seven out of every 10 job openings in the East Bay over the next 10 years will be due to the need to replace an existing worker.

...but the incoming workforce is not necessarily qualified to fill them

The baby boom generation that is gradually leaving the workforce has the highest educational attainment of any American generation. The upcoming generations must surpass the educational attainment rate of the boomers or they will not be able to fill the jobs of those who are retiring from the labor force.

Hispanic populations are growing but seeing low rates of educational attainment

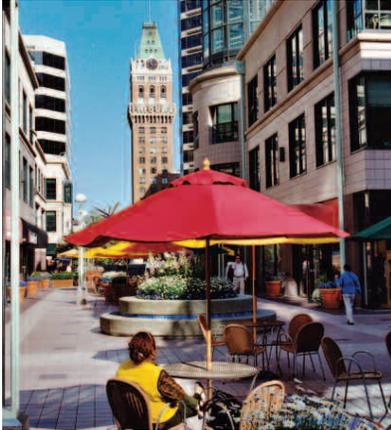
Like the state, the East Bay is seeing demographic shifts toward groups that have historically low rates of college attendance and graduation. In particular, the percentage of the population of Hispanic origin jumped from 19 percent to 24 percent in the East Bay over the last decade while levels of educational attainment among Hispanics are significantly lower than other groups. Nearly two-thirds (60 percent) of the East Bay's Hispanic workforce has no schooling beyond high school.

High school completion rates are declining...

Graduation rates in Alameda County fell from 89 percent to 81 percent between 2003 and 2010. Contra Costa County, typically with very high rates of completion, fell from 92 percent to 85 percent in the same period.



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...and far too few high school graduates are ready for college

Of those who do graduate high school in Alameda County, less than 53% meet the UC/CSU requirements. In Contra Costa County, less than 55% do, compared to less than 35% statewide.

...at the same time skills requirements are increasing

Even in times of high unemployment, employers report having difficulty finding qualified workers for jobs requiring high levels of technical education and experience. Today, most existing jobs require higher technical skill levels for workers than they did 20 years ago.

There will be skills shortages and mismatches in the East Bay

Middle-skill jobs – those that require less than a four-year degree, but more than a high school diploma – are the biggest share of California jobs, accounting for 47 percent of all jobs in 2009 according to the National Skills Coalition. At the same time, it is estimated that only 38 percent of the workforce possess the relevant skills for these occupations. These trends are similar in the East Bay.

Jobs requiring science, technology, engineering and math skills – the so-called STEM jobs – are growing much faster than other jobs. But three-quarters of STEM job openings through 2016 will require postsecondary education and half of them will require bachelor's degrees.

Partnerships are needed to address challenges and preserve funding

A multi-pronged effort is needed to address our workforce challenges: linked learning; career advancement academies; a focus STEM; and a more active role for business to inform the workforce training agenda and curricula.

THE BUILT ENVIRONMENT

Though the East Bay economy is generally thought of as a single entity, its seven sub-areas play distinct roles within the region. Each sub-area's regional accessibility influences the mix of businesses likely to be located there and how these contribute to employment density and regional economic activity and output.

Job growth is mostly happening in existing employment centers

The employment patterns that existed in 1995 were generally maintained in 2008, with existing nodes expanding or intensifying.

Infrastructure investments play a key role in the East Bay's development patterns

The East Bay region has been heavily oriented toward goods movement thanks to early investments in railroads and shoreline infrastructure, including the Port of Oakland. The Inner East Bay (along the shore) became a preferred location for manufacturing uses. Highway construction and suburbanization opened up the Outer East Bay (inland) to rapid development, leading to the more dispersed pattern that exists today.

Older commercial infrastructure – built before 1980 – is concentrated in Northern Alameda County

Nearly three-quarters of the older industrial space built before 1960 is located in Northern Alameda, Central Alameda, and West Contra Costa. As the economy changed from its traditional base of labor-intensive manufacturing and goods-movement industries to more high-technology industries and services, there has been a corresponding increase in the amount of office and R&D/flex space built to accommodate those types of businesses.

New commercial development – built since 1980 – has occurred in Southern Alameda County and the Tri-Valley

Newer manufacturing space has been predominantly built in greenfield locations. Nearly all of the R&D/flex space constructed since 1980 in the East Bay is in Southern Alameda County or the Tri-Valley.

The office market is heavily concentrated in selected nodes

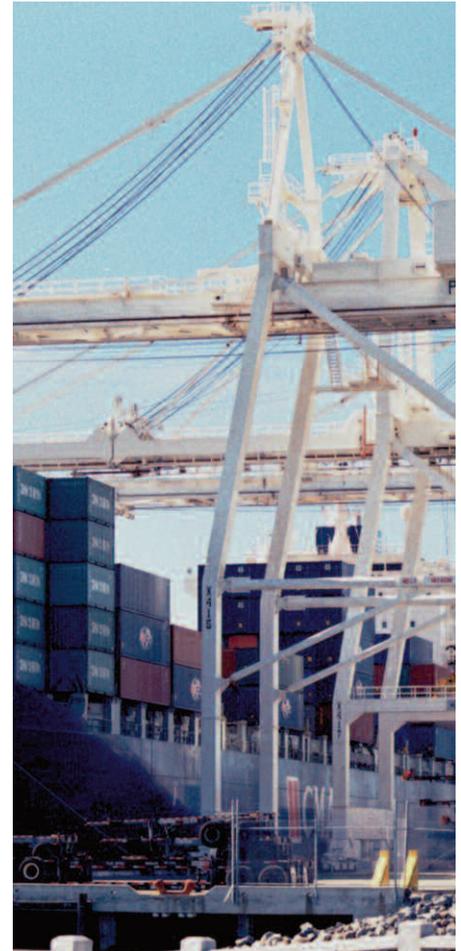
Office uses are heavily concentrated in Northern Alameda County due to the Oakland central business district's historic role as an employment center. Other important office nodes exist in the Tri-Valley (Pleasanton, Dublin, San Ramon) and Central Contra Costa County (Walnut Creek, Concord, and Pleasant Hill). In the last 50 years, enormous quantities of office space have been developed in the Outer East Bay due to suburbanization and better access via freeways.

Transit plays an important role in serving the region's employment centers

More than one-quarter of the East Bay region's jobs are currently located near high-capacity transit – mostly in Downtown Oakland where three BART station areas service half of the region's employees.

The dispersed nature of recent job growth poses a challenge for transit service

While the region's total employment had a healthy increase from 1995 to 2009, job growth within a half-mile radius of BART stations and within a quarter-mile of Rapid Bus corridors has remained virtually flat. The share of the region's jobs located near transit has actually declined from 34 percent in 1995 to 29 percent in 2009.





The private sector can be an important partner in providing better transportation options for workers

Private or closely coordinated shuttle services connect significant numbers of East Bay workers to jobs beyond the rail and rapid bus stations.

Areas with older infrastructure have seen persistent declines in employment

There are a number of areas that have consistently lost jobs over the last 15 years. The majority of these areas are the older wholesale trade and manufacturing districts along rail/I-880 corridors in West Contra Costa County, Northern Alameda County, and Central Alameda County. Market conditions challenge the cost-effectiveness of adapting most of these facilities for re-use.

Opportunities exist to better coordinate local and regional planning efforts

Many East Bay industrial areas west of I-80/I-880 that have seen persistent employment declines have not been designated as Priority Development Areas, even though they are important infill places that could be revitalized with careful planning. Bringing these places to the attention of local and regional policymakers and planners is the first step for recognizing that the reinvigoration of these districts can play an important role in a regional economic development strategy.

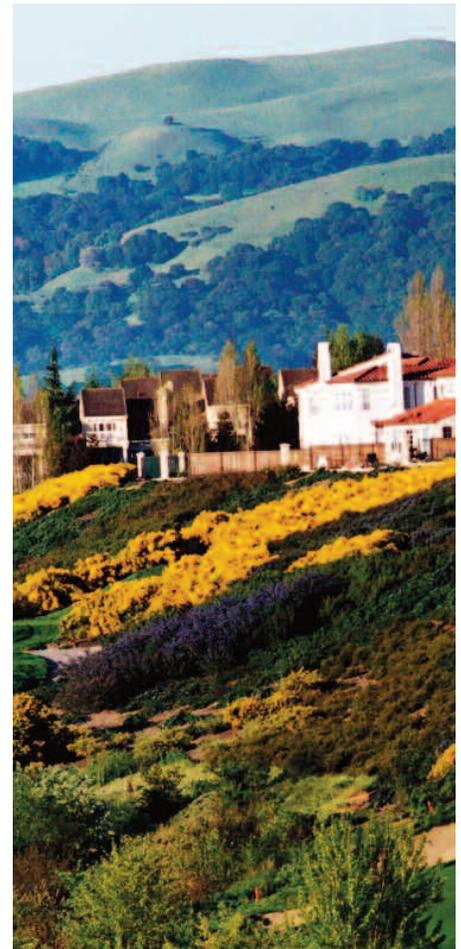
MEETING THE CHALLENGES AHEAD

The strength of the East Bay economy is rooted in its diversity and integration with the broader Bay Area. The employment of highly educated employees in rapidly innovating industries drives economic vitality and supports jobs in other important regional sectors. Well-developed infrastructure supports the movement of goods and workers throughout the region. These fundamental assets enable the region to continue to attract and retain a diverse mix of businesses and specialized activities.

Ensuring that the East Bay economy continues to evolve and remains competitive in the context of dynamic national and global trends demands continued attention to workforce, transportation, and land use planning and policies which allow the development of a healthy business climate. Building a better economic future includes strengthening our core economic assets, such that we

- Focus on ensuring that companies – especially small and medium-sized ones – start, survive and thrive here.

- Work to address regional and statewide regulatory and governance issues.
- Fight for continued federal and private support for the national research laboratories and related R&D activities in the East Bay.
- Celebrate manufacturing and prepare the advanced manufacturing workforce of tomorrow.
- Make education and ongoing workforce development the region's top economic priority.
- Fully fund public education.
- Expand the population's access to good schools and innovative learning programs.
- Support and bring to scale models like Linked Learning and Career Advancement Academies which enable project-based, school-based enterprise and work-based learning.
- Expand and enhance business involvement with educational institutions at every level but especially with East Bay high schools and community colleges.
- Preserve public dollars for worker retraining.
- Close the remediation gap.
- Maintain and upgrade the region's transportation infrastructure.
- Assist older industrial areas in adapting to newer, more productive uses.
- Create a viable plan for urban renewal that residents can support and the market will deliver by facilitating local processes that will allow for competing interests in neighborhoods where older facilities need to be rehabilitated.
- Draw attention to and improve the performance of these older industrial areas by incorporating them and their needs into the region's Sustainable Communities Strategy (SCS).
- Create better transit connections to existing urban and suburban employment centers.
- Encourage job growth near existing transit while still planning appropriately for commercial uses that may not locate easily near housing or in a mixed-use environment.
- Focus on the needs of businesses – both present and future – in preparing regional plans for adapting to climate change.



The East Bay has an excellent track record of collaboration. To successfully meet our challenges and emerge stronger from the current economic downturn, the region will need to engage leaders from every sector: business, education, government, labor and the community. This report seeks to inform and strengthen that collaboration.



The East Bay has a highly diversified economy, more closely resembling the pattern of economic activity nationwide than in other regions in California. At the same time, it has strength in some of the most desirable sectors that are forecast to grow high-paying jobs in the future. These sectors include broad categories, such as professional and scientific services, and narrow categories, such as semiconductor manufacturing. Overall, it is an economy with tremendous potential.

THE GREAT RECESSION'S HEAVY TOLL ON EAST BAY JOBS

It is also an economy that is struggling to overcome the traumatic effects of the recent recession. Over the last four years, the East Bay economy has lost one out of every ten jobs. The region's largest job losses have been in the construction industry, which has seen employment fall by nearly 40 percent. The East Bay also experienced large absolute job losses in government, manufacturing, retail, and financial activities. Nearly one out of every four jobs in finance and real estate services was lost – in part due to the enormous housing bubble that grew and popped over the first decade of the millennium.

The reasons for these losses (and gains) are varied – some will be discussed in this report. Sectors like construction and financial and real estate activities were directly impacted by the housing crisis. Government suffered employment losses due to declining tax receipts as both incomes and property values have declined. Other sectors, like retail trade, have experienced drops in employment because of the overall contraction of the economy and the collapse of consumer demand.

On the whole, East Bay employment trends have mirrored those at the state level. One big difference in 2010 was the loss of 5,100 jobs in transportation manufacturing in the East Bay as the NUMMI plant in Fremont closed.

As attention turns to the possibility of another recessionary period, this report seeks to differentiate economic trends in the East Bay from the larger statewide and U.S. economic trends. Focusing on the East Bay allows us to reflect on the region's core strengths – as well as its challenges – as we seek to adapt to the past and prepare for the future.

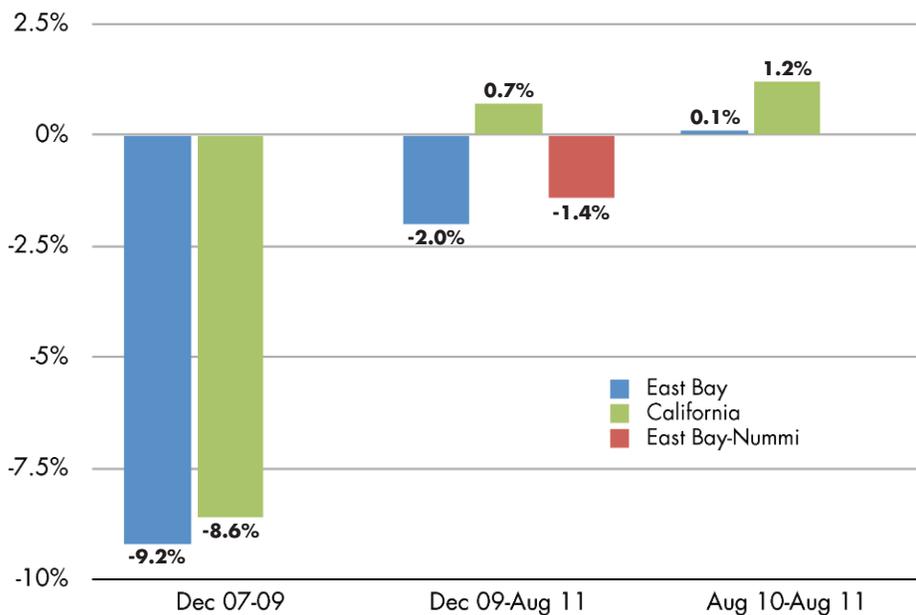
Although the recession was deep in the East Bay and recovery is currently limited, the region is poised to get back to basics in the coming years. A renewed focus on the strengths in the East Bay, its people, its central location in a large and prosperous market, its infrastructure, and its innovative capacity, has the potential to return the economy to prosperity.

Table 2-1: East Bay Job Losses and Gains, 2007-2011

Sector	2000 Employment	2007 Employment	2011 Employment	Change in Total Employment 2007-11	Total Employment Change 2007-11 as a percentage of 2007	Compound Annual Growth Rate (Decline) (2007-11)	Projected Average Annual Growth Rate, 2008-18
Construction	69,100	74,500	47,400	-27,100	-36%	-11%	1.6%
Government	170,900	180,100	158,100	-22,000	-12%	-3%	0.7%
Manufacturing	117,200	94,100	78,700	-15,400	-16%	-4%	-0.9%
Retail Trade	112,100	112,800	97,900	-14,900	-13%	-3%	0.4%
Financial Activities	47,100	58,200	45,100	-13,100	-23%	-6%	0.7%
Administrative & Support & Waste Services	71,100	58,700	46,200	-12,500	-21%	-6%	1.6%
Information	39,400	28,800	22,900	-5,900	-20%	-6%	0.4%
Transportation, Warehousing & Utilities	42,300	37,300	32,200	-5,100	-14%	-4%	0.7%
Wholesale Trade	54,800	48,700	45,000	-3,700	-8%	-2%	0.4%
Management of Companies & Enterprises	68,100	23,600	20,800	-2,800	-12%	-3%	0.5%
Food Services & Drinking Places	54,800	66,700	65,000	-1,700	-3%	-1%	0.7%
Other Services	32,700	36,800	35,800	-1,000	-3%	-1%	1.2%
Accommodation	7,400	7,700	6,800	-900	-12%	-3%	0.7%
Agriculture (Farm)	3,100	1,600	1,500	-100	-6%	-2%	-0.5%
Arts, Entertainment & Recreation	14,600	16,100	16,000	-100	-1%	-0%	1.4%
Mining and Logging	2,400	1,200	1,200	0	0%	0%	-1.0%
Educational Services	13,800	17,800	19,100	1,300	7%	2%	2.4%
Professional, Scientific & Technical Services	68,100	75,200	82,600	7,400	10%	2%	3.0%
Health Care & Social Assistance	98,900	108,600	122,400	13,800	13%	3%	2.4%
TOTAL, ALL INDUSTRIES	1,087,900	1,048,500	944,700	-103,800	-10%	-3%	

Source: California Employment Development Department

Figure 2-1: East Bay Job Losses and Gains, August 2007-August 2011



Source: California Employment Development Department



THE REGIONAL ECONOMY AT A GLANCE

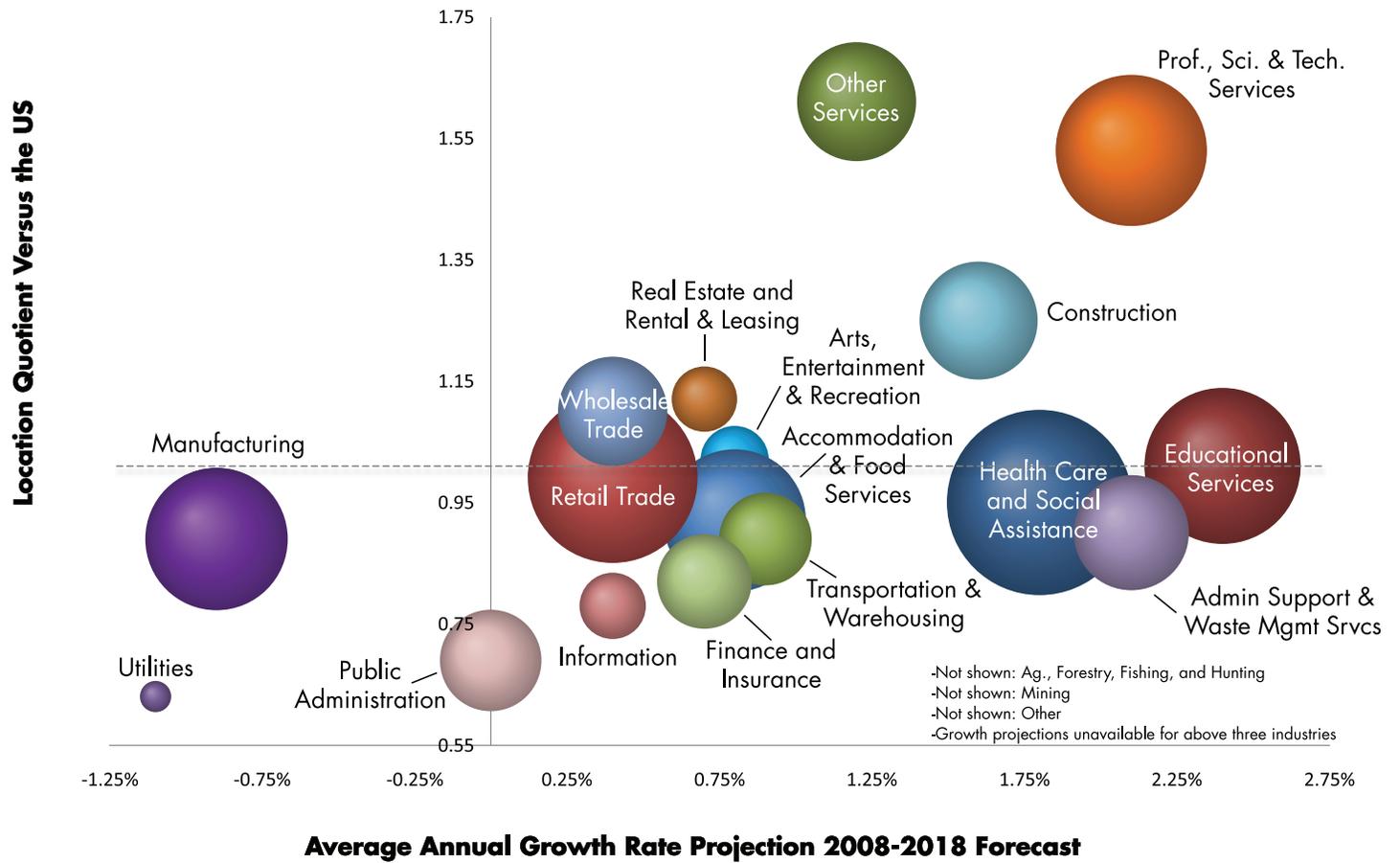
The East Bay economy is broad-based and diversified. It has high shares of employment in sectors like health care, retail, and education services. This is similar to most U.S. regions and is reflected in the fact that the ratio between the East Bay's share of employment in these sectors is equivalent to the typical U.S. region's share (resulting in a location quotient close to 1). In other sectors, such as professional, scientific and technical Services, the East Bay is much more concentrated than the typical U.S. region. A location quotient of 1.53 indicates that the East Bay is 53 percent more concentrated in this activity than a typical U.S. region. This sector is also forecast to grow quickly over the next seven years. For this reason, this sector is of particular importance to the East Bay and is a driver of the regional economy.

The size of each bubble in Figure 2-2 corresponds to the share of total regional employment in that sector in the East Bay (the larger the bubble, the greater the share of employment). The Location Quotient (LQ) measures the relative concentration of employment in that industry in the East Bay compared to the U.S. as a whole. The higher the LQ, the more concentrated is the employment in the East Bay. The Average Annual Growth Rates in employment are projected for the long term by the Bureau of Labor Statistics.

Figure 2-2 shows East Bay industries relative to one another, particularly with regard to their future growth prospects. Growth in the figure reflects the long-term prospects for the industry and does not incorporate recovery from the recent recession. Some sectors may see relatively fast growth in the next several years as they recover from the recession. For example, construction employment may grow at a high rate in the next several years. This growth is from a very low base and will not be a reflection of its long-term potential. Another example is manufacturing, a sector in which employment has grown by 2.6 percent in the last five months. This almost certainly represents an adjustment to the excess job losses during the recession rather than a renaissance of manufacturing employment in the region.

In general, the East Bay economy contains a healthy mix of driving and regional-serving industries that bode well for its long-term economic recovery and performance.

Figure 2-2: Size, Concentration, and Projected Growth of Major Industries in the East Bay in 2010



Source: QCEW and Bureau of Labor Statistics. Calculations by Haveman Economic Consulting.

3 WHAT IS DRIVING OUR ECONOMY?



The East Bay is the only region to be home to three national research laboratories: Lawrence Berkeley, Lawrence Livermore, and Sandia.

THE EAST BAY ECONOMY IS DRIVEN BY INNOVATION

In today's global economy, "innovation" has become a synonym for economic competitiveness. Those firms and regions that are first to bring a new technology or product to market frequently enjoy a competitive edge over their competition for a time. In an era of increasing technological sophistication, that edge is harder and harder to come by.

The East Bay possesses a number of strategic advantages over other regions in this regard. It is home to the University of California, Berkeley – the country's top-ranked graduate research institution in the country according to the National Research Council. It is also home to three national research laboratories – more than any other region: Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, and Sandia National Laboratory.

In addition to directly employing over 30,000 workers, these research and development (R&D) institutions have had a role in supporting many of the region's professional, scientific, technical and information service (PSTS) and advanced manufacturing businesses. These industries include a wide range of activities such as engineering, scientific research and development, biotechnology, pharmaceuticals, biofuels, and other clean energy activities.

The East Bay's strengths in innovation are also evident in the level of patents, technology licenses, and venture capital investments that the region receives. The East Bay ranks second only to Silicon Valley in terms of the venture capital invested in three key sectors: industrial (clean) energy, semiconductors, and electronic instrumentation. It is also a leading recipient in computer technology, consumer and business products, and biotechnology investments.

The strengths of the innovation-based industries of the East Bay economy are explored in more detail below, presented with the following metrics:

- Current employment, share of regional employment, and historical growth in industry employment;
- Industry growth forecasts based on official estimates from the Bureau of Labor Statistics;

¹ The Wage Index is average wages in the industry divided by average wages paid in the region. Regional average wages are estimated to be \$48,767. A value of 1.5 indicates that wages in the industry are on average 50% higher than in the region as a whole. A value 1.0 indicates parity.

- Current and historical location quotient, which represents the industry’s concentration in the regional economy relative to the broader national economy;
- Productivity index, which is measured by the ratio of industry revenues to industry employment; and
- Wage index, which compares the average wage in the industry relative to the East Bay’s overall average wage.¹

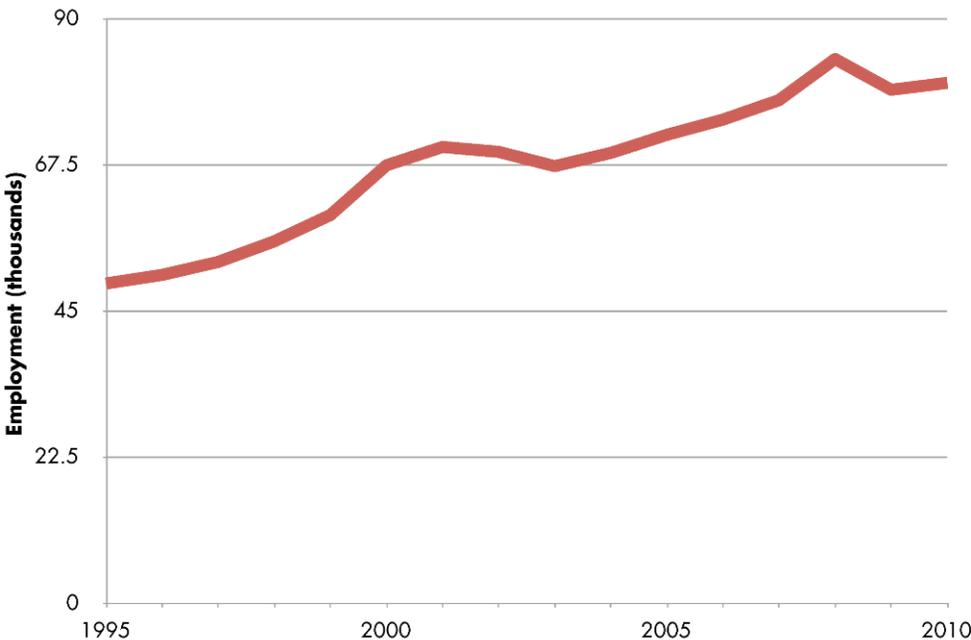
Professional and business services can thrive throughout much of the East Bay, but competition for top-level specialized talent is fierce. High-technology companies thrive on access to the Bay Area’s best-educated communities.

– East Bay business leader, 2011

Professional, scientific and technical services (PSTS) industries are strong and growing

Employment in the PSTS sector has grown in absolute terms and in terms of concentration in the region as measured by location quotient. East Bay job growth in PSTS has outpaced growth in the Bay Area, state, and national economies over the last 15 years. The sector currently includes over 80,000 jobs. These industries are heavily concentrated in the East Bay compared to the nation, with a location quotient of 1.53.

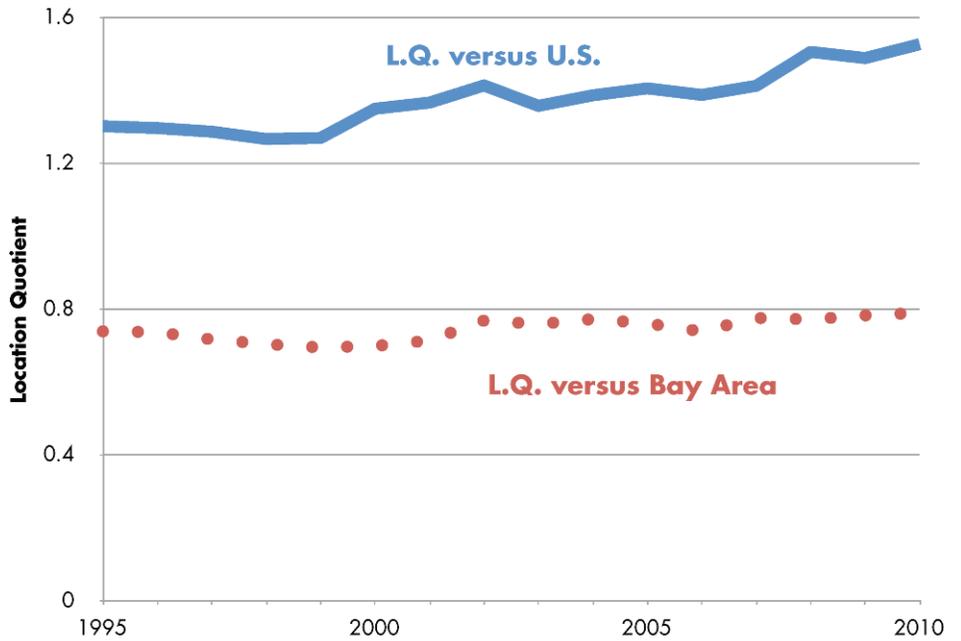
Figure 3-1: PSTS Employment Trends



Source: QCEW, Calculations by Haveman Economic Consulting

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Figure 3-2: PSTS Concentration Trends



Source: QCEW, Calculations by Haveman Economic Consulting

Table 3-1: Summary of Professional, Scientific & Technical Services Sector in the East Bay

Jobs	Share of East Bay Employment	LQ, East Bay versus the US	Average Annual Growth Rate, 1995-2007	Projected Avg Annual Growth Rate, 2008-2018	Wage Index
80,239	9.3%	1.53	3.8%	3.0%	1.90

Source: QCEW, Bureau of Labor Statistics, and 2007 Economic Census. Calculations by Haveman Economic Consulting

PSTS is almost certain to be a significant driver of growth and prosperity going forward. It shows tremendous promise, with a forecasted annual growth rate of 3.0 percent in the next decade. This sector demands high-skilled labor and offers wages that are generally 90 percent higher than average wages in the East Bay. Included in PSTS are the three national research laboratories: Lawrence Berkeley, Lawrence Livermore, and Sandia labs. Together they employ over 12,000 workers. Beyond direct employment, these institutions host thousands of guest researchers and visitors from throughout the world, produce thousands of patents and licenses, have contributed to hundreds of startup firms, and generate billions of dollars in direct and indirect economic impacts in the East Bay.

About three-quarters of East Bay employment in PSTS industries is in computer systems; scientific research and development; architecture and

engineering; and management, scientific, and technical consulting. Research and development services are particularly concentrated in the East Bay. This subsector, tied to life sciences, biotechnology, engineering, and clean technologies, is nearly four times more concentrated in the East Bay than in the overall U.S. economy. Wages in many of these subsectors are twice or more the regional average.

Table 3-2: Breakdown of PSTS Subsectors in the East Bay

PSTS Sectors	Employment	% of Sector	LQ, East Bay vs the US	LQ, East Bay vs Bay Area	Wage Index
Computer Systems Design and Related Services	18,688	23%	1.85	0.59	1.18
Scientific Research and Development Services	16,085	20%	3.61	1.02	2.20
Architectural, Engineering, and Related Services	14,983	19%	1.61	1.12	1.80
Management, Scientific, and Technical Consulting Services	11,774	15%	1.67	0.90	2.34
Legal Services	6,566	8%	0.85	0.64	2.62
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	4,710	6%	0.76	0.58	2.69
Other Professional, Scientific, and Technical Services	4,016	5%	0.99	1.01	2.42
Advertising, Public Relations, and Related Services	2,366	3%	0.84	0.61	5.68
Specialized Design Services	1,051	1%	1.34	0.68	10.71
TOTAL EMPLOYMENT	80,239				

Source: QCEW, Calculations by Haveman Economic Consulting

The impact of the large investment in research being conducted in the East Bay as represented by PSTS employment is considerable. In 2007, it was local research and expertise in synthetic biology that attracted a combined \$635 million from public and private sources to establish two ground-breaking biofuels R&D institutions – the Energy Biosciences Institute and the Joint BioEnergy Institute. These investments immediately made the East Bay the nation’s center for biofuels research and development.

The East Bay – home to Joint BioEnergy Institute and the Energy Biosciences Institute – is the nation’s center for biofuels R&D.

In 2011, local researchers played a large role in attracting another Department of Energy research institute, the Joint Center for Artificial Photosynthesis, to create transportation fuel out of water, carbon dioxide and sunlight, using local expertise in DNA, nano particles and semiconductor thin-film technology. Batteries, fuel cells, flywheel energy storage and a host of other technologies are currently under development using private sector partnerships and business models to ensure that the results of this applied, multidisciplinary research are market ready in the shortest possible time.

Research is not confined to the public sector. The East Bay has the nation’s longest history of private sector biotechnology research having birthed the world’s first biotechnology company, Cetus, in 1971. Since

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that time the symbiotic relationship between the East Bay’s public and private sector research has flourished with one of the best recent examples being Amyris – a company using synthetic biology techniques developed at UC Berkeley and Lawrence Berkeley National Laboratory to create biofuels, cosmetics and industrial enzymes.

As a result of these investments over time, the East Bay is now the nation’s fifth largest biotechnology cluster

Information

The information sector is highly concentrated in the East Bay relative to the nation. This sector is not a large employer, but it is deeply connected with other industries in PSTS that drive the East Bay economy such as biotechnology, industrial energy, engineering, and others that continue to generate new software applications.

Table 3-3: Summary of the Information Sector

Jobs	Share of East Bay Employment	LQ, East Bay versus the US	Average Annual Growth Rate, 1995-2007	Projected Avg Annual Growth Rate, 2008-2018	Wage Index
15,503	1.8%	0.78	-1.1%	0.4%	1.10

Source: QCEW, Bureau of Labor Statistics, and 2007 Economic Census. Calculations by Haveman Economic Consulting

Companies like Oracle (through their acquisition of PeopleSoft), WorkDay, Taleo, and Sybase (recently acquired by SAP) are located in the Tri-Valley region which is now home to a significant software cluster. Other subsectors of the information industry, such as motion picture and video industries, are 40 percent more concentrated in the East Bay than in the U.S. and even the Bay Area. Major employers like Pixar and media companies like Pandora and Skytide contribute to and benefit from the crossover between the technical, creative, and artistic strengths of the East Bay.

Table 3-4: Information Subsectors

Information Sectors	Employment	% of Sector	LQ, East Bay vs the US	LQ, East Bay vs Bay Area	Wage Index
Motion Picture and Video Industries	3,405	22%	1.4	1.3	1.19
Software Publishers	3,125	20%	1.7	0.4	1.95
Other Telecommunications	2,224	14%	2.7	1.2	0.42
Newspaper, Periodical, Book, and Directory Publishing	2,176	14%	0.6	0.7	0.75
Wired Telecommunications Carriers	1,814	12%	0.4	0.8	1.39
Other Information Services	1,655	11%	0.9	0.2	0.86
Data Processing, Hosting, and Related Services	946	6%	0.6	0.4	1.17
Sound Recording Industries	158	1%	1.4	1.6	0.89
TOTAL EMPLOYMENT	15,503				

Source: QCEW, Calculations by Haveman Economic Consulting

Manufacturing still matters in the East Bay

Declining employment in the manufacturing sector has captured the attention of policy leaders at the national, state and regional level. At its height 50 years ago, the manufacturing industry served as the premier entry point to prosperity for millions of families, employing workers that did not have a college degree. The sector has undergone major structural changes in a relatively short period of time. In 1961, manufacturing accounted for 27.7 percent of the East Bay’s non-farm jobs. Today, manufacturing creates 8.9 percent of employment – or nearly 71,000 jobs – in the East Bay. More than half of these jobs are in advanced manufacturing activities that are closely linked to the region’s strengths in PSTS.

The major reason for the decline in manufacturing jobs in the U.S. has been the remarkable gains in productivity that factories have achieved. This means they can produce more while reducing costs – including reducing their labor costs. Increased international competition is another reason for the drop in manufacturing jobs today, but it is not the principal factor. Since the 1970s, the country’s manufacturing output has surged even as job levels have plummeted. This dynamic of increased productivity along with falling job levels is not expected to change in the future.

While increased international competition (particularly in sectors where labor costs are a key cost component) and increasing productivity have conspired to greatly reduce manufacturing employment in the East Bay, professional, scientific, technical and information services are expected to be the fastest growing and the largest source of high-wage job growth in the nation and state, continuing recent trends.² The chart below for the East Bay compares the shifting fortunes of PSTS and manufacturing jobs during the past 15 years.

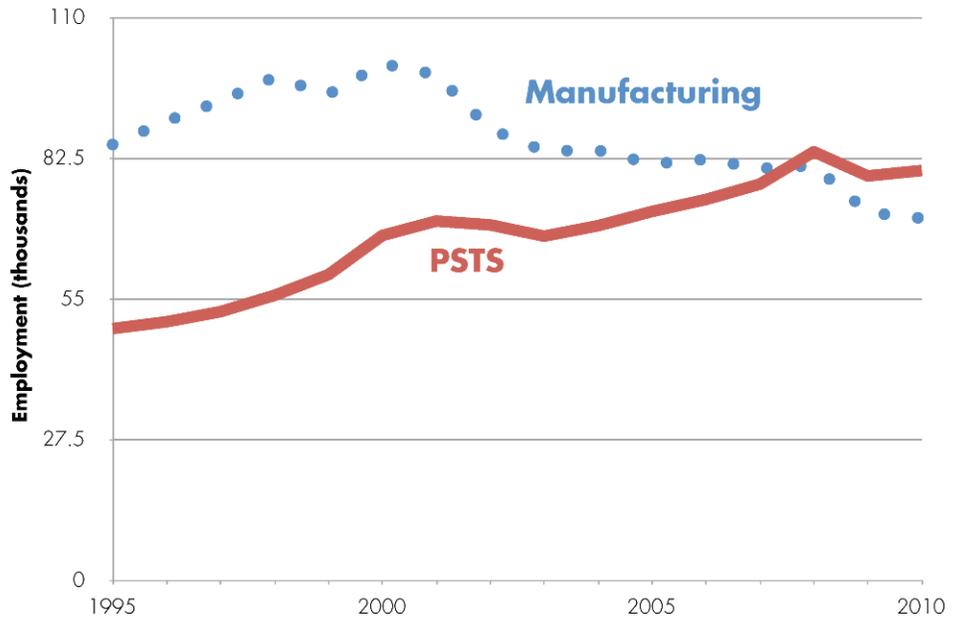
² The California Employment Development Department (EDD) projects that East Bay manufacturing jobs will decline from 93,100 in 2008 to 79,800 in 2018. The 79,800 projection would be a slight increase from the 77,000 manufacturing jobs in the East Bay in December 2010.

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Don't give up on manufacturing! We are on the edge of seeing it leave, but allowing it to leave will not allow us to lead. The Bay Area's high-tech industries are specialized and low volume; they need the region's "tribal knowledge."

– East Bay high-technology manufacturing business leader, 2011

Figure 3-3: Trends in Employment in Manufacturing and PSTS Industries



Source: QCEW, Calculations by Haveman Economic Consulting.

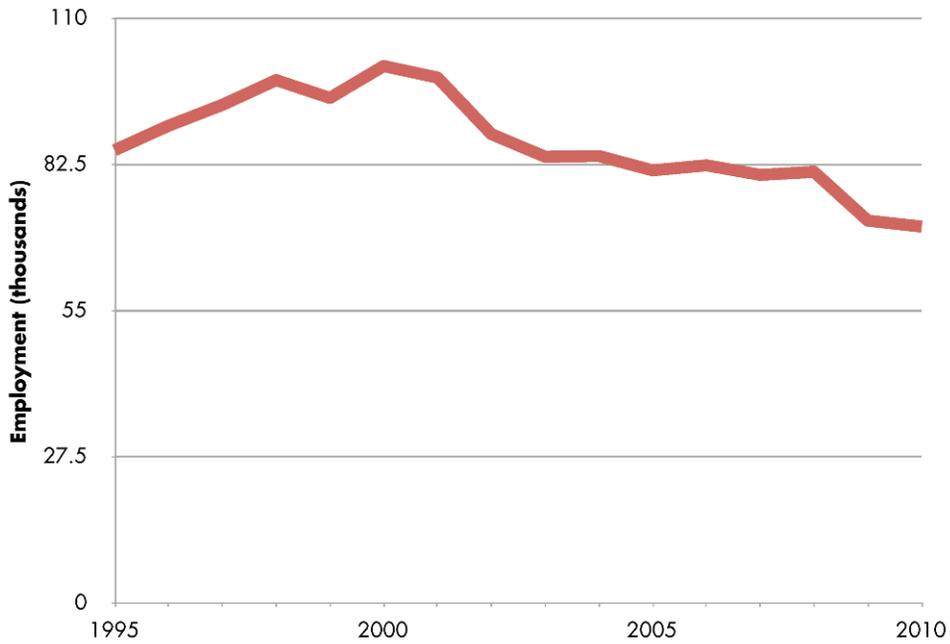
Despite declines in employment overall, manufacturing remains a source of high-wage jobs and continues to play a critical part in the East Bay economy. Advanced manufacturing, in particular, is now a larger share of the East Bay's total employment than it was. Since 1995, specialized manufacturing activities that support the high-technology sectors in the greater Bay Area region have gained strength in the East Bay.

Table 3-5: Summary of Manufacturing Industry in the East Bay

Jobs	Share of East Bay Employment	LQ, East Bay versus the US	Average Annual Growth Rate, 1995-2007	Projected Avg Annual Growth Rate, 2008-2018	Wage Index
70,913	8.2%	0.89	-0.5%	-0.9%	0.83

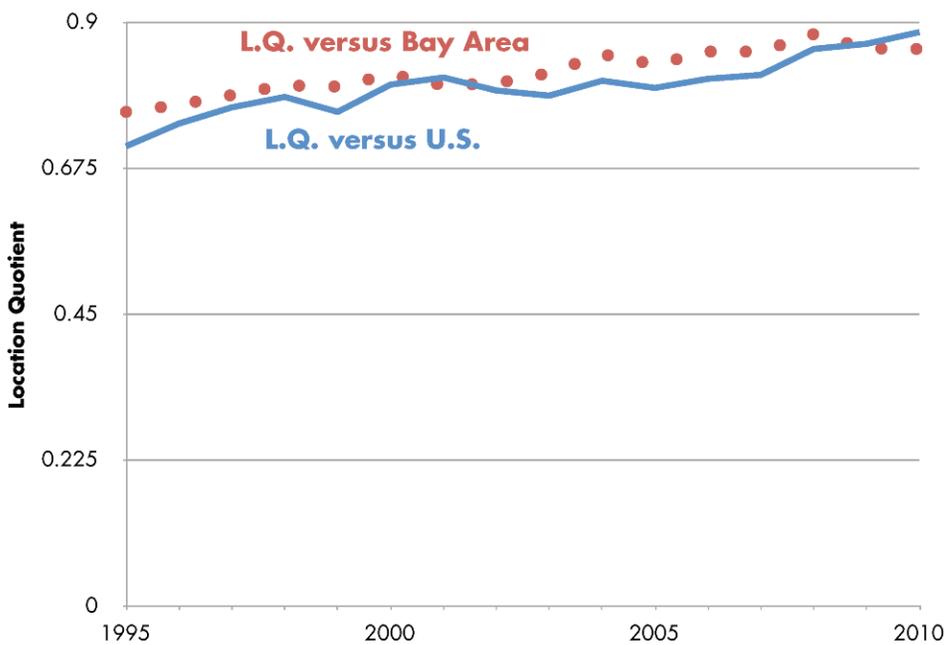
Source: QCEW, Calculations by Haveman Economic Consulting.

Figure 3-4: Manufacturing Employment Trends

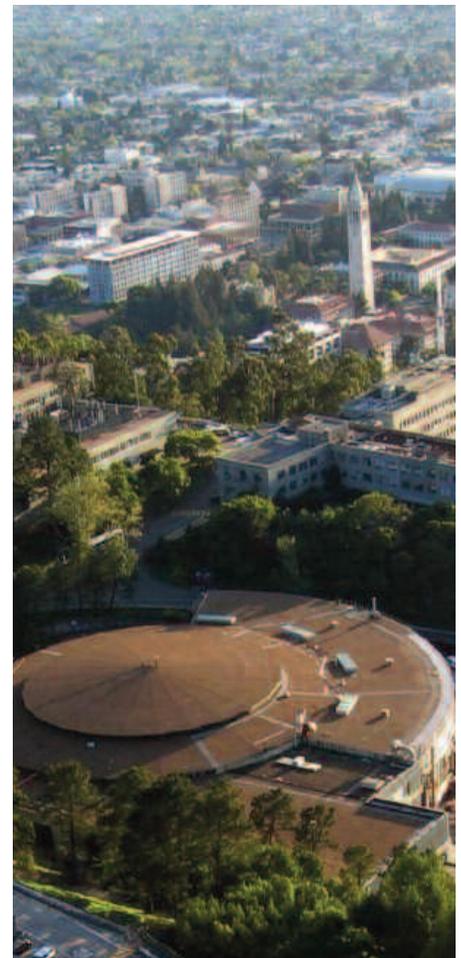


Source: QCEW, Calculations by Haveman Economic Consulting.

Figure 3-5: Manufacturing Concentration Trends



Source: QCEW, Calculations by Haveman Economic Consulting.



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The East Bay has had the good fortune of seeing growth in more capital-intensive, highly productive manufacturing sectors such as semiconductor and other electronic component manufacturing. These are particularly concentrated in Southern Alameda County, near Silicon Valley.

Petroleum-related manufacturing is also very heavily concentrated in the East Bay, with ten times more employment than a typical U.S. region and three times more than the overall Bay Area. Manufacturing subsectors with significant employment that exhibit high concentration in the East Bay compared to the nation are listed in the following table.

Table 3-6: Manufacturing Sub-Sectors Concentrated in the East Bay

Industry	East Bay Share	Location Quotient	Sub-Regions	Wage Index
Petroleum and Coal Products Manufacturing	0.9%	10.15	Central Contra Costa, Tri-Valley	1.52
Semiconductor and Other Electronic Component Manufacturing	0.8%	2.78	Southern Alameda	1.08
Navigational, Measuring, Electromedical, and Control Instrument Manufacturing	0.5%	1.75	West Contra Costa	1.18
Medical Equipment and Supplies Manufacturing	0.5%	2.07	Tri-Valley	1.02
Bakeries and Tortilla Manufacturing	0.5%	2.13	Central Alameda, Western Contra Costa	0.54
Pharmaceutical and Medicine Manufacturing	0.3%	1.58	Southern Alameda	1.41
Industrial Machinery Manufacturing	0.3%	4.04	Southern Alameda	1.41
Computer and Peripheral Equipment Manufacturing	0.3%	2.48	Southern Alameda	1.18

Source: QCEW, Calculations by Haveman Economic Consulting

These sectors have shown signs of expanding employment and account for nearly one-half of all manufacturing employment in the East Bay. Most of these sectors produce predominantly high value added, advanced, technical products that lead the world in sophistication. Many of the advanced manufacturing industries listed above pay wages that are considerably higher than average in large part due to their increasing productivity. Consequently they also demand a higher-skilled workforce than traditional production activities like food manufacturing.

The success of advanced manufacturing activities is linked to the East Bay's strength in innovative PSTS industries.

That there is growth in these manufacturing sub-sectors and PSTS is not a coincidence; they are interrelated industries that provide a core of strength upon which the East Bay can build over time. The East Bay's strength in subsectors like biotechnology and pharmaceuticals is tightly connected to its strength in medical equipment manufacturing activities, for example.

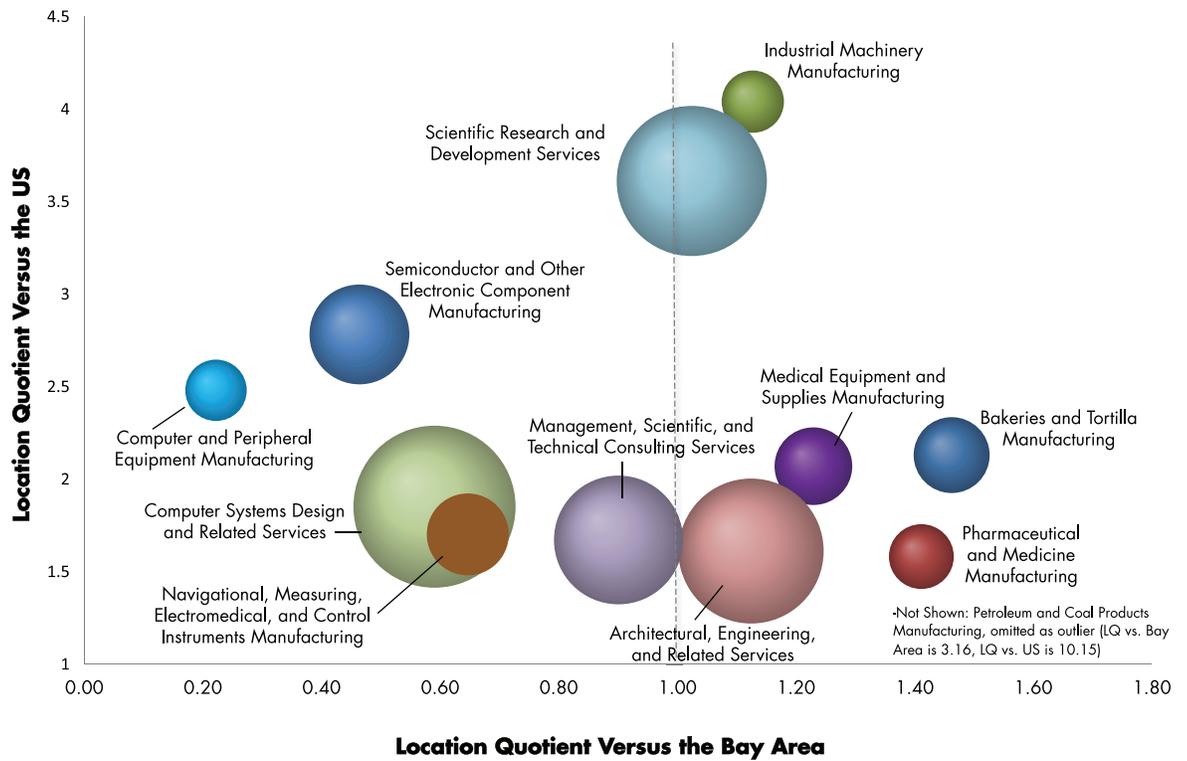
Table 3-7: East Bay's Key Innovation Sub-Sectors

East Bay Industry	Employment	Share of Total East Bay Employment	Wage Index
Computer Systems Design and Related Services	18,688	2.1%	1.54
Scientific Research and Development Services	16,085	1.8%	2.29
Architectural, Engineering, and Related Services	14,983	1.7%	1.89
Management, Scientific, and Technical Consulting Services	11,774	1.3%	1.94
Petroleum and Coal Products Manufacturing	7,819	0.9%	1.52
Semiconductor and Other Electronic Component Manufacturing	7,131	0.8%	1.08
Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	4,795	0.5%	1.18
Medical Equipment and Supplies Manufacturing	4,354	0.5%	1.02
Bakeries and Tortilla Manufacturing	4,095	0.5%	0.54
Pharmaceutical and Medicine Manufacturing	3,051	0.3%	1.41
Industrial Machinery Manufacturing	2,745	0.3%	1.41
Computer and Peripheral Equipment Manufacturing	2,735	0.3%	1.18
TOTAL	98,255	11%	

Source: QCEW, Calculations by Haveman Economic Consulting

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Figure 3-6: Concentration of Key Innovation Sub-sectors Relative to the U.S. & Bay Area



Source: QCEW; Calculations by Haveman Economic Consulting

East Bay's innovation economy attracts substantial venture capital investments, particularly in the clean energy and biotechnology industries

The Bay Area is a hotbed of venture capital (VC) activity. The region is home to large numbers of well-endowed venture capital firms as well as new firms that are the recipients of a significant portion of all U.S. venture capital investments. Indeed, firms in California are routinely awarded about 50 percent of all venture capital investments in the country and the Bay Area alone receives about 80 percent of all VC investments in the state, or 40 percent of the national total.

Depending on the industry, a significant proportion of the Bay Area venture capital investments come to the East Bay. As depicted in Table 3-8, in 2010, among counties, Alameda County ranked in the top 10 nationwide in receipt of VC funds in nine of the 14 industries tracked and ranked second in three industries – just behind Santa Clara County in each case. In three of those industries, including the growing industrial (clean) energy industry, East Bay firms received more than 11 percent of all such investments nationwide.

Table 3-8 East Bay Venture Capital Investment Rankings by Industry in 2010

Industry	Amount (millions)	Share of US	Rank East Bay	Rank Alameda County	Rank Contra Costa County
Industrial Energy	\$409.6	12.6%	2	2	21
Semiconductors	\$110.0	11.1%	2	2	-
Electronics Instrumentation	\$60.0	14.6%	2	2	14
Computers and Peripherals	\$46.8	9.9%	3	3	-
Consumer Products and Services	\$32.7	7.1%	4	4	-
Business Products and Services	\$20.0	5.4%	5	5	-
Medical Devices and Equipment	\$116.5	5.2%	5	5	17
Networking and Equipment	\$15.6	3.1%	6	6	-
Biotechnology	\$108.0	2.9%	8	8	71
Healthcare Services	\$7.5	3.0%	11	11	-
Media and Entertainment	\$17.0	1.2%	12	12	-
Software	\$46.5	1.2%	16	16	45
Telecommunications	\$4.9	0.6%	21	21	-
IT Services	\$7.6	0.5%	29	29	-

Source: PWC Money Tree, Calculations by Haveman Economic Consulting

The top 10 investments in the East Bay are listed below. BrightSource Energy was a major recipient of VC funding in 2010, receiving funds from two separate investment firms totaling \$180 million. This amounts to nearly 20 percent of the \$1.1 billion awarded to East Bay firms in 2010.

Although \$1.1 billion is an impressive amount of VC investment funding, it is clearly not enough to drive growth in the East Bay economy. What it does, however, is encourage growth in specific sectors. An analysis of historic patterns of venture capital investment locally indicates that more venture capital funds flowing into an industry is correlated with measurably faster growth in the industry. Whether or not the venture capital is driving the growth or the other way around is not clear. However, this correlation does bode well for the future of the East Bay economy. If the 2010 pattern of investment continues, the East Bay will develop strength in significant and prosperous parts of the economy. All of the top five industries receiving funds in the East Bay are cutting edge, high wage, and have significant growth potential.

The East Bay tends to get overlooked by venture capital compared to Silicon Valley and San Francisco. It lacks the cachet. But compared to the world, it would be stupid to be anywhere else!

– East Bay business leader, 2011

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Table 3-9 Top Ten East Bay Venture Capital Investments in 2010

Company	Industry	Amount (millions)
BrightSource Energy Inc.	Industrial Energy	\$150.0
BridgeLux Inc.	Semiconductors	\$60.0
Amyris Biotechnologies Inc.	Biotechnology	\$47.8
Solaria Corporation	Industrial Energy	\$45.1
Livescribe Inc.	Computers and Peripherals	\$44.8
Nordic Windpower LLC	Industrial Energy	\$38.0
OptiScan Biomedical Corporation	Medical Devices and Equipment	\$32.2
BrightSource Energy Inc.	Industrial Energy	\$30.0
Zeltiq Aesthetics Inc.	Medical Devices and Equipment	\$25.0
Breathe Technologies Inc.	Medical Devices and Equipment	\$23.0

Source: PWC Money Tree, Haveman Economic Consulting

Worthy of particular note is the fact that four of the top ten investments in 2010 were in the clean technology/industrial energy sector. In 2010, the East Bay attracted \$355.5 million, or 20.6%, of all U.S. venture investments in clean energy. Only Santa Clara County (Silicon Valley) received more than the East Bay last year.

The importance of these technologies going forward is obvious. In the context of global climate change and the movement to derive an increasingly large share of energy from clean or renewable sources, both in California and many other places around the world, building such a concentration represents investments in employment that are likely to pay off in the long term.⁵

Construction is highly concentrated in the East Bay and likely to grow rapidly as the economy rebounds

Another significant driver of the East Bay economy is the construction sector. Unfortunately, the combined impacts of the collapse of the housing market and the Great Recession resulted in the East Bay losing 40 percent of its construction jobs, or more than 10,000 jobs over the last three years. Even so, the share of East Bay employment in construction is 25 percent more than in the U.S. and 22 percent more than in the Bay Area. Prior to the Great Recession, these numbers were even higher.

⁵ For more on Venture Capital funding in the East Bay see the East Bay EDA's April 2011 East Bay Economic Outlook.

Table 3-10: Summary of Construction Industry

Jobs	Share of East Bay Employment	LQ, East Bay versus the US	Average Annual Growth Rate, 1995-2007	Projected Avg Annual Growth Rate, 2008-2018	Wage Index
49,085	5.7%	1.25	4.2%	1.7%	1.22

Source: QCEW; Calculations by Haveman Economic Consulting

Of particular importance to the East Bay economy are firms in highway, street and bridge construction. Related to the region’s strength in architectural and engineering services, these firms serve clients across and outside of the region. Construction employment in this sector is likely to grow at a high rate in coming years as the sector recovers from its losses.

REGIONAL-SERVING INDUSTRIES EMPLOY HALF OF THE EAST BAY’S WORKERS

The East Bay’s industry drivers, including PSTS, manufacturing, and construction employ 23 percent of the East Bay’s workers. More importantly, these sectors are bringing wealth into the region that is then cycled through the economy through the expenditures of the firms and employees in those sectors. In addition to the drivers, the East Bay holds many regional-serving industries that support the larger Bay Area economy. These regional-serving sectors do not have the same ripple effect as the driving industries, but collectively they directly employ a larger number of workers. These dynamics are typical of all U.S. regions, although the East Bay is fortunate to have a relatively large regional market for the establishments in these sectors. Regional serving sectors include: Health Care and Social Assistance; Retail Trade; Education Services; and Accommodation and Food Services. These sectors employ about half of the East Bay’s workforce.

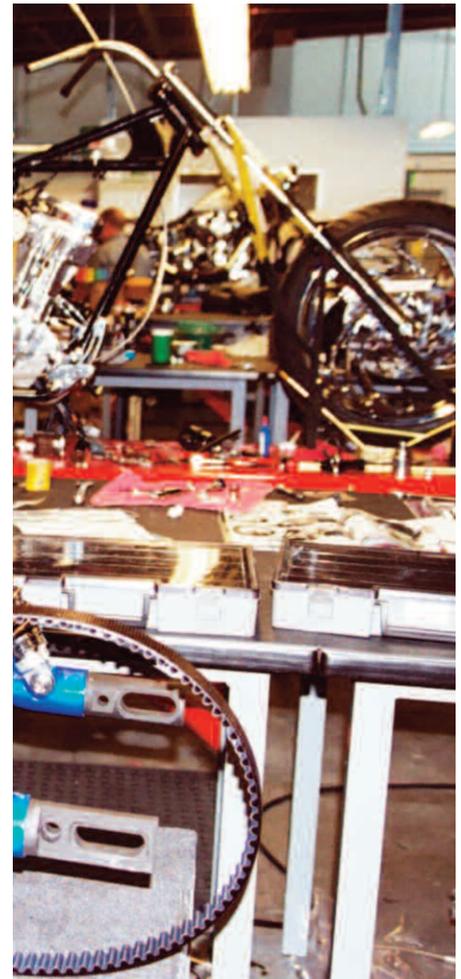


Table 3-11: East Bay’s Regional Serving Industries

Industry	Share of East Bay Employment	Projected Avg Annual Growth Rate, 2008-2018
Health Care and Social Assistance	14.6%	2.3%
Retail Trade	12.2%	0.4%
Educational Services	9.9%	2.4%
Accommodation and Food Services	8.2%	0.7%

Source: QCEW, Bureau of Labor Statistics. Calculations by Haveman Economic Consulting

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Health care and educational services are poised to grow in the region

The regional serving sectors of the East Bay economy had been on a favorable growth path leading up to the recession, and generally are expected to contribute to growth in the East Bay on a long-term trend basis. Employment in health care and social assistance and educational services has been on an upward trajectory that is largely matched by trends in the U.S. and California economies, but is exceeding growth in the rest of the Bay Area.

Health care has historically been strong in the East Bay relative to other parts of the Bay Area. Although it is underrepresented relative to the nation, the East Bay has an abundance of jobs in this sector relative to both the broader Bay Area and the state. This strength, in the innovative Bay Area economy, is likely a contributing factor to the success of East Bay’s biomedical and medical equipment manufacturing firms in attracting venture capital investments. With above average wages, health care and social assistance will improve living standards and continue to make solid contributions to the East Bay economy.

Table 3-12: Summary of Health Care Industry

Jobs	Share of East Bay Employment	LQ, East Bay versus the US	Average Annual Growth Rate, 1995-2007	Projected Avg Annual Growth Rate, 2008-2018	Wage Index
119,801	13.9%	0.95	2.9%	2.3%	1.21

Source: QCEW, Bureau of Labor Statistics, and 2007 Economic Census. Calculations by Haveman Economic Consulting

Most jobs in the education sector are related to elementary and secondary education. This is typical of any region as is the East Bay’s employment concentration in this sector. Of more interest is the East Bay’s high level of concentration in jobs related to post-secondary education and research (colleges, universities, and professional schools).

In order to continue attracting and retaining world-class professors and researchers to the institution, UC Berkeley must compete with other prestigious private universities like MIT, Harvard, Yale, and Stanford. The ability to remain competitive is severely compromised by the deep cuts to state funding for UC Berkeley. While state funding and philanthropy were the top two funding sources for the campus in 2004, today the main sources of funding are federal dollars and student fees, and the campus

faces a \$110 million deficit for next year.⁴ Even without the funding cuts, studies have found that the UC Berkeley faculty salaries are well below the average of private peer institutions. It is estimated that an additional \$26.5 million per year is needed to bring salaries up to par, with additional investments needed in facilities, laboratories, and other support for new faculty.⁵ In the 2007-2008 academic year, many faculty positions were left unfilled, with the money used instead to pay competitive salaries to retain current professors and invest in "start-up" facilities for new faculty.⁶

Table 3-13: Summary of Education Services Industry

Jobs	Share of East Bay Employment	LQ, East Bay versus the US	Average Annual Growth Rate, 1995-2007	Projected Avg Annual Growth Rate, 2008-2018	Wage Index
85,112	9.9%	1.06	3.7%	2.4%	0.85

Source: QCEW, Bureau of Labor Statistics, and 2007 Economic Census. Calculations by Haveman Economic Consulting

Table 3-14: Education Sub-Sectors

Educational Services Sectors	Employment	% of Sector	LQ, East Bay vs the US	LQ, East Bay vs Bay Area	Wage Index
Elementary and Secondary Schools	49,755	58%	90%	1.32	0.5
Colleges, Universities, and Professional Schools	21,869	26%	110%	1.96	0.7
Junior Colleges	6,403	8%	130%	1.30	1.5
Other Schools and Instruction	4,759	6%	210%	1.08	0.8
Technical and Trade Schools	1,320	2%	120%	1.14	6.6
Educational Support Services	1,006	1%	110%	1.19	8.2
TOTAL EMPLOYMENT	85,112				

Source: QCEW; Calculations by Haveman Economic Consulting

Government is a significant source of jobs in the region

Government employment in the East Bay contributed roughly 167,000 jobs in 2010. This accounts for about 21 percent of all regional employment. With such a high share of local employment, government services are an important regional serving sector. This share of employment is comparable to its nationwide share, with a location quotient of 0.9. It is also a sector that pays high wages relative to the region as a whole.

⁴ Source: The Daily Californian, March 17, 2011

⁵ Source: UC Berkeley Accountability Profile, 2009

⁶ Source: UC Berkeley Accountability Profile, 2009

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Table 3-15: Government Employment in the East Bay

Government	Employment	% of Sector	LQ, East Bay vs the US	Wage Index
Local	113,400	68%	1.00	1.2
State	38,100	23%	0.90	1.2
Federal	15,700	9%	0.60	1.4
TOTAL EMPLOYMENT	167,100	21%	0.9	1.2

Source: QCEW, Calculations by Haveman Economic Consulting

Retail, Accommodation and Food Services sectors are large but slow growing employers

As in most regions, growth in retail trade, accommodation, and food services is dependent on population and household growth. The East Bay has a typical number of jobs in these sectors relative to its population. In general, retail, accommodation and food services are slow-growing, regional serving sectors that pay below-average wages (34 to 83 percent of the regional average wage).

Table 3-16: Summary of Retail Trade Industry

Jobs	Share of East Bay Employment	LQ, East Bay versus the US	Average Annual Growth Rate, 1995-2007	Projected Avg Annual Growth Rate, 2008-2018	Wage Index
100,267	11.6%	0.99	0.5%	0.4%	0.34

Source: QCEW, Bureau of Labor Statistics, and 2007 Economic Census. Calculations by Haveman Economic Consulting

Table 3-17: Summary of Accommodations and Food Services Industry

Jobs	Share of East Bay Employment	LQ, East Bay versus the US	Average Annual Growth Rate, 1995-2007	Projected Avg Annual Growth Rate, 2008-2018	Wage Index
71,145	8.2%	0.92	2.0%	0.7%	0.83

Source: QCEW, Bureau of Labor Statistics, and 2007 Economic Census. Calculations by Haveman Economic Consulting

The region’s transportation and warehousing activities, along with other major industries, benefit from the Port of Oakland, seaports, and other infrastructure

The East Bay’s considerable infrastructure assets, including the Port of Oakland, seaports, airport, railroads, and bridges provide excellent mobility and access for goods movement industries. Although transportation and warehousing employment is under-represented in the East Bay compared to the U.S., the East Bay does have a heavy concentration of support activities for water transportation, which are tied to the Port. The data demonstrates that the Port has a relatively small direct employment impact; however, the Port has a substantial indirect effect on other businesses in the East Bay and beyond which rely on a robust goods movement infrastructure. These include firms in manufacturing, retail, wholesale trade, and other industries.

The Port of Oakland – the 5th largest container port in the U.S. - ships a greater value of goods produced in California than the Port of L.A.

Table 3-18: Summary of Transportation and Warehousing Industry

Jobs	Share of East Bay Employment	LQ, East Bay versus the US	Average Annual Growth Rate, 1995-2007	Projected Avg Annual Growth Rate, 2008-2018	Wage Index
30,278	3.5%	0.88	0.3%	0.9%	1.49

Source: QCEW, Bureau of Labor Statistics, and 2007 Economic Census. Calculations by Haveman Economic Consulting

Data shows that the wholesale trade industries are concentrated in the East Bay, likely benefiting from the Port of Oakland and the heavy concentration of manufacturing in Alameda County. Although employment growth in the sector has been in decline through much of the last ten years, there were positive signs just before the recession hit. With 4.7 percent of employment in the region in 2010 and wages that are 30 percent less than average in the region, it is unlikely that this sector will be a significant driver of either employment or prosperity in the region.

Table 3-19: Summary of Wholesale Trade Industry

Jobs	Share of East Bay Employment	LQ, East Bay versus the US	Average Annual Growth Rate, 1995-2007	Projected Avg Annual Growth Rate, 2008-2018	Wage Index
41,848	4.9%	1.1	1.2%	0.4%	0.71

Source: QCEW; Calculations by Haveman Economic Consulting



The Bay Area has a strong, dynamic entrepreneurial climate. It is one where potential funding sources exist in unusual numbers, technology transfer from government research organizations and universities happens at a high rate and where there is an abundant source of business support services for new firms. The East Bay shares in and plays a vital role in this support structure for business formation and growth.

At the same time, there are impediments to starting and expanding a business in the region. A recent survey conducted by the Monitor Group and the Bay Area Council Economic Institute identifies some of these including state and federal government programs of insufficient quality and accessibility and local permitting processes that serve as an impediment to starting up a new business.¹

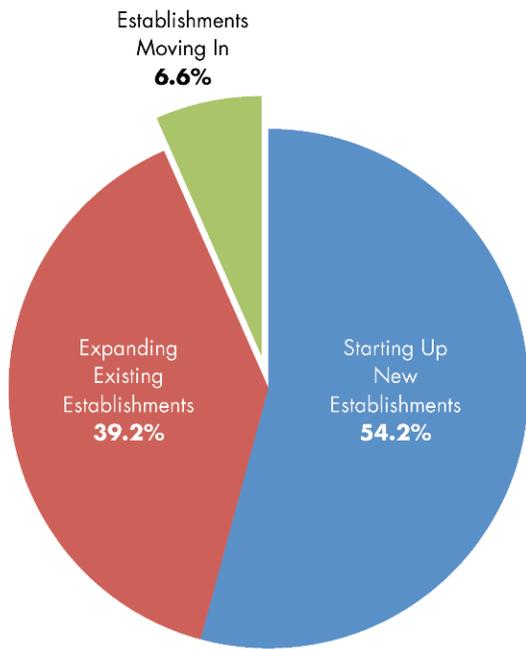
Most East Bay executives interviewed indicated that paying the premium to operate a business in the East Bay was worth it because of the many assets of the region including access to a quality workforce, state of the art technology, a high quality of life, and proximity to financial and transportation networks. How then does the East Bay stack up in terms of its ability to attract and retain companies? Are East Bay companies moving out of the region? What kinds of companies contribute the most to employment growth or loss?

Companies starting and expanding here contribute most to employment growth.

The vast majority of jobs are created by establishments that start and expand in the East Bay. Although companies moving in and out of the region tend to get more attention in the media, they contribute only 6.6 percent of the region's new jobs in an average year. In terms of job loss or destruction, establishments leaving the East Bay contribute an even smaller amount. Only 5.4 percent of all jobs lost in the East Bay in a given year are due to companies leaving the area. Companies going out of business and closing their doors are the biggest reason the East Bay loses jobs. Nearly two thirds of all jobs lost are due to establishments going out of business. One third of jobs lost are due to companies down-sizing or contracting.

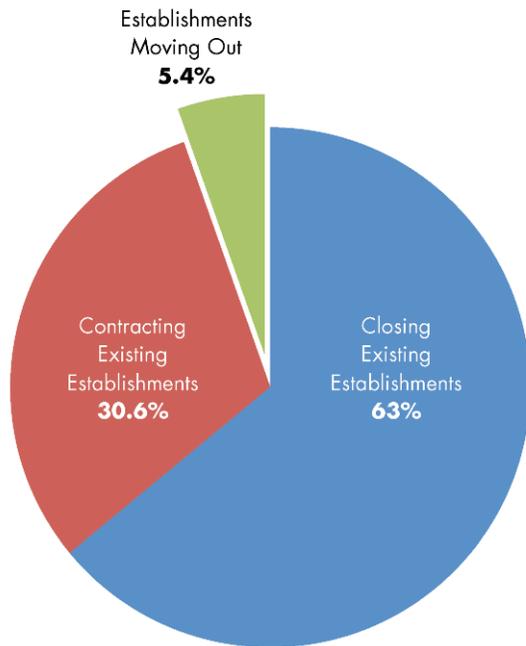
¹ The findings of a new report produced by the Bay Area Council Economic Institute and the Monitor group reinforce this notion. The report is "Benchmarking the Bay Area's Environment for Entrepreneur-Led Start-ups." Bay Area Council Economic Institute, September 2011.

Figure 4-1: Sources of Annual Job Creation in the East Bay, 1985-2008



Source: NETS 2009, Calculations by Haveman Economic Consulting.²

Figure 4-2: Sources of Annual Job Loss in the East Bay, 1985-2008



Source: NETS 2009, Calculations by Haveman Economic Consulting.



² The National Establishment Time Series (NETS) data from 1995-2009 is used for much of the analysis in this section.



Moves in and out of the region are not a major factor in job change

In an average year, these moves represent 7,600 jobs flowing in – this represents less than 0.7 percent of all jobs in the region. Similarly, an average of 5,400 jobs moving out each year represents less than 0.5 percent of all jobs. These numbers are dwarfed by the overall level of job churn (annual turnover) in the economy.

Within the East Bay, Contra Costa County has a slightly higher rate of job churn than Alameda County. Alameda relies more on the growth of existing establishments and the arrival of establishments from elsewhere while Contra Costa County relies more on the birth of new establishments to expand employment. Particularly important in this difference is the presence of Santa Clara just to the south of Alameda County; Southern Alameda County experiences a very high rate of establishments moving both in and out. The Tri-Valley similarly relies on establishment movements. Starts and closures in this region are relatively less important for employment changes.

Small and mid-sized companies employ the most people

As in most regions, most of the employment in the East Bay is created by small to mid-sized establishments with 3 to 100 employees. Very small firms of one to two employees comprise two-thirds of all businesses, but only create 15 percent of the region's jobs. One third of the East Bay's jobs are created by establishments that employ more than 100 people.

Table 4-1: Distribution of Establishments by Size

Region	Number of Employees at Establishment					
	1-2	3-25	26-100	101-250	251-1000	1001+
East Bay	67.5%	28.5%	3.3%	0.5%	0.2%	0.02%
Bay Area	66.3%	29.7%	3.3%	0.5%	0.2%	0.03%

Source: NETS 2009, Calculations by Haveman Economic Consulting

Table 4-2: Distribution of Employment by Establishment Size

Region	Number of Employees at Establishment					
	1-2	3-25	26-100	101-250	251-1000	1001+
East Bay	14.9%	29.7%	25.1%	11.9%	10.7%	7.8%
Bay Area	14.3%	29.5%	24.3%	11.3%	11.4%	9.2%

Source: NETS 2009, Calculations by Haveman Economic Consulting

While small and mid-sized businesses may employ many people, these types of establishments are more likely to shut down.

Table 4-3: Firm Closures by Size of Establishment

Region	Number of Employees at Establishment					
	1-2	3-25	26-100	101-250	251-1000	1001+
East Bay	47.2%	48.7%	3.4%	0.5%	0.2%	0.03%
Bay Area	47.1%	48.7%	3.4%	0.5%	0.2%	0.05%

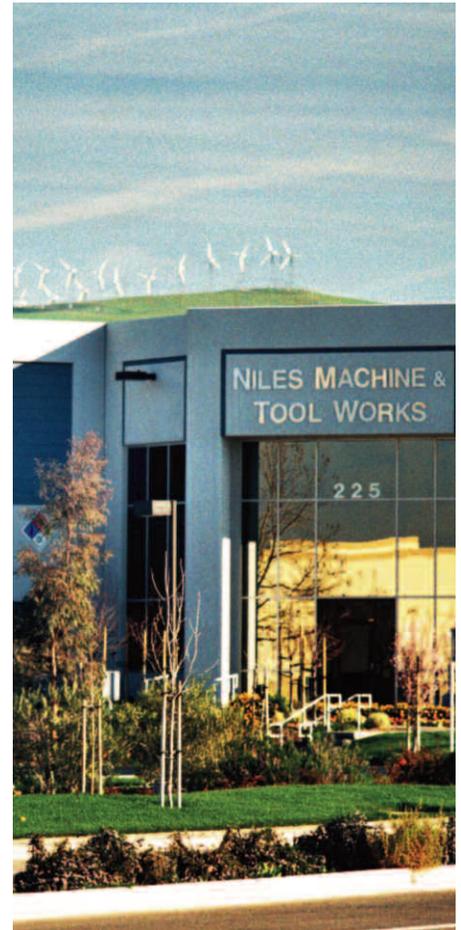
Source: NETS 2009, Calculations by Haveman Economic Consulting

Table 4-4: Job Losses from Closures, by Size of Establishment

Region	Number of Employees at Establishment					
	1-2	3-25	26-100	101-250	251-1000	1001+
East Bay	9.2%	36.2%	22.7%	11.2%	10.6%	10.1%
Bay Area	8.5%	33.1%	21.1%	10.8%	13.4%	13.1%

Source: NETS 2009, Calculations by Haveman Economic Consulting

The East Bay is like most regions in its rate of new business formation. California has an 11 percent rate of business starts in a given year (1995-2008); the East Bay and greater Bay Area regions have a startup rate of 10 percent. Most regions across the state have a similar rate indicating that the East Bay – on average – is no better or worse at starting new businesses than most regions.



The survival rate of new businesses is consistent with state trends

The ability of East Bay businesses to survive past their 5-year anniversary is also comparable to firms in the state. Slightly more than half (54 percent) of the East Bay's new business establishments survive more than 5 years, compared to California's survival rate of 53 percent.

Among the East Bay's Key Innovation Sub-Sectors survival rates are much higher. All but two have above average survival rates.

Table 4-5: Starts and Survival Rates of Key Innovation Sub-Sectors

Industry	Number of Establishments	Number of Starts	Start Rate	5 Year Survival
Management, Scientific, and Technical Consulting Services	79,404	9,994	12.59	55.24
Architectural, Engineering, and Related Services	48,910	4,374	8.94	52.11
Computer Systems Design and Related Services	41,031	4,275	10.42	56.20
Scientific Research and Development Services	10,882	1,073	9.86	61.18
Bakeries and Tortilla Manufacturing	5,527	468	8.47	57.44
Medical Equipment and Supplies Manufacturing	5,472	329	6.01	54.46
Nav., Measuring, Electromedical, and Control Instruments Manuf.	4,153	218	5.25	61.43
Semiconductor and Other Electronic Component Manufacturing	4,115	257	6.25	61.45
Computer and Peripheral Equipment Manufacturing	3,375	191	5.66	50.69
Industrial Machinery Manufacturing	1,407	80	5.69	56.86
Pharmaceutical and Medicine Manufacturing	1,323	79	5.97	67.65
Petroleum and Coal Products Manufacturing	619	26	4.20	58.82

"Start Rate" is starts as a proportion of all establishments.

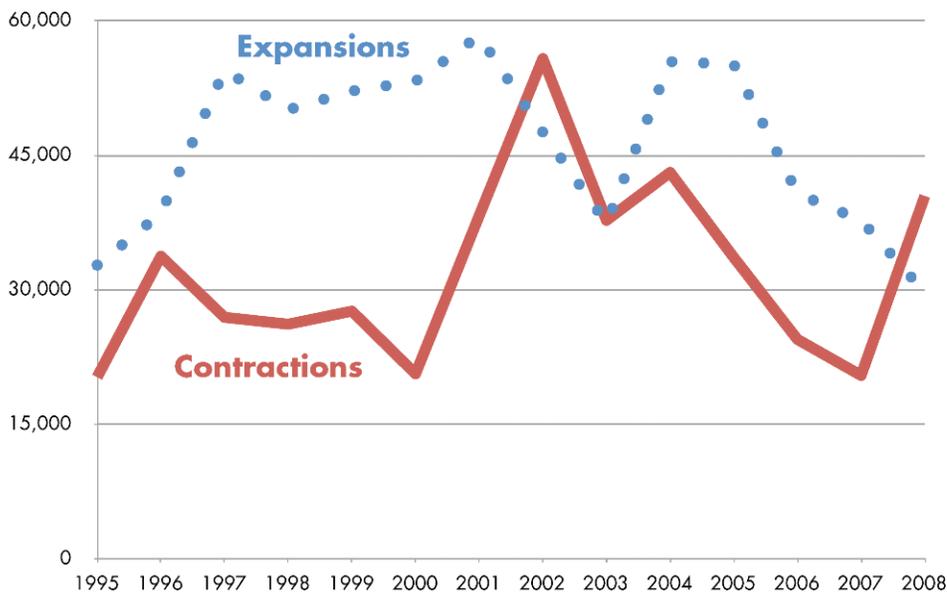
Source: NETS 2009, Calculations by Haveman Economic Consulting

Interestingly, there is a very high negative correlation between a region's rate of new business formation and its survival rate. This suggests that the more businesses you have starting up, the lower will be the average quality of the new business.

The contribution of expansions and contractions varies significantly in an average year by industry

The growth or decline of existing establishments in the East Bay also plays a significant role in job growth. The role of existing, ongoing business establishments is second to that of company starts and closures, but nonetheless leads to significant churn in the economy. In an average year between 1995 and 2008, nearly 46,000 jobs were created through expansion. At the same time, more than 32,000 were destroyed. Contractions exceeded expansions in only three years (2001, 2002, and 2008).

Figure 4-3: Job Change from Firm Expansions and Contractions



Source: NETS 2009, Calculations by Haveman Economic Consulting

However, the rate at which new jobs are being added to the economy through expansion seems to have peaked at the same time that the dot-com bubble peaked, with a trend towards fewer expansions in each year since 2004. The contribution of expansions and contractions varies significantly in an average year by industry.

- Existing manufacturing establishments generate the largest number of new jobs through expansion, and destroy the largest number of jobs through contraction.
- Professional, scientific, and technical services (PSTS) and the information sector have also been important contributors to expanding employment at existing establishments. Each year, both sectors contribute between 1,500 and 1,800 net jobs to the region through expansions.
- Utilities, accommodation and food services, and public administration experience more contraction than growth in a typical year.

State-of-the-art incubators like QB3, the Berkeley Skydeck Innovation Center, and the i-GATE NEST incubator in Livermore help provide the support technology start-ups need.



Manufacturing employment is sustained through growth and job imports

Although the manufacturing sector has a rate of job churn that is comparable to the rest of the economy, it turns out to be the largest single source of imported jobs in the East Bay. Job imports are three times more important in contributing to job creation in manufacturing, while job exports are comparable in explaining job destruction.

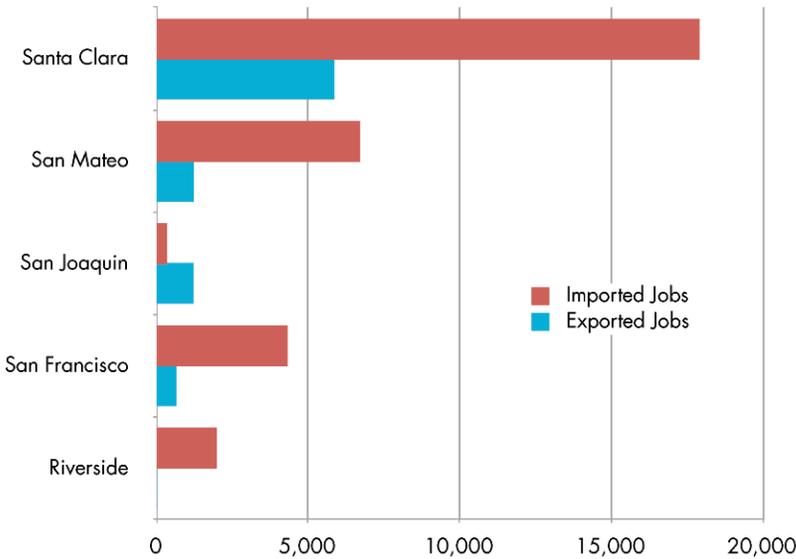
Surprisingly, business closures account for a smaller proportion of job destruction in manufacturing than in the rest of the East Bay economy. On the other hand, it is not surprising that business starts in manufacturing play a smaller role than in the broader economy. It is instead growth at established firms that provides the bulk of job creation.

The East Bay is a net importer of jobs

The East Bay is an intrinsic part of the larger Bay Area economy and is closely linked with other sub-regions in the Bay and in Northern California. Evidence of the East Bay's role in this is that it does attract more jobs from other regions through establishment movements than it loses. Most of these jobs are traded with some of the most dynamic regions of the Bay Area economy. These dynamic regions also tend to be among the most expensive in which to do business. Santa Clara County is the largest trading partner with the East Bay. Alameda County is also Santa Clara's largest trading partner, and the only county to which Santa Clara sends more jobs than it receives. The same is not true of San Francisco, which is a sizable net exporter to multiple counties, including Alameda, Contra Costa, and Marin.

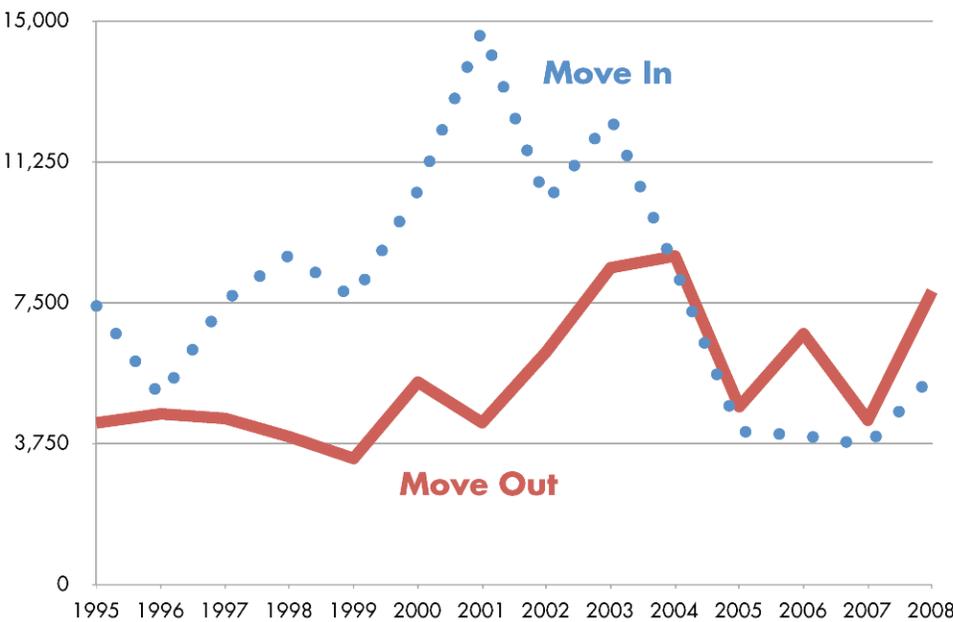
East Bay job imports exceeded exports until 2004. This was the first year for which jobs moved out exceeded jobs moved in. From 2004 to 2008, exports of jobs exceeded imports, though by a relatively slim margin. This largely reflects a decline in establishments coming from the Peninsula and South Bay. Between 2005 and 2008, imports of jobs from the top three counties averaged just one-third their level in an average year between 1998 and 2004. As many of these pre-2005 imports were spurred by the dot-com bubble, it is unclear whether the long run relationship will be one of importing or exporting. Given the current economic situation, it may be some time before the answer is known.

Figure 4-4: Job Impacts of Establishment Moves in and out of the East Bay (1995-2008)



Source: NETS 2009, Calculations by Haveman Economic Consulting

Figure 4-5: Effect of Establishment Moves on Employment



Source: NETS 2009, Calculations by Haveman Economic Consulting

Recent new businesses in the East Bay tend to employ locally

A major concern voiced frequently by policy makers is that once companies start to expand, they will expand outside of the region because of high costs. The report finds that businesses that started in the East Bay – and have neither moved out of the East Bay nor been bought by some company headquartered elsewhere – employ the vast majority of their workers locally.



Table 4-7: Employment Patterns of Businesses Started in the East Bay by County: Year 10 of Operations

Region/County	Percent of Startup Employment in:		
	Local Origin	Other California	Outside California
Napa County	96.8	1.2	2.0
Sonoma County	96.4	2.8	0.8
Sacramento County	96.1	2.8	1.1
San Bernardino County	95.9	3.2	0.9
Solano County	95.6	4.3	0.2
San Diego County	94.1	2.7	3.2
Contra Costa County	91.8	5.1	3.1
California	91.2	0.0	8.8
Riverside County	91.1	2.7	6.2
Bay Area	88.6	3.3	8.1
East Bay	87.2	6.6	6.2
Marin County	84.3	6.2	9.6
Orange County	83.2	7.0	9.8
Los Angeles County	83.0	3.2	13.8
San Mateo County	82.1	9.4	8.4
Santa Clara County	81.8	8.6	9.6
Alameda County	81.4	10.3	8.2
San Francisco County	77.4	8.6	14.0

Source: NETS 2009, Calculations by Haveman Economic Consulting

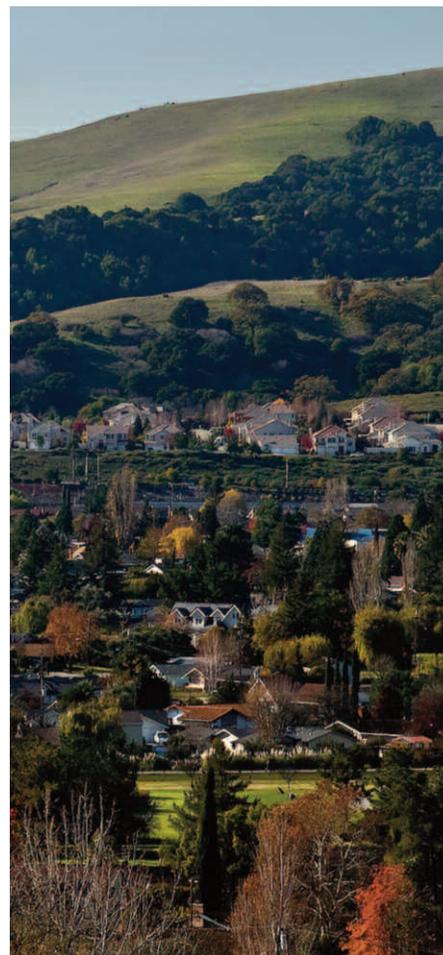
This home focus is truer of businesses in Contra Costa County than of those in Alameda, with Contra Costa being among the most home focused set of employers in the Bay Area, and on a par with the state overall. Alameda is more consistent with Santa Clara, Los Angeles, and Orange Counties in terms of its job distribution, all of which are less able to capture their own expansions. San Francisco ranks as among the counties least likely to employ at home.

This home bias is not shared by all industries. Some – utilities, construction, health care, and educational services – have a distinctly more local emphasis. Others are more outward looking, including transportation and warehousing; arts, entertainment, and recreation; and accommodation and food services. Those with a more local emphasis tend to be more local serving sectors of the economy. Those with less of a local focus do tend to serve a broader market.

Table 4-8: Employment Patterns of Businesses Started in the East Bay by Industry: Year 10 of Operations

Industry Type	Percent of Startup Employment in:		
	Local Origin	Other California	Outside California
Other Services (except Public Admin)	99.6	0.3	0.1
Health Care and Social Assistance	99.3	0.6	0.1
Educational Services	98.5	1.1	0.4
Construction	97.5	2.4	0.1
Finance and Insurance	95.0	3.0	2.0
Information	94.3	2.5	3.3
Retail Trade	91.4	8.4	0.3
Admin Support and Waste Mgmt Svcs	91.2	2.0	6.9
Prof., Sci., and Tech. Services	90.3	4.9	4.8
Real Estate and Rental and Leasing	90.2	4.1	5.7
Manufacturing	90.2	8.0	1.8
Wholesale Trade	88.0	6.3	5.7
East Bay Total	87.2	6.6	6.2
Accommodation and Food Services	82.7	8.6	8.8
Transportation and Warehousing	64.1	5.7	30.1
Arts, Entertainment, and Recreation	36.5	30.5	33.0

Source: NETS 2009, Calculations by Haveman Economic Consulting



The proportion of employees out of state at East Bay businesses is reasonably consistent with statewide patterns. Overall, the East Bay is comparable to the rest of the Bay Area at keeping employment local. Relative to the state, the region is less nationally oriented. Relative to many other regions around California, East Bay businesses are more aggressive at expanding beyond their regional boundaries.

East Bay manufacturers are significantly less likely to expand beyond the state borders than is the average new business in the state. This could reflect the benefit-cost position of the East Bay for these firms, an orientation toward exporting, in which case the proximity to SFO or the Port of Oakland is quite valuable, or an emphasis on producing for the local market.



In the Bay Area, the quality of talent for startup companies is unmatched. Firms in the East Bay can access the rich, talented labor force of the entire San Francisco Bay Area.

– East Bay business leader, 2011

EAST BAY WORKFORCE ASSETS

The East Bay's highly skilled workforce is its most significant asset. It is one of the region's major competitive advantages in attracting new investments and business expansion in the region. It is essential to the success of employers and job seekers alike. The region's ability to increase the supply of skilled workers and help match workers and employers more easily is critical to its future prosperity.

The East Bay workforce is well educated

The existing East Bay workforce has above-average levels of education and income and below-average poverty levels. It has:

- A higher percentage of college graduates than the state and nation.
- A lower share of adult residents who have only graduated from high school or attended college without obtaining a degree.
- A lower share of those aged 25 and older who did not complete high school (13.4% of East Bay residents compared to 19.5% statewide and 15.1% in the nation).

Table 5-1: Workforce Characteristics

	East Bay	California	U.S.
College Graduate	46.5%	37.5%	35.2%
Not Complete High School	13.4%	19.5%	15.1%
Poverty Rate	10.0%	13.2%	13.5%
Median Household Income	\$71,187	\$58,931	\$50,221
Self-Employed Workers	8.5%	8.9%	6.7%
Unemployment Rate (2009)	10.4%	11.3%	9.3%

Source: 2009 American Community Survey, Unemployment Rate: California EDD, BLS

Table 5-2: Educational Attainment for Population 25 and older

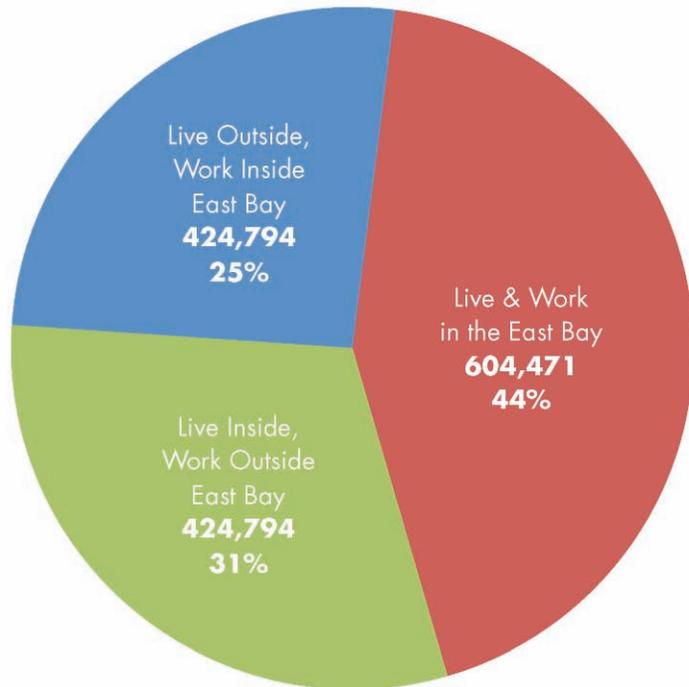
	East Bay	California	U.S.	Santa Clara
Below 9th grade	7.00%	10.50%	6.30%	7.90%
9-12 no diploma	6.40%	9.00%	8.80%	6.30%
High school graduate	20.20%	21.50%	29.00%	16.90%
Some college	19.90%	21.50%	20.70%	17.50%
Associate degree	7.40%	7.60%	7.50%	7.40%
Bachelor's degree	24.20%	19.10%	17.60%	25.00%
Graduate degree	14.90%	10.70%	10.20%	19.00%

Source: American Community Survey 2007-09 average

The East Bay labor market is a robust part of the Bay Area labor market

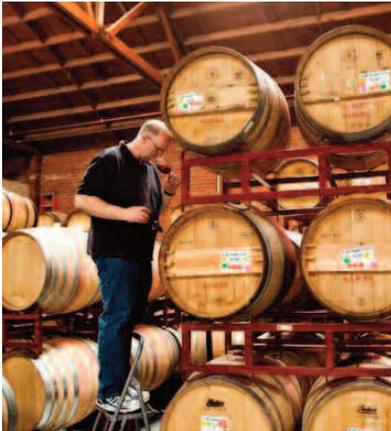
The East Bay’s commute patterns are actually better than that of other Bay Area sub-regions in that a larger share of residents (43 percent) both live and work in the East Bay. Nevertheless, the East Bay’s labor market is deeply connected with that of the larger Bay Area with workers migrating in (26 percent) and out (31 percent) of the region every day. As a result, East Bay residents have a broad variety of job markets from which to choose.

Figure 5-1: East Bay Commute Patterns, 2011



Source: U.S. Census Longitudinal Employer-Household Dynamics 2011, Strategic Economics, 2011





EAST BAY WORKFORCE CHALLENGES

Baby boom retirements will create job openings in every occupation...

The California Employment Development Department forecasts that more than seven out of ten job openings in the East Bay over the next ten years will be due to the need to replace an existing worker.¹

Table 5-3: East Bay Annual Projected Job Openings through 2018

Occupational Category	Job Growth	Replacement	% Growth from Replacement
Service occupations	3,512	6,199	63.8%
Professional and Related	2,073	4,520	68.6%
Management, Business and Financial	932	2,984	76.2%
Office and Administrative Support Occupations	728	3,640	83.3%
Sales and Related Occupations	515	3,320	86.6%
Construction and Extraction Occupations	354	1,112	75.9%
Installation, Maintenance, and Repair Occupations	131	755	85.2%
Transportation and Material Moving Occupations	95	1,692	94.7%
Farming, Fishing, and Forestry Occupations	15	45	75.0%
Production Occupations	-646	1,251	100.0%
Total Jobs	7,709	25,518	76.8%

Source: California Employment Development Department

This is especially true for occupations where there is little job growth or – as in production occupations – there is a decline in the number of workers. The good news: there will be job openings in every occupation over the next ten years.

...but the incoming workforce is not necessarily qualified to fill them

The baby boom generation that is gradually leaving the workforce has the highest educational attainment of any American generation. The upcoming generations must surpass the educational attainment rate of the boomers or they will not be able to fill the jobs of those who are retiring from the labor force. This is a challenge because of a number of trends.

¹ The most recent occupational projections for the East Bay were published by the California Employment Development Department in 2010 and were based on national occupational projections prepared by the U.S. Bureau of Labor Statistics (BLS) and published in December 2009. These projections cover the period from 2008 to 2018 but do not reflect the impact of the recession or major changes in occupational categories including new occupations. New national projections will be published in early 2012.

Hispanic populations are growing but seeing low rates of educational attainment

Like the state, the East Bay is seeing demographic shifts toward groups that have historically low rates of college attendance and graduation.² In particular, the percentage of the population of Hispanic origin jumped from 19 percent to 24 percent in the East Bay over the last decade while levels of educational attainment among Hispanics are significantly lower than other groups. Nearly two thirds (60%) of the East Bay’s Hispanic workforce has no schooling beyond a high school diploma - and half of that group did not complete high school.

Table 5-4: Educational Attainment (percentages)

Education	Total	White	Afr. Amer.	Hispanic	Other
Less than High School	11.6	4.7	9.2	31.4	8.5
High school graduate	19.3	16.0	25.2	29.3	14.5
Some college, but less than 1 year	5.9	6.4	8.1	6.0	4.2
One or more years of college, no degree	17.0	17.5	24.9	14.4	15.1
Associate's degree	7.5	8.0	10.1	5.4	7.3
Bachelor's degree	24.3	28.5	15.4	9.7	32.8
Master's degree	9.8	12.5	5.3	2.7	12.7
Professional school degree	2.5	3.6	1.2	0.7	2.5
Doctorate degree	2.1	3.0	0.7	0.4	2.5
All Education Levels	100.0	100.0	100.0	100.0	100.0

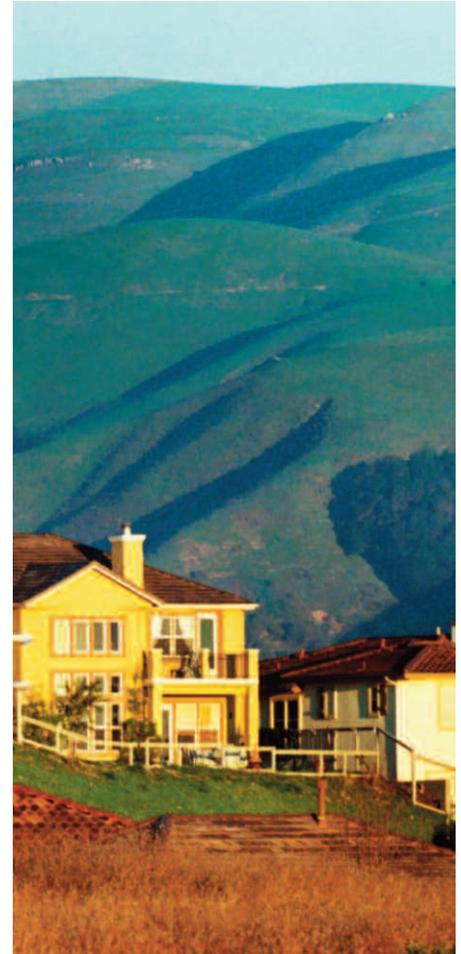
Source: US Census American Community Survey 2007-09 Average

High school completion rates are declining...

Graduation rates in Alameda County fell from 89 percent to 81 percent between 2003 and 2010. Contra Costa County, typically with very high rates of completion, fell from 92 percent to 85 percent in the same period. East Bay high schools graduate a greater percentage of their students than other Bay Area counties – and yet too few to adequately replace the outgoing baby boom population. In addition, graduation rates for African American and Latino students are below those for Asian and Non Hispanic White students.

...and far too few high school graduates are ready for college

Of those who do graduate high school in the East Bay, nearly 53 percent do not meet the UC/CSU requirements compared to less than 35 percent statewide. The preparation to meet the requirements varies by ethnic group with Latino and African American students half as likely to meet the UC/CSU requirements as Asian and Non Hispanic White students.³



² Hans Johnson and Ria Sengupta, “Closing the Gap: Meeting California’s Need for College Graduates” Public Policy Institute of California, April 2009.

³ Ibid. and California Department of Education DataQuest.



For many business leaders in the East Bay, K-12 education was the lowest-ranked aspect of doing business in the region and in California in general. Not only does poor school performance fail to prepare the region's future workers, but it also reduces the East Bay's quality-of-life, making it harder to attract workers with families.

– East Bay business leader, 2011

...at the same time skills requirements are increasing

Even in times of high unemployment, employers report having difficulty finding qualified workers for jobs requiring high levels of technical education and experience. Today, most existing jobs require higher technical skill levels for workers than they did twenty years ago. The introduction of computers in many occupations from retail to construction requires that today's workforce continually adapt and evolve higher levels of technical sophistication.

There will be skills shortages and mismatches in the East Bay...

The overall profile of the East Bay workforce today does not, at first glance, suggest a "skills shortage." The East Bay workforce has comparatively high numbers of college graduates and low numbers of workers who did not complete high school compared to the state and the nation. A skilled workforce was often mentioned as one of the main reasons for locating in the East Bay in the executive interviews conducted as part of this project.

And yet the East Bay faces at least four major areas of potential skills shortages or mismatches that require changes in policies and institutions:

1. Too few high school graduates;
2. An inadequate supply of middle skill workers - high school graduates with some post secondary education and/or training but not a four-year college degree;
3. A shortage of college graduates to replace the highly educated, retiring baby boomers and fill the growing need for college graduates in the economy;
4. A current and projected shortage of graduates in the STEM (science, technology, engineering and math) occupations.

... particularly in middle skill occupations

Middle-skill jobs – those that require less than a four-year degree, but more than a high school diploma – are the biggest share of California jobs, accounting for 47 percent of all jobs in 2009 according to the National Skills Coalition. At the same time, it is estimated that only 38 percent of the workforce possess the relevant skills for these occupations.⁴ These trends are similar in the East Bay.

A look at the middle skill jobs identified in a report from America's Edge shows the challenge. The report lists EMTs, firefighters, police officers, carpenters, plumbers, dental hygienists, medical lab technicians, machinists, aircraft mechanics, truck drivers, heating and air-conditioning installers, and a range of computer support and repair occupations as examples of jobs for which California – and the East Bay – are inadequately prepared.⁵ While it is hard to envision these openings now in a time of high unemployment for many skilled workers, the openings will come in the next five to ten years.

... and STEM occupations

Jobs requiring science, technology, engineering and math skills – the so-called STEM jobs – are growing much faster than other jobs, but three-quarters of STEM job openings through 2016 will require postsecondary education and half of them require bachelor's degrees. America's Edge demonstrates these will be hard to fill. Six years ago, California ranked 14th in the country in recent bachelor's degrees awarded in science and engineering (per 1,000 workers). Today, California has fallen to 45th in the nation, recently awarding 40 percent fewer degrees in science and engineering than the national average.⁶

Public funding for education is dwindling

Public education is facing dramatic cuts at every level. State budget cuts are impacting the University of California, California State University and community college systems. As a result, these systems will be forced to further reduce enrollment, raise tuition and cut staff compensation. At the same time, local school districts are reeling as the state's allocations dwindle and lower assessed home values further erode property tax revenue. Additionally, federal funding for the local public workforce system and worker retraining is in jeopardy.

...and areas of extreme disparity persist

Despite the high levels of educational attainment for the region as a whole, parts of the East Bay are not enjoying educational or economic success. Many of these areas experience the related phenomena of lower school quality and lower housing costs. Comparing the map below with the map in Section 6 illustrating census tracts that have experienced declining employment from 1995-2009, reveals that these areas have been hit by disinvestment in productive activities over the last 15 years.

In many cases, these are also the regions that have the oldest, least well-utilized industrial infrastructure in the region.

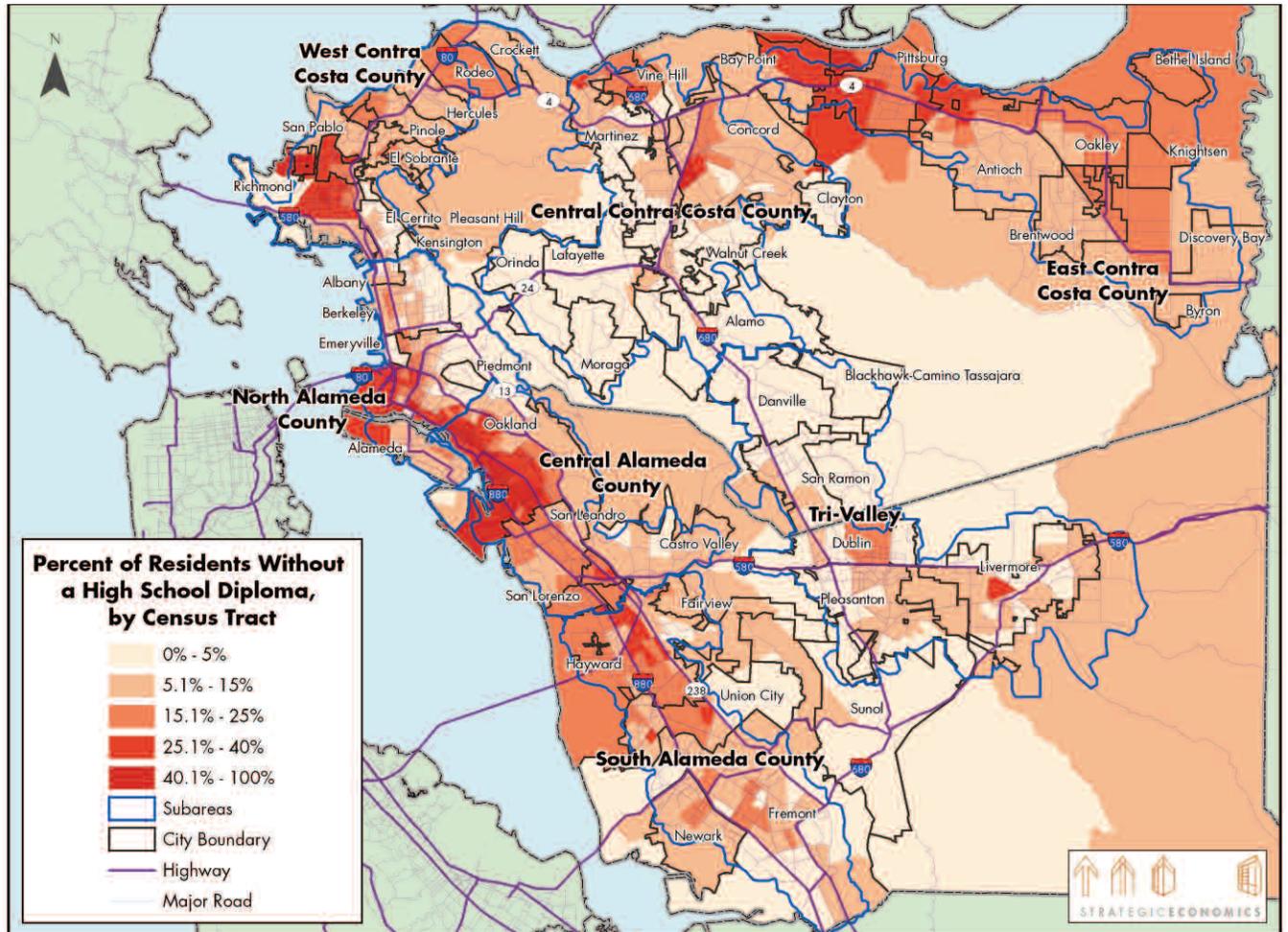


4 National Skills Coalition. *Middle-skill jobs state-by-state: Growing California's economy by investing in the forgotten middle*. Washington, DC: May, 2011.

5 America's Edge. *Can California Compete? Reducing the Skills Gap and Creating a Skilled Workforce through Linked Learning*, June, 2011.

6 Ibid.

Figure 5-2: Low Educational Attainment in the East Bay, 2005-2009



Source: Strategic Economics, 2011; US Census American Community Survey Estimates, 2005-2009; ESRI; MTC.

These educational and subsequent economic disparities are simply unacceptable. The changing dynamics of the economy mean that there are few jobs left that require a low level of educational attainment. As a high-cost region, the importance of increasing the educational attainment rate for all East Bay residents is not merely an academic issue, but an economic one.

Table 5-5: East Bay Earnings by Level of Education

Category	2000	2009
Less than High School	\$20,200	\$20,300
High school graduate	\$27,500	\$28,500
Some college, but less than 1 year	\$32,400	\$26,200
One or more years of college, no degree	\$33,800	\$33,400
Associate's degree	\$43,100	\$42,900
Bachelor's degree	\$56,400	\$57,500
Master's degree	\$81,600	\$81,400
Professional school degree	\$96,800	\$110,700
Doctorate degree	\$97,500	\$112,600

U.S. Census 2000; ACS 2005-2009; Calculations by Haveman Economic Consulting

Individuals with higher levels of education are able to command wages that allow them to afford the high cost of living in the East Bay. Most of the jobs in the sectors projected to grow in the region are going to require some level of post-secondary education. Residents with low levels of educational attainment will struggle further to find jobs that offer a self-sufficient wage.

ADDRESSING OUR WORKFORCE CHALLENGES

High school completion

Early childhood interventions (improved 3rd grade reading proficiency) and career technical academies – now called Linked Learning – are proven strategies for improving high school completion rates.

Linked Learning is an approach that integrates sound academics with career oriented technical education and work-based learning experiences. Students in high schools can opt for fields such as health, biomedicine, engineering, media, and the industrial arts and prepare for careers via a full range of options that include community colleges, colleges, and apprenticeships. Work-based learning includes mentorship, job shadowing, and internships with regional employers.

Contra Costa County currently has more of its high schools (68 percent) employing Linked Learning programs and strategies than any other





county in the state. Alameda County is in fourth place with 42 percent of its high schools using Linked Learning. The statewide California Partnership Academies – a popular version of the Linked Learning approach – have been in existence for more than two decades and are one of the most well-developed models of Linked Learning. A March 2007 study by ConnectEd concluded that students in these Academies are more likely to pass the state high school exit exam as sophomores, and more likely to graduate from high school.

Middle skill development

East Bay community colleges are implementing Career Advancement Academies to establish pipelines for undereducated, underemployed youth and young adults (18-30) who have dropped out of school or lack basic skills needed to complete a certificate or degree. The pipelines offer preparation for career technical training in various high demand technical industry sectors, while continuing to provide academic preparation in a real world, experiential learning context.

The Career Advancement Academies use model industry pathways that bundle basic skills, professional development, career technical education certificates, enhanced counseling, career development, and placement into high demand occupations with access to career ladders offering opportunities for wage advancement. Career pathways are contextualized in two ways: (1) they respond to basic skills challenges and barriers to education and employment faced by individuals from low-income, distressed communities, and; (2) they contextualize basic skills, career development, and job placement services to targeted industry sectors. Although the East Bay has been a leader in addressing the middle skill development challenge, the successful models need to be replicated in all school districts to meet the challenges of baby boomer retirement and regular skills upgrading.”

College graduation

In 2025 – only 35 percent of working-age adults will have a college degree in an economy that would otherwise require 41 percent of workers to

have a college degree according to the Public Policy Institute of California (PPIC). The PPIC and others have outlined three strategies for improving college graduation rates by increasing:

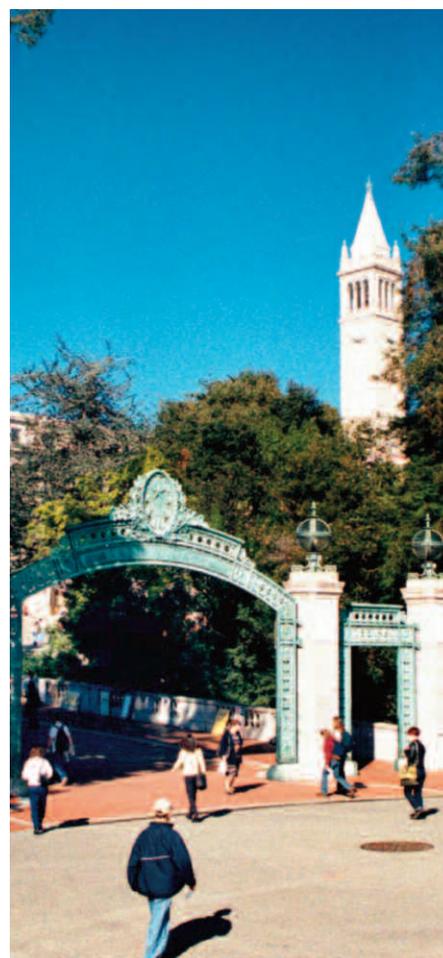
- college attendance rates;
- transfer rates from community colleges to four-year institutions (only about 10 to 12 percent of a cohort, or entering class, of community college students transfer to a four-year college or university);
- graduation rates among four-year institutions.⁷

STEM

This year California State University East Bay (CSUEB) established the Center for STEM Education on its Hayward campus with the assistance of grants from East Bay companies like Bayer, Chevron, and Wareham Development.

The groundbreaking center will enhance and help to coordinate existing STEM (science, technology, engineering and mathematics) education activities at CSUEB in order to give the university a greater role in regional and national STEM education issues. The center is at the heart of CSUEB's approach to addressing regional needs and challenges in STEM education and preparing graduates to be the Bay Area's workforce of tomorrow.

The center will allow CSUEB to begin teacher development in STEM education and to advance student academic achievement. The center will become the focal point of region-wide efforts to build on and expand sustainable models like Biotech Partners and MESA (Mathematics, Engineering, Science Achievement), two leading education and job training programs. It also will expand a pipeline of K-12 students motivated and prepared to pursue college degrees in STEM disciplines or math and science teacher education.



⁷ Hans Johnson and Ria Sengupta, "Closing the Gap: Meeting California's Need for College Graduates" Public Policy Institute of California, April 2009.



WIBs have an important role to make sure workers are carefully prepared, vetted, and matched to jobs; employers will only turn to them so long as that's the case.

– East Bay business consultant, 2011

Roles for workforce partners

Meeting the needs of students, job seekers and employers is a partnership effort. Workforce boards, education from pre-K through post-secondary educational institutions, training organizations and East Bay businesses are all critical partners in supporting policies to maintain and improve workforce skills for East Bay residents.

Workforce Boards

Local Workforce Investment Boards and the programs they oversee have many roles to play in developing a well-trained East Bay and Bay Area workforce.

Workforce Investment Boards provide labor market analyses and forecasts for their regions (like this report) that help employers and jobs seekers understand industry and occupational changes or skill requirement changes for existing occupations. They also engage employers to contribute industry knowledge, occupational insights and human resource practices through employer forums and ongoing information exchanges with workforce boards and other workforce partners.

Workforce boards and one-stop centers can help job seekers understand the new world of job search and acquire the skills to present themselves well in the world of Internet job search. Career counselors can help job seekers update and tailor their resume to what employers are looking for in applicants.

To respond to the desires of employers that job seekers in rapidly evolving high skill occupations “show, not tell” workforce boards should consider offering their clients portfolio learning laboratories. In such a scenario clients would be divided into interdisciplinary teams by their skill sets and given a project to complete. This simulation of how products are developed in the workplace provides examples to potential employers that illustrate the applicants’ strengths in skill areas, passion and critical thinking, and their ability to work in teams.

The Private Sector

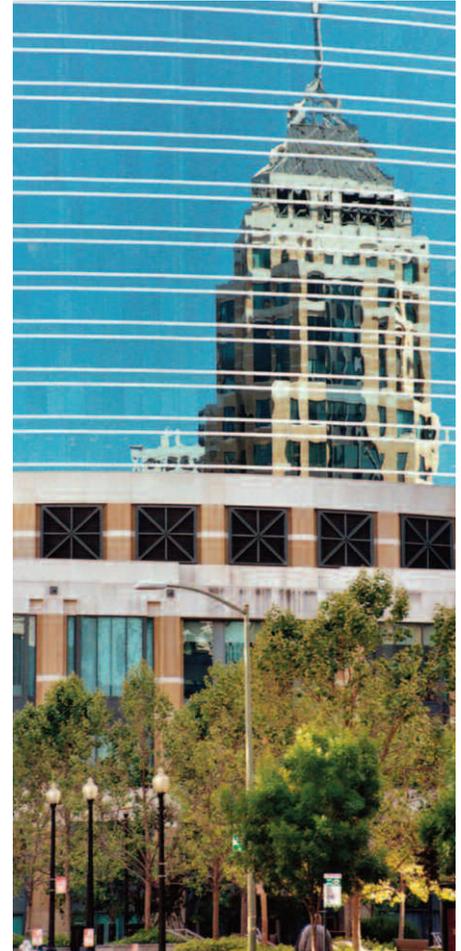
Businesses have many roles to play in facilitating the development of an educated and trained workforce.

It is increasingly important for educators and the private sector to develop innovative ways to give middle school and high school students experience in the world of work. Building on models like Linked Learning will help equip our future generation of East Bay residents and workers to be equipped for the challenges and opportunities of the 21st century economy. Businesses can be actively involved in developing direct work experience opportunities for high school students and other young adults who are having a harder time with entering the labor market.

Businesses also have an important role to play in helping schools, colleges and workforce boards understand trends in workforce needs and they can be advocates for innovation and funding for schools, colleges and workforce boards.

Workforce boards and their partners face increasing challenges as a result of the current high unemployment and slow job growth, the impending wave of baby boomer retirements, and the need for broad skills improvement to keep pace with competition from around the world.

All partners will have to work together to develop an East Bay workforce that is able to replace the retiring baby boom generation and adapt to the continuing increase in skill requirements as technology plays a larger and larger role in nearly all jobs in the economy.





Location matters. Different types of workers are concentrated in different parts of the Bay Area and beyond. Businesses recognize this and locate to access the mix of workers that suits them best; sometimes access matters more than proximity.

– East Bay business leader,
2011

LAND USE

The East Bay contains a diverse set of subareas that play an important role in the region

Though the East Bay economy is generally thought of as a single entity, it is useful to discuss specific subareas that play distinct roles within the region. For the purposes of this study, the East Bay was broken out into seven subareas grouping the major cities in the region. These subareas combined account for 87 percent of regional employment (the remaining 13 percent of jobs are in unincorporated areas).

Each of the East Bay's sub-regions has unique characteristics that drive its strengths in particular sectors of the economy, as shown in Table 6-1. For instance, Southern Alameda County, with its strong connectivity to the Silicon Valley economy, contains several high density employment nodes, with a concentration of manufacturing industries. Meanwhile, Northern Alameda County, which also holds several high-density job centers, has strengths in professional, scientific, and technical services as well as health care and social assistance. Some subareas, like West Contra Costa and East Contra Costa, are housing-rich places with a high number of households compared to jobs, and relatively lower connectivity to the East Bay's dense employment nodes. These subareas have a business mix that serves the area households, and therefore do have lower concentrations in driving industry sectors. Other subareas like Northern Alameda, the Tri-Valley, Central Contra Costa, and Southern Alameda, have a higher ratio of jobs to residents, stronger regional accessibility, and specific industry concentrations in driving sectors like Professional, Scientific, and Technical Services (PSTS) and Manufacturing. The patterns shown in the table indicate strong relationships between a subarea's regional accessibility and the mix of businesses likely to be located there.

Table 6-1: Characteristics of East Bay Subareas, 2008

Subarea	Cities included	Regional connectivity*	Share of Regional Employment	Jobs to employed residents**	Industry strengths***
Northern Alameda	Berkeley, Emeryville, North/West/ Downtown Oakland, Albany, Alameda	3	14.70%	1.81	PSTS, Health, Accommodation and Food Services
Central Alameda	East Oakland, San Leandro	3	16.00%	0.90	Wholesale Trade, Health, Manufacturing
Southern Alameda	Hayward, Newark, Union City, Fremont	3	14.50%	1.23	Manufacturing, Wholesale Trade, PSTS
West Contra Costa	Richmond, El Cerrito, San Pablo, Pinole, Hercules	1	6.40%	0.76	N/A
Central Contra Costa	Concord, Pleasant Hill, Martinez, Lafayette, Moraga, Orinda, Walnut Creek	2	17.70%	1.39	PSTS, Health, Accommodation and Food Services
East Contra Costa	Pittsburg, Antioch, Brentwood, Oakley	1	5.00%	0.67	Accommodation and Food Services
Tri-Valley	Livermore, Dublin, Pleasanton, San Ramon, Danville	3	13.20%	1.80	PSTS, Accommodation and Food Services

*This column represents the subarea's relative proximity to the dense employment nodes in the greater Bay Area. 1=low, 2=moderate, 3=strong.

** This column represents the ratio of jobs in the subarea divided by employed residents in the subarea in 2009. The East Bay region's ratio is 1.26.

***This column represents industries in which the subarea has a larger share of employment relative to the East Bay share.

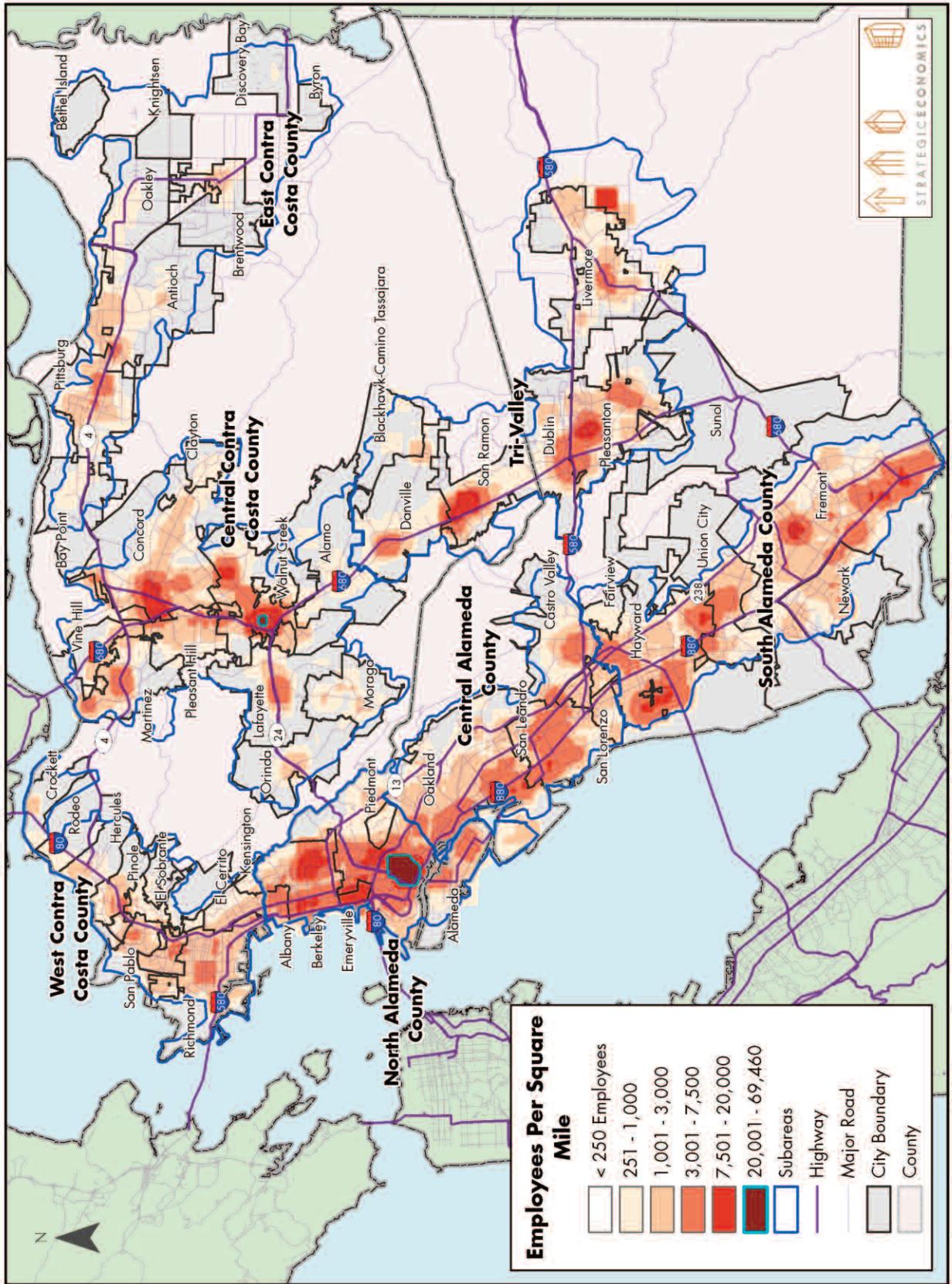
Sources: NETS, 2009; Haveman Economic Consulting, 2011; ACS 2005-2009; Strategic Economics, 2011

Job growth is mostly happening in existing employment centers

The employment patterns that existed in 1995 were generally maintained in 2008, with existing nodes expanding or intensifying. This indicates that it is important to focus on existing employment centers because they tend to be the places where job growth occurs, whether through the establishment of new firms, expansions of existing firms, or new firms moving into the East Bay.

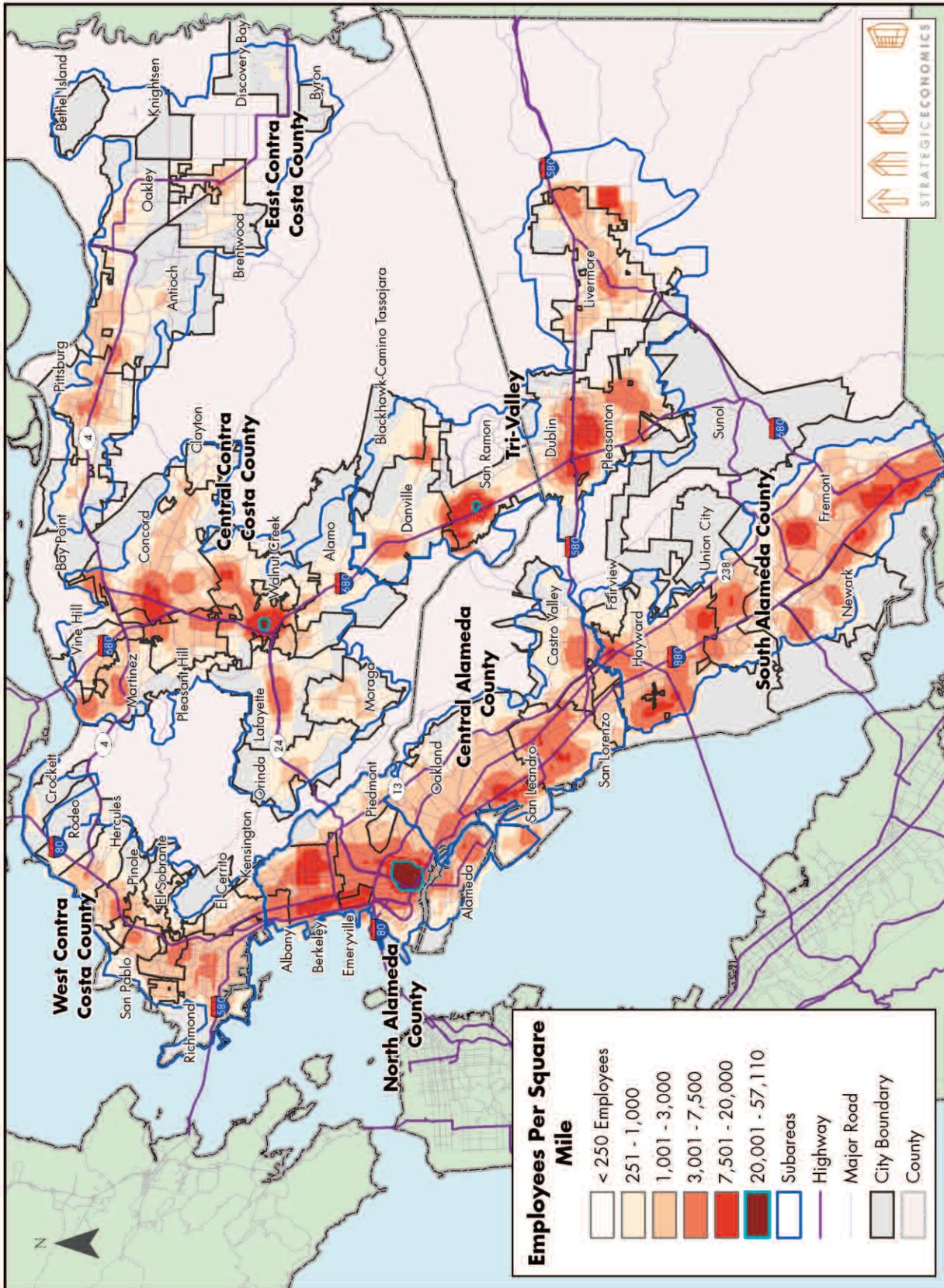
The maps on Figure 6-1 and Figure 6-2 depict the boundaries of the subareas and the distribution of employment in the region in 1995 and 2008 in terms of jobs per square mile. Figure 6-3 shows the density of net employment growth from 1995 to 2008 in order to visualize where new jobs have concentrated.

Figure 6-1: Employment Density (Workers per Square Mile), 1995



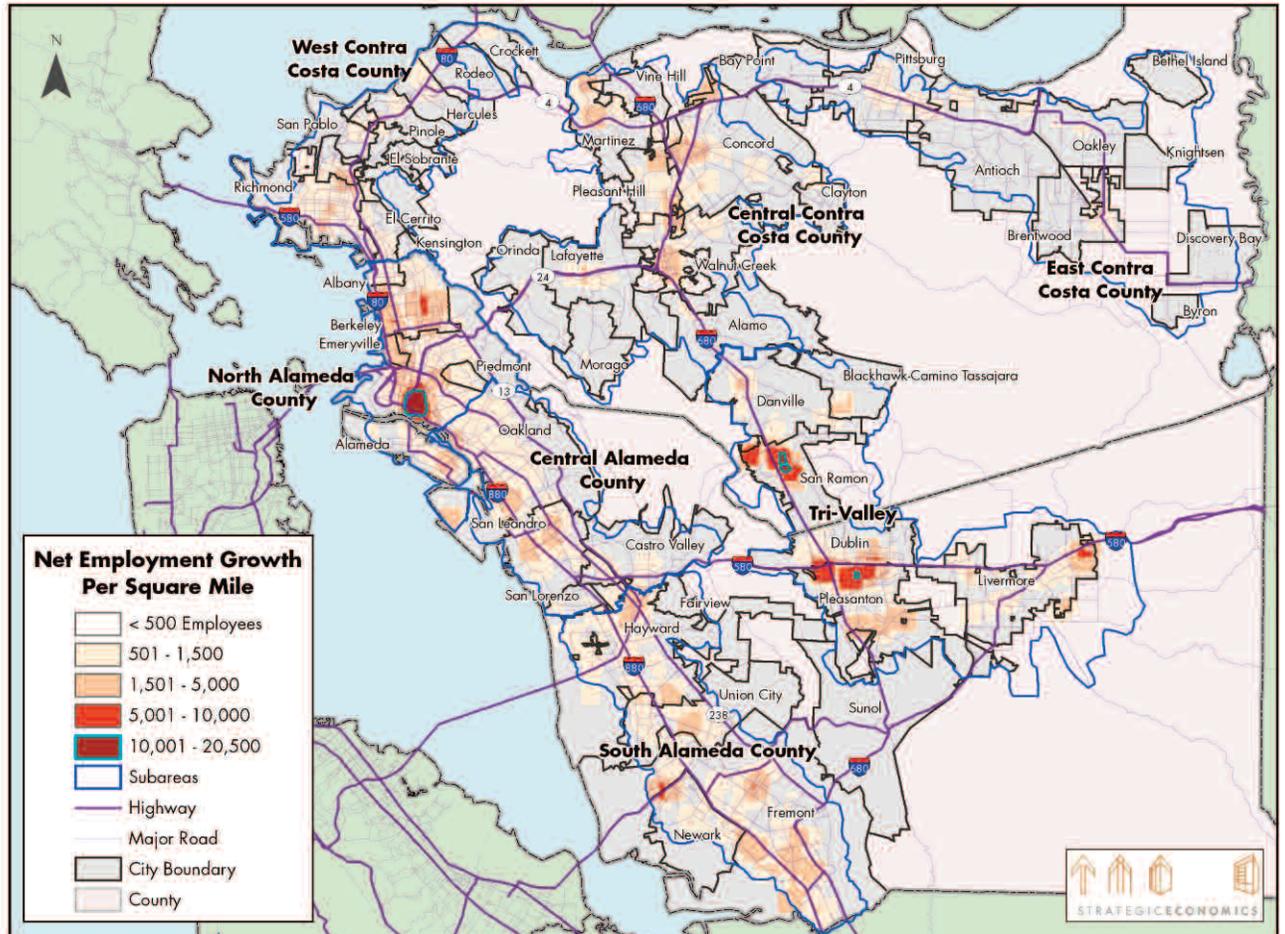
Source: Strategic Economics, 2011; Hoveman Economic Consulting, 2011; National Establishment Time Series (NETS), 2009; US Census; ESRI; MTC.

Figure 6-2: Employment Density (Workers per Square Mile), 2008



6 THE BUILT ENVIRONMENT

Figure 6-3: Density of Net New Job Growth, 1995-2008



Source: Strategic Economics, 2011; Haverman Economic Consulting, 2011; National Establishment Time Series (NETS), 2009; US Census; ESRI; MTC.

Infrastructure investments play a key role in the East Bay's development patterns

Historically, the East Bay region has been heavily oriented towards goods movement thanks to early investments in railroads and shoreline infrastructure, creating numerous sites for ports and ship yards. Goods movement became especially focused at the Port of Oakland and at the Port of Richmond, as well as numerous other private ports along the coast. The Inner East Bay became a preferred location for manufacturing uses, providing rail access, waterfront access to international markets, and relatively abundant and inexpensive land. Some of the more isolated portions of the Inner East Bay (such as Richmond) were sought-after locations for military and chemicals facilities.

After World War II, highway construction and suburbanization opened up the Outer East Bay to rapid development, leading to the more dispersed

pattern that exists today. As the workforce in the Outer East Bay grew, office and industrial parks were developed in the Central Contra Costa and Tri-Valley subareas. The Bay Area Rapid Transit (BART), which was designed to be a “hub and spoke” system, originally primarily served the Inner Bay Area, running along the I-80/I-880 and Highway 24 corridors. In the 1980s and 1990s, as much of the population and job growth occurred in the Outer East Bay rather than the historic urban core, BART extended along I-580 and Highway 4 to support commuters from the Tri-Valley and East Contra Costa subareas. Further expansion of the system is now underway with the construction of East Contra Costa County extension (eBART) extending service to Pittsburg and Antioch; an extension to Livermore is in planning stages. These new rail corridors will add accessibility to the East County and Tri-Valley regions, primarily by reducing congestion on I-580 and Highway 4; however, their impact on development is not likely to be as dramatic as the I-580/I-680 interchange, which spurred the construction of Hacienda and Bishop Ranch business parks.

The region’s business diversity is reflected in its built form

Because the East Bay economy is extremely diverse, the mix of commercial real estate in the region is very heterogeneous. Figure 6-4 illustrates the mix of non-retail commercial land uses built before 1980 and from 1980 to 2011. Over the years, as the economy has changed from its traditional base of labor-intensive manufacturing and goods movement industries to more high technology industries and services, there has been a corresponding increase in the amount of office and R&D/flex space built to accommodate those types of businesses.

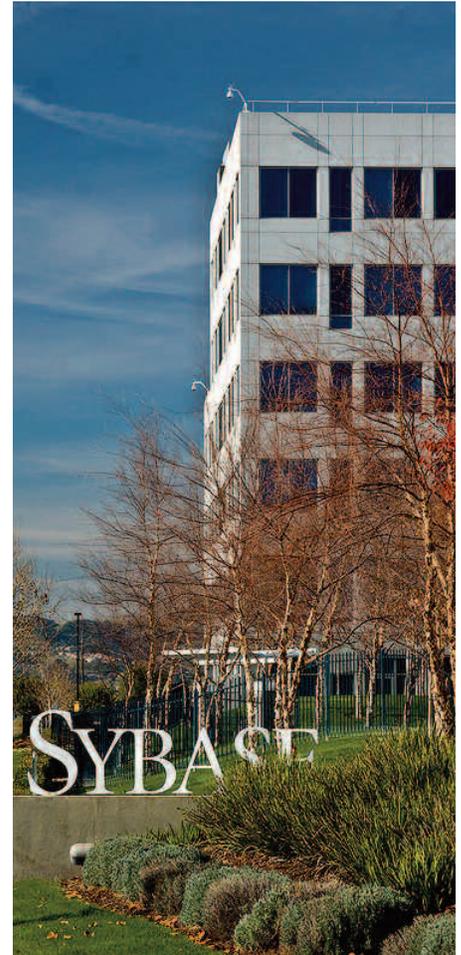
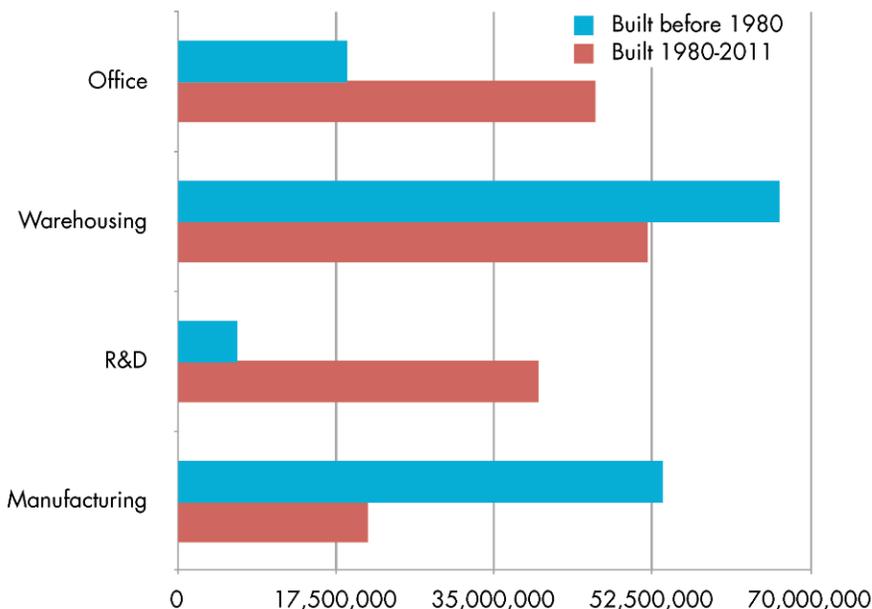


Figure 6-4: Historical Development Patterns of the East Bay (in millions of square feet)



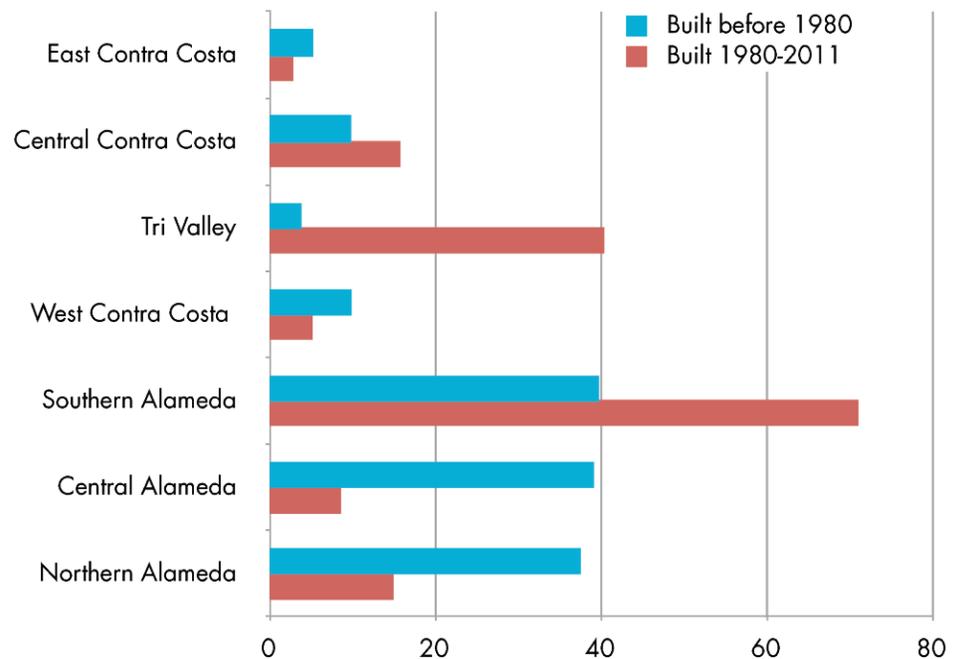
Source: CBRE, 2011; Colliers Parish, 2011; Strategic Economics, 2011

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As discussed above, the location of new development has had a lot to do with the construction of highways. Before 1980, commercial buildings were concentrated in the Inner East Bay along the shoreline in Northern Alameda County, Central Alameda County, Southern Alameda, and West Contra Costa County. These subareas continued to attract development in later decades, especially Southern Alameda County, but other subareas like Tri-Valley, Central Contra Costa County, and East Contra Costa County experienced substantial growth from 1980 to the present (Figure 6-5).

Figure 6-5: Non-Retail Commercial Development by Location and Time Period (in millions of square feet)



Source: CBRE, 2011; Colliers Parish, 2011; Strategic Economics, 2011

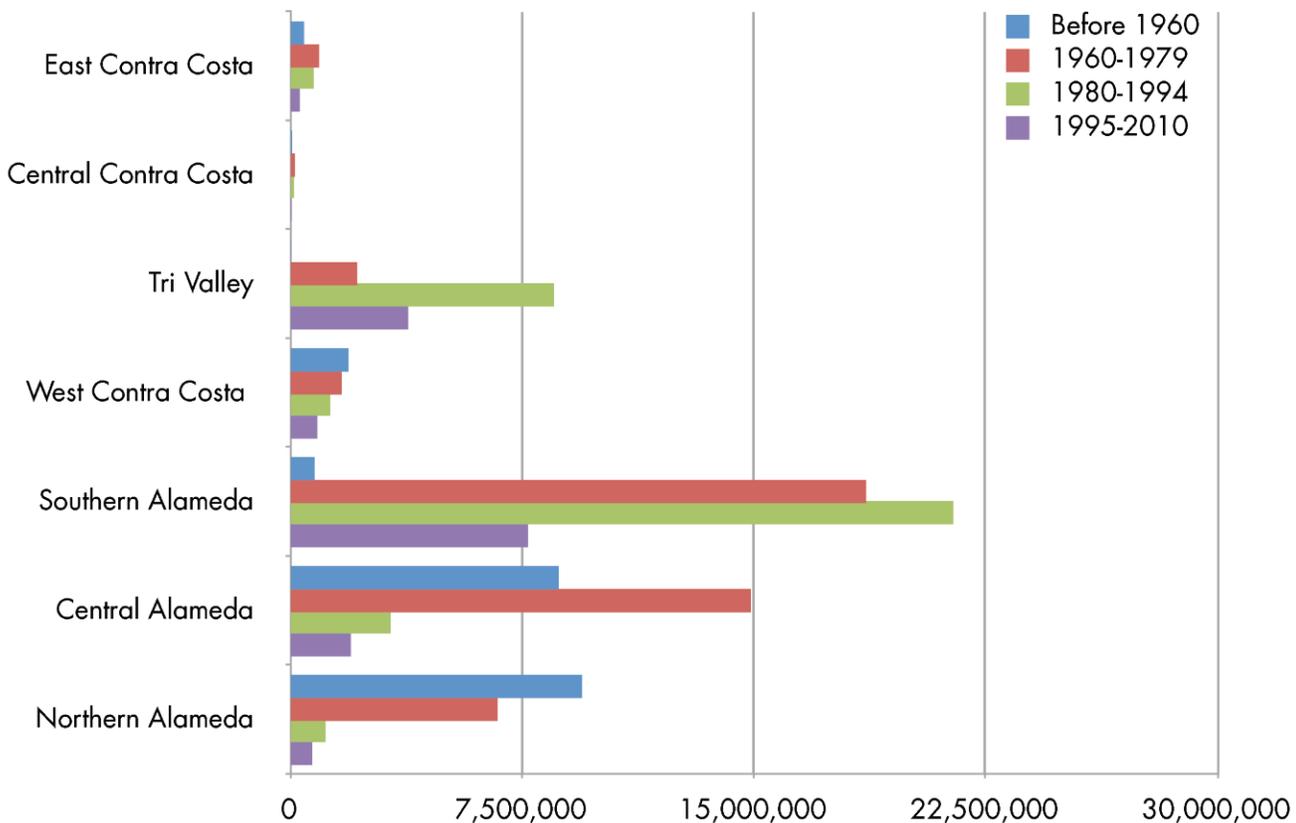
Warehousing continues to support goods movement industries.

Until the 1960s, warehousing uses to support the goods movement industries were concentrated along the Central and Northern Alameda County waterfront communities in proximity to the ports and railroads. As the industry has evolved, trucking has become the primary means of goods movement, now moving 80 percent of the Bay Area's land-based freight. While the rail-adjacent Inner Bay Area warehouses can also be accessed by trucks via I-80/880, other subareas have stronger connectivity

to other parts of the state. Most of the new warehousing space has been built in the Southern Alameda and Tri-Valley subareas, which are well connected by highways and have more abundant, relatively inexpensive land for development (Figure 6-6).

In recent decades, truck traffic has increased on I-580 due to the growth of distribution centers in low-cost inland locations outside the Bay Area and I-580's linkage to the national market. According to the Metropolitan Transportation Commission, I-580 was the Bay Area's second-busiest truck corridor behind I-80/880 in 2004, with 27 to 33 percent of all truck volume (by number of trucks). I-580 has enabled the growth of large distribution centers outside the Bay Area, in cities like Tracy and Lathrop, where labor and land costs are generally significantly lower.

Figure 6-6: Warehousing Development by Location and Time Period (in millions of square feet)



Note: Distribution of development by time period for Central Contra Costa and East Contra Costa subareas was estimated based on overall regional development patterns. Source: CBRE, 2011; Colliers Parish, 2011; Strategic Economics, 2011



The East Bay already has the transportation infrastructure and facilities for manufacturing, and we should use it! But our technological infrastructure is lagging behind.

– East Bay manufacturing business leader, 2011

In total, the Metropolitan Transportation Commission estimated that goods movement industries contributed 37 percent of Bay Area economic output as of 2004. As discussed in Section 3 of this report, within the Bay Area, the East Bay is the largest contributor to wholesale trade employment because of the relatively unique combination of the Port of Oakland and the heavy concentration of manufacturing.

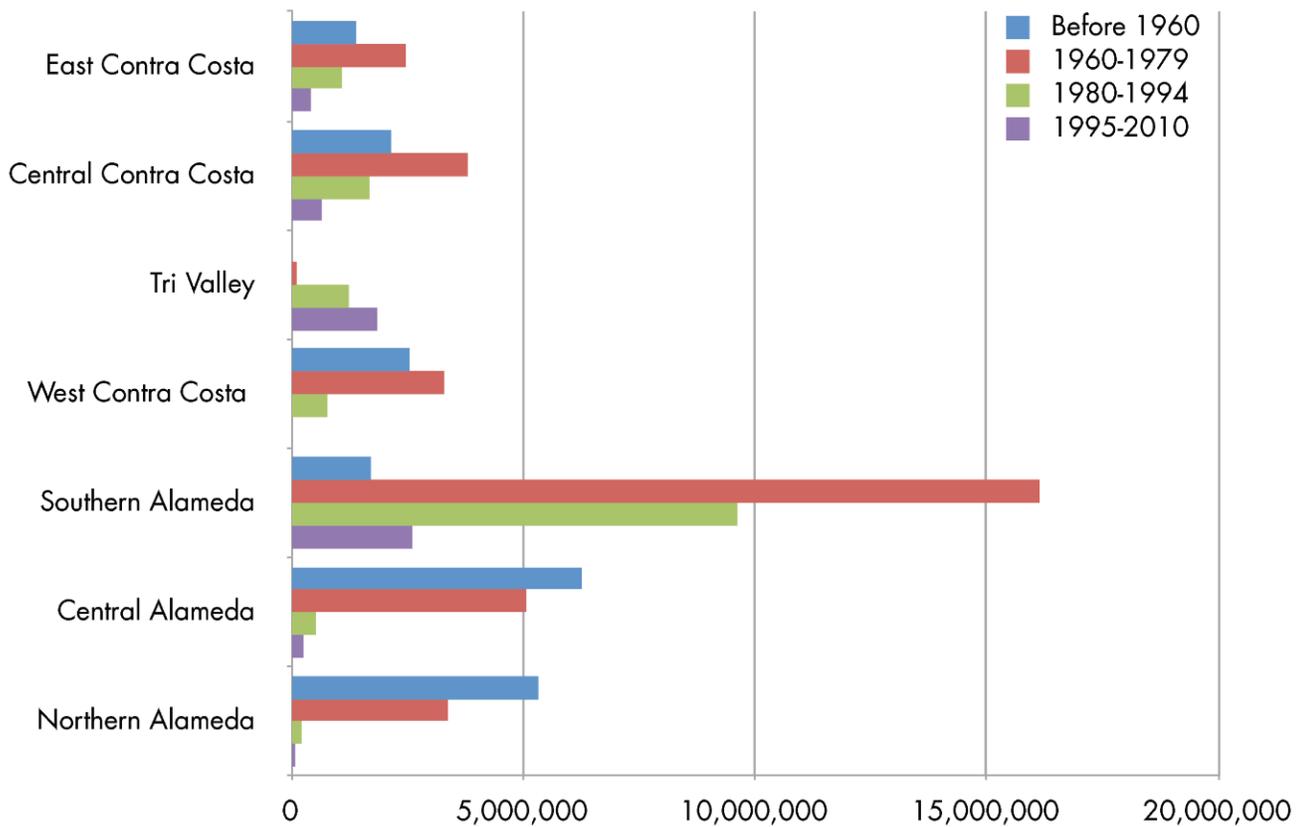
Demand for manufacturing space is concentrated near Southern Alameda and Tri-Valley subareas

Due to historic access to goods movement infrastructure and proximity to the Inner East Bay's workforce, the Northern Alameda and Central Alameda subareas hold much of the older, legacy manufacturing concentrated along the I-80 and I-880 corridors. Nearly three-quarters of the older industrial space built before 1960 is located in Northern Alameda, Central Alameda, and West Contra Costa. The manufacturing businesses located in the legacy rail corridor are primarily related to petroleum goods, medical instruments, and food manufacturing.

Since 1960, newer manufacturing space has been predominantly built in greenfield locations in Southern Alameda County and, to a lesser extent, the Tri-Valley subarea. These regions offer land availability, proximity to the laboratories and Silicon Valley, access to I-580 and the growing high-skilled labor force in the Outer East Bay (Figure 6-7). The advanced manufacturing activities associated with the innovation-based regional economy are concentrated in these subareas which have a very high share of employment in semiconductor, biomedical, and industrial machinery manufacturing activities.

As new development has increasingly occurred in greenfield locations, many of the older manufacturing buildings have aged and the quality of infrastructure, including streets and utilities, has been degraded. Many of the underutilized legacy industrial areas require extensive upgrades in order to attract new users. Due to weak market conditions, they have not been revitalized.

Figure 6-7: Manufacturing Development by Location and Time Period (millions of square feet built by time period)



Note: Distribution of development by time period for Central Contra Costa and East Contra Costa subareas was estimated based on overall regional development patterns.
Source: CBRE, 2011; Colliers Parish, 2011; Strategic Economics, 2011

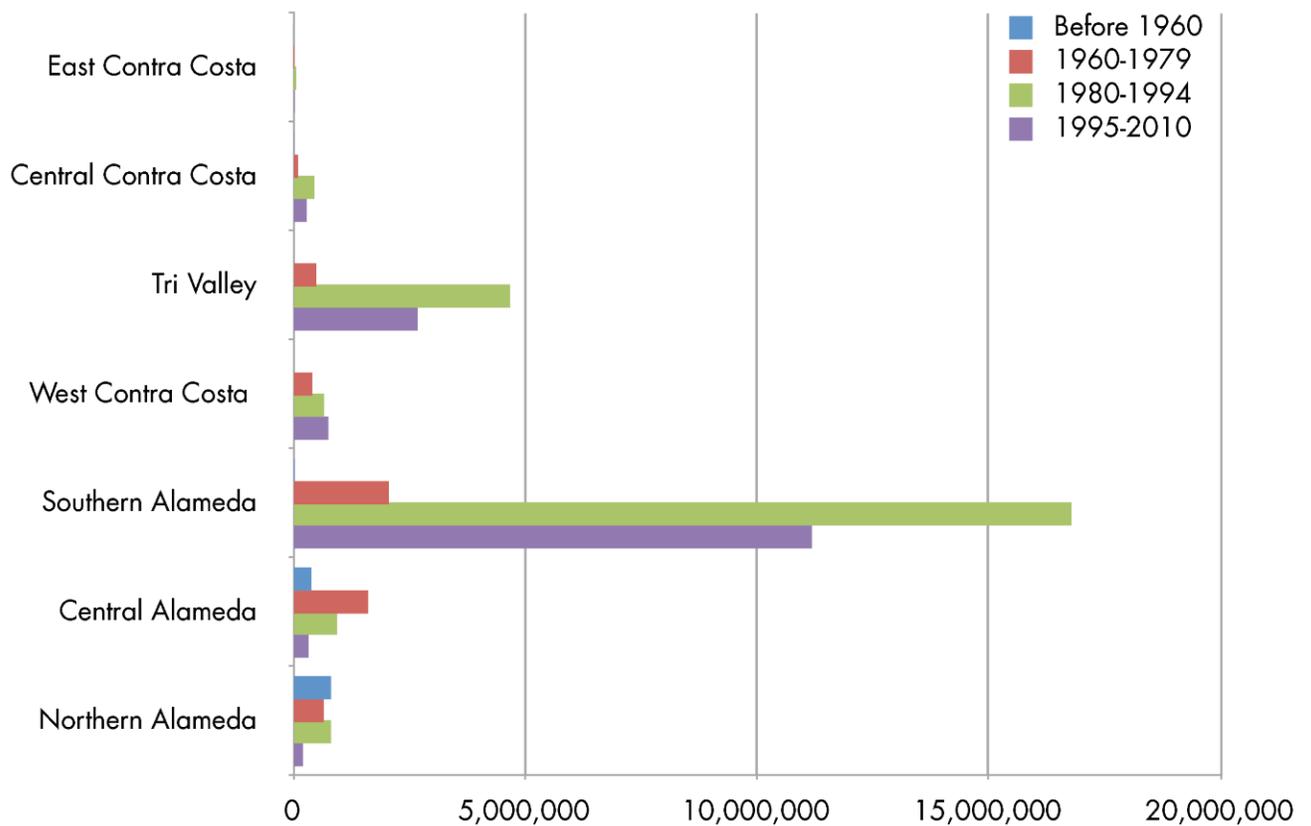
R&D/Flex Space is concentrated in places close to the Silicon Valley and research institutions

“R&D” space includes traditional research and development facilities featuring wet or dry labs and “heavy office” facilities that include exceptional power, cooling, and flooring to accommodate massive computer systems. It also refers to flex space that may include traditional office and/or manufacturing space within the same building. R&D/flex space is often built alongside manufacturing facilities, and the building types can sometimes overlap. In the East Bay R&D/flex space, which was mostly built after 1980, is heavily concentrated in Southern Alameda County, with a significant amount of development in the Tri-Valley (Figure 6-8). These subareas are attractive to technology firms due to from their proximity to the cutting-edge research activities in the Silicon Valley and the Livermore and Sandia national laboratories, as well as their regional accessibility to highly educated Bay Area residents. Fremont, in particular, received a great deal of the new R&D development as the Silicon Valley experienced tremendous growth in the 1990s and many companies required new commercial space.

6 THE BUILT ENVIRONMENT

Today, Fremont is home to many of the region’s biotechnology and clean technology firms including Boehringer Ingelheim, Lam Research, and Deeya Energy. However, the current market for R&D space is weak, due to the exuberant pace of construction that occurred in the 1980s and 1990s. While some of the vacant space may be absorbed as the technology sector rebounds, particularly in the hotter market locations, some of the excess space in weaker locations may need to be adapted to other uses.

Figure 6-8: R&D/Flex Development by Location and Time Period (millions of square feet built by time period)



Note: Distribution of development by time period for Central Contra Costa and East Contra Costa subareas was estimated based on overall regional development patterns. Source: CBRE, 2011; Colliers Parish, 2011; Strategic Economics, 2011

The office market is heavily concentrated in selected nodes

Office uses are heavily concentrated in Northern Alameda County due to the Oakland central business district's historic role as an employment center. Other important office nodes exist in the Tri-Valley (Pleasanton, Dublin, San Ramon) and Central Contra Costa County (Walnut Creek, Concord, and Pleasant Hill). Downtown Oakland provides robust access via the Bay Bridge, freeways, and BART, and continues to hold a large share of the region's office space.

However, in the last fifty years enormous quantities of office space have been developed in the Outer East Bay due to suburbanization and better access via freeways (Figure 6-9). The chart below illustrates the increasing importance of the Central Contra Costa County and Tri-Valley subareas for new office construction. Newer office space is especially concentrated near key freeway interchanges. For example, the development of Bishop Ranch and Hacienda business parks in the Tri-Valley region in the early 1980s was in part spurred by the enhanced accessibility afforded by the I-580 and I-680 interchange, as well as the proximity of high-quality executive housing. BART and ACE trains enhance access to these locations, though transit's role in these places is more limited than in the Inner East Bay, which has a more robust network of buses and fixed-guideway transit.

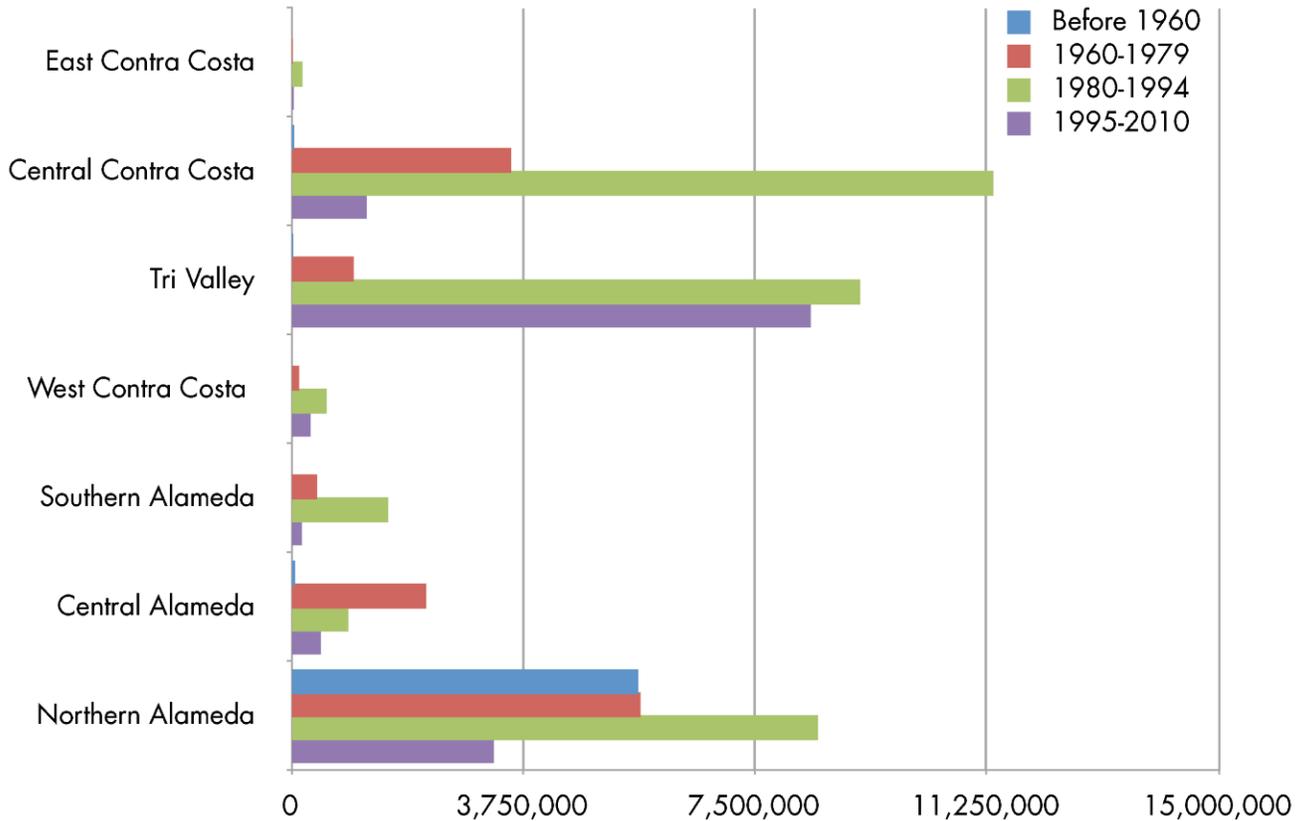
Land use policies also played an important role in facilitating office development. After the passage of Proposition 13 in the late 1970s, which restricted property tax increases on existing residential and commercial properties, many smaller cities in the Outer East Bay approved new commercial development to increase their revenue streams. Continued office construction in the East Bay was reinforced throughout the 1980s after the adoption of Proposition M in 1986, which limited high-density development in Downtown San Francisco, pushing unmet office demand to places like Downtown Walnut Creek.

Currently the office vacancy rate in the East Bay is high but showing signs of improvement as employment growth resumes in key sectors like PSTS and information. With office markets in Silicon Valley and San Francisco tightening again, it is expected that the East Bay office market will be restored to healthy occupancy levels.

Southern Alameda County and the Tri-Valley are great locations because they have access to a large base of skilled workers in the nearby area (including the Central Valley workforce). These communities also have more affordable housing than San Francisco or the Peninsula.

– East Bay business leader, 2011

Figure 6-9: Office Development by Location and Time Period (millions of square feet built by time period)



Source: CBRE, 2011; Colliers Parish, 2011; Strategic Economics, 2011

THE ROLE OF TRANSIT

Transit plays an important role in serving the region's employment centers

More than one quarter of the East Bay region's jobs are currently located near high-capacity transit, depicted in Figure 6-10.¹ The existing high-capacity transit network in the East Bay region principally serves Alameda County and the Central Contra Costa County subareas. Many of the region's transit-adjacent jobs are concentrated in office buildings in Downtown Oakland; the 19th Street, 12th Street, and Lake Merritt BART station areas combined hold half of the region's jobs near BART (see Figure 6-11).

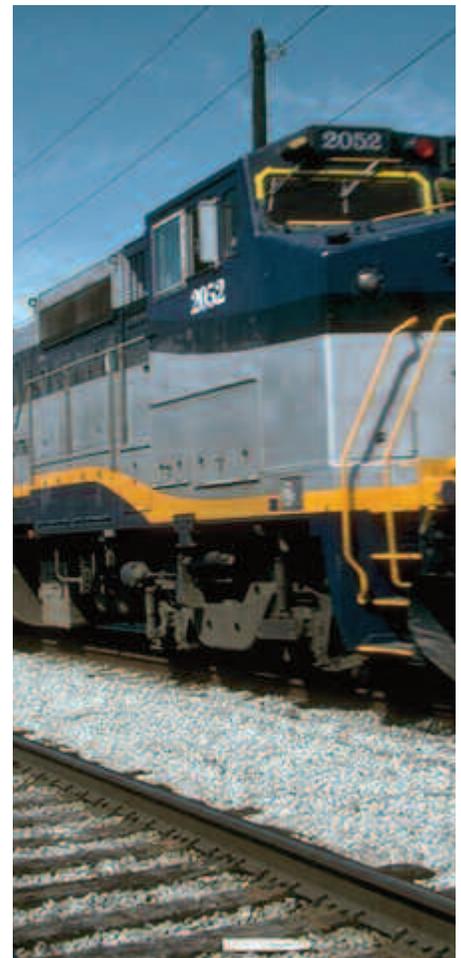
¹ For the purposes of this analysis, high-capacity transit includes BART and bus rapid transit. SE calculated the share of jobs located within one-half mile of a BART station and within one-quarter mile of the Telegraph Avenue and San Pablo Avenue rapid bus corridors (1R and 72R, respectively).

The dispersed nature of recent job growth poses a challenge for transit service

While the region's total employment has had a healthy increase from 1995 to 2008, job growth within a half-mile radius of BART stations and within a quarter-mile of Rapid Bus corridors (lines 1R and 72R) has remained virtually flat. The share of the region's jobs located near transit has actually declined from 34 percent in 1995 to 29 percent in 2009, reflecting the fact that much of the job growth during this period occurred in places away from transit, such as the I-680 corridor (Figure 6-12). While the region's share of jobs near transit is higher than the national average, there are still opportunities to maximize the effectiveness of transit for commuters. The approach should be two-pronged: 1) create better transit connections to suburban centers in places like Fremont, San Ramon, and Newark, and 2) encourage more job growth in existing transit-rich areas that have the capacity to accommodate it, like Downtown Oakland.

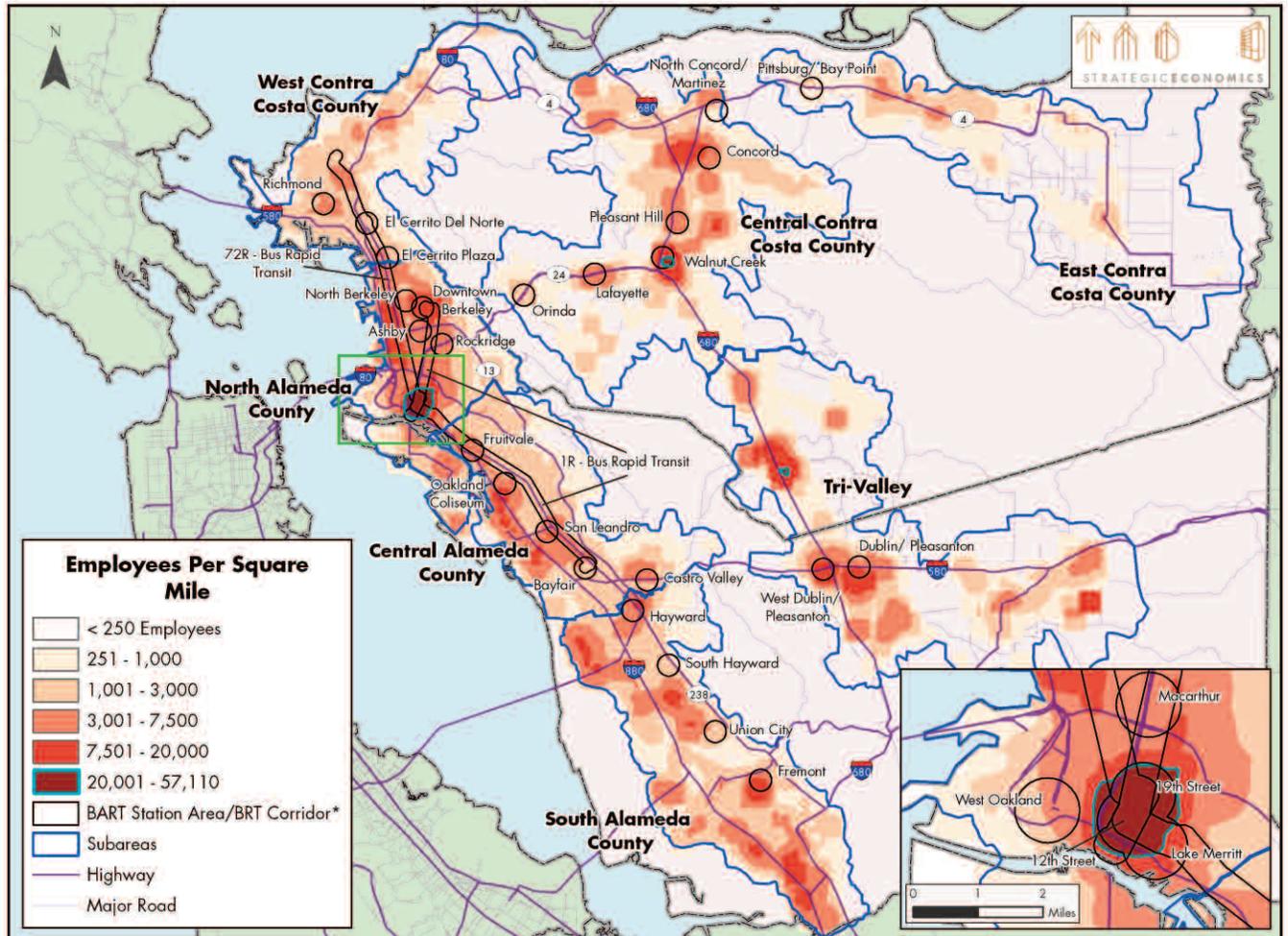
The private sector can be an important partner in providing better transportation options for workers

Private or closely-coordinated shuttle services connect significant numbers of East Bay workers to jobs beyond the rail and rapid bus stations. These privately operated shuttles augment the BART system, serving tens of thousands of the region's workers in a relatively low-cost way. These systems are particularly important for places in the Outer East Bay with limited BART accessibility. For example, the Bishop Ranch Business Park in San Ramon is not within a short distance from BART, but it offers employees free express buses to the Walnut Creek and Dublin/Pleasanton BART stations, as well as the Pleasanton ACE station. Other business parks like Hacienda in Pleasanton and Harbor Bay in Alameda offer similar services. East Bay hospitals and college campuses also run shuttles, including UC Berkeley, Lawrence Berkeley National Laboratory, California State University East Bay in Hayward, Kaiser Permanente, and Alta Bates hospitals. Finally, many business groups have banded together to run frequent shuttles and circulators, such as the Emery Go-Round in Emeryville, Downtown Free Ride in Walnut Creek, and LINKS in San Leandro. These types of solutions involving the participation of the private sector are one important way of maximizing the efficiency of the East Bay's existing transit infrastructure.



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Figure 6-10: Employment Density and Access to High-Capacity Transit, 2008



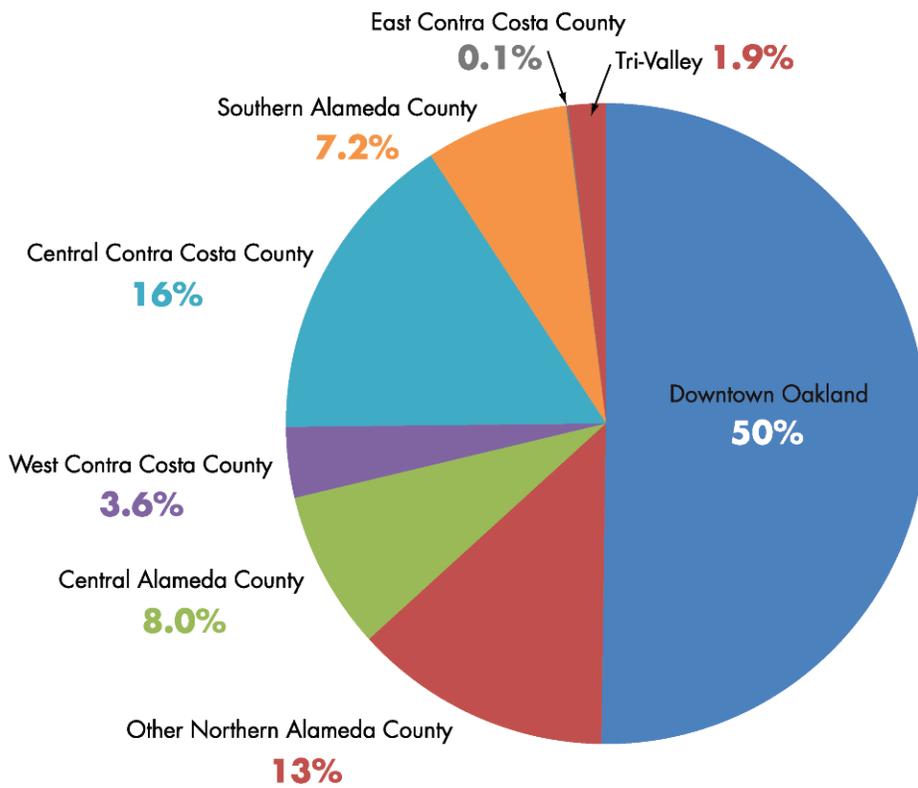
*Station Areas are defined as a half-mile buffer surrounding a BART station. BRT Corridors are defined as a quarter-mile buffer along the BRT alignment. Source: Strategic Economics, 2011; Hoveman Economic Consulting, 2011; National Establishment Time Series (NETS), 2009; US Census; ESRI; MTC.

UNDERPERFORMING EMPLOYMENT AREAS

In aggregate, the East Bay has experienced healthy job growth from 1995 to 2009. Yet there are a number of areas that have consistently lost jobs during this period. Underperforming employment areas are defined as census tracts that have experienced negative job growth in both the 1995 to 2006 period when the rest of the region experienced high growth as well as the 2006 to 2009 recessionary period.

The majority of places experiencing consistent job loss are older wholesale trade and manufacturing districts along rail/I-880 corridors in West Contra Costa County, Northern Alameda County, Central Alameda County. In addition, there are a small number of places experiencing declining employment in Central Contra Costa County, East Contra Costa County, and the Tri-Valley which have suffered from the housing market downturn and diminished consumer spending.

Figure 6-11: Distribution of Jobs near BART by Subarea, 2008

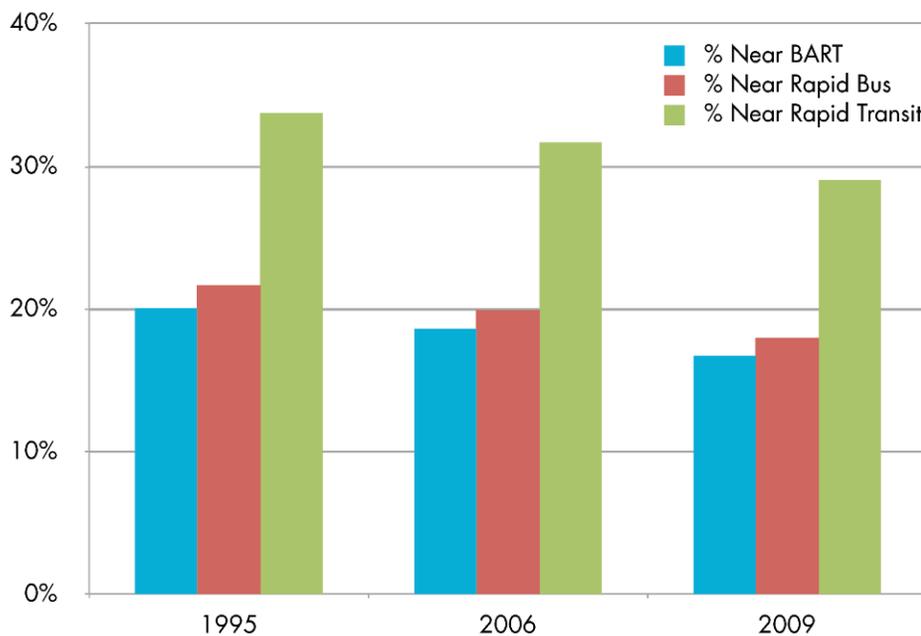


Cities can support manufacturing businesses by improving accessibility in industrial districts, creating efficiency and reducing bottlenecks.

– East Bay business leader, 2011

Source: CBRE, 2011; Colliers Parish, 2011; Strategic Economics, 2011

Figure 6-12: Share of East Bay Region's Jobs near Transit



Source: NETS 2009; Metropolitan Transportation Commission, 2011; Strategic Economics, 2011



As discussed earlier, the manufacturing sector in the East Bay overall is healthy and shows significant promise. Many of the manufacturing sub-sectors linked to the high-technology economy continue to grow, including semiconductor equipment manufacturing and clean technology manufacturing. Nevertheless, much of that growth has occurred in Southern Alameda County and the Tri-Valley, which are linked to the Silicon Valley, rather than the historic industrial core in Northern Alameda, Central Alameda and West Contra Costa County. The reasons for the job losses in these subareas are specific to the individual places, and include the following range of issues:

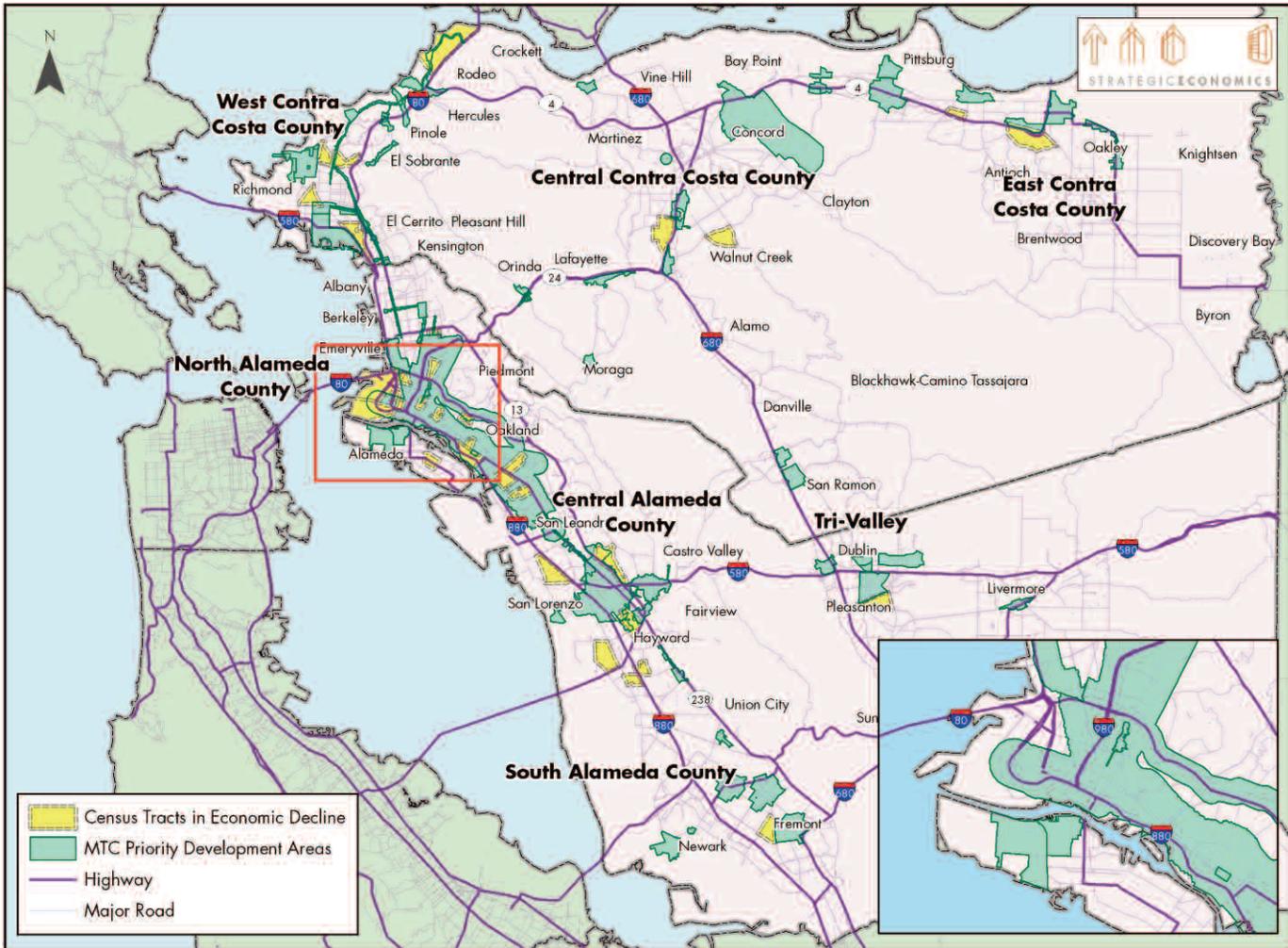
- Adaptive reuse projects are much more expensive than traditional greenfield development due to the high cost of environmental cleanup and the significant upgrades in basic infrastructure required to enable development.
- Location and proximity to transit and transportation networks are also an important consideration. A few of the older industrial districts are relatively isolated within the region and while this may be an advantage for some industries, others may prefer a more central location.
- In the recent past, land economics favored housing development over industrial preservation. In the late 1990s and early 2000s, as the housing crisis in the region intensified, there was concern that zoning industrial districts to residential uses was leading to the displacement of these businesses. In some areas, land use uncertainty and speculation of market value may also have deterred re-investment and adaptation of older uses.

Given the diversity of causes for the job declines, it is clear that there is no “one-size-fits-all” solution to reinvigorating these underperforming employment areas. However, there are some opportunities for businesses, cities, and regional agencies to work in a more coordinated fashion to improve the performance of these areas.

Opportunities exist to better coordinate local and regional planning efforts

The regional Sustainable Communities Strategy (SCS) is currently being developed by the Metropolitan Transportation Commission and the Association of Bay Area Governments in partnership with the Bay Area Air Quality Management District (BAAQMD) and the San Francisco Bay Conservation and Development Commission (BCDC), with the goal of aligning transportation investment, land use, and housing policies to meet

Figure 6-13: Location of Declining Census Tracts and Priority Development Areas in the East Bay



Source: Strategic Economics, 2011; US Census; ESRI; MTC.

greenhouse gas emission reduction targets, as mandated by state legislation (SB 375). The SCS is scheduled to be adopted by 2013 for the nine-county Bay Area region, and plans for future allocation of housing, jobs, and transportation from 2015 to 2040.

In order to meet the targets, the plan has focused on accommodating most of the future housing and employment in existing urbanized areas, particularly in places close to public transit. The areas receiving the majority of new growth include transit corridors; Priority Development Areas (PDAs), which are locally nominated places that have been designated for future housing growth; and Growth Opportunity Areas, which are not locally-defined PDAs, but share many of the same attributes. Figure 6-13 illustrates the low-performing census tracts (in yellow) that have experienced continuous job decline, along with the geographies of the PDAs (in green) in the East Bay.

As shown, while there is some overlap between them, there are a lot of industrial areas west of I-80/I-880 that have not been designated PDAs, even though they are important infill places that could be revitalized with careful planning. Furthermore, there is little land use planning underway for the majority of these places. This “mismatch” poses a challenge for integrating a revitalization strategy for these districts with the SCS and local land use planning processes. Bringing these places to the attention of local and regional policymakers and planners is the first step for recognizing that the reinvigoration of these districts can play an important role in a regional economic development strategy.

7 MEETING THE CHALLENGES AHEAD



The East Bay Green Corridor is streamlining solar permitting processes across 8 cities.

The East Bay has experienced the most severe economic downturn in nearly four generations. The collapse of the housing market, the global financial crisis and ongoing shortage of capital for small business, and the severity and duration of under and unemployment have hit the region hard. While most of the trends buffeting the East Bay economy originate at the national, state, or even global level, understanding what can be done at the regional and local level is essential to our ability to revitalize our prosperity here at home.

The good news is that the fundamentals of the East Bay economy are strong. The East Bay possesses human, physical, and cultural assets that are the envy of other regions. This report seeks to illustrate how these assets help drive our economic growth and prosperity. They are the reason why many companies start and expand here. They are why a talented workforce chooses to live here.

With these assets identified, now comes the task of taking action to keep them strong and to allow employers and job seekers alike to benefit from them and from all the East Bay has to offer.

Most of the jobs and investment opportunities in the East Bay come from companies choosing to start their business here or to expand their existing business here. Making sure the East Bay continues to be the place where companies want to locate is essential to creating opportunity and prosperity. To do this, the region must:

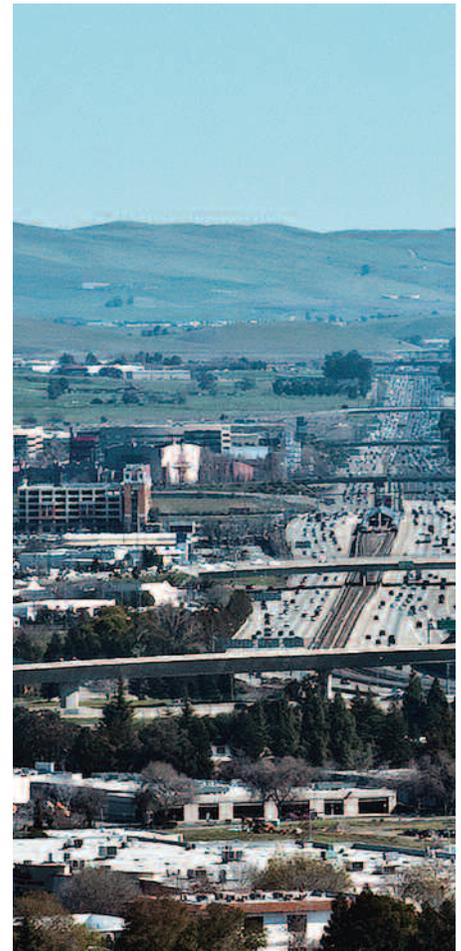
Our business climate

- Focus on ensuring that companies – especially small and medium sized ones - start, survive and thrive here. Easing the permitting and regional regulatory processes they must go through as well as connecting them to support services in finance, business planning, and mentoring are critical steps we can take.
- Work to address statewide regulatory and governance issues. Providing state leaders with direct access to information and feedback from business executives and regional leaders so that they can address specific issues at the state level will be a critical step the East Bay can take.
- Fight for continued federal and private support for the national research laboratories and related R&D activities in the East Bay. These institutions are critical to maintaining the region's competitive edge in today's innovation economy.

- Celebrate manufacturing. Manufacturing is not dead but the region needs to nurture it - particularly advanced manufacturers and their need to be in proximity to PSTS activities and R&D/flex space. Preparing an advanced manufacturing workforce will also be critical (see below).

Our people

- Make education and on-going workforce development the region's top economic priority. It impacts every aspect of the regional economy. It is why businesses locate here. It can determine whether or not they succeed and grow here.
- Fully fund public education. Schools at every level are under threat. School districts are making deep cuts, expanding class sizes and eliminating programs. Community colleges are trimming courses and raising tuition. CSU East Bay and UC Berkeley have seen their state contributions slashed and, as a result, are raising tuition and cutting programs.
- Expand the population's access to good schools and innovative learning programs. The workforce preparing to replace the retiring Baby Boom generation has a lower level of educational attainment than the workforce it is seeking to replace. At the same time, workplace requirements are becoming more technical in every occupation. Addressing disparities in school quality and access can help strengthen the skills of the incoming generation.
- Support and bring to scale models like Linked Learning and Career Advancement Academies which enable project-based, school-based enterprise and work-based learning. Contra Costa is a state leader in these efforts. Expanding and deepening the impact of these models can greatly enhance the engagement and achievement of today's students.
- Expand and enhance business involvement with educational institutions at every level but especially with East Bay high schools and community colleges. More closely aligning educational experiences with the world of work through innovative curricula, field trips, internships, apprenticeships, and mentorships is a best practice the East Bay must adopt more broadly.
- Preserve public dollars for worker re-training. The demands of the global economy shift daily. To compete, the East Bay must develop a system for continually upgrading the quality of its workforce – especially its older workforce. Strengthening the ability of local workforce boards and related institutions to facilitate the adaptation of the region's workforce to new labor market demands is a critical next step.



7 MEETING THE CHALLENGES AHEAD



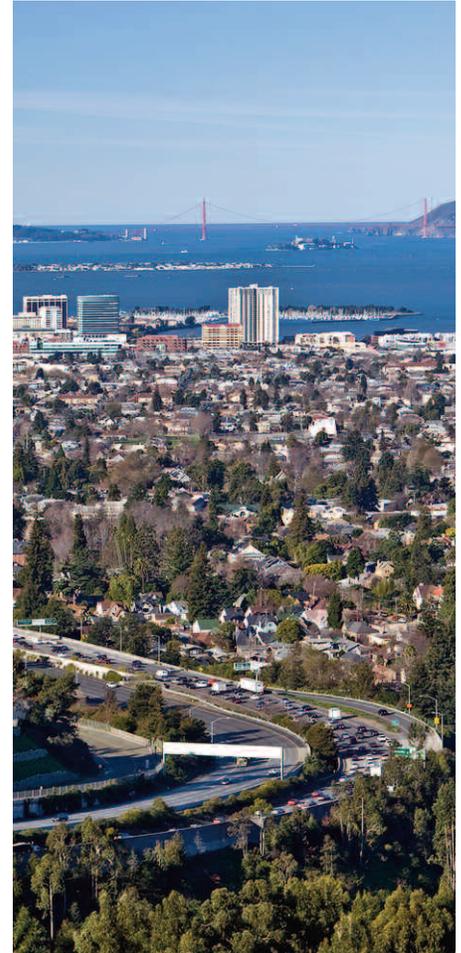
- Close the remediation gap. Community colleges, state colleges and universities all spend valuable resources doing the work our high schools are not consistently doing: preparing kids for college. Monies spent on remediating math and language arts skills could be spent on providing specialized skills or knowledge. East Bay high schools must be supported to close this remediation gap.

Our land and infrastructure

- Maintain and upgrade the region's transportation infrastructure. The Great Recession has cut deeply into state and local resources for maintenance of the East Bay's core infrastructure – roads, bridges, transit, rail, maritime and air. This infrastructure is critical to the ability of East Bay businesses to operate. The region must not lose sight of the near term consequences of deferring maintenance and investment in these key, long-term assets.
- Assist older industrial areas in adapting to newer, more productive uses. This is critical in light of projected changes to state redevelopment law. The East Bay is home to a number of important commercial and industrial areas that are near transit and transportation but which are currently under-utilized and unsuitable for many of today's businesses who would like to locate in the Inner East Bay. The state must consider another framework of incentives, tax breaks, or other mechanisms for closing the gap between what the market will finance for the rehabilitation of these areas and what it will actually cost. The public benefit in terms of increased employment and reduced green-house gases are well worth it.
- Facilitate the local processes that allow competing interests in neighborhoods that need older facilities to be rehabilitated to reconcile and create a viable plan for urban renewal that residents can enjoy and the market will deliver.
- Draw attention to and improve the performance of these older industrial areas by incorporating them and their needs into the region's Sustainable Communities Strategy (SCS). Some of these older regions are not in Priority Development Areas (PDA's) identified in the SCS process although they are important pieces for infill development.

- Create better transit connections to existing suburban employment centers. This report illustrates that most employment growth in the East Bay has occurred in existing employment centers. Some of these are well connected to transit (Oakland) while others are not (San Ramon, Fremont, Newark). Regional transit planners should engage and appreciate all of the private and closely coordinated shuttle services that connect the region’s workforce with its core transit lines.
- Encourage job growth near existing transit while still planning appropriately for commercial uses that may not locate easily near housing or in a mixed use environment. Some industries, particularly those that require truck access, the use of hazardous materials, or more intense use of the utility infrastructure, may not be able to locate in a mixed-use environment near BART stations. Nevertheless, these users are critical for the economic health of the region and their needs must be considered in the region’s land use, transportation and housing plans.
- Focus on the needs of businesses – both present and future – in preparing regional plans for adapting to climate change. Economic opportunity is an equal driver behind the East Bay’s quality of life along with the region’s environment and incredible natural resources and its people. The three E’s (economy, environment, equity) must be treated equally in the preparation of regional plans.

Ensuring that the East Bay economy continues to evolve and remain competitive in the context of dynamic national and global trends demands continued attention to education and workforce development, transportation and land use planning, and a policy environment which allow foster a healthy business climate, promote investment in entrepreneurship and company expansion, and support employment growth across a range of fields enabling access to opportunity for all income-earners and their families.



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