

## MEMORANDUM

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Date: March 19, 2012

To: Doug Johnson, MTC  
Therese Trivedi, MTC

From: Sujata Srivastava and Alison Nemirow, Center for Transit-Oriented Development

Project: 1019 – MTC TOD Policy

Subject: Historic and Projected Employment Trends in the Bay Area

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

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

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<sup>1</sup> CTOD/Strategic Economics, “Transit-Oriented Development Demand Analysis,” Prepared for the San Francisco Bay Area Metropolitan Transportation Commission, July 2005.

<sup>2</sup> CTOD, “Transit and Regional Economic Development,” May 2011, <http://www.reconnectingamerica.org/resource-center/browse-research/2011/transit-and-regional-economic-development/>.

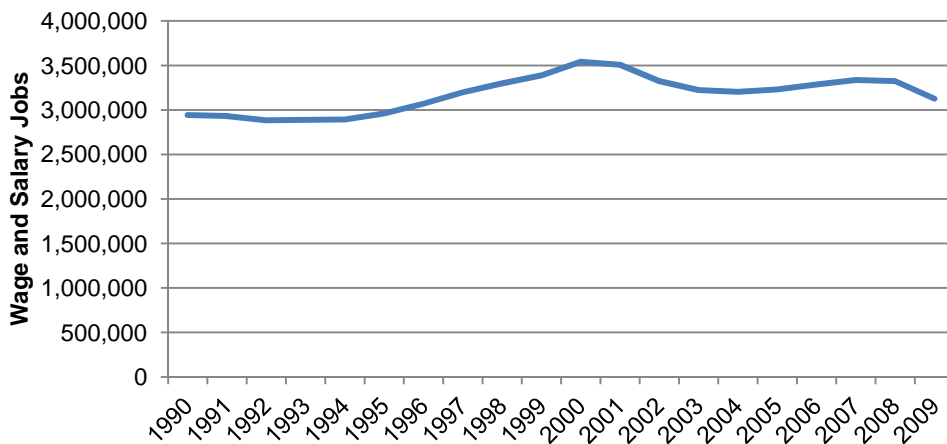
## REGIONAL INDUSTRY AND EMPLOYMENT TRENDS

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

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

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

**Figure 1. Total Wage and Salary Employment in the Bay Area, 1990-2010 (a)**



Source: California Economic Development Department, 2010; Strategic Economics, 2011.  
 (a) Annual averages; does not include self-employed, unpaid family, or private household workers.

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

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

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

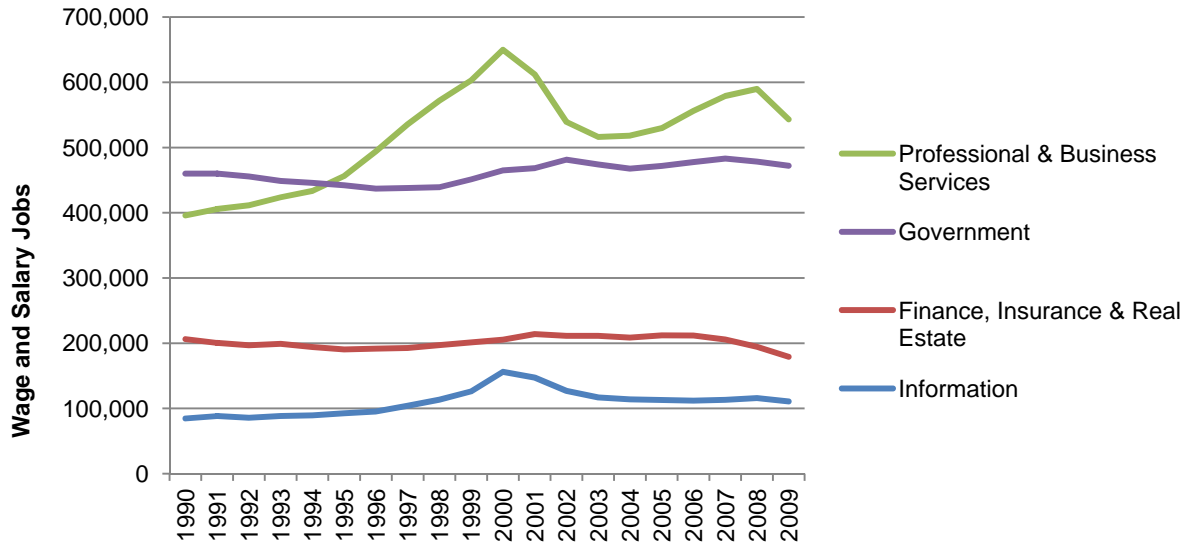
(a) Does not include self-employed, unpaid family, or private household workers.

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

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

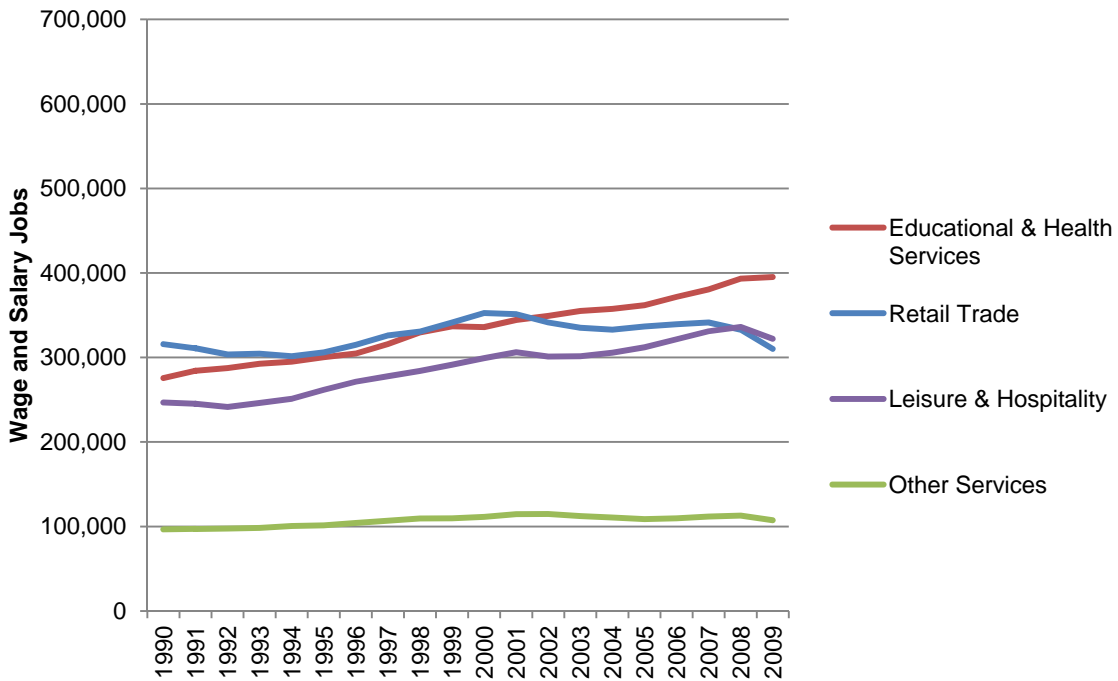
(d) Sector employment may not add to totals due to rounding error.

**Figure 2. Bay Area Employment in Knowledge-Based Industries, 1990-2010**



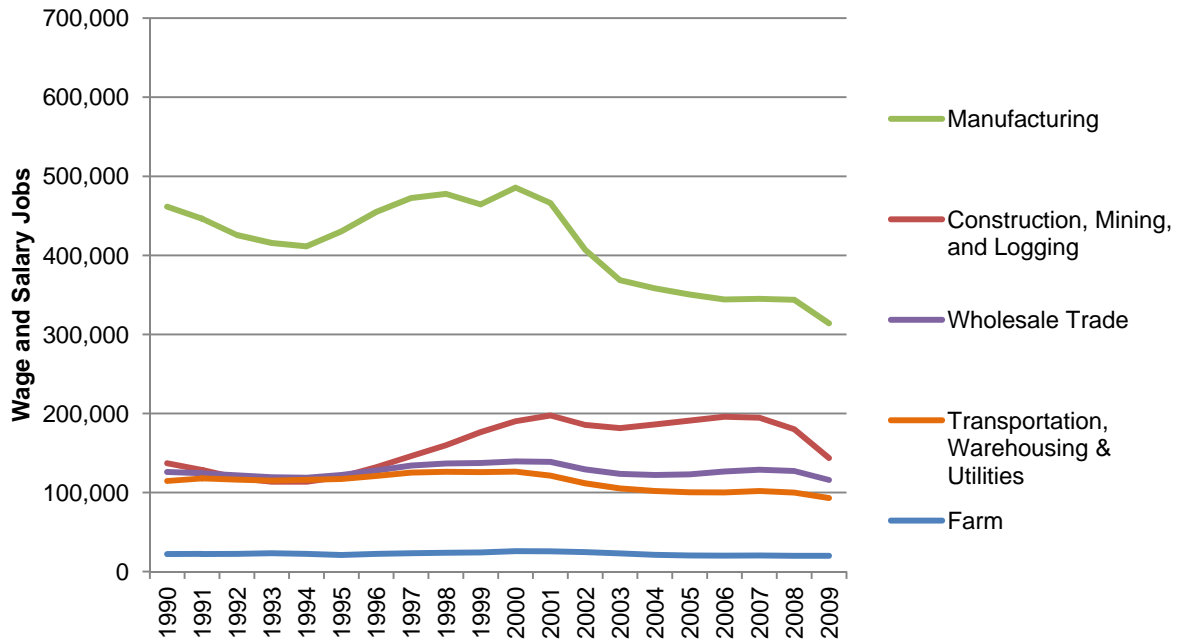
Source: California Economic Development Department, 2010; Strategic Economics, 2011.

**Figure 3. Bay Area Employment in Education & Health, Retail, Leisure & Hospitality, and Other Services, 1990-2010**



Source: California Economic Development Department, 2010; Strategic Economics, 2011.

**Figure 2. Bay Area Employment in Farming & Industrial Sectors, 1990-2010**



Source: California Economic Development Department, 2010, Strategic Economics, 2011.

### Bay Area Industry Employment Compared to the U.S.

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

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

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

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

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

***Knowledge-based sectors and other service industries are projected to drive regional employment growth over the coming decades.***

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

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

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

Source: Caltrans, 2010; Strategic Economics, 2011.

## EMPLOYMENT TRENDS IN PDAS AND GOAS

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

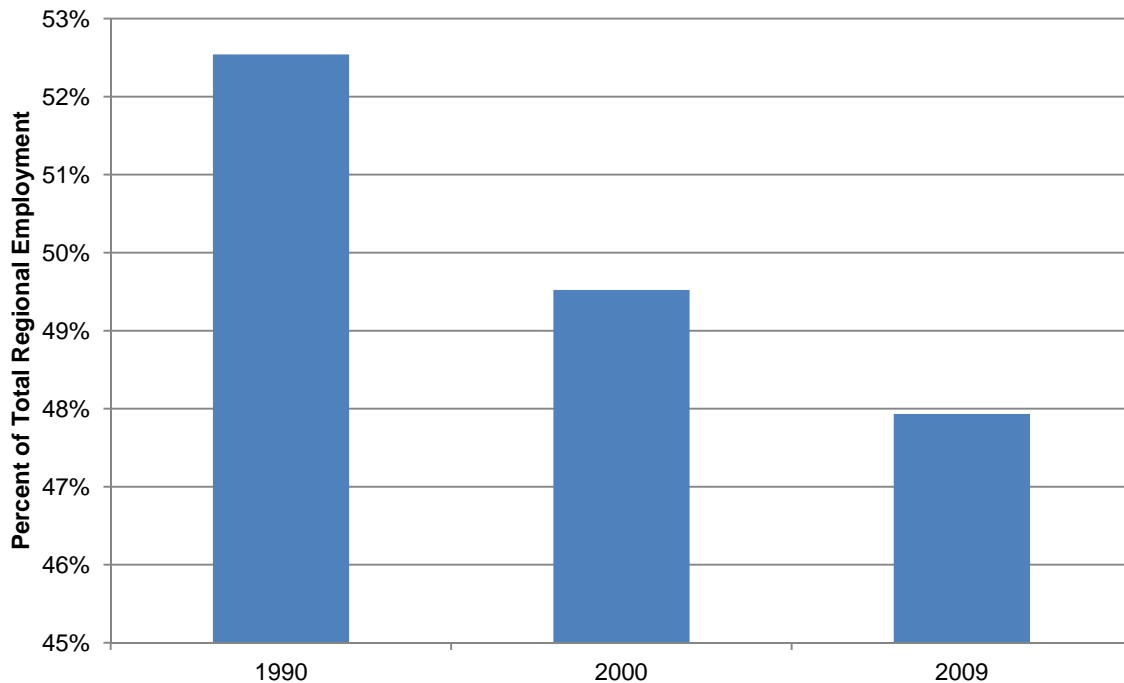
This section discusses historic employment trends in the PDAs/GOAs, in the context of the regional trends discussed in the previous section.

*Over the course of the past two decades, the number and jobs and the share of the Bay Area’s employment located in the PDAs and GOAs has decreased.*

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

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

**Figure 3. Percent of Region's Jobs Located in PDAs and GOAs**



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



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

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

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

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

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

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

*The PDAs show the greatest strength in the knowledge-based and other service sectors that increasingly drive the region’s economy – information, professional services, arts and recreation, and health and education.*

Table 4 shows that the information sector grew by 68 percent in the PDAs/GOAs between 1990 and 2009. Professional services, arts and recreation, and government also added jobs overall. Even in these service sectors, however, the share of the region’s employment located in the PDAs/GOAs still declined – i.e., the growth in this sector was faster in areas outside of the PDAs/GOAs (

**Table 5 5).**

*Despite recent regional and local declines, the PDAs and GOAs still have significant employment in manufacturing and financial services.*

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

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

## Industry Trends by PDA Place Types

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

### *Regional centers and mixed-use centers account for the highest share of PDA/GOA jobs.*

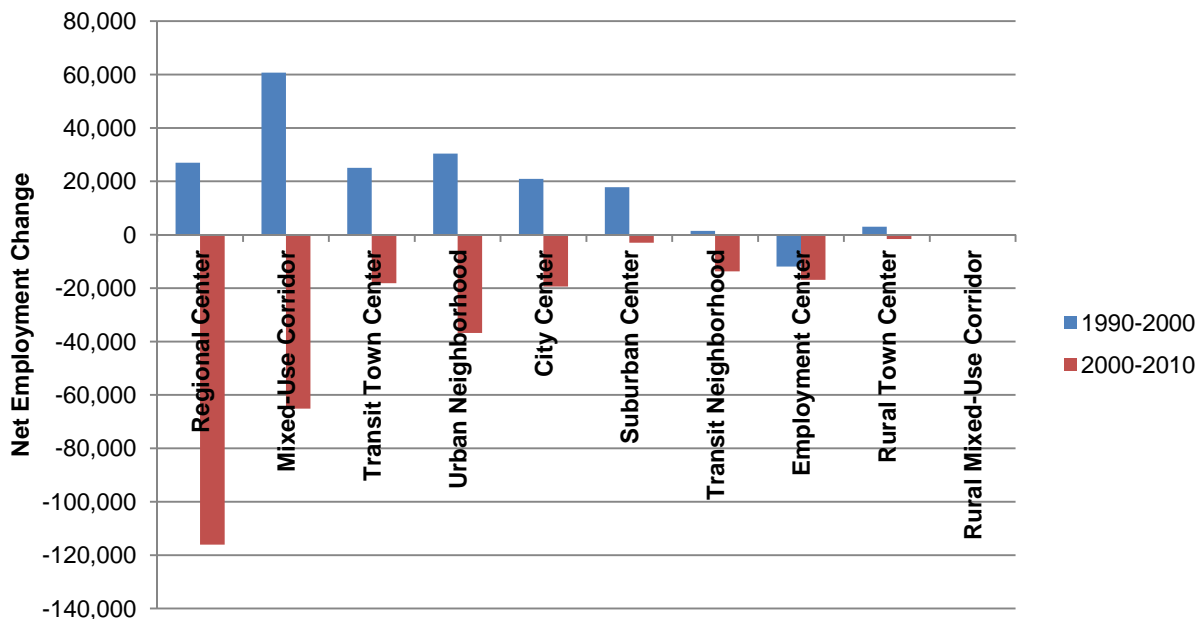
Table 6 shows PDA/GOA employment change between 1990 and 2009 for each place type. Over the course of the two decades, regional centers and mixed-use centers remained the largest place types in terms of employment, respectively accounting for 15 percent and 13 percent of the region’s employment in 2009.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

### *However, regional centers and mixed-use centers experienced sharp employment declines during the 2000’s, while suburban centers in particular experienced net employment growth.*

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

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

**Figure 4. PDA/GOA Employment Change by Place Type, 1990-2000 and 2000-2009**



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

<sup>3</sup> Again, to some extent this trend may reflect uneven effects of the recession at the end of the 2000’s.

<sup>4</sup> The Concord Community Reuse Area is also classified as a regional center, but currently has little employment.

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

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

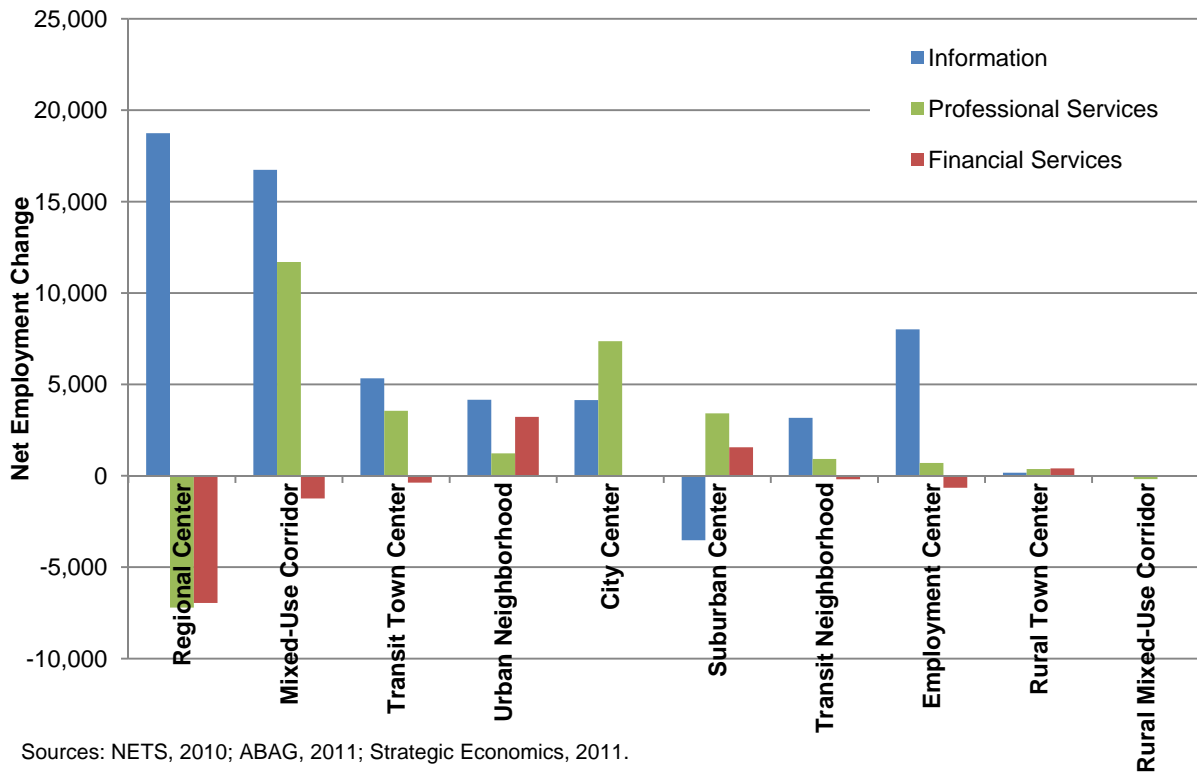
Source: NETS, 2010; ABAG, 2011; Strategic Economics, 2011

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

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

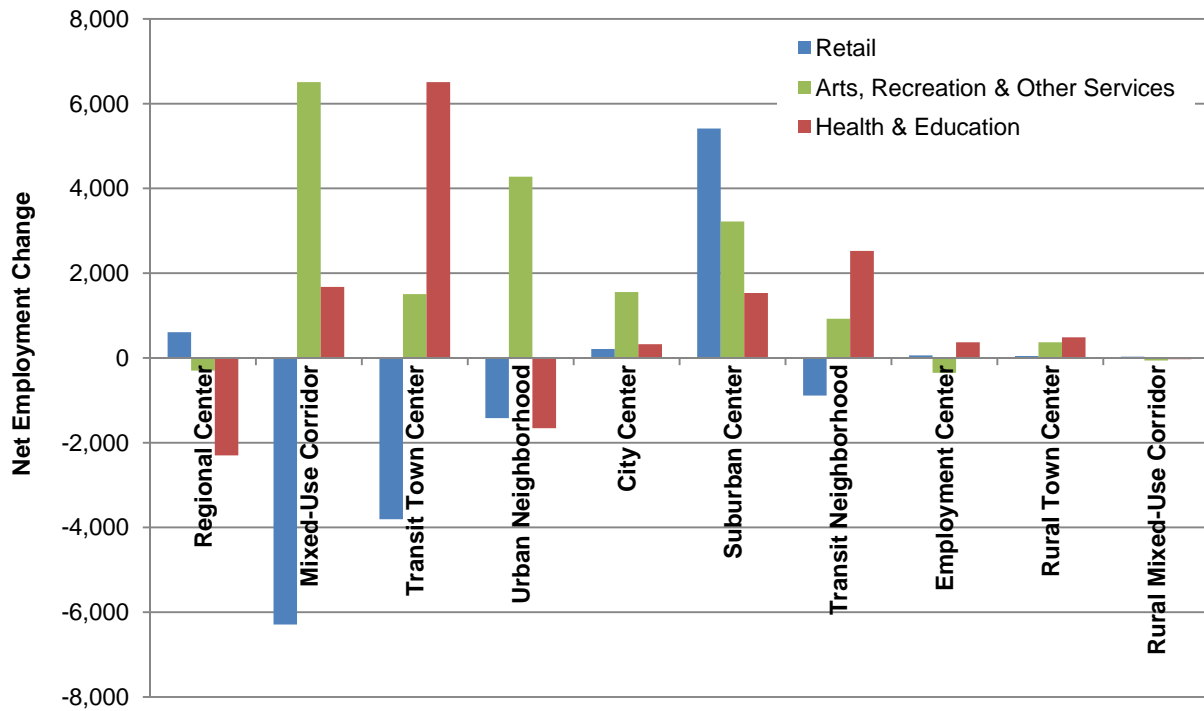
With the notable exception of regional centers, the PDAs have also generally seen growth in arts, recreation, and other services. Growth in retail and health and education employment – those jobs most tied to residential development – has been more uneven.

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



<sup>5</sup> Excluding government because of inconsistencies in data source.

**Figure 6. PDA/GOA Net Employment Change by Place Type: Other Service-Based Sectors, 1990-2009**



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

### Summary of Industry and Employment Trends

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

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

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

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

## **CONCLUSION**

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