

EAST BAY FORWARD



SEPTEMBER 2021





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I.

EXECUTIVE SUMMARY

The COVID-19 pandemic has forced many changes in the global economy, some from the rapid accelerations of existing trends, and others from new economic patterns and ways of doing business. “East Bay Forward” provides an assessment of how the pandemic’s impacts have played out in the East Bay, and what this means for the region’s economy going forward. East Bay Forward establishes a roadmap of twelve shared priorities for regional leaders to address our most pressing challenges, including the growing economic and social divides that pervade our communities. This initiative will move the East Bay toward a new economic paradigm to capitalize on the many existing and potential opportunities our region offers, ensuring that our diverse businesses and residents can grow and thrive.

East Bay Forward is being led by the East Bay Economic Development Alliance (East Bay EDA). East Bay EDA is a regional economic development organization with more than 150 members that serves as the regional voice and networking resource for strengthening the East Bay economy, workforce, and quality of life for our residents. We believe that now is the moment to undertake this strategic effort to address many long-simmering issues of racial, gender, income, and spatial inequality in the East Bay. It is also time to capitalize on our economic strengths and new investment opportunities coming from multiple public and private activities.

To realize this vision, everyone involved in the East Bay economy will need to be engaged in these efforts—business and nonprofit leaders, education professionals, elected officials, local governments, community members, and other stakeholders. We must increase investment and build greater resilience into our human and physical infrastructure if we are to steer our region toward a healthy and sustainable economic recovery that supports our businesses and residents. And we must remain committed to this goal by charting a new course forward rather than merely succumbing to the pull toward business as usual.

East Bay Forward provides a framework to undertake this exciting transition based on East Bay EDA's core activities, which include providing informed and data-driven guidance for leaders to:

- Maximize the East Bay's opportunities within the greater Bay Area and Northern California economies and position the diverse subareas of the East Bay to benefit from them.
- Promote economic recovery efforts that reduce income and wealth disparities by gender and race.
- Promote efforts around regional emergency preparedness and safeguarding public health to protect against future economic shocks.

- Realign and reorganize local and regional networks and systems that influence and shape issues related to business climate, land use and infrastructure, workforce development, and community health and well-being.

Six guiding principles—developed with extensive input from diverse East Bay stakeholders—underpin the priorities of East Bay Forward. These principles must guide the efforts of East Bay EDA's stakeholders and compel us to be:

1. **Connected.** Many of our region's greatest challenges are inextricably linked, requiring coordinated regional advocacy, and policy actions and investments that address multiple challenges and deliver shared benefits.
2. **Equitable.** An equity-first approach ensures that current and future generations will achieve meaningful economic inclusion, access to opportunity, and upward mobility.
3. **Measurable.** For our region to move forward, we need to be able to measure meaningful indicators and outcomes indicating how we are doing with accomplishing our goals.
4. **Regenerative.** Supporting clean and renewable investments to support the just transition to a dynamic, healthy, and circular economy has immense potential to drive innovation and growth, as well as yield economic, environmental, and community benefits.
5. **Resilient.** From destructive wildfires to future public health crises, there is an urgent need to mobilize and prepare for complex, intersecting disasters and to future-proof our physical and human assets to provide maximum resilience against ongoing and future challenges.
6. **Transformational.** Public and private investment must focus on dismantling barriers and creating opportunities for long-term and systemic solutions; it is imperative that we do more than promote incremental change.

East Bay EDA will pursue the priorities outlined in East Bay Forward by coordinating with various East Bay stakeholders across four different “focus areas.” These focus areas represent specific topics around which East Bay EDA brings together members and partners with specific knowledge, networks, and resources. These focus areas include:

1. **Business Climate:** Encompasses efforts to attract, grow, and retain businesses of all sizes and industry sectors to ensure that the East Bay continues to enjoy the benefits of a diverse composition of companies and industries.
2. **Land Use and Infrastructure:** Encompasses efforts to address critical, interconnected land use policy issues to support the mobility of people and goods across the East Bay and beyond, as well as the needs for resilient, responsive and safe transportation, utilities, and other essential infrastructure systems to withstand climate-related risks and other disasters.
3. **Education and Workforce Development:** Encompasses efforts to advance access to and implementation of early child-care, K-12 education, higher education, and workforce preparedness to ensure the East Bay provides a globally competitive and diverse workforce that can access quality jobs and careers.
4. **Community Health and Well-Being:** Efforts within this focus area recognize that community safety, health, and empowerment are all critical ingredients for addressing disparities between the East Bay’s communities and ensuring greater resiliency against economic downturns and other external shocks.

COVID-19’S IMPACTS ON THE EAST BAY ECONOMY

The COVID-19 pandemic accelerated and amplified trends and conditions already underway in the East Bay, and brought about transformational changes that will forever shift our old ways of living and working. The conclusions of data analyses described in Section III’s [“The Evolving East Bay”](#) section of this report found that the COVID-19 pandemic accelerated and amplified the following conditions and trends in the East Bay:

- **Systemic inequities:** The pandemic exacerbated longstanding systemic economic and health disparities in the East Bay, particularly along racial, ethnic, and gender lines. These disparities played out in workforce job stability and access to opportunity, on-the-job coronavirus exposure, physical health outcomes, mental health outcomes, and numerous other ways.
- **Business Impacts of Ecommerce:** Existing trends related to Ecommerce accelerated, as people purchased a greater share of goods on the internet. This trend primarily favored larger retailers with established Ecommerce platforms, but also pushed smaller businesses to pivot toward expanding their Ecommerce and online marketing presences. The acceleration of Ecommerce will also continue to accelerate growth of “experiential” businesses in bricks-and-mortar retail locations as the pandemic recedes, including businesses such as restaurants, gyms, and entertainment.
- **Land Use Impacts of Ecommerce:** Ecommerce growth will continue to drive reductions in total retail space required per resident, increased demand for distribution facilities located near population centers, and new opportunities to redevelop and reuse shopping center sites.



East Bay Forward’s guiding principles will help us achieve an inclusive, resilient, and sustainable economic future.



Mayfair Mixed-Income Housing Development at El Cerrito del Norte BART Station. Photo by Lowney Architecture.

- **Housing affordability challenges:** While federal, state, and local policies and assistance limited mass eviction and foreclosure activity during the pandemic, the pandemic's effects on workers and incomes demonstrated again how vulnerable many East Bay residents are to economic shocks in our extremely high-cost region.
- **Small business funding and financing challenges:** A relatively large share of small businesses struggled during the pandemic due to thin operating margins, lack of capital reserves, and lack of existing relationships with traditional financial institutions—which posed a further obstacle to accessing new federal assistance such as the Paycheck Protection Program. These challenges were especially notable for businesses owned by women, people of color, and immigrants.

At the same time, the COVID-19 pandemic brought about several transformational changes:

- **Widespread adoption of remote work:** This sudden transformation will have wide-ranging impacts on locations and quantities of demand for office space, design of offices, locations of demand for daytime retail and services, locations of demand for housing, and transportation needs.
- **Rapid adoption of telehealth, distance learning, and other digital strategies:** As with remote work generally, rapid and widespread adoption of telehealth and distance learning will likely lead to a permanent expansion of these services. Businesses also undertook and learned from implementation of a variety of digital strategies to replace entertainment, conferences, and other activities that once occurred in person.
- **Enhanced regulatory flexibility:** The pandemic provided a moment for governments to prove their ability to rapidly remake laws, policies, and regulations. Some of this additional regulatory flexibility and speed is likely to continue beyond the pandemic.
- **Creation of new funding resources and programs:** Federal, state, and local governments deployed enormous new resources to support communities during the pandemic and to reinvest in the economy as the pandemic recedes. These resources will have a lasting effect, providing new one-time or ongoing resources for affordable housing, workforce development, infrastructure investment, business support, and numerous other needs.

OPPORTUNITIES FOR THE EAST BAY'S POST-PANDEMIC FUTURE

East Bay Forward has identified critical legacy assets, industries of opportunity, and investment trends that together indicate “bright spots” that will support a vital East Bay economy and workforce as the COVID-19 pandemic recedes.

The East Bay’s legacy assets consist of relatively permanent, longstanding, and fixed-in-place components of the region that support and shape the economy—as they have done for decades or longer already. These are fundamental factors that establish the East Bay’s basic competitive strengths compared to other areas, including institutions, infrastructure, land use and land availability, location, and geographic features. These assets are listed and described in Section IV’s [“Legacy Assets,”](#) but examples include our region’s colleges and universities that support education, innovation, and workforce preparedness; our national laboratories that support innovation; our ports, airports, highways, and industrial lands that underpin our goods movement, manufacturing, and innovation-oriented industries and high-quality job opportunities; and our unique and diverse arts, culture, and open space assets that provide a sense of belonging and inclusivity for residents while generating economic activity and contributing to the East Bay’s cachet as a residential and business location.

East Bay Forward identified five “industries to watch” based on economic trends and the East Bay’s competitive assets, workforce opportunities, and recent venture capital investment activity. These five industries or industry groups drive outsized economic output in the East Bay and are well-positioned to generate substantial innovation, investment, business growth, and growth of high-quality jobs over the coming years. The industries are described in detail in the “Industries to Watch” and “Venture Capital

Investments” described in Section IV’s [“Looking Ahead to a Post-Pandemic Future.”](#) They include the following:

- **Manufacturing** is responsible for an outsized share of the East Bay’s job and economic growth, provides a high share of entry-level middle-wage jobs, and is directly linked to the Bay Area’s thriving innovation ecosystem.
- **Creative Technology and Design** services and sectors also tie directly into the Bay Area’s innovation ecosystem and attract substantial venture capital investment in the East Bay. This industry group is dominated by businesses related to the Bay Area’s computer technology industry and scientific research and development, but also includes jobs in architecture and engineering, media, and technical consulting.
- **Biomedical** industries are positioned to continue attracting major venture capital investments; the East Bay plays a specialized role within the Bay Area as a distinct biomedical innovation ecosystem focused on medical equipment, biotechnology, pharmaceuticals, and medical devices, with strong relationships among our national laboratories, universities, and industry associations and accelerators.
- **CleanTech** activities and industries are attracting large quantities of venture capital investment in the East Bay and will continue to grow as our society moves to reduce waste and carbon emissions. The East Bay’s CleanTech cluster especially benefits from our expansive network of firms involved in scientific research and development, advanced manufacturing, and construction, as well as the East Bay’s industrial land supply.
- **Goods Movement and Logistics** is rooted in the East Bay based on the Port of Oakland seaport and Airports, Port of Richmond, our rail and highway connections, and our vast industrial land supply.

OUR TWELVE PRIORITIES FOR ECONOMIC RECOVERY AND PROSPERITY IN THE EAST BAY

East Bay Forward's twelve critical priorities together serve as a comprehensive framework for engaging and activating efforts by East Bay EDA's many stakeholders to ensure a more inclusive, resilient, and sustainable economic future for our businesses and residents. The priorities chart a course for responding to the COVID-19 pandemic's impacts, building on our region's assets and opportunities, and ensuring widely shared future economic growth. Achieving that vision will require the East Bay's business and nonprofit leaders, education professionals, elected officials, local governments, community members, and other stakeholders to work together so that their individual efforts collectively build toward outcomes centered around these strategic regional priorities. This approach reflects the reality that the East Bay's most pressing challenges and opportunities are shared both locally and regionally, so our approach must combine individual and collective decisions and actions.

[Section V](#) of this report provides more details about the twelve priorities, including major opportunities and challenges for each priority, and examples of actions that East Bay EDA's partners could pursue to support each priority's implementation. The featured case studies serve to highlight relevant innovative, equity-centered, and collaborative models and best practices in the East Bay.

1. Prioritize delivering resources and services for **East Bay small to mid-sized businesses**—especially those most severely impacted by the pandemic.
2. Promote **assets and opportunities** in the East Bay region to attract and retain a diverse range of businesses and quality jobs.

3. Concentrate **education, workforce training, and broadband infrastructure** investments that expand equitable access to economic opportunity.
4. Align land use policy and infrastructure investments to **ensure sufficient flexibility** to respond to regional trends around remote work, e-commerce, and related innovations.
5. Mobilize the East Bay's robust network of institutions and organizations to address **regional housing affordability**.
6. Protect and invest in the East Bay's **industrial employment lands** to support economic diversity.
7. Secure regional and local **multimodal transportation infrastructure** investments to support job growth and accessibility.
8. Position the East Bay to be a **leader in sustainability and climate advancements** while spurring economic growth and innovation.
9. Bolster the East Bay's diversity of **arts, culture, parks**, and other essential assets to ensure a vibrant and cohesive region.
10. Expand access to **health resources, human infrastructure investments**, and other supports that enhance the resilience of our region's most vulnerable residents and workers.
11. Develop solutions to **improve public safety outcomes** while reducing systemic biases and encounters between community residents and law enforcement agencies.
12. Champion efforts to develop integrated **socioeconomic data sets and metrics** to evaluate equity outcomes over time.



The priorities chart a course for responding to the COVID-19 pandemic's impacts, building on our region's assets and opportunities, and ensuring widely shared future economic growth.

II.

INTRODUCTION

The COVID-19 pandemic has forced many changes in the global economy, some of which came from the rapid accelerations of existing trends, and others of which represented new economic patterns and ways of doing business. This initiative, East Bay Forward, provides an assessment of how the pandemic's impacts have played out in the East Bay, and what this means for the region's economy going forward.



EAST BAY FORWARD'S GUIDING PRINCIPLES

East Bay Forward is centered around six principles that are foundational to helping our region realize a future that creates more widely shared economic prosperity and security. These principles underpin each of the priorities outlined in this report and were informed and developed with extensive input from diverse East Bay stakeholders. These six principles compel us to be:

1. **Connected.** Many of our region's greatest challenges are inextricably linked, requiring coordinated regional advocacy, policy actions, and investments that address multiple challenges and deliver shared benefits.
2. **Equitable.** An equity-first approach ensures that current and future generations will achieve meaningful economic inclusion, access to opportunity, and upward mobility.
3. **Measurable.** For our region to move forward, we must be able to measure meaningful indicators and outcomes showing whether we are accomplishing our goals. Enhanced data collection by socioeconomic and geographic lenses can improve outreach, program planning, and monitoring of outcomes.
4. **Regenerative.** Supporting clean and renewable investments and supporting the just transition to a dynamic, healthy, and circular economy has immense potential to drive innovation and growth, as well as yield economic, environmental, and community benefits.
5. **Resilient.** From destructive wildfires to public health crises, there is an urgent need to mobilize and prepare for com-

plex, intersecting disasters, and future-proof our physical and human assets to provide maximum resilience against ongoing and future challenges.

6. **Transformational.** Public and private investment must focus on dismantling structural barriers and creating opportunities for long-term and systemic solutions; it is imperative that we do more than promote incremental change. Transformational leadership and purpose-driven strategic planning must come together to not only confront failures of business as usual, but also to build long-term organizational capacities and cultures to sustain and implement initiatives and actions.

THE PROCESS FOR SHAPING THIS INITIATIVE

This East Bay Forward document reflects input from multiple sources. The process started with reviewing the many recent studies and reports presenting analyses of the East Bay's economy and workforce. Information gathered from these reports was augmented with new data analyses to provide a more nuanced view of the East Bay's changing conditions spanning the 2014 to 2019 period. These new analyses also assessed the transformative impacts of the COVID-19 pandemic, which started in 2020. The analysis situated the East Bay within the context of the entire Bay Area economy, highlighting the ways in which the East Bay is both distinct from, and integrated into, this regional powerhouse.

Finally, several of the East Bay's expert stakeholders weighed in through multiple channels, including through a Strategic Advisory Committee established by East Bay EDA. This group provided feedback and direction on the analytical work and helped set priorities for the East Bay Forward initiative. East Bay EDA also conducted four focus group meetings. Three drilled more deeply into East Bay EDA's three standing focus areas: land use and infrastructure, business climate, and education and workforce; and a fourth tapped into the expertise of other community



Many of our region's greatest challenges are inextricably linked, requiring coordinated regional advocacy, policy actions, and investments that address multiple challenges and deliver shared benefits.



Panorama of Berkeley skyline. Photo by: Patrick Civello.

leaders. As the process evolved and specific topics or issues arose, these were further explored with subject matter experts.

The combined findings from these sources are presented in this report to fully tell the East Bay's economic and workforce story, and to establish new priorities that will serve as the "roadmap" to move the East Bay forward in this decade and beyond.

INTRODUCING THE EAST BAY

Two counties, Alameda and Contra Costa, comprise the East Bay. With an extensive shoreline and a direct overland connection east to the Sierra Nevada mountains and beyond, the East Bay has a rich history of indigenous occupation and as a strategic economic location. Much of the East Bay's early industrial development was fostered by the availability of land along the critical transportation connections of the San Francisco Bay and the Delta Estuary, combined with the terminus of the transcontinental railroads. Some of the East Bay's oldest legacy industries still operate in their historic locations, including the petroleum refineries along Contra Costa County's northern waterfront. And yet, these 19th century industries are also poised to make

the transition to producing green fuels, showing the East Bay's economic resiliency.

The East Bay experienced a housing boom after World War II, when cities sprawled out to the east in conjunction with highway construction and an expanding BART system. Today, the East Bay is home to almost 3 million people and 1.3 million jobs. In 2019, the two East Bay counties comprised 36 percent of the nine-county Bay Area's total population and 33 percent of Bay Area jobs (see Figure 1).

While this report analyzes the East Bay as a single area, the two East Bay counties are distinct from each other, with different opportunities and challenges. In 2019, Alameda County accounted for approximately 67 percent of the East Bay's jobs. A large share of those jobs were in traded¹ sectors ranging from biotechnology, creative professional services, and information, to advanced manufacturing and logistics. In contrast, Contra Costa County's economy, with only few significant office concentrations that emerged during the 1980s and 1990s, is dominated by household-serving sectors, such as food services, healthcare, hospitality, and personal services. In addition, eastern Contra Costa County, which has some of the Bay Area's lowest-cost housing, is also relatively distant from the Bay Area's major employment centers.

As **Figure 1** shows, the East Bay has been divided into seven different economic subareas, for purposes of this report's analyses. Three subareas are entirely in Alameda County, three are entirely in Contra Costa County, and one—Tri-Valley—falls in both.

In terms of economic output, the only two subareas in Contra Costa County that perform on par with the Alameda County subareas are Central Contra Costa and Tri-Valley (which includes Danville and San Ramon, in Contra Costa County). This further highlights the differences between the two counties. **Figure 2** shows where the seven subareas are located. Each subarea is further described in [Section VII](#) of the report

¹ "Traded" or "basic" industry sectors are those with a high concentration of business activity that exports goods and services outside a given area, thus attracting outside spending and fueling economic activity.



Windmills at the Altamont Pass. Photo by: Dawn Humphrey.

GEOGRAPHIC REFERENCES

This report makes frequent references to the following geographies:

- **East Bay or “the region”:** Refers to Alameda County and Contra Costa County.
- **Bay Area:** Refers to the seven-county Bay Area when used to refer to employment analyses, including Alameda, Contra Costa, San Francisco, San Mateo, Marin, San Benito, and Santa Clara Counties. General references to the Bay Area also include Sonoma and Napa Counties.
- **Megaregion:** Includes the San Francisco Bay Area, Sacramento, the Northern San Joaquin Valley, and the Monterey Bay Area.
- **Subareas:** Refers to the seven East Bay subareas. See Figure 2.

REPORT CONTENTS

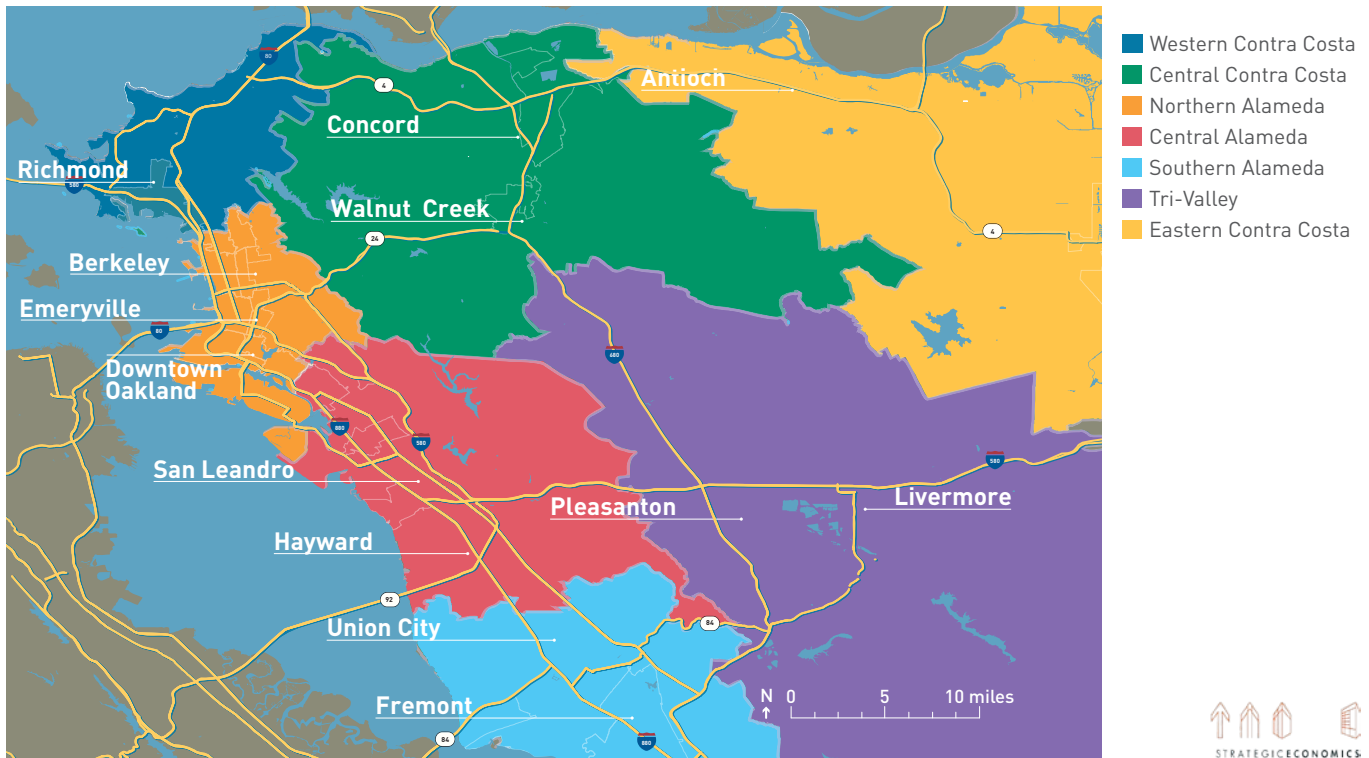
The remainder of this report is divided into five sections:

- I. The Evolving East Bay** presents findings that capture the trajectory of the East Bay economy and workforce before the COVID-19 pandemic, and then identifies specific impacts of the pandemic on the East Bay economy.
- II. Looking Ahead to a Post-Pandemic Future** describes the East Bay’s primary competitive assets, industries poised for growth and innovation, and recent venture capital investments to identify critical drivers of the region’s economy as we emerge from the pandemic.
- III. Fulfilling Our Principles:** Priorities for Economic Recovery and Prosperity in the East Bay describes the priority recommendations of East Bay Forward, including summaries of key opportunities and challenges identified through this effort that are addressed by each priority.
- IV. Appendices.** Three of the four appendices at the end of this report describe additional detailed data analyses that may be useful for the technical needs of specific readers. The fourth appendix provides an overview of the EMSI data source used for much of this report’s analyses. The appendices include:
 - V. Economic Profiles of East Bay Subareas** describes population, employment trends, and defining attributes in each of the seven East Bay subareas.

FIGURE 1**East Bay at a Glance**

	Northern Alameda	Central Alameda	Southern Alameda	Tri Valley	Central Contra Costa	Eastern Contra Costa	Western Contra Costa	East Bay
Population (2019)	442,504	619,541	371,878	393,015	390,924	342,156	264,838	2,824,855
Population Change (2014 - 2019)	2%	2%	4%	8%	2%	8%	2%	6%
Population (2021)	447,792	622,246	381,534	395,039	393,228	348,303	271,428	2,859,570
Population Change (2019-2021)	1%	0%	3%	1%	1%	2%	2%	1%
Employment (2019)	294,326	240,653	194,569	239,837	210,485	78,350	73,214	1,331,434
Employment Change (2014-2019)	11%	11%	15%	12%	8%	9%	10%	11%
Employment (2021)	278,981	230,313	188,907	229,189	201,782	74,739	70,595	1,274,506
Employment Change (2019-2021)	-5%	-4%	-3%	-4%	-4%	-5%	-4%	-4%
Unemployment Rate % (May 2021)	6.0%	6.1%	6.0%	6.1%	6.3%	6.3%	6.3%	6.10%

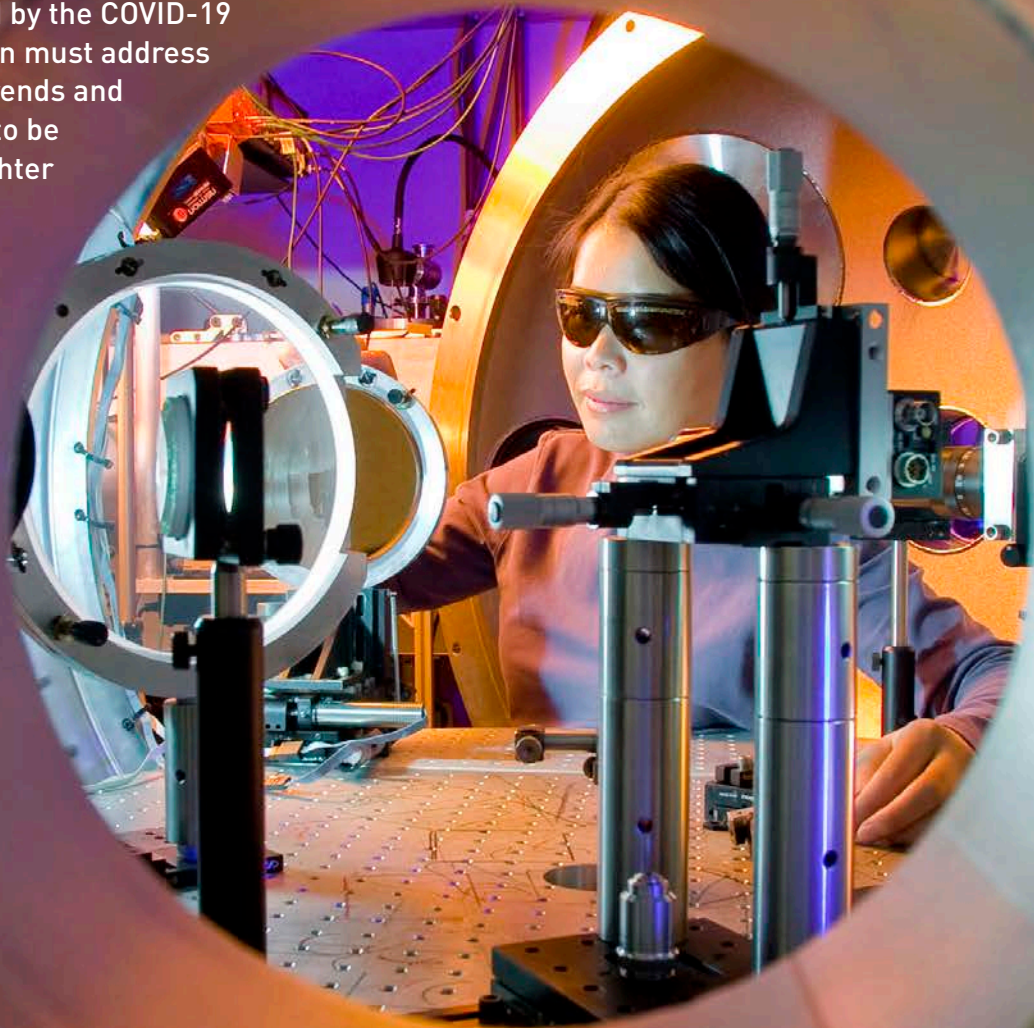
Source: EMSI, 2021; ACS 5-year Estimates, 2010-2014 and 2015-2019; Strategic Economics, 2021.

FIGURE 2**The Seven East Bay Subareas**

III.

THE EVOLVING EAST BAY

With over 1.3 million jobs in the region pre-pandemic, the East Bay has a large and robust economy. However, like the rest of the global economy, the East Bay has been significantly disrupted by the COVID-19 pandemic. Ultimately, our region must address both accelerated pre-existing trends and new post-pandemic conditions to be able to realize a better and brighter economic future.



Public and private investment must focus on dismantling structural barriers and creating opportunities for long-term and systemic solutions; it is imperative that we do more than promote incremental change.

Anti-matter experiment at the Jupiter laser facility. Courtesy of Lawrence Livermore National Laboratory.

This section captures the trajectory the economy was on before the pandemic and then identifies the areas in which the pandemic had the greatest impacts. To some extent, these impacts merely accelerated trends that were already in motion. In other cases, the pandemic created changes in the economic climate that must be acknowledged. Ultimately, the East Bay Forward initiative must address both accelerated pre-existing trends and new post-pandemic conditions.

This section combines inputs from three key sources: 1) an extensive review of the many background reports regarding the East Bay's economy; 2) input from the East Bay Forward Strategic Advisory Committee, four focus group meetings, and follow-up interviews with local topic area experts; and 3) original data analyses undertaken so that the quantitative data presented in this report specifically reflects the topics, issues, and concerns raised by the Strategic Advisory Committee and other East Bay stakeholders.

Based on the data analyses and extensive stakeholder input, the information below is divided into three topic areas.

- The first topic characterizes the region's pre-pandemic economy, concentrating on trends from the five years leading up to the pandemic (2014 to 2019). The analysis is quantitative and relies on standard measures to describe the region's economy including total employment growth, sectoral mix and changes in sectoral composition, industry specialization, and growth rate by industry.
- The second topic is an analysis of the East Bay's pre-pandemic workforce. This section focuses on specific workforce challenges that existed prior to the pandemic in terms of education and skills gaps and access to livable jobs.
- The third topic then discusses the specific impacts COVID-19 had on the East Bay economy.

FIGURE 3

East Bay Jobs per Square Mile, 2018



- The final section ends with findings on the ways in which the pandemic has both accelerated trends already underway, as well as the transformational changes brought up by the pandemic.

The East Bay is more than just an economy. It is also place composed of many communities. Figure 3 provides a spatial backdrop for understanding how jobs are distributed across the region. Jobs are not distributed equally across the two East Bay counties. Northern Alameda has the strongest concentration of jobs, as Downtown Oakland, Berkeley, and Emeryville constitute a large share of regional employment. The Interstate 880 corridor, which connects Downtown Oakland to San Jose through Alameda County, also has sizeable job concentrations throughout. Communities with strong job concentrations along this corridor include Fremont, Union City, Hayward, and San Leandro. Within the Tri-Valley, most jobs are concentrated either at the intersection of Interstates 580 and 680 in Dublin and Pleasanton (both of which are in Alameda County). There are also job concentrations along Interstate 580 in Livermore (Alameda County) and along Interstate 680 in San Ramon (Contra Costa County), which is where Bishop Ranch is located. Walnut Creek and Concord, which are in Central Contra Costa, also have strong job concentrations. The Western and Eastern Contra Costa subar-

eas have the lowest number of jobs in the East Bay. Richmond (Western Contra Costa) as well as Antioch and Pittsburg (in Eastern Contra Costa) have the strongest job concentrations in these subareas, though they are not particularly large compared to concentrations in the other subareas.

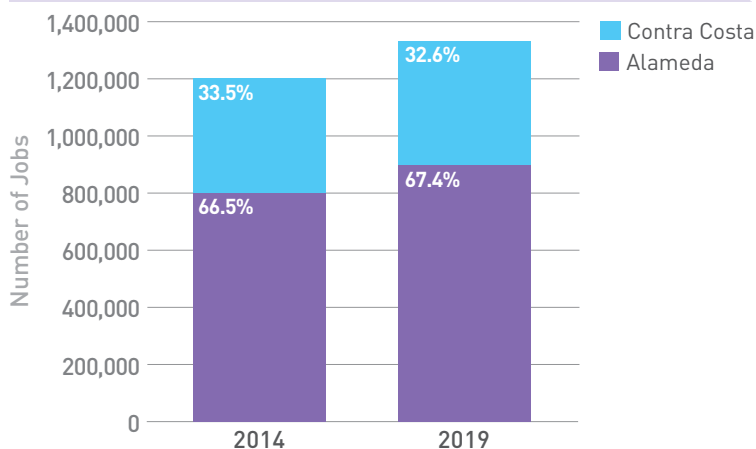
The spatial employment pattern is critical for understanding the East Bay region for two reasons: 1) It shows that the East Bay is also part of the larger Bay Area. Communities that are closer to and better connected with the rest of the Bay Area have historically represented the greatest economic opportunity. 2) It sets the stage for understanding how each subarea within the East Bay has been impacted by the pandemic, and what opportunities exist to strengthen each subarea's employment base in the future. Profiles of the region's seven subareas can be found in [Section VII](#).

PRE-PANDEMIC ECONOMIC TRENDS

The following data captures the key elements of the East Bay economy as defined by jobs, sectoral mix, industry growth rates and economic specialization. In this analysis, the spatial differences within the East Bay were captured by comparing the two counties to each other. Specific implications for individual subareas can be further inferred based on the subarea profiles.

FIGURE 4

East Bay Jobs by County, 2014 and 2019



Source: EMSI, 2021; Strategic Economics, 2021.

The East Bay economy grew at a rate that was nearly on par with the Bay Area, although the growth was disproportionate by county.

Total jobs in the East Bay grew (1.3 million) 11 percent from 2014 to 2019. However, Alameda County grew by 12 percent, which is on par with the Bay Area's growth over this same period, while Contra Costa County only grew by eight percent. This illustrates an increasing divergence in economic activity across the two counties (See Figure 4).

Overall, the East Bay economy is diverse. Figure 5 shows the East Bay's 2019 employment by industry using 2-digit NAICS codes. Four of

the largest individual sectors all fall into the household-serving industry group (“Health Care and Social Assistance,” 14 percent; Public Administration, 13 percent; Retail Trade, 9 percent; “Accommodation and Food Service,” 8 percent). These four sectors accounted for 44 percent of total East Bay employment. The largest basic or “traded” sectors include Professional and Technical Services (9 percent) and Manufacturing (8 percent). In total, the region’s traded sectors comprised about 30 percent of total jobs in 2019. The proportional share between household serving and traded industries is about on par with the way most diversified economies are structured. However, these numbers are not necessarily the best description of the East Bay’s overall economic strengths partly because some industries,

including Information (2 percent), account for a relatively small share of total employment, but have been growing and/or represent a strong East Bay concentration. Other sectors, such as those typically associated with the life sciences and biotech industries, are distributed across multiple NAICS classifications, and will therefore not stand out in a high-level sectoral analysis such as this. Other analytical methods have been used to highlight these East Bay economic strengths and will be discussed below.

The East Bay’s recent employment growth varied considerably by industry sector.

Figure 6 shows percent changes in employment growth over the 2014-2019 period by industry for the East Bay and for the Bay Area. The Manufacturing industry had the greatest employment growth relative to the Bay Area, growing by 20 percent in five years compared to 13 percent in the region. Although the Tesla plant in Fremont accounted for a significant share of the East Bay’s overall increase, other industry sub-sectors including food processing and biomedical devices also grew quickly. This overall trend suggests that the East Bay’s legacy as a manufacturing hub for the Bay Area persists, while many of the processes and products involved represent the latest in advanced manufacturing techniques.

Alameda and Contra Costa counties are distinct from each other based on both their industry mix in 2019 and their five-year employment growth by industry. Figure 6 shows industry employment as a share of total employment in each county. Alameda County has a higher share of jobs in traded sectors, with concentrations of jobs in Manufacturing and Logistics (which includes many subsectors in Wholesale Trade and “Transportation and Warehousing”). Alameda County has a higher share of jobs in Professional Services and Information, both of which include many subsectors that fall in the “Creative Technology and Design” category. Alameda County also has a higher share of jobs in the Biomedical cluster, which is difficult to track with NAICS codes but tends to fall into Manufacturing and Professional Services.

FIGURE 5

East Bay Jobs by Industry Sector, 2019

Industry	Number of Jobs	Share of Jobs
Health Care and Social Assistance	185,148	14%
Public Administration	170,825	13%
Professional and Technical Services	121,258	9%
Retail Trade	118,780	9%
Accommodation and Food Services	105,011	8%
Manufacturing	102,590	8%
Construction	91,502	7%
Other Services	78,123	6%
Administrative and Waste Services	76,604	6%
Wholesale Trade	46,400	3%
Transportation and Warehousing	45,591	3%
Finance and Insurance	42,896	3%
Educational Services	33,397	3%
Information	29,950	2%
Arts, Entertainment, and Recreation	26,702	2%
Management of Companies and Enterprises	25,596	2%
Real Estate and Rental and Leasing	24,092	2%
Utilities	5,635	0.4%
Agriculture, Forestry, Fishing & Hunting (a)	1,750	0.1%
Mining (a)	221	0.02%
TOTAL	1,332,072	100%

Notes: (a) These two sectors account for a very small share of employment in the East Bay, and are not analyzed further in this report.

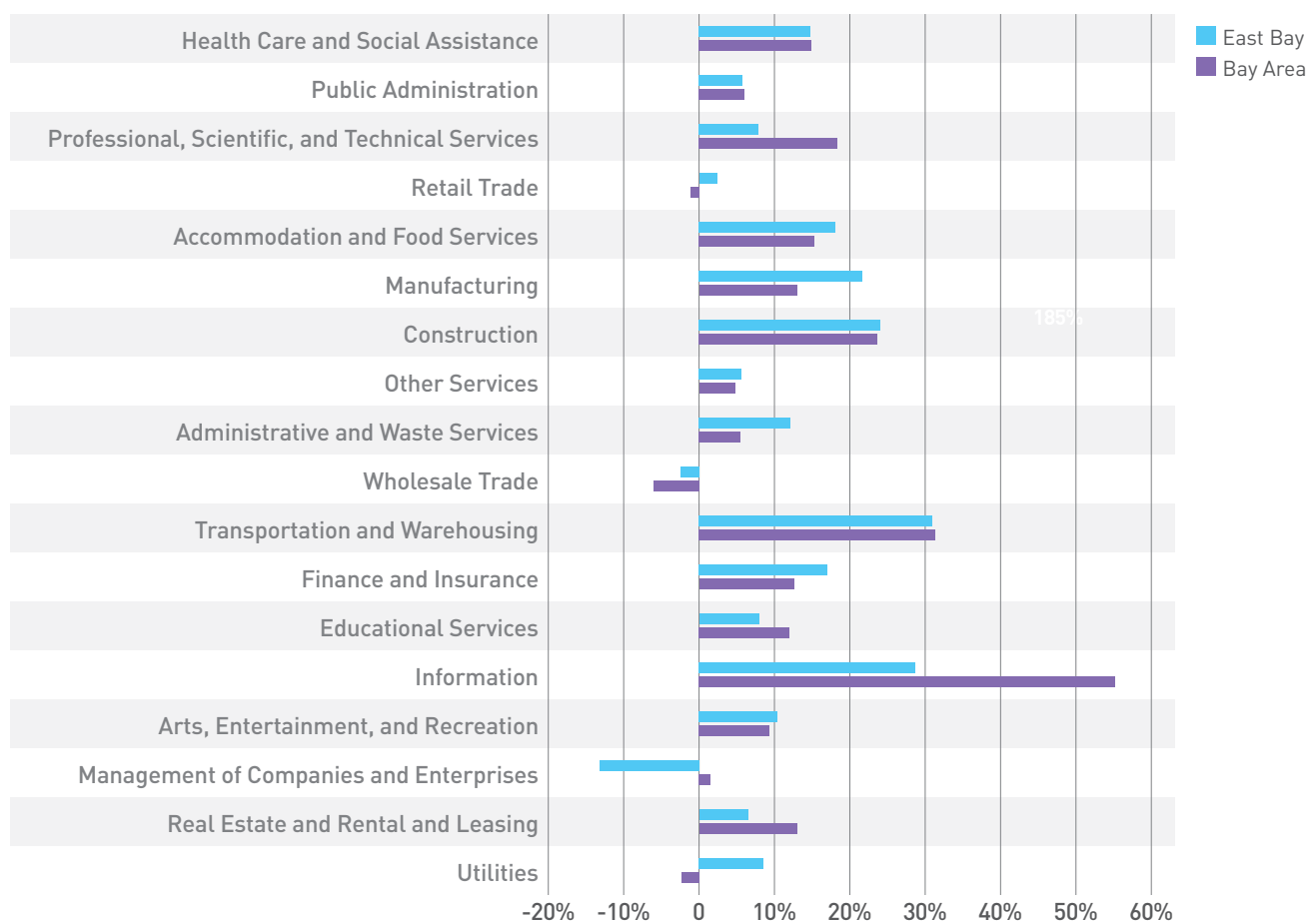
Source: EMSI, 2021; Strategic Economics, 2021.

In contrast, household-serving sectors such as “Accommodation and Food Services,” Health Care, “Other Services,” and Retail Trade, account for a greater share of jobs in Contra Costa County. These sectors tend to constitute larger shares of employment in places that are predominantly residential. Contra Costa County also has a higher share of jobs in office-based sectors that are household-serving in the East Bay context. The Central Contra Costa subarea has a large proportion of the East Bay’s “Finance and Insurance” jobs, while the county generally has a higher share of jobs in the real estate sector. Additionally, a large number of the region’s Utilities jobs are attributed to the Eastern Contra Costa subarea because of the presence of Pacific Gas & Electric.

Figure 7 shows the employment growth by industry sector in each county from 2014 to 2019. In Alameda County, most of the sectors that are driving economic growth also expanded their workforce from 2014 to 2019. Professional Services, Manufacturing, and Information all grew by at least 10 percent in terms of employees over the period.

The “Transportation and Warehousing” sector also had strong employment growth in both counties, as the rise in Ecommerce has driven employment demand in distribution centers and other logistics facilities.

Household-serving sectors, including Healthcare, “Accommodation and Food Services,” and Construction also had strong employment growth in both counties. Growth in these sectors is closely intertwined with household growth.

FIGURE 6
Rate of Job Growth by Industry Sector in the East Bay and Bay Area, 2014 to 2019


Source: EMSI, 2021; Strategic Economics, 2021.

The East Bay economy has many unique industry specializations when compared to the Bay Area economy. “Economic specialization” is another way to evaluate the East Bay’s economic strengths. The “location quotient” measure is a ratio used to indicate when an industry in the East Bay has a higher share of jobs than would be expected when compared against the Bay Area as a whole.² As shown in Figure 9, East Bay industries with a location quotient greater than “one” represent greater economic specialization in the East Bay than in the Bay Area overall.

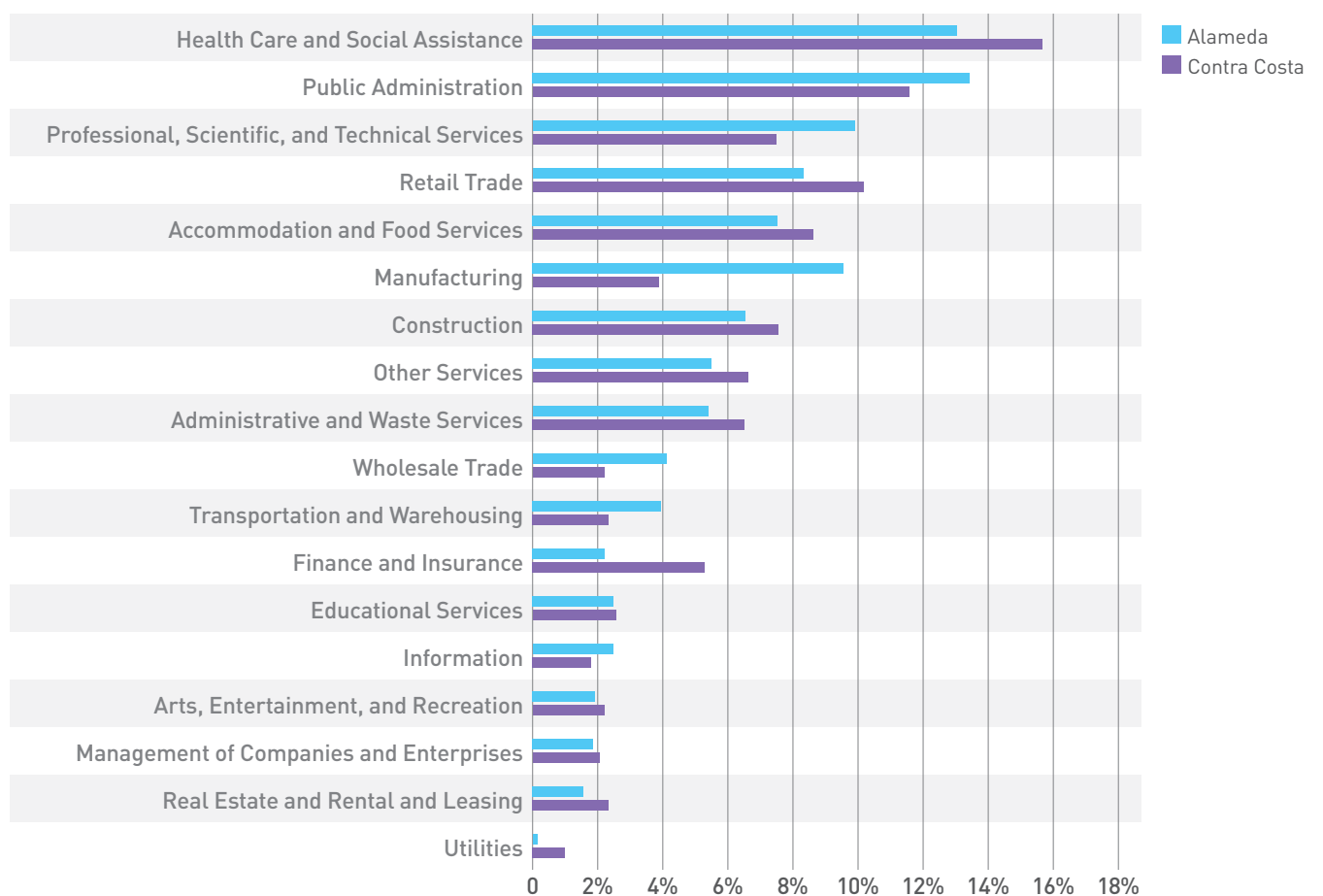
The East Bay has multiple sectors with a location quotient of greater than “one.” Many of these sectors are in household-serving industries, including “Health Care and Social As-

sistance,” Public Administration, Retail Trade, and “Arts, Entertainment, and Recreation.” Household-serving industries are typically tied to population growth and have a low “multiplier effect” in terms of driving additional spending and generating increases in overall income within the region. However, because household-serving industries are more concentrated in the East Bay than in the Bay Area, this indicates that these industries are likely not just serving the East Bay’s resident population but are also drawing activity from a larger area beyond the two-county region. This likely reflects how well the East Bay is physically connected both to other Bay Area counties and to the 21-county megaregion that extends both east and north via Interstate 880, BART, and the four bridges

- 2 The location quotient is calculated by dividing the share of an industry’s employment in the East Bay by the share of that industry’s employment in the Bay Area.

FIGURE 7

Industry Employment as Share of Total Employment in Alameda and Contra Costa counties, 2019



Source: EMSI, 2021; Strategic Economics, 2021.

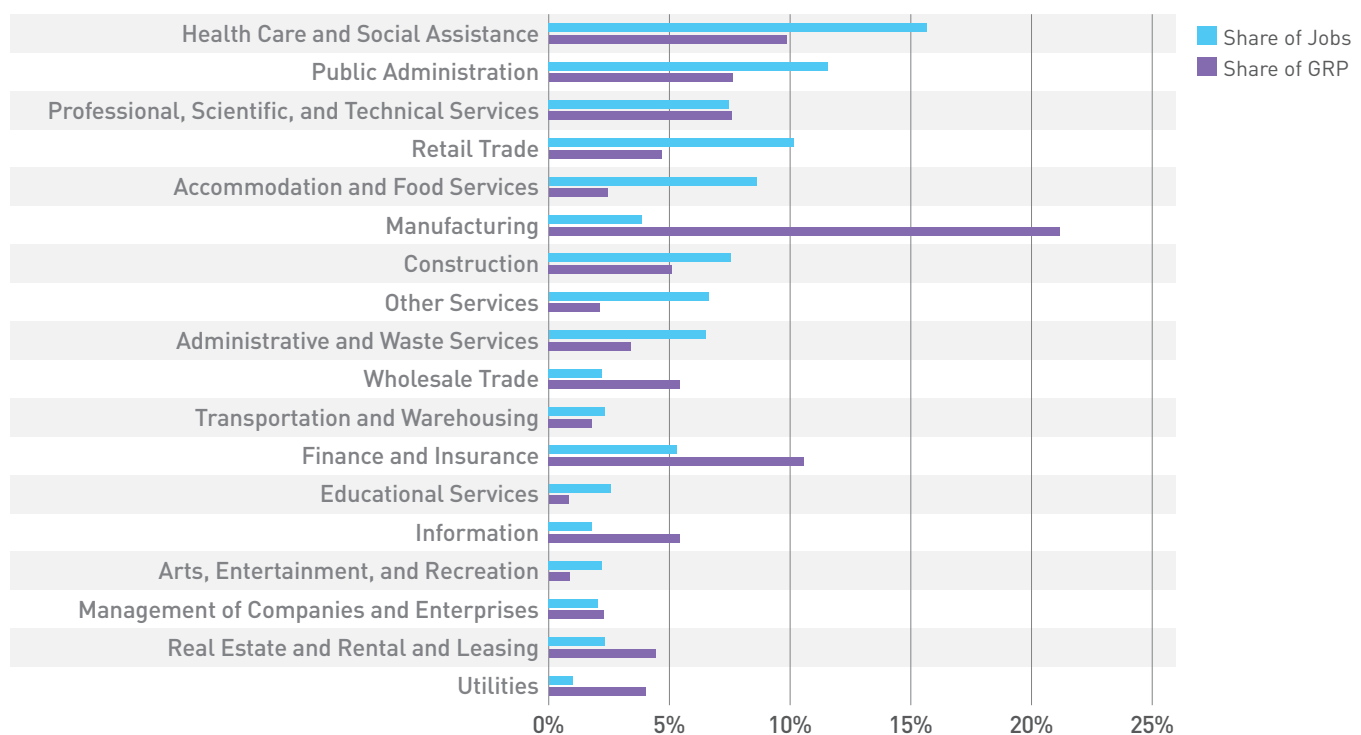
connecting the East Bay to the West, North, and South Bay households and workforce.

The East Bay also has specializations in certain traded sectors that differentiate the East Bay's strengths from those of the Bay Area's overall economy. Such sectors include Wholesale Trade and "Transportation and Warehousing," which are both tied to the Port of Oakland (including the major container terminals in Oakland, and Oakland International Airport), as well as the Port of Richmond, a bulk cargo port. Other sectors concentrated in the East Bay are Construction, "Administrative and Waste Services," and Utilities; these sectors represent a combination of traded and non-traded activities. However, small emerging industries that are becoming increasingly important in the East Bay are likely to have relatively low location quotients, illustrating the importance of using multiple measures to understand the East Bay's economic strengths.

Gross Regional Product (GRP) is another measure of which industries are contributing to the East Bay Economy. The East Bay's total GRP amounts to \$209.3 billion, with Alameda County accounting for 64% of this activity and Contra Costa County making up 36% of this total. Certain traded sectors play an outsized role in generating economic growth (i.e., dollars moving through the economy, as compared to their share of employment). This comparison between GRP and employment by industry is especially illuminating for industries like Manufacturing, where automation and other industry changes generate faster growth in economic output relative to jobs. As Figures 10 and 11 show, Manufacturing plays an important role as an economic driver for the East Bay. Additionally, Professional Services, Information, and "Finance and Insurance" sectors are contributing substantial economic output, particularly in Alameda County.

FIGURE 8

Employment Growth by County and Industry Sector, 2014 to 2019

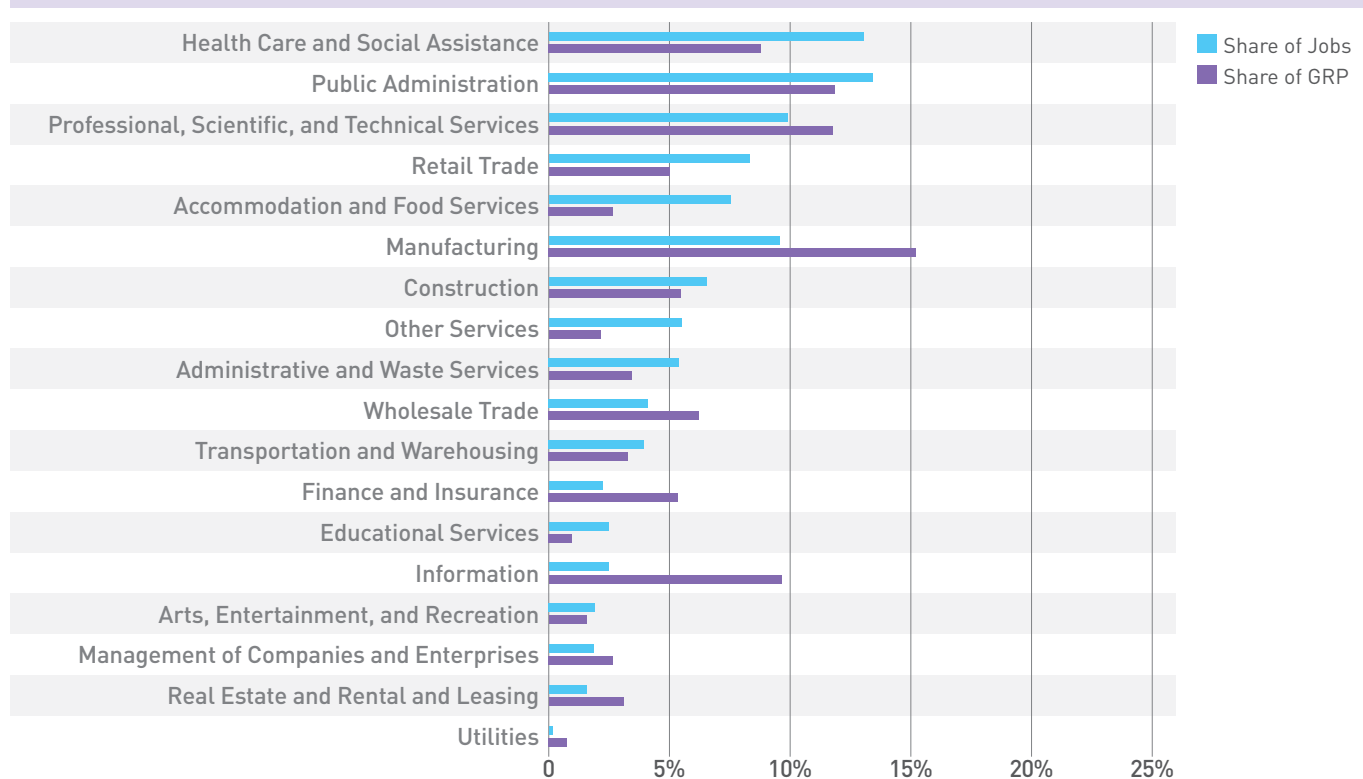


Source: EMSI, 2021; Strategic Economics, 2021. See Appendix for full GRP detail.

FIGURE 9**Concentration of East Bay Industry Sector Employment in East Bay, Compared to Bay Area, 2019
(Displayed as Location Quotients)**

Industry	Number of Jobs	Location Quotient
Health Care and Social Assistance	185,148	1.23
Public Administration	170,825	1.19
Professional and Technical Services	121,258	0.70
Retail Trade	118,780	1.19
Accommodation and Food Services	105,011	0.94
Manufacturing	102,590	0.97
Construction	91,502	1.28
Other Services	78,123	0.93
Administrative and Waste Services	76,604	1.07
Wholesale Trade	46,400	1.32
Transportation and Warehousing	45,591	1.20
Finance and Insurance	42,896	0.94
Educational Services	33,397	0.77
Information	29,950	0.39
Arts, Entertainment, and Recreation	26,702	1.08
Management of Companies and Enterprises	25,596	1.10
Real Estate and Rental and Leasing	24,092	0.96
Utilities	5,635	1.37
Total	1,332,072	

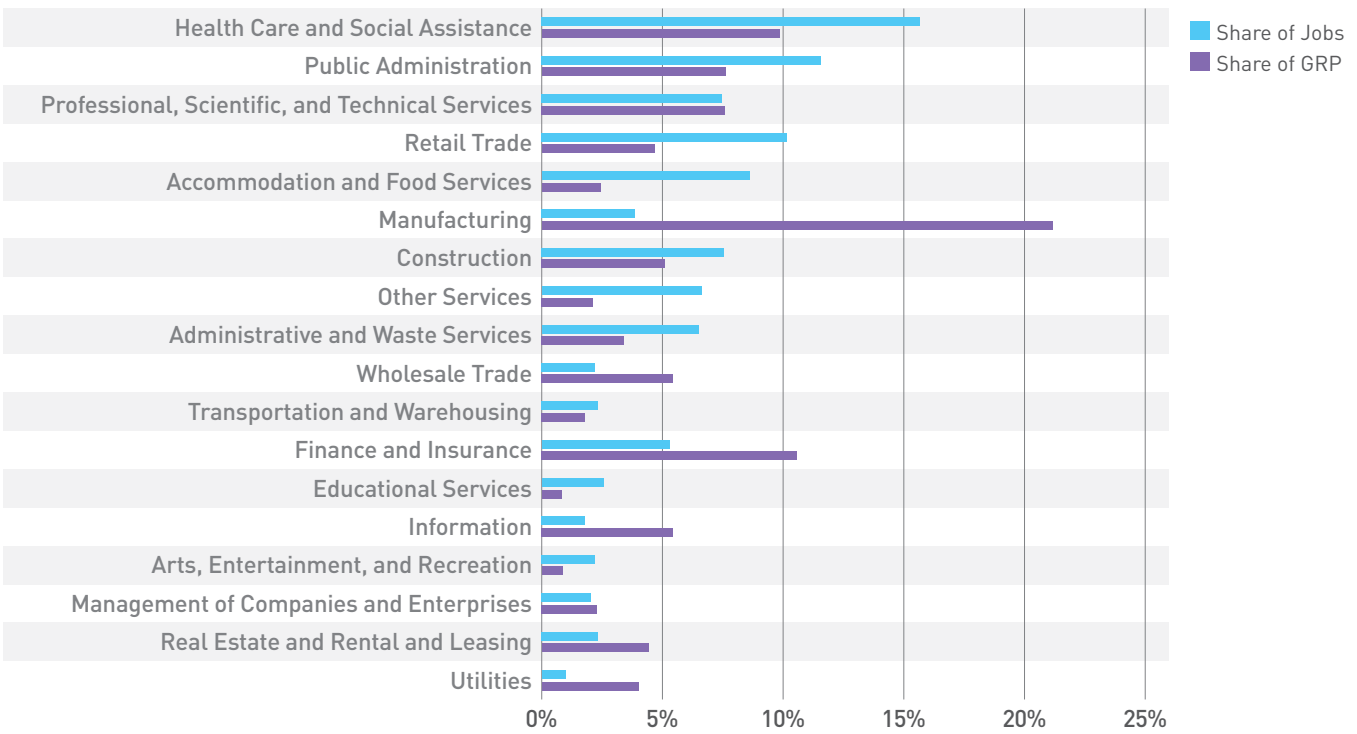
Source: EMSI, 2021; Strategic Economics, 2021.

FIGURE 10**Alameda County: Share of Jobs and Gross Regional Product by Sector, 2019**

Source: EMSI, 2021; Strategic Economics, 2021. See Appendix for full GRP detail.

FIGURE 11

Contra Costa County: Share of Jobs and Gross Regional Product by Sector, 2019



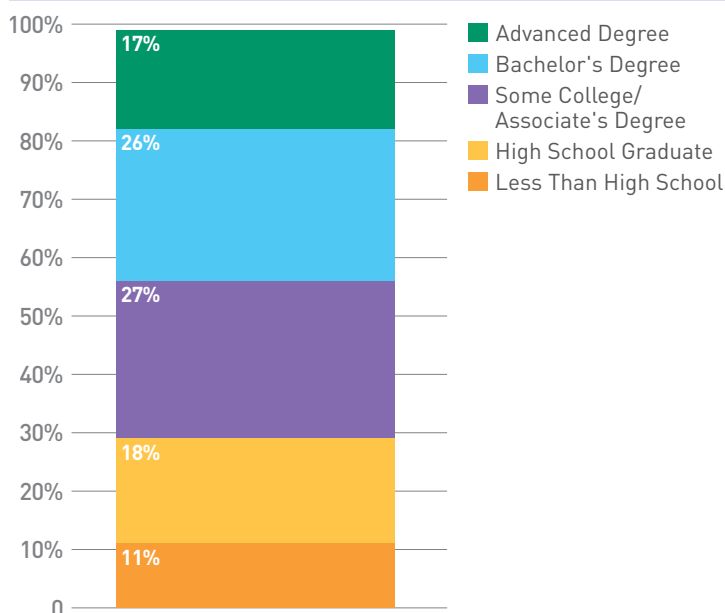
Source: EMSI, 2021; Strategic Economics, 2021. See Appendix for full GRP detail.

THE EAST BAY'S PRE-PANDEMIC WORKFORCE

The East Bay economy can only thrive if its residents are well-prepared for and able to access high-quality jobs—especially since 60 percent of the East Bay's workers also live within Alameda and Contra Costa Counties. East Bay Forward analyzed specific pre-pandemic workforce issues in response to stakeholder input gathered through focus groups and Strategic Advisory Committee meetings. This section describes the results of those analyses, with a focus on: 1) levels of educational attainment and how this workforce characteristic varies by race and ethnicity, by wages, and by subarea; 2) availability of middle-wage jobs that provide a livable wage with relatively low barriers to entry; and 3) discussion of housing cost and commute challenges faced by some East Bay workers.

FIGURE 12

East Bay Educational Attainment for People age 25 and Over, 2015-2019 Estimate



Source: American Community Survey 5-year Estimates, 2015-2019; Strategic Economics, 2021.

Education and Wages

Significant educational attainment disparities exist in the East Bay. Figure 12 shows the educational attainment distribution for all people ages 25 and older in the East Bay. Approximately 42 percent of people have at least a bachelor's degree, while 27 percent have some college³ and 29 percent have a high school diploma or less. However, educational attainment varies significantly by race and ethnicity, as shown in Figure 13. While only 17 percent of white workers have a high school diploma or less, 23 percent of Asian or Pacific Islanders, 32 percent of Black, and 57 percent of Latino workers have a high school diploma or less. Conversely, a significant proportion of whites and Asians or Pacific Islanders have a bachelor's degree or higher, compared to relatively low shares of other groups.

These education disparities create significant obstacles for many of the East Bay's residents to access stable, high-quality jobs—an issue that will continue to worsen as automation increases the skills required to access better-paid jobs. High educational attainment is increasingly a prerequisite for stable, high-quality employment in both the Bay Area and the East Bay. Stable jobs are those that are resilient to automation, provide living wages, and have growing employment. Only 12 percent of jobs in the Bay Area requiring a high school diploma are considered stable in the long-term compared to 83 percent that require bachelor's degrees.⁴ Workers of color, who account for 60 percent of the workforce in the Bay Area, are overrepresented in lower-paying and lower-opportunity occupational groups, while white workers are overrepresented in higher-paying jobs. For example, while Latino workers comprise 22 percent of the Bay Area workforce, they account for 55 percent of employees in

3 Includes people who have received two-year Associate's degrees and people who attended college but did not complete a degree program.

4 Abby Langston, et al. "Advancing Workforce Equity in the Bay Area: A Blueprint for Action," Bay Area Equity Network, 2021.

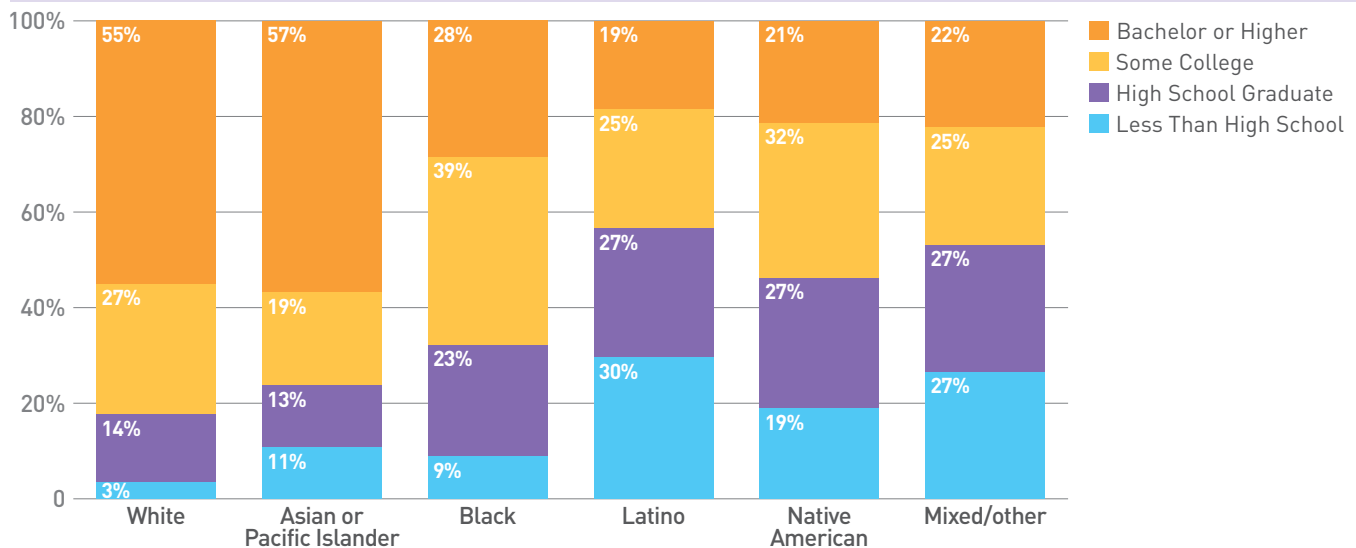
construction, but just seven percent in architecture and engineering. Black workers, who represent six percent of the workforce, account for less than two percent of workers in architecture and engineering, but 11 percent in transportation and material moving.⁵

Racial income disparities are also a long-standing challenge, with white workers in the Bay Area earning higher incomes compared to workers of color at the same educational attainment levels. Asian and Pacific Islander workers with a bachelor's degree or higher

5 Abby Langston, et al. "Advancing Workforce Equity in the Bay Area: A Blueprint for Action," Bay Area Equity Network, 2021.

FIGURE 13

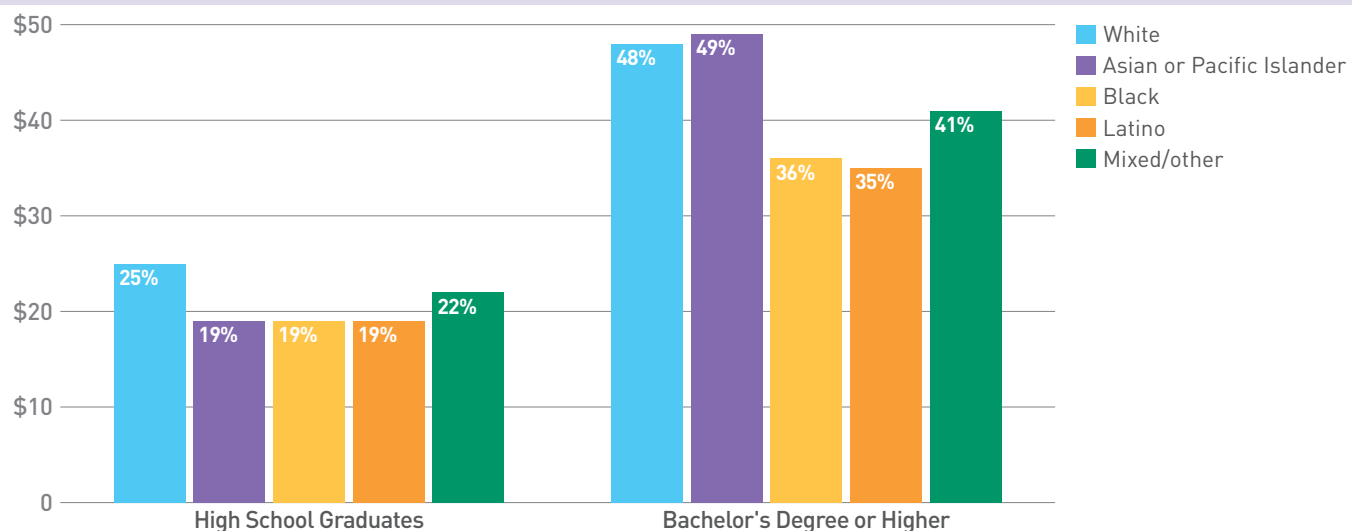
Educational Attainment by Race/Ethnicity in East Bay for People Age 25 and Older, 2014-2015 Estimate



Source: National Equity Atlas, 2021; Strategic Economics, 2021.

FIGURE 14

Snapshot of Median Hourly Wages by Race/Ethnicity and Education in the Bay Area, 2014-2018 Estimate



Source: National Equity Atlas, 2021; Strategic Economics, 2021.

Note: This chart is adapted directly from National Equity Atlas' 2021 report entitled "Advancing Workforce Equity in the Bay Area: A Blueprint for Action." See page 30 of this report for more information.

https://reworkthebay.org/wp-content/uploads/2021/02/Advancing-Workforce-Equity-in-the-Bay-Area_FINAL_0.pdf

earn comparable wages as white workers. However, the difference in median wages is particularly stark for Black and Latino workers compared to white workers with the same educational attainment. Figure 14 shows a snapshot of median hourly wages for workers by race/ethnicity with high school degrees and with bachelor's degrees or higher.

Geographic disparities in educational attainment within the East Bay indicate communities with greater vulnerability to economic instability—and opportunities to target resources. Figure 15 shows East Bay ZIP codes by their share of people 25 and older with “some college or less.” This map indicates places with a large share of economically vulnerable households due to low levels of educational attainment. These ZIP codes are concentrated in the Eastern Contra Costa, Western Contra Costa, and Central Alameda subareas, as well as certain neighborhoods in East and West Oakland. These areas represent opportunities to geographically prioritize place-based workforce development strategies.

Middle-Wage Job Opportunities and Access

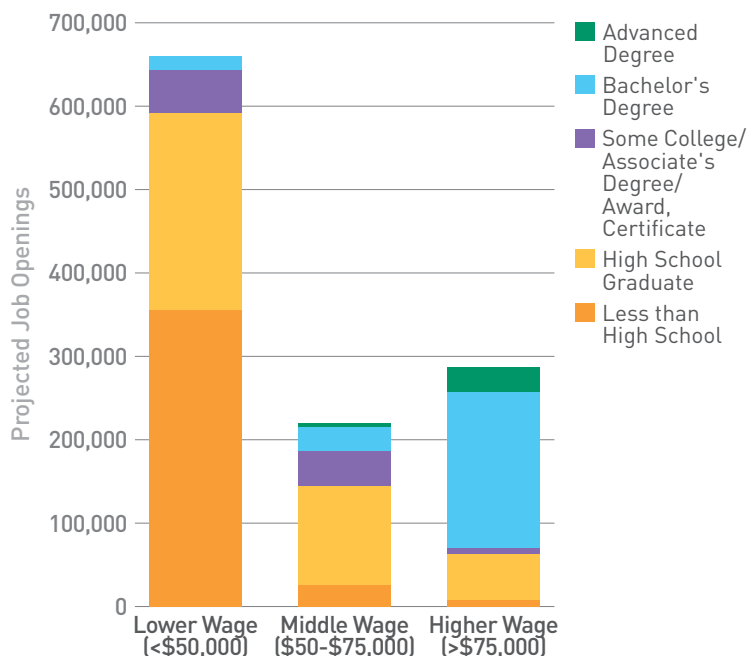
Improving both the access to and the supply of middle-wage jobs has been identified as high priority by the East Bay workforce development community. These jobs tend to have lower barriers to entry than high-wage jobs while providing security and stable wages. Middle-wage jobs, for the purpose of this discussion, are defined as jobs with annual wages between \$50,000 and \$75,000.⁶

The share of middle-wage, middle-skill jobs continues to decline as the composition of the U.S. and Bay Area economies shift toward service jobs requiring either high or low educational attainment. Jobs in the Bay Area today

are increasingly bifurcated, as the shares of both high-wage and low-wage jobs have risen. As the number of high-wage jobs in most traded sectors has grown, demand for jobs in household-serving sectors has grown as well. Household-serving sectors, such as Food Service, Accommodations, Retail, and Personal Services are dominated by low-wage jobs, while also representing a significant proportion of East Bay jobs. Low-wage jobs tend to be lower-quality because salaries are too low to adequately support workers and their families, and many of these jobs do not offer benefits. Figure 16 shows projected job openings in the East Bay from 2018 to 2028 by wage level and educational requirements. While middle-wage jobs are generally accessible to workers with lower levels of educational attainment, there are three-times more low-wage openings than middle-wage openings.

The East Bay's middle-wage and middle-skill occupations are relatively limited, but create opportunities for workers with lower educational attainment to access high-quality jobs; these occupations are more heavily concentrated within specific industries. Within the East Bay, the fastest-growing middle-wage occupations are projected to be concentrated in the Health Care and Construction sectors, including connections to the clean energy workforce. The specific middle-wage, middle-skill occupations with the most openings are projected to include Construction Laborers, Carpenters, “Bookkeeping, Accounting, and Auditing Clerks,” and “First-Line Supervisors of Office and Administrative Support Workers.” The middle-wage occupations that are growing the fastest in the East Bay, as well as the middle-wage occupations with the most projected job openings, are shown in [Appendix C](#). Appendix C also shows information about demand for occupations requiring a bachelor's degree.

6 This range is based on housing costs in the East Bay, and roughly relates to the income amount needed to be considered above “Low-Income” in Alameda County, which is above 80 percent of Area Median Income.

FIGURE 16**East Bay Projected Job Openings by Wage Level and Educational Requirement, 2018 to 2028**

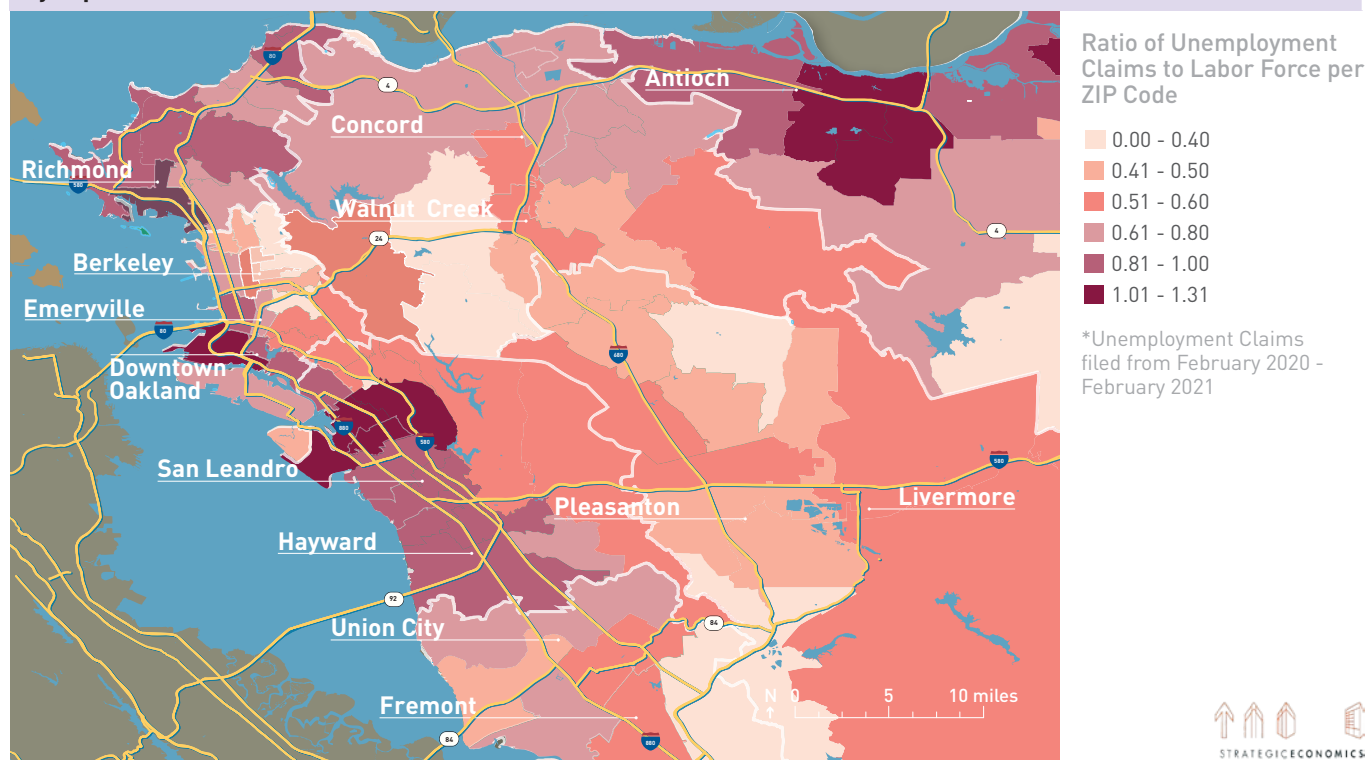
Note: There are also 365,000 additional projected job openings that do not have wage information. Sixty-five percent of these jobs require a high school diploma or less.

Source: CA EDD, 2021; Strategic Economics, 2021.

Since lower-wage jobs are likely to continue to constitute a high share of openings for workers with lower educational attainment, a need also exists to improve the pay, benefits, stability, and opportunities for advancement among lower-wage jobs. Based on existing conditions and long-term trends, there are not likely to be enough middle-wage, middle-skill jobs available for all East Bay workers without college degrees. Low-wage jobs are a major component of the East Bay economy, and East Bay leaders need to balance supporting individual economic mobility opportunities with structural changes that improve working conditions for low-wage positions more broadly.

Impacts of High Housing Costs

High housing costs are consistently cited by employers as one of the greatest challenges in attracting and retaining workers. Housing costs in the East Bay, like the Bay Area, are among the most expensive in the nation. Housing demand consistently outstrips hous-

FIGURE 15**Educational Attainment of Population 25 Years and Older: Some College or Less, 2015-2019 Estimate by ZIP Code**

ing supply across all price points. Lower-income renter households in particular have become very vulnerable to displacement pressures.⁷ High housing costs can also deter talented workers in professional fields from moving to or staying in the East Bay and the Bay Area. Workers in lower-paying professional sectors, such as Education or Social Welfare, often relocate to other regions due to high living costs. Housing prices are also often cited as a reason for businesses to relocate out of the East Bay and the Bay Area.

High housing costs also impact worker mental health and access to opportunity, with disproportionate impacts on lower-income workers. High housing costs also contribute to long commute times for lower-wage workers. Lower-wage workers who remain in the East Bay are often forced to seek housing in low-cost neighborhoods or cities, which also tend to be far from the East Bay's major employment centers. Therefore, these workers have much longer commutes than high wage workers, contributing to a complex set of quality-of-life issues that become compounding stressors for workers and their families.

COVID-19'S IMPACTS ON THE EAST BAY

As the East Bay emerges from the COVID-19 pandemic, it is important to understand which businesses and workers were most harmed by the pandemic, which longstanding issues and trends were accelerated and amplified by the pandemic, and how the pandemic has created transformational long-term changes in how we live and work. This section explores these issues from the perspectives of businesses and industries, workers, and real estate and land use, with emphases on specific topics raised by East Bay stakeholders throughout the East Bay Forward process.

The Pandemic's Impacts on Businesses and Industries

From January 2020 to January 2021, the East Bay lost approximately 112,000 jobs, or nine percent of total jobs. Figure 17 shows the change in the number of jobs over this period by two-digit NAICS sector. The Transportation and Warehousing sector (+5%), as well as Grocery Stores (+3%), were the only two categories that gained jobs. The gains associated with both categories reflect changes in retail spending during the pandemic: 1) big box chains and online retailers captured larger shares of retail spending, which increased demand for distribution centers, and 2) grocery stores, which were a key essential business during the pandemic, stayed open.

"In-Person" Sectors

While there were disruptions across all industry sectors, the most severe disruptions were in sectors that depend on in-person interaction, which are referred to as "in-person" sectors in this report. The tourism and hospitality, food service and nightlife, entertainment, and personal services industries, which heavily employ women, people of color, and immigrants, suffered the greatest losses during the pandemic due to mandated business closures, limited operations, and restrictions on travel. Smaller-scale, independently-owned retail businesses that rely on in-person shoppers also struggled.

Among the East Bay sectors that lost jobs over the January 2020 to January 2021 period, 60 percent of job losses were associated with "in-person" sectors. These "in-person" businesses fall into the categories of "Arts, Entertainment and Recreation," "Food Service and Accommodation," Other Services, and Retail (excluding grocery). As travel and capacity restrictions reduced demand and allowable activities for these types of businesses, they were forced to reduce operations and lay off workers, and many closed. Job loss was the most severe for the "Arts, Entertainment, and

7 Urban Displacement Project, 2020.

Recreation” sector, which lost approximately 11,000 jobs, or 58 percent of its pre-pandemic workforce. The “Food Services and Accommodations” sector lost the largest number of jobs overall, declining by approximately 37,000 workers, or 36 percent of its pre-pandemic workforce.

These “in-person” sectors constitute a significant share of jobs throughout the East Bay, and the disruption to these sectors generated negative effects in every East Bay subarea.

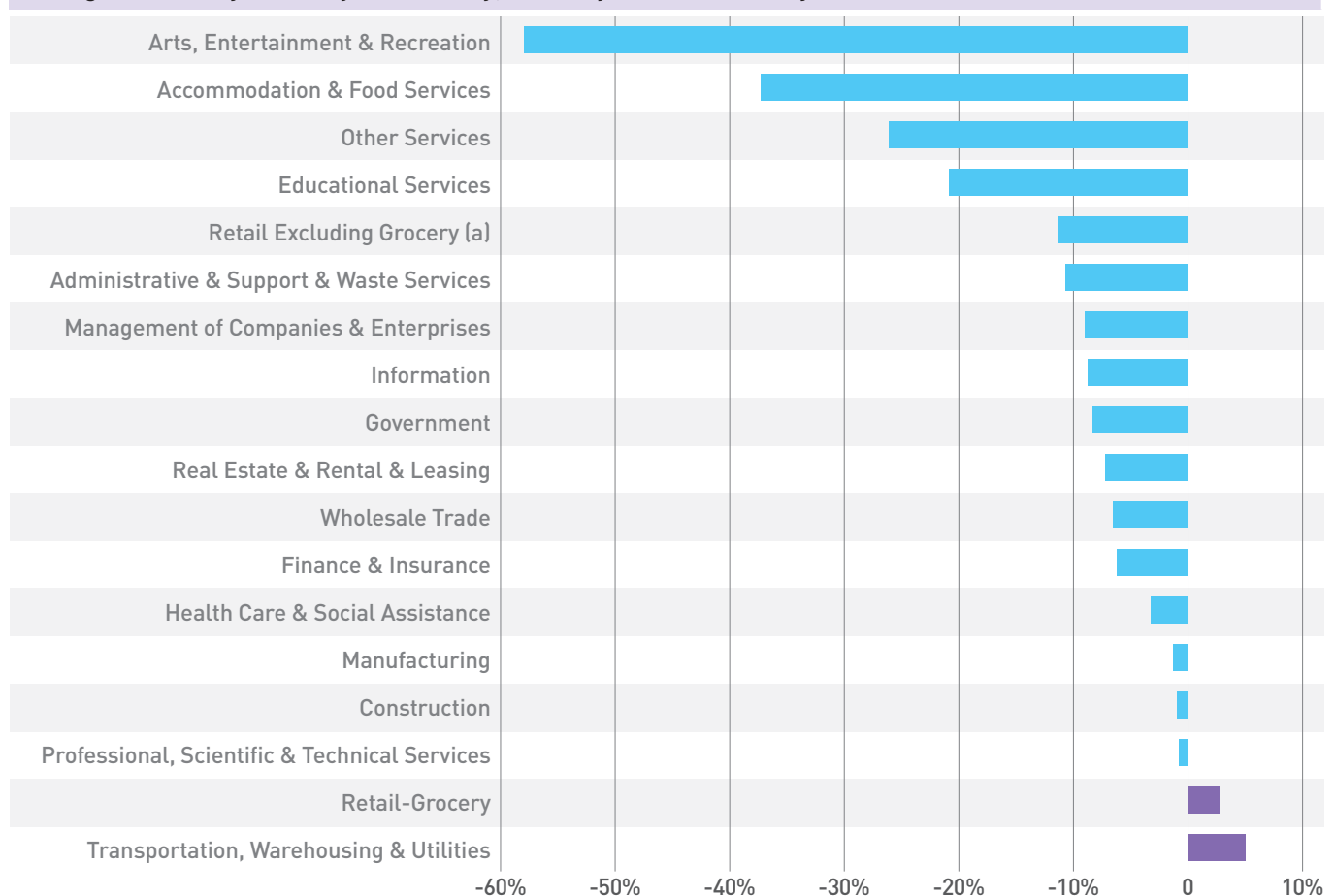
Figure 17 shows the concentration of vulnerable “in-person” jobs spatially, which includes jobs in the “Arts, Entertainment and Recreation,” “Accommodation and Food Services,” “Other Services,” and “Retail sectors. These jobs depend on access to customers and clients,

and are therefore especially concentrated in major commercial areas and along transportation corridors.

Businesses underwent a variety of “pivots” and changes in how they operate in response to the COVID-19 pandemic, creating a variety of innovations and changes that may stay with us in the years to come. Many “non-essential” establishments requiring close contact, such as indoor dining, bars, personal service, entertainment venues, and arts-related organizations closed their doors during the early period of the pandemic. Those that stayed open dedicated substantial time and money to be in-line with public health guidance, which changed throughout the pandemic. They had to follow specific cleaning protocols, implement social

FIGURE 17

Change in Jobs by Industry in East Bay, January 2020 to January 2021



Note: (a) Includes: Motor vehicle and parts dealers; Health and personal care stores; Clothing and clothing accessory stores; Sporting goods, hobby, book and music stores; General merchandise stores

Source: CA EDD, 2021; Strategic Economics, 2021.

distancing policies, and enforce face coverings. As of September 2021, many businesses are now implementing vaccine verification systems to keep employees and customers safe. Although improving operations and adapting new service models can help some industries to recover, many small businesses face mounting pressure to stretch already slim margins and scant working capital to invest in technologies needed to survive.

Small Businesses

Small businesses were more severely impacted by the pandemic, especially businesses in “in-person” sectors. Small businesses tend to have lower reserves and access to capital compared to larger businesses. Small businesses in “in-person” industries were required to reduce their operations to comply with public health orders. Many of these businesses are in older,

storefront retail spaces that depend on pedestrian traffic, which was also dampened from the public health orders. Businesses in lower-income neighborhoods were also at a disadvantage, as households had less income to spend.

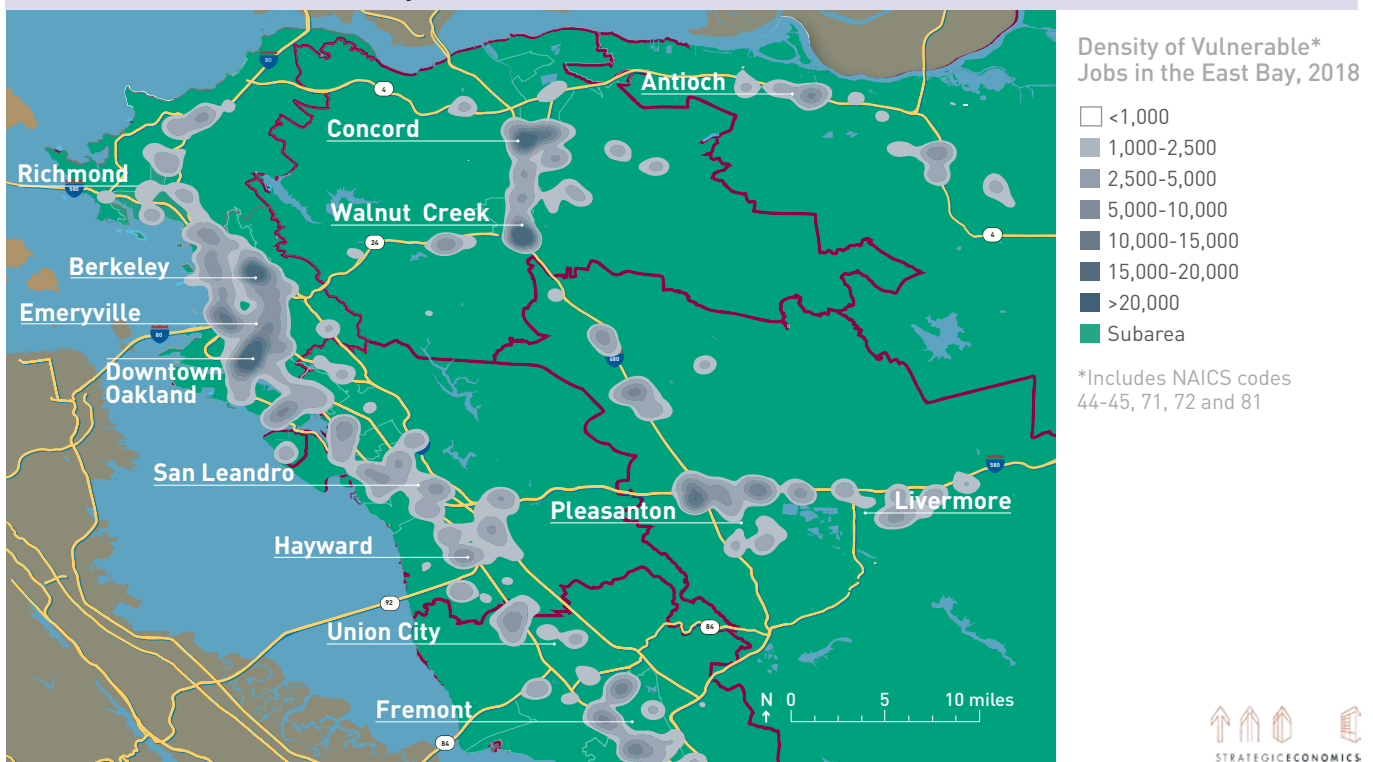
Many businesses owned by women, minorities, and immigrants faced challenges related to accessing working capital; smaller start-ups and entrepreneurs also faced similar challenges.

For example, many were unable to access federal Paycheck Protection Program (PPP) loans.⁸ These businesses were also frequently denied conventional financial resources because they often do not have existing relationships with traditional banking institutions or established credit history required to access commercial loans. Community Development Finance Institutions (CDFIs) and other mission-driven community banking institutions served as a critical lifeline for these businesses during the pandemic.

⁸ Sole proprietors were initially ineligible to apply for PPP loans. Some businesses also were nervous about taking on additional debt and did not apply.

FIGURE 18

Vulnerable Jobs in the East Bay, 2018



ic by offering emergency grant assistance and/or low-cost loans.⁹

As with all businesses, small businesses are now struggling to recruit workers as they increase staffing. Since Spring 2021, vaccinations became available to the public and many small business establishments were permitted to expand their capacity. However, many of these businesses—especially those in the food service, accommodations, and entertainment industries—struggle to find workers. These industries are at a crossroads, as many former workers are leaving permanently for other positions or leaving the labor force to care for children and other family members.

Other Industry Impacts

The retail industry experienced an acceleration of existing trends favoring Ecommerce and home delivery, driving the success of larger retail chains with an Ecommerce presence and accelerating demand for distribution centers:

- Existing trends in Ecommerce growth accelerated. Online-only retailers like Amazon and big box stores with strong online platforms (e.g., Target) captured a greater share of retail spending. This trend also expanded demand for distribution centers and other logistics activities related to the movement of goods purchased online.
- Grocery stores were considered an essential business throughout the pandemic. Grocery stores of all sizes expanded their operations during the pandemic and increased their workforce. Grocery stores also increasingly offered online pick-up and delivery options to attract customers reluctant to enter stores.
- Independent stores fared worse than chain stores. Small-scale independent stores, many of which depend on pedes-

trian traffic, struggled with similar issues that other “in-person” businesses faced.

Office-based businesses have largely adopted temporary and permanent expansions of remote work, altering the dynamics of demand for office space. Private and public employers that had occupied traditional office space have largely adopted remote work and hybrid work policies since the pandemic began. This trend has generated large impacts on the economic ecosystem that depends on office workers, with transit agencies experiencing declines in farebox revenue, office tenants subleasing space or backing out of leases, and restaurants and service businesses in central business districts suffering extreme declines in sales.

Frontline healthcare workers are burned out, and patients deferred routine healthcare needs. Healthcare workers, many of whom are on the front lines of the pandemic, have faced high coronavirus exposure risks. Healthcare industry leaders say many healthcare workers are struggling with burnout. These industry leaders anticipate that there will be a glut of openings as people retire or leave the field. While there has been demand for frontline healthcare workers across wage levels, the number of healthcare jobs declined, because elective procedures were not permitted early in the pandemic and the public delayed routine visits.

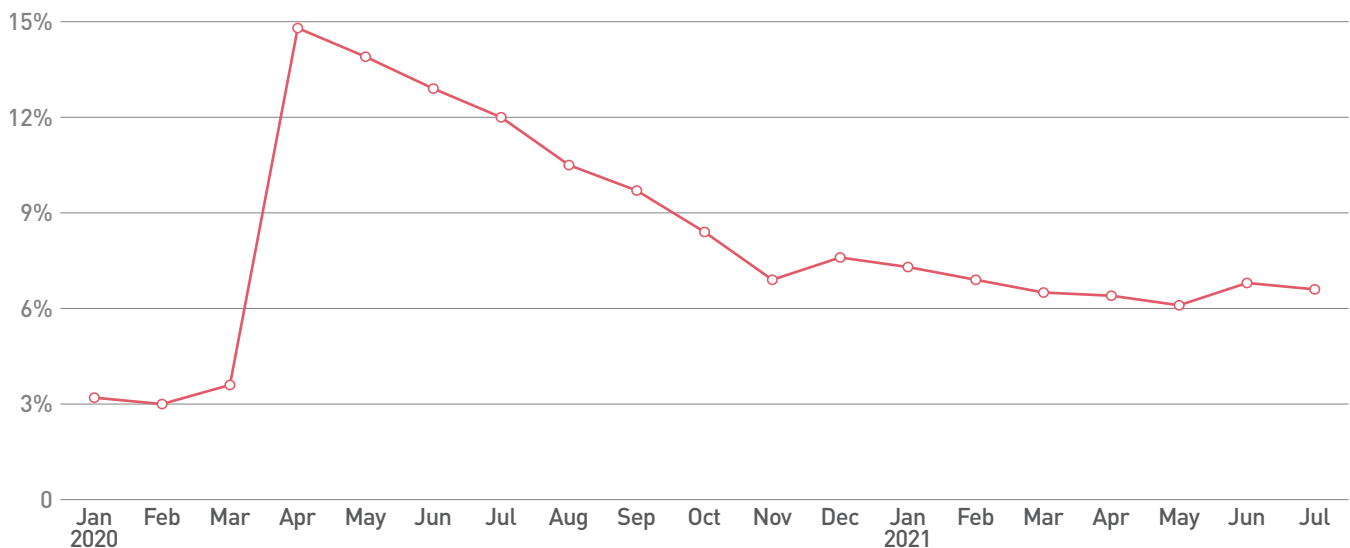
Teachers are burned out, and many quit; the pipeline of new teachers is limited. Workers in education are also experiencing high rates of burnout, after over a year of remote teaching. The total employment in education contracted primarily from workers choosing to leave the field voluntarily, rather than from layoffs.¹⁰ The sector faces structural challenges with its worker pipeline generally, as salaries for most public teaching positions have remained low.

9 Connecting Communities webinar, “A Year of Crisis, and Now What? Where Our Main Streets Go From Here,” 2021.

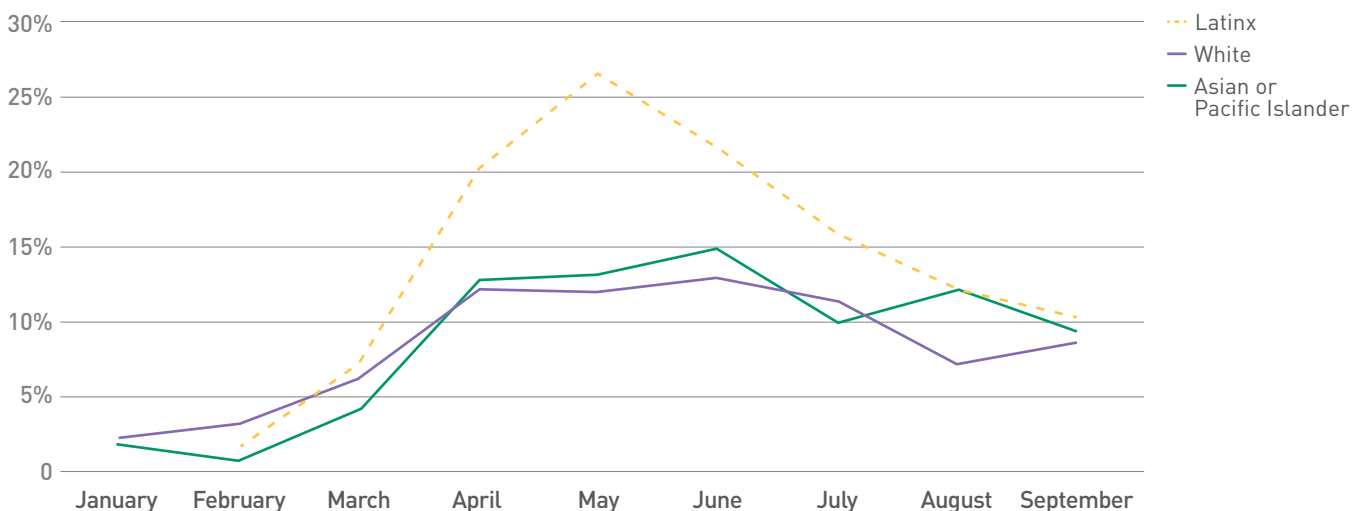
10 Chad Aldeman, “During the pandemic, “lost” education jobs aren’t what they seem,” Brookings Institute, 2021. <https://www.brookings.edu/blog/brown-center-chalkboard/2021/03/02/during-the-pandemic-lost-education-jobs-arent-what-they-seem/>

Manufacturing businesses performed well overall, though smaller manufacturing businesses need support. While many manufacturing firms were not required to cease operations during the pandemic, they needed to meet strict and evolving occupational safety and health standards. They also faced workforce shortages, global supply chain disruptions,

and volatile costs. East Bay industry stakeholders noted that a divide exists between well-capitalized, efficient, and larger advanced manufacturing businesses versus older and smaller manufacturing businesses that have been unable or uninterested in making investments to enhance their efficiency.

FIGURE 19**Unemployment Rate in East Bay, January 2020 through July 2021**

Source: California EDD, 2021; Strategic Economics, 2021.

FIGURE 20**East Bay Unemployment by Race/Ethnicity, 2020**

Source: PolicyLink and USC Equity Research Institute, "Advancing Workforce Equity in the Bay Area: A Blueprint for Action," 2021. Unemployment estimates from the Current Population Survey (CPS) microdata from IPUMS USA.

Note: Dotted line denotes two-month rolling average of unemployment rate because of small sample sizes. Black workers could not be included in this analysis because of small sample size.

The Pandemic's Impacts on Workforce Inequities and Unemployment

Unemployment rates are now declining in the East Bay, though many of these job gains are attributable to growth of low-wage jobs. The unemployment rate in the East Bay peaked at the beginning of the pandemic, and has since declined. Still, the unemployment rate as of July 2021 is approximately twice as high as it was before the pandemic began. Figure 19 shows the unemployment rate in the East Bay from January 2020 through July 2021. The unemployment rate declined from 14.8 percent in April 2020 to 6.6 percent

in July 2021. The job gains since April 2020 were largely associated with an increase in low-wage jobs, while the number of middle- and high-wage jobs has remained steady.

Growth of low-wage jobs during the pandemic has been driven by shifts toward Ecommerce and “gig work.” Grocery stores and online retailers such as Amazon increased their workforce in distribution centers and delivery services. Some workers experiencing unemployment also supplemented their incomes by turning to informal gig work delivery positions, such as through Doordash or Instacart, as the general public became wary of traveling to grocery stores and restaurants to pick up food in person. These gig work positions offer very limited employee benefits and protections.

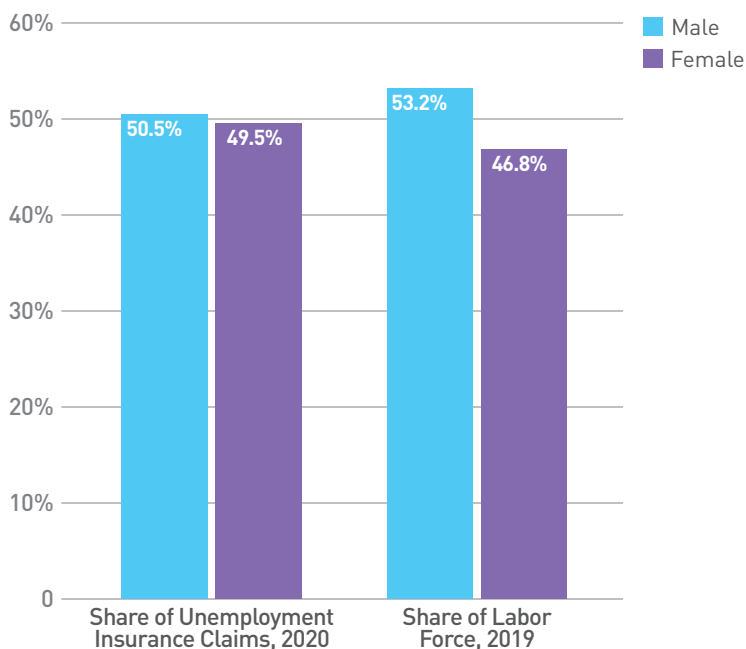
The COVID-19 pandemic exacerbated existing racial and income inequalities. Higher-wage workers, who were more likely to be able to work remotely throughout the pandemic, have been substantially better-positioned to navigate the burdens of the pandemic than lower-wage workers. While high-wage workers, who are more likely to be white and male, have been able to save more income during the pandemic, low-wage workers often had to deplete their savings due to job losses and reduced work hours.

Low-wage workers were most vulnerable during the pandemic to both income loss and coronavirus exposure. Workers in lower-wage yet “essential” positions which continued operations throughout the pandemic—such as at grocery stores and transit agencies—were at a high risk of coronavirus exposure. Lower-wage workers at “non-essential” activities, including indoor dining, bars, personal services and entertainment venues, were also most likely to be unemployed as these business reduced operations.

East Bay unemployment rates were higher for people of color and women during the pandemic. Figure 20, which is from Bay Area Equity Network’s 2021 report entitled “Advancing Workforce Equity in the Bay Area: A Roadmap

FIGURE 21

East Bay Unemployment Claims vs Labor Force by Gender, 2020



Note: The ACS, as of 2019, did not offer respondents the ability to select gender identity options besides “male” or “female.” EDD also only offers the option of “male” or “female” for tracking unemployment insurance claims, though the selection is optional. While the Census and EDD data is limited, it is well-documented that trans people and other people in the LGBTQ community are overrepresented among people that experienced unemployment during the pandemic. For example, the Human Rights Campaign conducted a survey of 4,000 people on job loss nationwide, and found that 17% of LGBTQ people experienced unemployment compared to 13% of the overall population at that time (<https://www.nbcnews.com/feature/nbc-out/lgbtq-people-face-higher-unemployment-amid-coronavirus-pandemic-survey-finds-n1205296>).

Source: American Community Survey 1-year Estimates, 2019; CA EDD, 2021; Strategic Economics, 2021.

for Action,” shows unemployment rates by race/ethnicity in the nine-county Bay area from January to September 2020. As shown in the figure, Latinx workers experienced unemployment at a higher rate than white and Asian/Pacific Islander workers during the beginning of the pandemic. The sample size for Black workers was too small to be included in this chart. However, comparison of East Bay unemployment claims and labor force by race in 2020 shows that Black workers in the East Bay were overrepresented in experiencing unemployment. While Black workers accounted for eight percent of the labor force in the East Bay in 2019, they accounted for 13 percent of unemployment claims during 2020.¹¹ Figure 21 compares the share of unemployment claims and labor force by gender. Women are more likely to work low-wage jobs, which were more volatile during the pandemic.

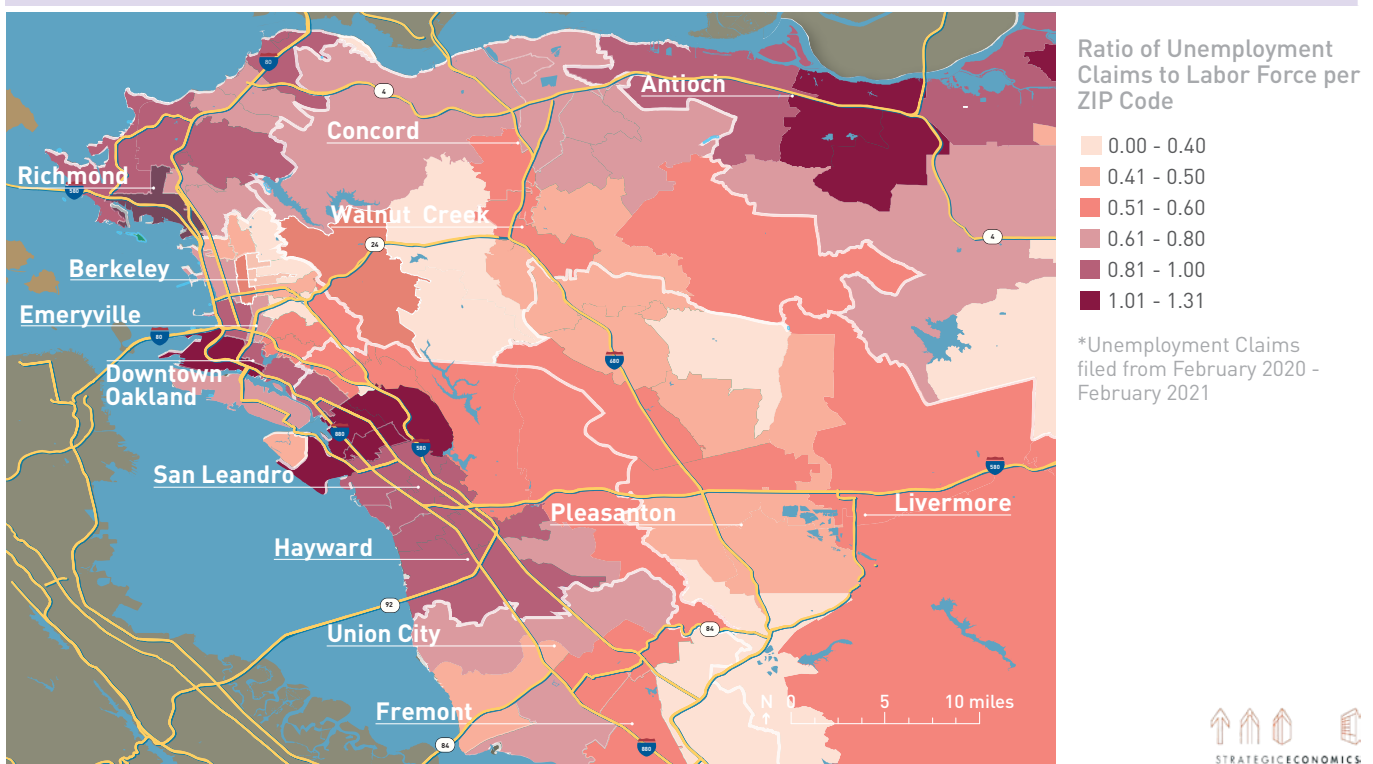
Additionally, many mothers, especially those whose jobs required in-person work, had to leave the workforce due to childcare needs.

The East Bay’s communities with lower levels of educational attainment also experienced high unemployment rates during the pandemic. The map in Figure 22 shows the ratio of unemployment claims to the labor force by zip code. Darker areas have a higher ratio of unemployment claims, compared to their workforce. The areas with workers experiencing the highest levels of unemployment include Richmond, West Oakland, Antioch, parts of East Oakland, and San Leandro. Pittsburg, Bay Point, Hayward, and Union City also had high ratios. See Figure 15 for the map showing the share of residents aged 25 and over with lower levels of educational attainment.

11 American Community Survey 1-year Estimates, 2019; CA EDD, 2021.

FIGURE 22

Unemployment Claims to Labor Force Ratio, 2020



The Pandemic's Impact on Commercial Real Estate and Land Use

The pandemic's impacts on the East Bay's commercial and industrial real estate market varied significantly by product type and location. This section describes the impacts of the pandemic on real estate performance in the East Bay for office, retail, R&D, and industrial (manufacturing and warehouse) space in order to identify short- and long-term trends for these uses. Figure 23 shows vacancy rates for these uses from 2010 through 2021 Quarter 1.

Office



25 percent of office space in the Bay Area is in the East Bay

Office space in the East Bay is highly concentrated in a few primary locations. The largest concentration is in Downtown Oakland, with smaller office clusters located in Berkeley and Emeryville. These areas are very accessible to regional commuters via BART and Capitol Corridor. There are also significant suburban office concentrations in San Ramon—where Bishop Ranch is located—and Walnut Creek, Dublin,

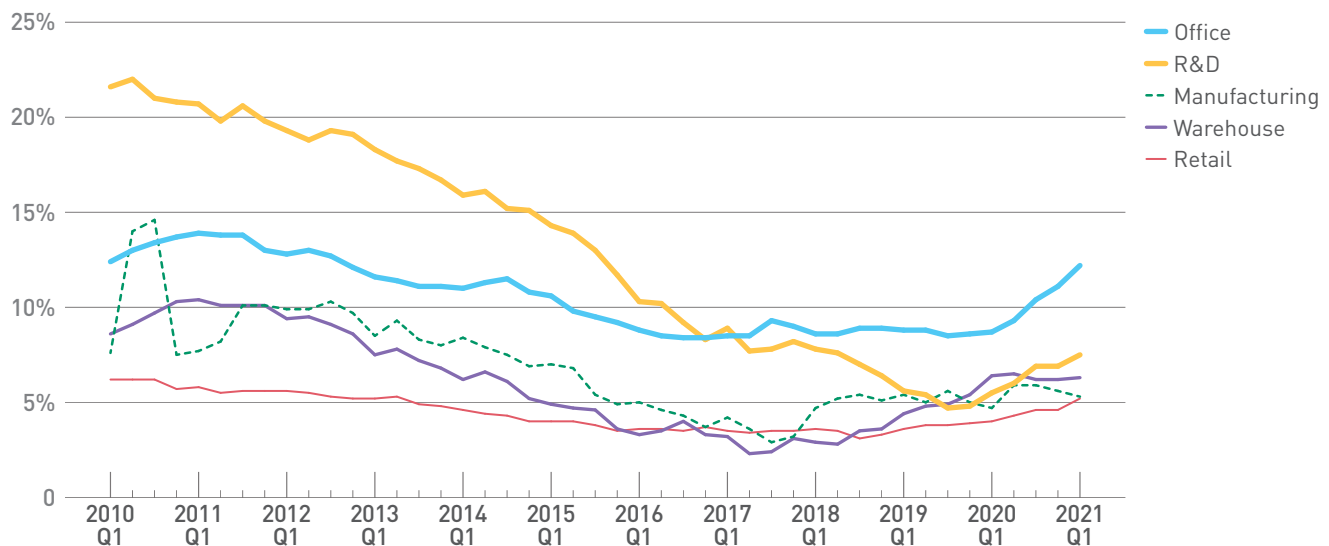
and Pleasanton. These locations benefit from strong freeway access, and some of these office areas are also accessible from BART.

The East Bay office market has suffered significantly since the COVID-19 pandemic began. Remote work policies have contributed to rapid declines in the demand for office space. As Figure 23 shows, the overall vacancy rate for office space in the East Bay increased from eight percent before the pandemic to 12 percent as of Spring 2021. However, it should be noted that the Q1 2021 vacancy rate is still slightly lower than vacancies were at the height of the Great Recession, especially in 2010 and early 2011. Vacancy rates remain relatively high, subleasing attempts are increasing, and employers with existing lease commitments appear to be holding on to their spaces and taking a “wait and see” attitude regarding their longer-term space needs.

The longer-term expansion of remote work will likely lead to changes in how employers use office space, where office space is required, and how much office space is required per worker. Anecdotal and survey evidence suggests many employers will allow a permanent expansion of full or partial remote work for their workers. The exact magnitude

FIGURE 23

Vacancy Rate by Commercial and Industrial Use in the East Bay, 2010 to 2021



Source: Costar, 2021; Strategic Economics, 2021.

of this change and its impacts on the office real estate market are difficult to predict, but several possible outcomes are likely: 1) office space requirements per employee will decline as some workers switch to full-time remote work and as other workers only come to the office a few days a week, thus allowing for shared workstations rather than individual desks for each employee; 2) a “hub and spoke” model could emerge in which employers open smaller “field” offices closer to suburban residential areas in which employees live, while also maintaining a larger (but diminished) central office in a traditional central business district such as Downtown Oakland; 3) declines in demand for office space could be partially offset by a desire to give employees more room within the office to allay fears of virus transmission.

As office demand has dropped off, demand for life science space has increased. During the pandemic, there have been multiple instances in the Bay Area in which developers have pivoted to build life sciences projects, rather than standard offices. Life Science buildings tend to have a similar building envelope as office buildings, with the main differences in HVAC infrastructure, the interstitial space between floors to accommodate more wiring, ventilation, and pipes, as well as further tenant improvements such as laboratory space. While the cities of Alameda, Emeryville, and Berkeley have historically been the nexus for life science activity in the East Bay, demand has begun expanding down the I-880 Corridor, specifically from San Leandro to Fremont according to insights from brokerage Cushman and Wakefield.

Manufacturing and R&D



50 percent of manufacturing space in the Bay Area is in the East Bay
28 percent of R&D space in the Bay Area is in the East Bay

Manufacturing and Research and Development (R&D) buildings are both critical ingredients for supporting the East Bay’s growing and concentrated industries. For example, many sectors that comprise the East Bay’s Advanced Manufacturing cluster, such as Biomedical, CleanTech, Food Innovation, and other Life Sciences sectors, all occupy both building types. The distinction between the two building types is primarily the amount of space within each building that is dedicated to office functions, rather than actual production activities.

Demand for Manufacturing and R&D space remained high throughout the pandemic, and the Manufacturing and R&D workforce largely continued to work on-site. The vacancy rate for manufacturing space has stayed steady at five percent from before the pandemic to 2021 Q1, while the R&D vacancy rate has increased slightly, from five to seven percent. Businesses have adopted public health protocols around social distancing, masking, and vaccinations that have reduced the risk of infection. In addition, employee densities for these activities tend to be low, and there is little or no interface with the public.

Warehouse



48 percent of warehouse space in the Bay Area is in the East Bay

A large share of warehouse space in the East Bay is located along Interstate 880 in Oakland, San Leandro, Hayward, Fremont, and Union City. These warehouses support the movement of goods between the Port of Oakland and key highway and rail routes that connect the Bay Area to the rest of the Northern California megaregion and beyond.¹² Livermore and Richmond also have

¹² Costar, 2021.

large shares of warehouse space. Livermore warehouses are strategically positioned on the Interstate 580 corridor, which connects to the Central Valley.¹³ New warehouse development in the East Bay has been concentrated in Fremont, Hayward, and Livermore, which benefit from slightly lower land costs and are strategically located in proximity to major freeways.¹⁴ This includes space leased by Amazon, shipping service DHL, and direct-to-consumer retailers.

Warehouse demand has been resilient during the COVID-19 pandemic due to the accelerated rise in Ecommerce and cold storage needs.

The vacancy rate for warehouses has remained steady at six percent from before the pandemic to 2021 Quarter 1. As Ecommerce continues to capture a growing share of retail sales, the demand for warehouses will continue to be strong. Cold storage facilities that maintain the shelf life of perishable products from food to vaccines are also likely to experience an increase in demand.

Retail



35 percent of retail space in the Bay Area is in the East Bay

The retail industry has been restructuring as online retailers capture an increasing share of retail purchases; the pandemic has accelerated this trend.¹⁵ In order to be successful in today's retail environment, traditional retailers have had to expand their online presences to stay competitive with online-only retailers such as Amazon. The online share of retail sales increased from around 12 percent of total retail sales in mid-2019 to around 17 percent by the end of 2020.¹⁶

Increased Ecommerce sales and the suffering of "in-person" businesses are negatively impacting demand for space in the East Bay's smaller and already underperforming regional shopping centers, creating new opportunities for redevelopment and reinvestment.

As Figure 23 shows, the overall retail vacancy rate in the East Bay has remained relatively low over the past decade, hitting a low point in 2018. However, these vacancy rates have steadily increased since then, with this trend continuing unabated during the pandemic. Some of this increasing vacancy rate is attributable to underlying changes in the retail industry, most notably Ecommerce, with virtually all growth in U.S. retail sales over the past two years being captured by online shopping. This shift away from some brick-and-mortar shopping was already making some retail space vulnerable to long-term vacancy. That trend has only been accelerated by the pandemic, especially in older retail districts and shopping centers located in communities with higher numbers of low- and moderate-income households. The pandemic's negative impacts on "in-person" retail and personal services businesses may also be contributing to vacancies. However, some underperforming malls have preliminary proposals to redevelop into mixed-use districts that potentially include housing, retail, office space, and even distribution uses (e.g., San Leandro's Bay Fair Mall and Richmond's Hilltop Mall).

¹³ Costar, 2021.

¹⁴ Costar, 2021.

¹⁵ Young, Jessica, "US ecommerce sales grow 14.9% in 2019," 2020, <https://www.digitalcommerce360.com/article/us-ecommerce-sales/>

¹⁶ "Troise, Damien, Retail's online future grows bigger after pandemic bump," AP, January 2021. <https://apnews.com/article/technology-shopping-coronavirus-pandemic-online-shopping-e-commerce-40008ad7099cad4d737c3ee7d156d56a#:~:text=E%2Dcommerce%20sales%20are%20forecast,the%20end%20of%20this%20year.&text=The%20clear%20winner%20in%20this%20shift%20has%20been%20Amazon.>

SUMMARY OF COVID-19'S IMPACTS ON THE EAST BAY ECONOMY

The detailed findings of “The Evolving East Bay” can be summarized into two categories of longer-term and broad impacts from the COVID-19 pandemic: 1) existing trends and conditions that were accelerated and amplified by the pandemic, and 2) transformational changes that will forever shift our old ways of living and working.

The COVID-19 pandemic accelerated and amplified the following conditions and trends in the East Bay:

- Systemic inequities:** The pandemic exacerbated longstanding systemic economic and health disparities in the East Bay, particularly along racial, ethnic, and gender lines. These disparities played out in workforce job stability and access to opportunity, on-the-job coronavirus exposure, physical health outcomes, mental health outcomes, and numerous other ways.
- Business Impacts of Ecommerce:** Existing trends related to Ecommerce accelerated, as people purchased a greater share of goods on the internet. This trend primarily favored larger retailers with established Ecommerce platforms, but also pushed smaller businesses to pivot toward expanding their Ecommerce and online marketing presences. The acceleration of Ecommerce will also continue to accelerate growth of “experiential” businesses in bricks-and-mortar retail locations as the pandemic recedes, including businesses such as restaurants, gyms, and entertainment.
- Land Use Impacts of Ecommerce:** Ecommerce growth will continue to drive reductions in total retail space required per resident, increased demand for distribution facilities located near population centers, and new opportunities to redevelop and reuse shopping center sites.
- Housing affordability challenges:** While federal, state, and local policies and assistance prevented mass eviction and foreclosure activity during the pandemic, the pandemic’s effects on workers and incomes demonstrated again how vulnerable many East Bay residents are to economic shocks in our extremely high-cost region.
- Small business funding and financing challenges:** A relatively high share of small businesses struggled during the pandemic due to thin operating margins, lack of capital reserves, and lack of existing relationships with traditional financial institutions—which posed a further obstacle to accessing new federal assistance such as the Paycheck Protection Program. These challenges were especially notable for businesses owned by women, people of color, and immigrants.

At the same time, the COVID-19 pandemic brought about several transformational changes:

- Widespread adoption of remote work:** This sudden transformation will have wide-ranging impacts on location and overall demand for office space, design of offices, locations of demand for daytime retail and services, locations of demand for housing, and transportation needs.
- Rapid adoption of telehealth, distance learning, and other digital strategies:** As with remote work generally, rapid and widespread adoption of telehealth and distance learning will likely lead to a permanent expansion of these services.

Businesses also undertook and learned from implementation of a variety of digital strategies to replace entertainment, conferences, and other activities that once occurred in person.

- **Enhanced regulatory flexibility:** The pandemic provided a moment for governments to prove their ability to rapidly remake laws, policies, and regulations. Some of this additional regulatory flexibility and speed is likely to continue beyond the pandemic.
- **Creation of new funding resources and programs:** Federal, state, and local governments deployed enormous new resources to support communities during the pandemic and to reinvest in the economy as the pandemic recedes. These resources will have a lasting effect, providing new one-time or ongoing resources for affordable housing, workforce development, infrastructure investment, business support, and numerous other needs.



IV.

LOOKING AHEAD TO A POST-PANDEMIC FUTURE

Research and stakeholder input for East Bay Forward identified assets, industries of opportunity, and investment trends that together indicate “bright spots” that will support a vital East Bay economy and workforce as the pandemic recedes.

The East Bay’s legacy assets, industry growth in innovation sectors, and recent venture capital investments serve as critical drivers as we emerge from the pandemic.

Spring poppies in the Pleasanton Hills. Photo by: Dawn Humphrey.

This section is organized in the following:

- The first set of findings in this section identify the area's longstanding, fixed-in-place "legacy assets" that will continue to underpin the East Bay economy.
- The second set of findings examine industries that are well-positioned within the East Bay to continue attracting investment, growing job opportunities, and driving innovation.
- The final set of findings examines recent trends in East Bay venture capital investment as a further measure of which industries and activities are driving innovation and business growth.

LEGACY ASSETS

The East Bay's "legacy assets" consist of relatively permanent, longstanding, and fixed-in-place components that support and shape the area's economy. These are fundamental factors that establish the East Bay's basic competitive strengths compared to other areas, including assets such as major institutions, infrastructure, land use and land availability, location, and geographic features.

The map in Figure 24 depicts several of the East Bay's major assets, including:

- **Colleges & Universities:** UC Berkeley engages in cutting-edge research and development activities and attracts a highly skilled talent pool to the region. Many of the East Bay's innovation clusters—such as Biomedical and CleanTech—all have strong connections to the university. Cal State East Bay offers a wide range of undergraduate and graduate degree programs for its diverse student body, while the East Bay's other four-year and community colleges provide a robust network of education institutions and training for residents.
- **Oakland International Airport** supports both passenger and freight transportation needs for the East Bay's businesses and residents.
- **Major Ports:** The Port of Oakland seaport is one of the ten busiest container ports in the United States by cargo volume and supports the East Bay's role as a transshipment point for goods. The seaport also provides a means for the East Bay's businesses (especially manufacturing businesses) to efficiently engage with a global supply chain. The Port of Richmond is also a major support for Contra Costa County's local economy, providing bulk and liquid cargo transportation.
- **National Laboratories:** The East Bay's three national laboratories—Lawrence Berkeley National Lab, Lawrence Livermore National Lab, and Sandia National Lab—are national leaders in scientific research and development, and drive innovation and high-tech startup activity in the East Bay.
- **Transportation Infrastructure:** The East Bay's numerous BART stations support resident access to jobs, including a regional hub at Downtown Oakland. The East Bay also features a robust freeway network that enables worker commute access and supports the region's goods movement economy.
- **Parks:** The East Bay's large and diverse system of parks is a unique amenity that supports resident quality of life and attracts visitors. A 2017 study for the East Bay Regional Parks District found that EBRPD parks generate \$200 million annually in additional economic activity.¹⁷

Other notable legacy assets in the East Bay include:

- **Industrial lands:** These lands serve as an invaluable asset that provides flexibility to businesses and hosts the East Bay's

¹⁷ East Bay Regional Park District and Economic & Planning Systems, "Quantifying Our Quality of Life: An Economic Analysis of the East Bay's Unique Environment," 2017. <https://www.ebparks.org/economics.htm>

goods movement activities, manufacturing industries, and many innovation-oriented uses like research and development, prototype development, and advanced manufacturing. Businesses at these industrial lands also provide diverse high-quality job opportunities for East Bay and Bay Area residents.

- Regionally Significant Development Opportunity Sites:** Examples of these opportunity sites include the former Concord Naval Weapons Station and Oakland Coliseum; the East Bay generally includes a unique mix of larger development opportunities within an urbanized setting of the Bay Area.
- Unique and Diverse Arts and Culture Assets:** The East Bay's vast collection of arts and culture organizations, institutions, and venues express the rich diversity of the East Bay's cultures and communities. Not only do these assets provide a sense of belonging and inclusivity for residents, they also generate

economic activity and are critical contributors to the East Bay's "cachet" as a residential and business location.

INDUSTRIES TO WATCH

The following section describes five industries or industry groups that drive economic output in the East Bay and are positioned to generate substantial innovation, investment, and job and business growth over the coming years. The priorities of East Bay Forward build on these "industries to watch," and this deeper analysis of those industries will assist in implementing the priorities. The industries include: 1) Manufacturing, 2) Creative Technology and Design, 3) Biomedical, 4) CleanTech, and 5) Goods Movement and Logistics.

Manufacturing

While the COVID-19 pandemic has caused major disruptions to the East Bay's economy, manufacturing has emerged as a strong and resilient sector that will be key

FIGURE 24

Strategic Assets and Advantages in the East Bay



to the region's recovery from the economic impacts of COVID-19. The manufacturing sector in the East Bay is dynamic and diverse, consisting of biomedical/life sciences, chemicals, electronics, food & beverage, machinery, metals, and transportation equipment manufacturing and more. The manufacturing sector in the East Bay is highly intertwined with the East Bay's technology sector, and innovations in the digitization of the supply chain, automation, AI, and sustainable operations are part of an accelerated rate of change for manufacturing. To achieve a broad-based recovery, companies and the public sector need to ensure that these innovations are adopted by small- to medium-sized companies in order to share in these gains and achieve the highest growth possible.

Manufacturing industry businesses and jobs generate an outsized impact on the East Bay's economic output and high-quality job opportunities. Manufacturing jobs constitute eight percent of East Bay employment, grew 22 percent between 2014 and 2019, and are re-

sponsible for relatively high economic output. Manufacturing also provides a higher share of entry-level, middle-wage jobs compared to other sectors, and available literature estimates that each job in manufacturing is associated with between five and seven additional jobs in the regional economy. EMSI estimates that the average earnings per manufacturing industry job in 2020 was over \$129,000 in Alameda County and \$140,000 in Contra Costa County (compared to \$97,000 and \$86,000, respectively, for all jobs). Manufacturing businesses tend to provide robust on-the-job training and career pathway opportunities, as well as offer low barriers to entry in terms of experience and educational levels required.

The largest manufacturing subsector based on total employment is Transportation Equipment Manufacturing (15,458 jobs). This sector which grew rapidly over the 2014 to 2019 period due to the opening of the Tesla plant in Southern Alameda after the NUMMI plant had closed in this same location in 2010. Tesla also contributes to the East Bay's largest overall concentration of manufacturing jobs in the Southern and Central

FIGURE 25**Top 10 Manufacturing Sectors by East Bay Employment, 2019**

Industry Subsector	2019 Jobs	Location Quotient Compared to Bay Area	Growth Rate, 2014-2019
Transportation Equipment Manufacturing	15,458	2.0	132%
Food Manufacturing	11,846	1.5	12%
Machinery Manufacturing	8,354	1.3	35%
Fabricated Metal Product Manufacturing	7,457	1.1	9%
Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	7,259	0.8	38%
Medical Equipment and Supplies Manufacturing	6,671	1.7	47%
Semiconductor and Other Electronic Component Manufacturing	6,483	0.4	2%
Petroleum and Coal Products Manufacturing	4,725	3.0	1%
Computer and Peripheral Equipment Manufacturing	4,228	0.2	22%
Pharmaceutical and Medicine Manufacturing	3,739	0.6	24%

Source: EMSI, 2021; Strategic Economics, 2021.

Alameda subareas, which together account for 62 percent of East Bay manufacturing jobs.

Food manufacturing is one of the largest manufacturing subsectors in the East Bay, providing over 11,800 jobs as of 2019. Bakeries, which is one of the largest industry subsectors, are located throughout the region since these businesses need to be located close to their customers. There are other noteworthy East Bay concentrations of food-related activities; in Central Alameda, there are traditional canning, meat processing, and confection firms. Northern Alameda has a concentration of innovative food activities that conduct research and development on plant-based dairy and meat substitutes.

East Bay manufacturing is directly connected to the Bay Area's innovation-oriented activities in computer technology, electronics, and biomedicine. This includes firms engaged in activities related to electronic product manufacturing, such as manufacturing of semiconductors and other electronic components, computer-related products, and navigational/electromedical equipment. The East Bay also has a strong concentration of firms that manufacture medical equipment and firms that engage in biotechnology/biomedical research related to pharmaceuticals and other drugs. As Figure 25 shows, a few of these technology related manufacturing firms have a location quotient of less than one, indicating that these subsectors are not particularly concentrated in the East Bay, but are growing rapidly and play an important role in the East Bay's overall manufacturing ecosystem.

A larger share of manufacturing employment in Contra Costa County is focused on legacy manufacturing activities, with 27 percent of the county's manufacturing jobs in petroleum production as of 2019. As the East Bay becomes more focused on climate change resiliency, there may be new opportunities for East Bay economic development leaders to aid legacy firms in transitioning to activities that support those resiliency goals and ensure ongoing availability of manufacturing jobs.

Global trends are colliding to create more possibilities for a return of manufacturing to the East Bay than we have seen in many decades. The COVID-19 pandemic, global supply chain disruptions, geopolitical considerations, transportation costs, and labor costs are producing a period of potential for a reshoring of East Bay manufacturing, with great opportunity particularly for small- to medium-sized manufacturers and the growth of middle-wage jobs.

Creative Technology and Design

In the East Bay, there are multiple subsectors that engage in professional activities relying on the use of creative and high-tech processes and design. These industries can be categorized within a "creative technology and design" industry group that, while dominated by businesses related to the Bay Area's computer technology industry and scientific research and development, also includes jobs in architecture and engineering, media, and technical consulting.

Creative technology and design businesses are drawn to the East Bay's skilled workforce, innovative anchor institutions, transportation access, and relatively lower real estate costs.

The East Bay offers easy access to the East Bay and Bay Area's large skilled workforce, plus relatively low-cost commercial real estate compared to Silicon Valley and San Francisco. UC Berkeley and the national laboratories also foster a creative and innovative environment. Creative technology firms typically occupy office spaces and research facilities, and they tend to co-locate near similar firms. They are concentrated in Northern Alameda, which has the strongest connection to San Francisco through both BART and the Bay Bridge. The Tri-Valley, which historically has attracted employers seeking campus-sized offices and benefits from its location on BART and the I-580 and I-680 corridors, also has a sizable share of these firms. Southern Alameda also includes a concentration of these firms, in part due to its proximity to Silicon Valley.

Professional Services is one of the largest sectors by employment in the East Bay, although employment in the sector is less concentrated in the East Bay than it is in the Bay Area. As shown in Figure 26, jobs in Architecture and Engineering are particularly concentrated in the East Bay, and the East Bay also has a large number of jobs in the “Management, Scientific, and Technical Consulting Services” sector. The Computer Systems Design sector and the Scientific Research sector are both less concentrated in the East Bay relative to the region, but are the two largest Professional Services subsectors in the East Bay by number of jobs—echoing the important role of the technology industry and research and development in the Bay Area overall.

The Information sector is not as concentrated in the East Bay as it is in the region, and the sector overall is a small share of East Bay employment; however, certain subsectors

have grown in recent years in the East Bay. The sector benefits from the presence of marquee employers, particularly in Northern Alameda (Pixar, Square) and Tri-Valley (Workday, Oracle). The Software Publishing subsector more than doubled to almost 4,000 jobs in the East Bay from 2014 to 2019, and Data Processing Services, which added 6,000 jobs, grew 10-fold during this period. The Motion Picture sector also grew steadily, largely tied to Pixar’s presence in Northern Alameda.

Biomedical

The biomedical industry includes businesses engaged in the fields of biotechnology, pharmaceutical development, medical equipment and devices, genomics, and digital healthcare. This industry also includes contract manufacturers and contract laboratories that play critical roles in the research and development process associated with biomedical activities.¹⁸

¹⁸ Note that the biomedical industry is difficult to track through NAICS industry codes since biomedical firms are often found within multiple industry sectors such as Manufacturing, “Professional, Scientific, and Technical Services,” and Healthcare. Therefore, much of this report’s data on the biomedical industry in the East Bay comes from on-the-ground research collected by the Biomedical Manufacturing Network, a biomedical industry association in the Bay Area. Their research for the East Bay focuses on Alameda County, where most biomedical activity in the East Bay is located.

FIGURE 26

Select Subsectors in Creative Technology and Design

Industry Subsector	2019 Jobs	Location Quotient Compared to Bay Area	Growth Rate, 2014-2019
Professional Services			
Computer Systems Design and Related Services	26,083	0.4	-9%
Scientific Research and Development Services	22,302	0.9	39%
Architectural, Engineering, and Related Services	19,748	1.1	16%
Management, Scientific, and Technical Consulting Services	19,525	0.9	-2%
Legal Services	10,507	0.8	4%
Other Professional, Scientific, and Technical Services	7,588	1.1	14%
Specialized Design Services	3,829	0.9	6%
Information			
Data Processing, Hosting, and Related Services	6,878	0.7	1027%
Software Publishers	6,708	0.3	131%
Wired and Wireless Telecommunications Carriers	4,958	1.3	-39%
Motion Picture and Video Industries	4,536	1.2	13%

Source: EMSI, 2021; Strategic Economics, 2021.

The East Bay is a critical part of the Bay Area biomedical ecosystem, despite representing a relatively small share of the region's enormous number of jobs and businesses in the industry. The Bay Area is one of the world's dominant biomedical and biotechnology hubs, competing with just a few other locations in the United States such as Boston and San Diego. The industry's importance in the East Bay was underscored during the COVID-19 pandemic, when East Bay biomedical companies produced biopharmaceuticals, ventilators, and test kits in the fight against the coronavirus. Although the East Bay represents a relatively small share of the Bay Area's biomedical industry, the region plays a specialized role as a distinct innovation ecosystem with strong relationships among the national laboratories, universities, and industry associations and accelerators.

The East Bay's biomedical industry employment is concentrated in a diverse mix of activities. Figure 26 shows the composition and employment growth trends of biomedical business categories in Alameda County. There are approximately 28,500 jobs in the biomedical industry in Alameda County, across 545 businesses. The number of biomedical jobs in Alameda County grew by 37 percent from 2014 to 2020, with most of that growth associated with Medical Equipment and Biotechnology firms. These trends indicate that Alameda County is poised for growth in multiple Bio-

medical industry categories and that this trend may offer additional opportunities for Contra Costa County to attract future growth in these sectors as well. Although similar data was unavailable for Contra Costa County, it is important to note that a smaller but significant cluster of businesses exists there, most notably in Richmond which includes the headquarters of Bio-Rad laboratories and JOINN Innovation Park.

The East Bay's biomedical industry attracts substantial venture capital investment. Bio-medical firms in the East Bay were awarded over \$1.5 billion in venture capital investment in 2020, accounting for one-fourth of total venture capital investment that year. Firms with the largest awards in 2020 included: Zymergen (biomanufacturing); RefleXion Medical (biology-guided radiotherapy); and Geltor (biodesign for plant-based products); and BioAge (drug therapy).

Different subareas within the East Bay play different roles in the biomedical industry based on their competitive assets:

- **Emeryville and Berkeley** have a robust and diverse concentration of biomedical startups, many of which focus on biotechnology and medical devices. These startups are tightly linked to UC Berkeley and Lawrence Berkeley National Lab, with over half of the 165 firms in Emeryville and Berkeley affiliated with these two institutions. While Northern Alameda's biomedical firms are mostly startups, major biotechnology companies such as Bayer, Grifols, and Novartis are also located there.
- The **Southern Alameda** cities of Fremont, Newark and Union City, as well as Alameda in Central Alameda, provide the manufacturing space for biomedical businesses that are ready to scale up and begin production. Fremont strategically leveraged its high supply of lower-cost flex space to attract contract manufacturers for biomedical products. Today, it has a strong concentra-

FIGURE 27

Biomedical Employment in Alameda County, 2014-2020

Industry Subsector	2014	2020	Change, 2014-2020	Percent Change, 2014-2020
Medical Equipment	7,658	11,011	3,353	44%
Biotechnology	3,688	6,770	3,082	84%
Pharmaceuticals	5,408	4,451	-957	-18%
Medical Devices	2,713	3,258	545	20%
Digital Healthcare	654	1,763	1,109	170%
Genomics	749	1,297	548	73%
Total	20,870	28,550	7,680	37%

Source: Biomedical Manufacturing Network, 2021; Strategic Economics, 2021.

tion of firms involved in medical device and equipment manufacturing. Biomedical firms in Southern Alameda are unique compared to the Bay Area because over half of their jobs are available to workers with high school degrees or two-year degrees.

- The **Tri-Valley** also has a smaller amount of R&D and production activity, benefitting from proximity to Sandia and Lawrence Livermore national labs, though the Tri-Valley is more of a secondary location for biomedical activities.
- Richmond, in **Western Contra Costa**, is also home to a smaller cluster of biomedical businesses near the I-580 corridor.

Cleantech

CleanTech, also sometimes called “Green-Tech” refers to an economic cluster that focuses on improving environmental quality. Since the CleanTech cluster focuses on both processes and products, its constituent activities are found across a wide range of industries. Examples of CleanTech activities include clean energy and biofuels, green building, green transportation and infrastructure, waste management, and other products and processes that reduce waste and greenhouse gas emissions.

The East Bay’s CleanTech cluster is one of the most robust in the state of California, and the East Bay is a leader in the research and development of biofuels and alternative fuels.

As of 2008, (when East Bay-specific CleanTech employment research was conducted), the East Bay had approximately 30,000 CleanTech jobs, making it the largest concentration of CleanTech employment in the Bay Area.¹⁹ Many of the East Bay’s CleanTech jobs are associated with the three national labs and UC Berkeley, which all engage in cutting-edge research on clean energy and other topics. The presence of the national labs has historically weighted the composition of the East Bay’s CleanTech cluster toward green energy.

The East Bay’s CleanTech cluster benefits from the area’s expansive network of firms involved in scientific research and development, advanced manufacturing, and construction, as well as the East Bay’s industrial land supply. The East Bay has the right mix of assets to support ongoing growth of the CleanTech industry: the East Bay’s strengths in research and development contribute to development and commercialization of CleanTech technologies; expertise in advanced manufacturing allows for scaling up and producing new technologies; and the large construction industry supports deployment of new on-site technologies and infrastructure such as electric vehicle charging stations, solar panels, and other new renewable power generation facilities. The East Bay’s large industrial land supply supports the CleanTech industry by accommodating R&D, manufacturing, and construction uses.

In 2020, CleanTech firms were awarded \$636 million in venture capital funding, which was 10 percent of the East Bay’s total funding that year. Firms receiving the largest awards were: Astra (space rocket manufacturer); MycoWorks (fungi-based materials); Checkerspot (plant-based materials for industrial applications); and Natel Energy (hydropower provider).

CleanTech is an industry that will continue to evolve and grow policymakers, investors, and others adopt net-zero carbon emission goals.

The definition of CleanTech continues to expand as new innovation occurs; firms that engage with climate resiliency in broader, indirect ways, could also be considered CleanTech, such as firms in the East Bay’s plant-based food R&D cluster. The East Bay’s substantial presence of the CleanTech industry is poised to continue growing as society and the government continue efforts to fight climate change and as decarbonization efforts touch more areas of the economy.

19 Karen Chapple and Malo Hutson, “Innovating the Green Economy in California Regions,” UC Berkeley, 2008.

Goods Movement and Logistics

The East Bay plays a crucial role in the megaregion's goods movement and logistics ecosystem. These activities are found within subsectors in both the Transportation and Warehousing sector and the Wholesale Trade sector. The East Bay's transportation infrastructure and large supply of the Bay Area's industrial land supports these activities, providing space for warehouses, vehicle storage, and other distribution facilities.

Four primary assets anchor the goods movement industry in the East Bay:

- The **Port of Oakland** seaport is one of the busiest container ports in the United States. In 2019, the Port of Oakland was the eighth busiest in terms of Container TEUs,²⁰ and was the third-busiest in the West Coast after Los Angeles and Long Beach.²¹ The port is currently in the process of developing a new logistics center on the 360-acre former Oakland Army Base. This project will enhance the port's

rail connections and make the port more competitive for rail exports, a large share of which are agricultural products.²² The Port of Oakland as a whole is also a major job generator, estimated to be directly and indirectly responsible for over 84,000 Bay Area jobs.²³

- The **Oakland International Airport**, which is in Central Alameda, is also operated by the Port of Oakland. It is one of the top twenty airports in the nation in terms of the amount of air freight handled.²⁴
- The **Port of Richmond**, in the Western Contra Costa subarea, is a bulk cargo port. It is tightly intertwined with the Northern Waterfront's history, which was a key manufacturing hub for processing raw commodities during the early 20th century. The Port of Richmond still plays an important role in Contra Costa County's local economy. As of 2019, it was the 24th busiest port in the nation in terms of tonnage.²⁵ Over 75 percent of the goods/commodities that move through the Port are associated with the oil and gas industry, which continues to be prominent in Contra Costa County.²⁶

FIGURE 28

Logistics Employment in the East Bay, 2014 to 2019

Industry Subsector	2019 Jobs	Location Quotient Compared to Bay Area	Growth Rate, 2014-2019
Wholesale Trade			
Merchant Wholesalers, Durable Goods	26,030	1.3	9%
Merchant Wholesalers, Non-durable Goods	17,814	1.4	-6%
Transportation and Warehousing			
Truck Transportation	10,800	1.8	28%
Couriers and Messengers	10,093	1.3	39%
Warehousing and Storage	6,471	2.4	68%
Support Activities for Transportation	5,656	1.0	4%
Air Transportation	3,234	0.6	15%
Water Transportation	1,234	2.1	15%
Rail Transportation	584	1.9	-9%

Source: EMSI, 2021; Strategic Economics, 2021.

20 TEU: Twenty-foot equivalent unit, a standard measurement for ports that focus on container shipment. One TEU is equivalent to one container.

21 Bureau of Transportation Statistics, [Workbook: PortProfiles2020 \(dot.gov\)](https://www.bts.gov/publications/workbook/PortProfiles2020).

22 PortofOakland.com, <https://www.portofoakland.com/press-releases/press-release-371/>; Bill Mongelluzzo, "Logistics operations move closer to docks" *Journal of Commerce*, 2018; Bill Mongelluzzo, "New rail transfer yard extends Oakland's export reach," *Journal of Commerce*, 2016.

23 Port of Oakland and Martin Associates, "The Economic Impact of the Port of Oakland," 9 October 2018. <https://www.portofoakland.com/economic-impact-report/economic-impact-report/>

24 OaklandAirport.com.

25 Bureau of Transportation Statistics, [Workbook: PortProfiles2020 \(dot.gov\)](https://www.bts.gov/publications/workbook/PortProfiles2020).

26 Bureau of Transportation Statistics, [Workbook: PortProfiles2020 \(dot.gov\)](https://www.bts.gov/publications/workbook/PortProfiles2020).

- The East Bay's **location and transportation infrastructure** also support the goods movement industry by providing immediate access to a large population and business base, and by allowing effective distribution via freight rail and freeway connections to California and the nation.

The logistics industry accounts for six percent of jobs in the East Bay--approximately 92,000 jobs—with rapid growth in the “Transportation and Warehousing” sector. The logistics industry's jobs are roughly divided between the Wholesale Trade and “Transportation and Warehousing” industry sectors, and both sectors are slightly more concentrated in the East Bay than they are in the Bay Area.²⁷ The “Transportation and Warehousing” sector grew by 31 percent over the 2014 to 2019 period, adding nearly 11,000 jobs and outpacing the sector's job growth in the Bay Area. Employment in Wholesale Trade was steady. The “Transportation and Warehousing” sector is positioned for continued growth in the East Bay as Ecommerce continues to capture a larger share of retail spending and creates demand for distribution facilities and services. The employment trends for the primary subsectors in the logistics industry are shown in Figure 28. The largest subsectors in “Transportation and Warehousing” are Truck Transportation, Couriers and Messengers, and Warehousing and Storage. These three subsectors grew rapidly from 2014 to 2019, with growth rates between 28 percent and 68 percent.

Most logistics activity in the East Bay is concentrated in Alameda County along Interstate 880, in areas with industrial land and convenient access to the Port of Oakland. Central Alameda has the largest concentration of logistics activities, with 35 percent of logistics jobs in the East Bay. Central Alameda also accounts for a large share of the job growth in the “Transportation and Warehousing” sector.

Central Alameda alone added over 4,000 jobs in that sector from 2014 to 2019.

VENTURE CAPITAL INVESTMENTS

Venture capital investments in the East Bay indicate the types of businesses and industries poised for growth and also serve as a measure of the East Bay's competitiveness for innovation-oriented businesses. East Bay Forward evaluated detailed data from Pitchbook on venture capital funding awards in the East Bay and Bay Area in 2020.

While venture capital investment in the East Bay is still relatively small compared to San Francisco and Silicon Valley,²⁸ the East Bay's gains are substantial and growing. Despite the East Bay's smaller share of Bay Area investment, the East Bay's total venture capital investment in 2020 was still greater than the award totals for every state but two²⁹ besides California itself. Figure 29 shows the total venture capital investment for East Bay firms from 2012 to 2020.

The East Bay's investment awards are diversified across industries. Figure 30 shows the share of investment by industry category in the East Bay, San Francisco, San Mateo County, and Santa Clara County. In San Francisco and Santa Clara counties, most investments are associated with Software firms. In contrast, the East Bay's awards are relatively distributed across industries, including Software, Biotechnology, and CleanTech.³⁰

Venture Capital Specializations in the East Bay

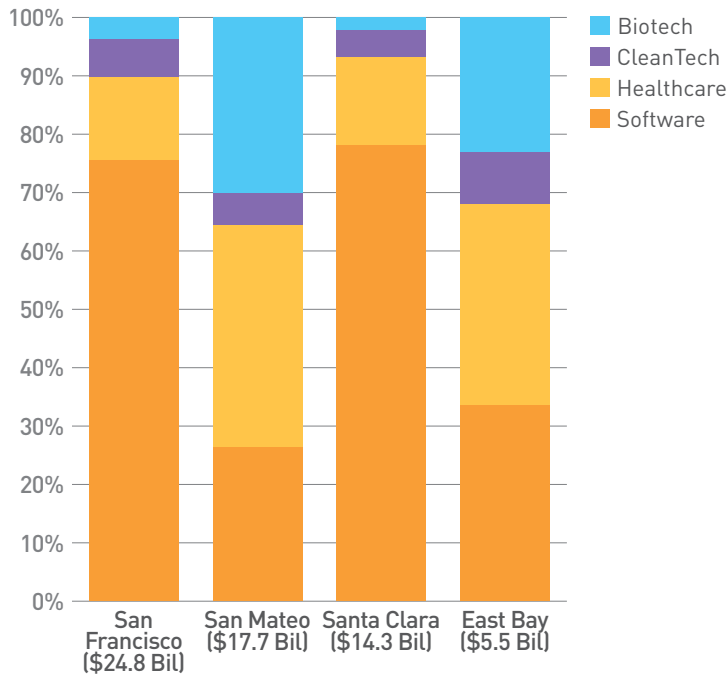
The 2020 deal-level data for the East Bay includes 500 deals, ranging from Early and Later State VC, which together account for over 90

27 Wholesale Trade has a location quotient of 1.3, and Transportation and Warehousing as a location quotient of 1.2, compared to the Bay Area.

28 Silicon Valley includes Santa Clara and San Mateo counties.

29 New York and Massachusetts were awarded more funds than the East Bay in 2020.

30 These categories are defined by Pitchbook and are more aggregated than the categories described in the remainder of this analysis.

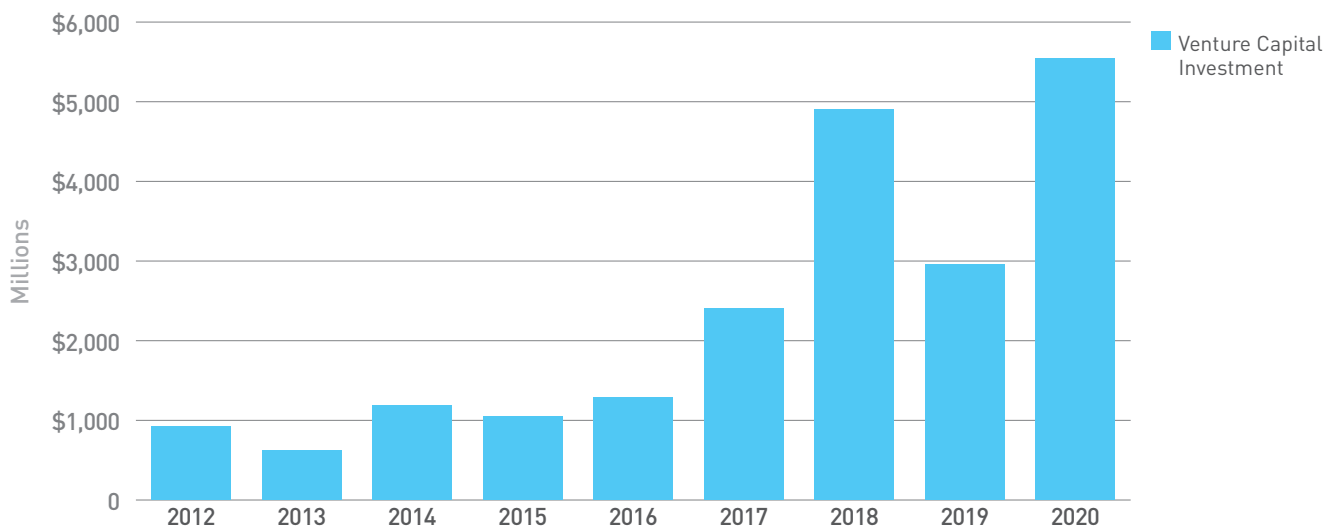
FIGURE 30**Venture Capital Investment by Category across Bay Area Subregions, 2020**

Source: Pitchbook, 2021; Strategic Economics, 2021.

percent of the total funding awarded, as well as Angel, Accelerator/Incubator, Grant, and Crowdfunding deals. The composition of these different deal types by total funding and deal count are shown in Figure 31.

The categories of venture capital investment reflect a combination of the East Bay's unique strengths within the Bay Area and strengths of the Bay Area overall. Figure 32 shows the breakdown of award funding by firm category for 2020 in the East Bay, and Figure 33 shows the firms that received the top 20 largest awards in the East Bay in 2020. A plurality of funding was awarded to Computer Technology firms (referred to as "Computer Tech" throughout this section), and sizeable awards also went to firms in Biomedical, Healthcare, and CleanTech,

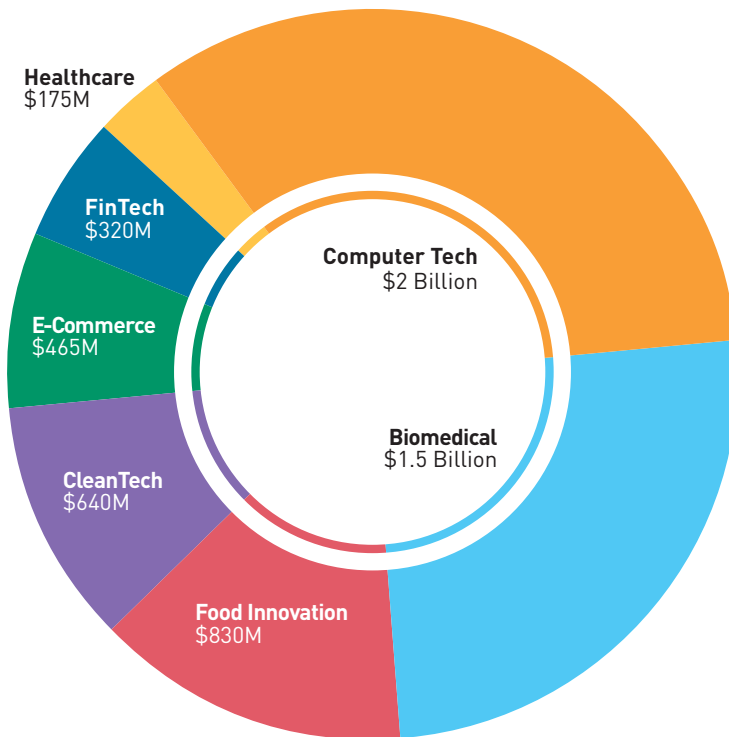
as well as Ecommerce, and FinTech. There was also a notable concentration of funding for firms involved in Food Innovation, particularly in research and development of plant-based substitutes for traditional animal products.

FIGURE 29**Venture Capital Investment in the East Bay, 2012-2020**

Source: East Bay EDA Economic Outlook reports, 2013-2018/19; Pitchbook, 2021; Strategic Economics, 2021.

FIGURE 32

Venture Capital Investment Funding in the East Bay by Category, 2020



Note: The categories used in this figure are customized based on the establishment-level data. They offer more detail than Figure a, which is just based on aggregate-level data for the Bay Area subregions.

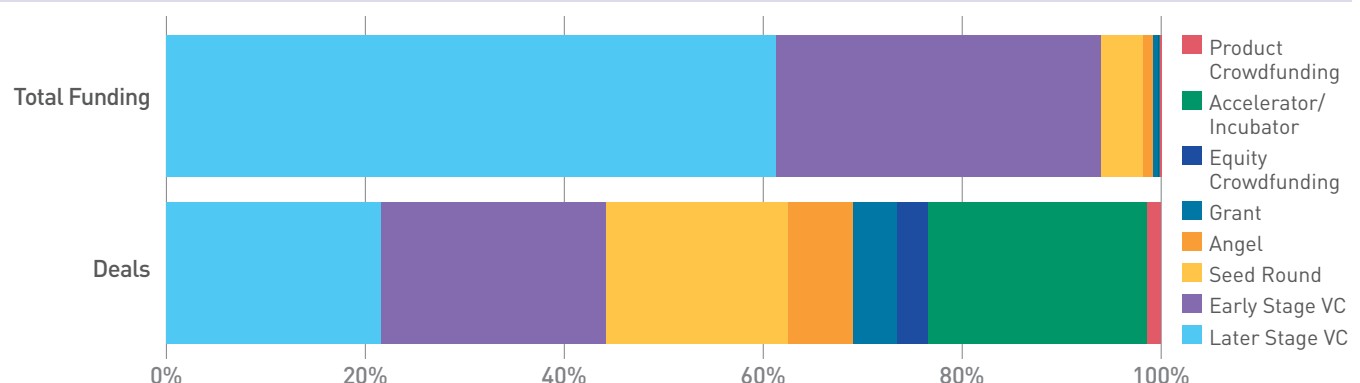
Source: Pitchbook, 2021; Strategic Economics, 2021.

The following specific activities attracted notable venture capital investment in the East Bay in 2020:

- Among the **Computer Tech** firms that received awards, the largest were associated with activities related to autonomous vehicles, cloud-based productivity software, semiconductors, as well as artificial intelligence (AI) and cybersecurity.
- **Biomedical** firms received a quarter of total awards. Some of the largest awards involved medical screening and treatment development, medical devices development, drug discovery, and vaccine research.
- There was a heightened focus on **environmental sustainability** and climate change resiliency across sectors, and firms received funding for activities in renewable energy, building decarbonization, plant-based food and textile development, and agriculture. **CleanTech** awards accounted for 10 percent of venture capital funding in 2020, and awards related to **Food Innovation** accounted for 14 percent. Most of the funding in this group involved tech-enabled agricultural and food manufacturing innovations.
- There were many investments in firms associated with development of software applications to support **Ecommerce** payment solutions, and **FinTech** firms focused on developing financial trading or investment tools. These two categories together con-

FIGURE 31

East Bay Venture Capital Awards by Deal Type and Total Funding, 2020



Source: East Bay EDA Economic Outlook reports, 2013-2018/19; Pitchbook, 2021; Strategic Economics, 2021.

stituted 13 percent of 2020 venture capital investment.

- Three percent of venture capital awards went to firms involved in innovating systems in the **Healthcare** industry. These firms create high-tech tools to assist care providers with patient services and improve the management of healthcare facilities.

Based on this data, the following patterns emerged in 2020:

- **One-half of venture capital funding in 2020 in the East Bay went to firms in a diversified set of categories in Northern Alameda (Figure 35).** Northern Alam-

eda, which includes Alameda, Emeryville, Berkeley, and Downtown Oakland, attracted a large amount of investment in Bio-tech/Biomed, as well as in Computer Tech, Food Innovation, CleanTech and FinTech.

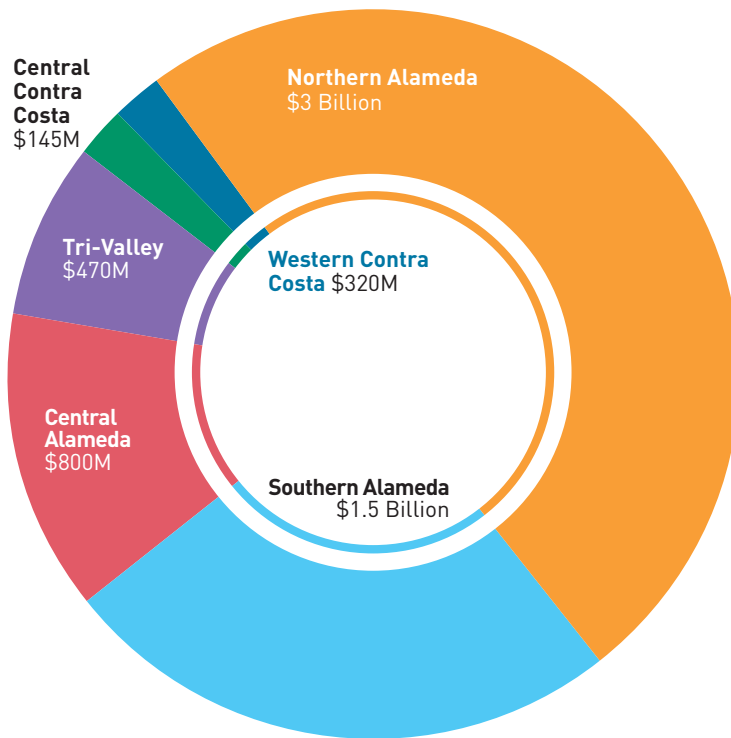
- **Southern Alameda firms were awarded one-fourth of the East Bay's total funding in 2020.** The funding in Southern Alameda, which borders Santa Clara County, is similar to investment patterns in Silicon Valley, where most funding goes to Computer Tech firms. In Southern Alameda, over 70 percent of venture capital funding went to these firms.

FIGURE 33

Top 20 Venture Capital Awards in the East Bay in 2020

Company Name	Description	Category	Deal Size (in millions)	Company City
Pony.ai	Autonomous vehicles	Computer Tech	\$829	Fremont
Zymergen	Bio-manufacturing	Biomedical	\$350	Emeryville
Perfect Day	Plant-based dairy	Food Innovation	\$300	Emeryville
Upside Foods	Plant-based meat	Food Innovation	\$186	San Leandro
Marqeta	Payment processing application	FinTech	\$150	Oakland
Tekion	Automobile retail platform	Ecommerce	\$150	San Ramon
Astra	Space rocket manufacturer	CleanTech	\$100	Alameda
Fivetran	Data integration platform	Computer Tech	\$100	Oakland
Pivot Bio	Microbial nitrogen fertilizer	Food Innovation	\$100	Berkeley
RefleXion Medical	Biology-focused radiotherapy treatment	Biomedical	\$100	Hayward
Geltor	Wellness biodesign products	Biomedical	\$91	San Leandro
BioAge	Drug therapy for extending human lifespan	Biomedical	\$90	Richmond
Halio.	Smart-tinting glass	CleanTech	\$87	Hayward
Good Eggs	Sustainable online grocery platform	Ecommerce	\$80	Oakland
Rigetti	Semiconductor developer	Computer Tech	\$79	Berkeley
Everlaw	Litigation platform	Computer Tech	\$78	Oakland
4DMT	Gene therapy	Biomedical	\$75	Emeryville
Truepill	Healthcare services platform	Ecommerce	\$75	Hayward
Rain Therapeutics	Precision cancer therapy	Biomedical	\$73	Newark
Callisto Media	Big data media publisher	Computer Tech	\$70	Emeryville

Source: Pitchbook, 2021; Strategic Economics, 2021.

FIGURE 34**Venture Capital Funding by Subarea, 2020**

Source: Pitchbook, 2021; Strategic Economics, 2021.

- **Central Alameda firms received 13 percent of total funding.** Firms in Central Alameda reflect the East Bay's unique strengths, as the firm categories that received the largest awards were in Clean-Tech, Biomedical, and Food Innovation.
- **Tri-Valley firms accounted for eight percent of total funding in 2020.** Over 60 percent of funding in Tri-Valley went to firms in Ecommerce and Computer Tech.
- **Four percent of funding was awarded to firms in Western and Central Contra Costa.** Most funding in Central Contra Costa is associated with Computer Tech, and most in Western Contra Costa is associated with Biotech/Biomed. There were no funding awards for firms in Eastern Contra Costa.

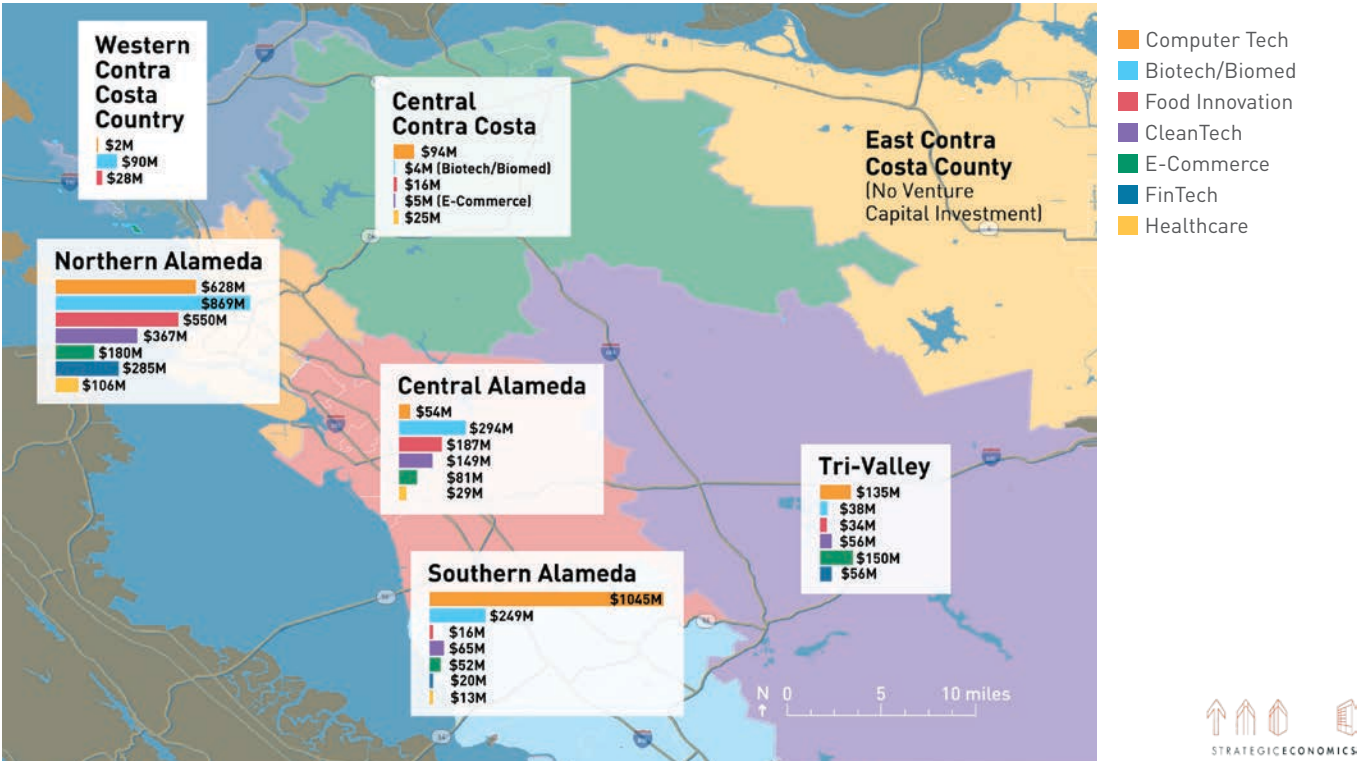
FIGURE 35**Venture Capital Investment by Category and Subarea, 2020**

	Biomedical	Computer Tech	Food Innovation	CleanTech	FinTech	Ecommerce	Healthcare	Total
Northern Alameda	14.5%	10.7%	9.2%	6.1%	4.6%	3.0%	1.8%	49.8%
Southern Alameda	4.2%	17.5%	0.3%	1.1%	0.3%	0.9%	0.2%	24.4%
Central Alameda	4.9%	0.9%	3.1%	2.5%	0.0%	1.4%	0.5%	13.2%
Tri-Valley	0.6%	2.8%	0.6%	0.9%	0.4%	2.5%	0.0%	7.8%
Central Contra Costa	0.1%	1.6%	0.3%	0.0%	0.0%	0.1%	0.4%	2.4%
Western Contra Costa	1.5%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	2.0%
Total	25.8%	33.4%	13.9%	10.6%	5.3%	7.8%	2.9%	100%

Notes: (a) The establishment-level data varies slightly from the aggregate subregional data shown in preceding Pitchbook data. The establishment-level data indicated there was \$6 billion in funding in 2020; however, this table excludes deals under \$500,000 and therefore total funding associated with this table is \$5.9 billion. (b) The categories used in this table were customized based on the establishment-level data. They offer more detail than the previous aggregate subregional data shown in this report. (c) There was no venture capital investment in Eastern Contra Costa in 2020.

Source: Pitchbook, 2021; Strategic Economics, 2021.

FIGURE 36
Venture Capital Investment by Category & Subarea, 2020



V.

FULFILLING OUR PRINCIPLES: PRIORITIES FOR ECONOMIC RECOVERY AND PROSPERITY IN THE EAST BAY

East Bay Forward has identified twelve critical priorities to ensure that the region succeeds in coordinating and mobilizing its assets and resources to build an equitable, sustainable, and resilient economic future. The priorities respond to the findings from this report's analyses regarding the East Bay's future opportunities and challenges, as well as the input and recommendations from the many stakeholders that participated in the development of this blueprint.

An equity-first approach ensures that current and future generations will achieve meaningful economic inclusion, access to opportunity, and upward mobility.

Sunset over the Tri-Valley. Photo by: Dawn Humphrey.



San Leandro Tech Campus. Courtesy of the City of San Leandro.

Together, the twelve priorities serve as a comprehensive framework for engaging and activating efforts by East Bay EDA's many stakeholders to ensure a more inclusive, resilient, and sustainable economic future for our businesses and residents. The priorities chart a course for more widely shared future economic growth, but achieving that vision will require the East Bay's business and nonprofit leaders, education professionals, elected officials, local governments, community members, and other stakeholders to work together so that their individual efforts create synergistic outcomes centered around these strategic priorities for the region. This approach reflects the reality that the East Bay's most pressing challenges and opportunities are shared both locally and regionally, so our approach must combine individual and collective decisions and actions.

As noted in the introduction to this report, six guiding principles were developed with extensive input from diverse East Bay stakeholders and underpin the priorities for East Bay Forward. These principles must guide the efforts of East Bay EDA's stakeholders and compel us to be:

1. **Connected.** Many of our region's greatest challenges are inextricably linked, requiring coordinated regional advocacy, policy actions and investments that address multiple challenges and deliver shared benefits.
2. **Equitable.** An equity-first approach ensures that current and future generations will achieve meaningful economic inclusion, access to opportunity, and upward mobility.
3. **Measurable.** For our region to move forward, we need to be able to measure meaningful indicators and outcomes indicating how we are doing with accomplishing our goals.
4. **Regenerative.** Supporting clean and renewable investments to support the just transition to a dynamic, healthy, and circular economy has immense potential to drive innovation and growth, as well as yield economic, environmental, and community benefits.
5. **Resilient.** From destructive wildfires to future public health crises, there is an urgent need to mobilize and prepare for complex, intersecting disasters and to future-proof our physical and human assets to provide maximum resilience against ongoing and future challenges.
6. **Transformational.** Public and private investment must focus on dismantling barriers and creating opportunities for long-term and systemic solutions; it is imperative that we do more than promote incremental change.

East Bay EDA will pursue the priorities outlined in East Bay Forward by coordinating with various East Bay stakeholders across four different “focus areas.” Each of the focus areas represents specific topics around which East Bay EDA brings together members and partners with specific knowledge, networks, and resources. These focus areas include:

- 1. Business Climate:** Encompasses efforts to attract, grow, and retain businesses of all sizes and industry sectors to ensure that the East Bay continues to enjoy the benefits of a diverse composition of companies and industries.
- 2. Land Use and Infrastructure:** Encompasses efforts to address critical, interconnected land use policy issues to support the mobility of people and goods across the East Bay and beyond, as well as the needs for resilient, responsive and safe transportation, utilities, and other essential infrastructure systems to withstand climate-related risks and other disasters.
- 3. Education and Workforce Development:** Encompasses efforts to advance access to and implementation of early childcare, K-12 education, higher education, and workforce preparedness to ensure the East Bay provides a globally competitive and diverse workforce that can access quality jobs and careers.
- 4. Community Health and Well-Being:** Efforts within this focus area recognize that community safety, health, and empowerment are all critical ingredients for addressing disparities between the East Bay’s communities and ensuring greater resiliency against economic downturns and other external shocks.

The remainder of this report provides more details about the twelve priorities, including major opportunities and challenges for each priority, and examples of actions that East Bay EDA’s partners could pursue to support each priority’s implementation. The featured case studies serve to highlight relevant innovative, equity-centered, and collaborative models and best practices in the East Bay.

1. Prioritize delivering resources and services for East Bay small to mid-sized businesses—especially those most severely impacted by the pandemic.

Challenges and Opportunities

Small to mid-sized businesses play an important role in the East Bay. Comprising the majority of business establishments, they employ the most people and thus offer the

PACIFIC COMMUNITY VENTURES

Pacific Community Ventures (PCV) is a nonprofit community development financial institution that combines affordable loans with pro-bono advising; impact measurement, evaluation and research; and tools and small grants to create good-quality jobs that address racial and gender wealth gaps. During the pandemic, demand soared for advising and capital, requiring PCV to shift focus on small business resilience, job preservation, and getting restorative capital and advice into the hands of entrepreneurs who needed it and were being left out of federal resources. PCV co-founded the \$150M California Rebuilding Fund, the largest, multi-stakeholder public-private partnership launched for small businesses anywhere in 2020.

OAKLAND INDIE ALLIANCE

The Oakland Indie Alliance (OIA) is a small business support network that provides marketing, advocacy, and comradery for independent business owners to connect and share resources. OIA focuses on tactical and community-oriented efforts in order to respond quickly amidst challenging times for small businesses. Throughout the pandemic, OIA served as a clearing-house for information from the city, county, and state. More recently, OIA spearheaded a Parklet Building Initiative, pulling in support from pro bono architects, designers, and builders to create free parklets for small businesses using donated materials. OIA also launched a grant program, Keep it Caring, Keeping it Oakland COVID-19 Recovery Fund, to fill the gap on critical capital needs BIPOC, women, and queer-owned businesses.

most opportunity for employment growth in the East Bay while providing opportunities for innovation and entrepreneurship, and serving as a mechanism for households to build wealth through business ownership. Yet small businesses suffered disproportionately during the pandemic, particularly those in the industry sectors that experienced the greatest losses in jobs such as entertainment, dining, and personal services. The adoption of digital technology and other innovations accelerated during the pandemic, disproportionately impacting those small businesses that lacked the support to share in these gains, while at the same time workforce shortages exacerbated the situation. Compounding things further, pre-existing inequities in access to capital and resources for small businesses, especially minority-owned, immigrant-owned, and woman-owned small businesses have become more amplified as a result of the pandemic. As we work to overcome these impacts, an opportunity now exists to resolve longstanding inequities and provide the resources and assistance that will support entrepreneurship, support the growth of the East Bay's small businesses, and enable small businesses to continue offering diverse services creating and a variety of job opportunities for residents.

How Do We Respond?

We must prioritize stronger coordination and targeted creation of new resources and services that support our region's small businesses. These efforts need to be particularly focused on BIPOC and immigrant-owned businesses as well as in industries that suffered the greatest losses from pandemic-related restrictions. Enhanced efforts should also be made to connect with and support immigrant-owned businesses.



Pacific Community Ventures supports local businesses like Toriano Gordon's Vegan Mob in Oakland. Courtesy of Pacific Community Ventures.

Examples of potential implementation opportunities include:

- Leveraging local, state, and federal funding to expand small business assistance and services.
- Pursuing creation of flexible rules for use of any available grants and forgivable loans.
- Pursuing creation of local community banking resources.
- Providing training on digital marketing and sales.
- Expanding small business resources outreach, including multi-lingual access.
- Better connecting small businesses to existing resource partners, including local chambers of commerce, direct business assistance organizations, and technical assistance partners.
- Expanding public procurement opportunities and outreach to minority, immigrant, and woman-owned businesses
- Expanding public sector supports to create a business-friendly environment, including examples such as:
 - » "Open" or "slow" streets, curbside pickup areas, and placemaking efforts
 - » Streamlining business permitting, licensing, and other city services
 - » Improving crime-prevention measures and cleanliness of public realm
- Providing resources to assist businesses in recruiting and training new workers.
- Engaging utility companies to reduce operating costs for small businesses.



East Bay Innovation Awards. Courtesy of East Bay EDA.

THINK SILICON VALLEY

Fremont is one of the fastest growing cities in California and major economic hub of the Bay Area known for its strong manufacturing presence. To enhance the city's marketing and business attraction efforts, the City of Fremont launched a new website which serves as a central hub for business investors, developers, entrepreneurs and community members to learn about economic news, business districts, company ecosystem, and business resources.

2. Promote assets and opportunities in the East Bay region to attract and retain a diverse range of businesses and quality jobs.

Challenges and Opportunities

The East Bay offers an abundance of assets and opportunities for businesses, including its diversified economy, diverse workforce, major institutions, innovative business activities, setting within the dynamic Bay Area economy, and unique mix of culture, arts, parks, and amenities. While many East Bay communities currently promote themselves individually, the East Bay has yet to have built a unified image for businesses and residents in the same way that Silicon Valley and San Francisco do. An opportunity exists to promote the region to attract businesses, workers, and investment while reducing competing and duplicative efforts by individual cities and organizations.

How Do We Respond?

As the primary representative of the East Bay overall, the East Bay EDA is in a unique position to collaborate with its members and partners to develop and implement a marketing and communication campaign to promote the East Bay's unique assets and opportunities. Examples of potential implementation opportunities include:

- Create an East Bay marketing and communications campaign, targeted primarily to businesses, to promote the East Bay's major assets, innovation ecosystem, industry growth opportunities, both overall and by subarea.
- Leverage events such as the East Bay Innovation Awards and other regional opportunities to market and promote the East Bay.

3. Concentrate education, workforce training, and broadband infrastructure investments that expand equitable access to economic opportunity.

Challenges and Opportunities

Education, training, and broadband investments not only support the East Bay's workers in accessing job opportunities, but these investments are also essential to meet the challenges of closing the racial, gender, and geographic disparities that exist in education, income, and wealth across the East Bay. East Bay stakeholders identified four major challenges in providing necessary workforce education, training, and on-the-job experience: 1) gaps exist in the transitions and "handoffs" between the different providers of these services, 2) additional efforts are required to expand services and ensure they remain relevant for current market demand, 3) education and job training resources are not proportionately distributed in the East Bay, and 4) many workers are unable to take advantage of education and training resources without additional supports such as low-cost child care, low-cost or free education, and paid apprenticeships/ internships. Access to broadband internet service is also

necessary to fully participate in today's society for education, work, access to services and resources, and for businesses to take part in e-commerce.

The analyses in this report identified industries that are projected to grow rapidly in the East Bay while offering corresponding growth in high-quality jobs with livable wages and opportunities for career advancement and relatively low barriers to entry. These opportunities are especially concentrated in the "green" sustainability-focused building trades, manufacturing jobs, health care, and education, but can be found throughout the East Bay's growing and innovative industries such as biomedical manufacturing and biotechnology. Taking advantage of these and other workforce opportunities will require the East Bay to leverage available and new funding resources to develop programs and partnerships, expand overall education and workforce training capacity, and resolve gaps in broadband service and affordability.

How Do We Respond?

Our region's ability to create opportunities for workers depends on coordinating and enhancing the efforts of our education, workforce training, and apprenticeships or on-the-job training around our growing industry sectors and occupations that offer high-quality jobs and large numbers of projected job openings. Collaborative efforts will also be required to create the systemic changes that will ensure physical access to workforce development resources and avoid having workers "fall through the cracks" as they transition between education, training, and work opportunities. We must also seek out and expand resources that support workers engaged in education and apprenticeships, such as the "earn and learn" model described below.

EARN AND LEARN FREMONT

Earn and Learn Fremont (ELF) is an innovative approach to addressing persistent workforce talent gaps while providing individuals affected by COVID-19 layoffs the opportunity to jumpstart a new career in advanced manufacturing. Launched in March 2021, ELF is a collaborative partnership between Ohlone College and Evolve Manufacturing, with support from the City of Fremont and two regional workforce boards the Alameda County Workforce Development Board, and work2future. The initial pilot program included 25 participants receiving eight weeks of paid work experience at Evolve Manufacturing and six weeks of concurrent virtual skills development training via Ohlone College's Smart Manufacturing Technology Program.

Concurrently, resolving broadband needs will require coordination of stakeholders and resources to address 1) geographic gaps in high-speed broadband and mobile data service; 2) high costs of high-speed data service subscriptions; 3) increasing digital fluency within the workforce and population, including knowledge of how to access and navigate

online resources; and 4) supporting small business owners in expanding their internet presence and e-commerce operations.

Examples of potential implementation opportunities include:

- Improving coordination of education, workforce training, and apprenticeship programs for occupations that offer high-quality jobs and many openings, including working with community colleges and other regional post-secondary education and training institutions to expand workforce skills.
- Collaboratively addressing systemic barriers to accessing education and workforce trainings for students and workers.
- Expanding paid earn-and-learn opportunities to support individuals engaged in training, apprenticeships, and internships.
- Investing in business incubator and accelerator programs serving entrepreneurs and startups in underserved communities.
- Working with broadband service providers to prioritize access to affordable and reliable, high-speed internet for small businesses and residents in low-income areas.
- Expanding training programs in schools and other locations to increase digital fluency among workers, residents, and business owners.

INSTITUTE FOR STEM EDUCATION

Cal State East Bay established the Institute for STEM Education in 2011 to create a powerful regional center for STEM education—serving the hiring needs of employers as it provides education and opportunity to students throughout the region. The Institute for STEM Education supports efforts directly addressing the critical teacher shortage in STEM disciplines through its Teacher Education Program and MESA College Prep Program. The Institute's Career Awareness and Preparation (CAP) program also gives students the skills and knowledge to plan their pathway to enter college and the workforce, which builds the STEM workforce pipeline to reflect the diversity of the East Bay. By including a diverse set of educational stakeholders from all levels and leveraging relationships with industry, the CSU East Bay's Institute for STEM Education offers a strong model for others to emulate.

TECH EXCHANGE

Tech Exchange's core solution, Tech for All, connects low-income families who are digitally disconnected by providing them with a free refurbished computer, digital skills workshop, free tech support, and assistance accessing affordable \$10/month Internet. Tech Exchange partners with school districts, libraries, public agencies, and community organizations on tech fairs and digital skills workshops. As the first step in rolling out its Smart Neighborhoods Initiative, Tech Exchange opened its Tech Hub in an East Bay Asian Local Development Corporation (EBALDC) commercial facility located in the San Antonio neighborhood of Oakland to serve as a central, inclusive space for community members to access a high-quality computer lab for school, work and other life needs.

4. Concentrate education, workforce training, and broadband infrastructure investments that expand equitable access to economic opportunity.

Challenges and Opportunities

The explosive growth of remote work and e-commerce are among the most significant long-term transformational trends on the ways in which our region will work, live, and conduct business. As a result, these trends will have wide-ranging impacts on our region's land use needs.

The land use impacts associated with the rise of e-commerce preceded the COVID-19 pandemic, but was certainly accelerated during this time. As described earlier in this report, e-commerce creates new demand for fulfillment facilities near population centers, reduces the overall square feet of retail space required to serve residents—especially in secondary regionally-focused shopping centers—and is increasing the share of “experiential” uses in retail spaces such as restaurants and gyms. This shift creates new opportunities to rethink, redevelop, and reuse retail spaces and centers, potentially integrating new uses such as housing, office, and distribution space.

Longer term, there is greater uncertainty about the longer-term impacts of remote work on land uses in the East Bay. Although more workers will return to their offices over time, we can be reasonably confident that higher shares of East Bay workers and residents will continue to work remotely part-time or full-time compared to before the COVID-19 pandemic. Demand for office space per-worker will likely decline as some companies remain largely remote or expand shared “hot-desking” of workspaces. While business districts such as Downtown Oakland or Bishop Ranch will remain major office hubs, it is possible that an opportunity will exist to grow co-working or secondary office locations closer to the East Bay's residential communities. The nature of demand for retail space may also shift over time if demand for stores and restaurants declines in central business districts and cre-

ates expanded opportunities within neighborhood commercial districts.

How Do We Respond?

Aligning land use policy to address remote work and e-commerce requires the East Bay's communities to come together to share lessons learned and best practices in accommodating these shifts. Land use policies and business regulations must support adaptive reuse and flexible zoning that supports the evolving needs of retail, office, and logistics properties. At the same time, our communities must also be careful to ensure land use policies and public investments benefit all East Bay communities and not just individual one where specific companies may be located.

Examples of potential implementation opportunities include:

- Sharing and, when applicable, aligning local and regional best practices for implementing flexible zoning that accommodates development interest while minimizing potential land use conflicts resulting from the impacts of e-commerce, food delivery and remote work.³¹
- Focusing efforts to support the creation of walkable, amenity-rich places that can support higher-density job growth, whether in existing or emerging job centers.
- Planning for transformation of underperforming malls and large shopping centers into mixed-use places that, when possible, incorporate jobs, housing, amenities, and regional transit connections within walking distance of each other. Integrating long-range land use, transportation, and infrastructure planning and investments to reduce suburban sprawl and to better serve the mobility needs of low-income individuals, students, senior citizens, and people with disabilities..

³¹ See, for example, “The Future of Cities: Reenvisioning Retail” by the National League of Cities at https://www.nlc.org/wp-content/uploads/2021/06/CS-Future-of-Cities_Reenvisioning-Retail.pdf

5. Mobilize the East Bay's robust network of institutions and organizations to address regional housing affordability.

Challenges and Opportunities

The East Bay's high housing costs are at the root of a series of interrelated barriers for businesses, families, and the region as a whole. East Bay business owners and leaders cite high housing costs as one of the greatest challenges for worker attraction and retention, particularly for businesses requiring workers at a variety of income and skill levels. At the individual level, high housing costs make it difficult for all workers to live in the East Bay—yet the burdens of high housing costs are borne most heavily by the East Bay's lower-income residents, resulting in the worsening of longstanding inequities connecting race, income, and education. At the regional scale, connecting workers to jobs over ever-longer commute distances means a constant need to invest in infrastructure to connect distant residential areas. Despite the immense scale of these challenges, the East Bay is in the fortunate position of having a robust network of organizations, programs, policies, and local efforts that together create an opportunity to address our housing affordability needs.

FRUITVALE TRANSIT VILLAGE, A MODEL FOR COMPLETE COMMUNITIES

Oakland's Fruitvale Transit Village is a vibrant, community-oriented mixed-use development with hundreds of affordable housing units and commercial space for locally-owned retail and offices for community organizations. Adjacent to the Fruitvale BART station and AC Transit hub, the transit village also includes a high school, childcare facilities, health clinics, and a wide array of community resources. Created by the Unity Council in the early 2000s, the Fruitvale Transit Village is a multi-phased development and partnership between the City of Oakland, Alameda County, BART, Unity Council, EBALDC, private developers, and many community-based organizations.

How Do We Respond?

This priority is focused on doing the work of organizing and amplifying the efforts of East Bay EDA's partners on reducing the burdens of housing costs for our residents and workforce, recognizing the impacts of these burdens on our entire region's economy. Any and all solutions will be needed to truly make a change and reduce inequitable impacts of housing costs, from distributing short-term funding to prevent evictions as moratoria expire, changing policies to expand our housing diversity and supply, to supporting efforts that provide more housing choices that are affordable to residents at all incomes. Addressing housing affordability challenges is also not just about reducing the cost of housing, but about increasing the incomes and job quality of residents through efforts such as those described in the third priority of East Bay Forward.

Examples of potential implementation opportunities include:

- Distributing funding to prevent evictions as moratoria expire.
- Adopting a range of housing policies shared across East Bay jurisdictions aimed at increasing affordable housing, increasing housing production, enhancing resident protections, and reducing homelessness.³² Examples include:
 - » Enabling construction of tiny homes, micro-units, co-housing, modular construction, motel/hotel conversion
 - » Tapping into the Bay Area Regional Housing Fund, which provides capital for affordable housing developers to cover acquisition and pre-development expenses

³² See, for example, research and recommendations by the Turner Center for Housing Innovation at UC Berkeley: <https://turnercenter.berkeley.edu/research-and-policy/>



Fruitvale Transit Village in Oakland. Courtesy of The Unity Council.

PUBLIC LANDS STRATEGY IN PLAN BAY AREA 2050

The reuse of public lands is a key housing strategy in Plan Bay Area 2050, which would provide thousands of low- and middle-income families with homes in transit- and opportunity-rich communities. Thousands of acres of land owned by cities, transit agencies, school districts, counties or other public agencies are currently sitting vacant or underutilized. Since this land is publicly owned, it offers unique strategic opportunities to advance multiple priorities like affordability and economic development. Deed-restricted affordable housing is more feasible on publicly owned lands because acquiring the land, a major expense for development, has already been done. Public lands are key opportunity sites for increasing the Bay Area's supply of affordable housing, as well as nesting that housing within complete communities offering services and open space.

- » Municipal streamlining of permitting and entitlements process, and objective design standards
- » Implementing public-private partnerships and funding models with major institutions and employers, e.g., Kaiser Permanente's Housing for Health Fund to preserve and expand affordable housing
- » Adopting funding tools and programs that are shared across jurisdictions, such as a first-time homebuyer program or county-wide housing bond measures.
- Developing a shared East Bay housing advocacy platform for desired changes in state and Bay Area regional laws, regulations, and policies, including those related to wages, workforce development, and job access, since housing and economic security are inextricably linked.

6. Protect and invest in the East Bay's industrial employment lands to support economic diversity.

Challenges and Opportunities

The East Bay's industrial employment lands are one of the region's greatest strategic advantages within the greater Bay Area, offering incomparable quantity and diversity of industrial land uses and buildings compared to the rest of the region. Industrial lands provide flexibility to businesses and host our goods movement activities, our fast-growing manufacturing industries, and many of our innovation-oriented uses like R&D, prototype development, and advanced manufacturing. Businesses located in the East Bay's industrial lands provide many high-quality middle-wage and middle-skill job opportunities. These lands also support our ports and commercialization of technologies from our research institutions. And the varying mix of industrial buildings, lands, and businesses in each of the region's subareas makes a unique contribution to that subarea and the East Bay as a whole.

Opportunities and challenges facing the East Bay's industrial lands—and the businesses they accommodate—also vary from subarea to subarea. A concentration of older industrial buildings along the I-880 corridor are vulnerable to seismic risks, particularly in portions of Central and Southern Alameda County. Many older and smaller industrial properties along this corridor also do not meet modern needs in terms of size, ceiling heights, power, or loading access.

GATE 510

Gate 510, formerly an automobile manufacturing plant in San Leandro, has been reimaged as an incubator and innovation hub for entrepreneurs, makers, creators and visionaries to collaborate, invent, work and manufacture. With flexible suite options and a “town center,” access to high-speed fiber internet, and multi-functional amenities, Gate 510 has allowed a range of businesses, from clean tech to coffee roasting, to grow and build connections with other innovators through multi-functional amenity spaces.

Bay-adjacent industrial buildings are vulnerable to sea level rise. The “northern waterfront” of Contra Costa County includes older properties requiring reinvestment, but also presents opportunities to meet the East Bay's sustainability needs while facilitating the creation of new and different kinds of jobs as local refineries propose shifts to cleaner energy production.

How Do We Respond?

Protecting and investing in the East Bay's industrial employment lands requires coordination among communities, businesses, and property owners within subareas, given that the opportunities and needs vary significantly in different East Bay communities. At the same time, the East Bay should leverage regional planning and policy efforts around industrial lands, including the “Priority Production Areas” (PPA) program by the Association of Bay Area Governments and Metropolitan Transportation Commission focused on identifying and protecting productive clusters of industrial businesses.³³

Examples of potential implementation opportunities include:

- Identifying and preserving functional industrial lands, especially lands identified by the Association of Bay Area Governments as Priority Production Areas.
- Collaborative efforts focused on understanding and supporting the needs of businesses located on industrial lands.
- Encouraging integrated, comprehensive planning and future infrastructure investments to be resilient and responsive to climate change and other disasters (i.e., sea level rise, seismic activity, flooding, fires)

33 For more information see <https://abag.ca.gov/our-work/land-use/ppa-priority-production-areas>

THE NORTHERN WATERFRONT

Throughout the early 20th century, the East Bay economy was oriented around legacy manufacturing activity. Richmond and communities along the “Northern Waterfront” from unincorporated Rodeo to Antioch, were a center for resource-based manufacturing activities. These included processing crude oil, agricultural products, metal, chemicals, and lumber, as well as other products. During this period, waterways were also critical for shipping. The Richmond waterfront was an important asset for the megaregion’s goods’ movement, and its shipyards employed many workers.

Today, the industrial landscape has changed. Traditional manufacturing employment has declined in Contra Costa County, as the manufacturing sector today is more oriented toward high-tech activities. The Port of Oakland, which is a container port and located near a more central concentration of highways and rail, plays a much larger role in the megaregion than the Port of Richmond, which focuses on bulk cargo.

Certain legacy manufacturing activities and the Port of Richmond continue to contribute significantly to Contra Costa’s economy, and they provide middle-wage jobs for the local workforce. However, the Northern Waterfront and the communities it supports face many challenges today, including aging buildings, contaminated properties, and dependence on fossil fuel industries. And the local workforce in these communities is more likely to experience unemployment, and they are less able to access career advancement opportunities. Today, several of the area’s jurisdictions and larger employers are in the process of exploring a “just transition” to shift toward activities with lower negative environmental impacts while preserving high-quality jobs. The Northern Waterfront Economic Development Initiative is also a proactive, multi-jurisdiction effort that is working to address many of these challenges and create new jobs and opportunities for residents. More information about the Northern Waterfront can be found [here](#).

- Supporting the East Bay’s goods movement ecosystem through creating mechanisms to enhance connection between East Bay manufacturers and distributors to local, regional, and global markets.
- Working with ABAG and MTC to expand the PPA program beyond its initial limited scope presented in Plan Bay Area 2050, recognizing that some critically important industrial lands in the East Bay were not included in the PPA program because of their proximity to transit and to housing opportunities. Policy modifications may be needed to maintain these industrial lands while also benefiting from proximity to transit and housing.
- Developing and sharing best practices for preserving industrial land and employment opportunities while balancing needs for producing housing and protecting health of residents living in adjacent industrial areas; for example, the City of Oakland is currently updating its Planning Code to address these goals.

7. Secure regional and local multimodal transportation infrastructure investments to support job growth and accessibility.

Challenges and Opportunities

We must meet the challenge of making continuous transportation infrastructure investments that support the East Bay's ongoing economic health, growth, and prosperity. At the regional level, an opportunity exists to benefit from planned projects including "Link21" megare-

gion transportation project planning (which may include a new transbay crossing), the Valley Link connection between BART and Altamont Corridor Express, the DTX Extension of Caltrain into the San Francisco Transbay Transit Center (creating an improved connection to East Bay bus service and BART), and BART's extension to Santa Clara County. New federal and other funding resources are also likely to become available for local improvements critical to supporting residents access to jobs and amenities, such as electric vehicle charging infrastructure, investments in local public transit, bicycle and pedestrian improvements, and investments in goods movement infrastructure.

GoMentum Station

GoMentum Station, owned and operated by AAA, is one of the nation's largest secure testing facilities for connected and automated vehicle technology at the former Concord Naval Weapons Station in Concord. GoMentum Station was co-founded by the Contra Costa Transportation Authority (CCTA), which currently leads and facilitates collaborative partnerships to advance the next generation of transportation network infrastructure. The 2,100-acre GoMentum Station is at the center of cutting-edge transportation research and testing, advancing safer, greener, and more accessible transportation options across modalities.

San Pablo Avenue Corridor Project

San Pablo Avenue is the spine of a critical multimodal travel corridor that traverses multiple cities across Alameda and Contra Costa counties, connecting tens of thousands of people daily between residential communities, employment centers, schools, and other activity hubs. The Project aims to advance "complete streets" concepts to ensure safety, quality, and convenience for current and future residents and businesses, particularly as demand for travel on the corridor is projected to increase as higher-density, mixed-use development continues. Led by the Alameda County Transportation Commission, the San Pablo Avenue Corridor Project brings together multiple partners and stakeholders, including the California Department of Transportation, Contra Costa Transportation Authority, AC Transit, and the cities of Albany, Berkeley, Emeryville, Oakland, El Cerrito, Richmond and San Pablo.

How Do We Respond?

Coordinated planning and advocacy by East Bay EDA's stakeholders and partners will position the region to "get out ahead" of transportation funding opportunities and planning for new transportation projects. This proactive approach will ensure that the East Bay not only receives investment when available, but also that new projects and service will most effectively support the needs of the East Bay's businesses and residents.

Examples of potential implementation opportunities include:

- Planning for and developing advocacy platforms to maximize benefits from regional and megaregion projects such as Link21, Valley Link, the DTX Extension, and BART's extension to Santa Clara County.
- Developing "shovel ready" projects that connect residents with jobs and amenities in order to improve local jurisdictions' abilities to compete for new transportation funding for items such as electric vehicle charging infrastructure, public transit investments, bicycle and pedestrian improvements, and roadway investments.
- Setting standards and pursuing funding for climate resilient transportation infrastructure to mitigate disaster risks.

8. Position the East Bay to be a leader in sustainability and climate advancements while spurring economic growth and innovation.

Challenges and Opportunities

As described previously in this report, “CleanTech” opportunities encompass a wide range of types of businesses and technologies that reduce our society’s greenhouse gas emissions and reliance on nonrenewable fossil fuel resources. Broad recognition of the need to address climate change is leading to increased investment and interest in sustainability solutions at the global, national, and regional scales. Growing opportunities are found in a wide range of areas, including electrification of buildings and transportation, advancements in renewable energy generation, and reducing waste to build a “circular” economy. The East Bay is particu-

larly well positioned to leverage opportunities for CleanTech advancements and business growth by building off the East Bay’s existing large base of related jobs and businesses, innovations generated by UC Berkeley and the national laboratories, advanced manufacturing capabilities, skilled workforce, and industrial land supply that can accommodate diverse service, construction, and manufacturing businesses.

How Do We Respond?

Building on the East Bay’s existing leadership in sustainability and climate advancements requires efforts to 1) connect the region’s network of existing businesses, technologies, and resources to create synergies that enhance innovation and growth; 2) enhance demand for sustainability investments and infrastructure through public policy, advocacy for sustainable public infrastructure investments, and outreach to businesses and residents to encourage decarbonization and waste reduction; and 3) prioritizing workforce investments focused on the skills required for related manufacturing and construction occupations.

Examples of potential implementation opportunities include:

- Developing public-private collaborations to align education, workforce, public agencies, and business stakeholders around identifying and resolving critical gaps and opportunities for regional workforce development needs, technological innovations, and investment opportunities.
- Supporting businesses to incorporate “circular” solutions and innovations into their operations to reduce waste and costs.

AC TRANSIT’S ZERO EMISSION BUS PROGRAM

AC Transit has been building the most comprehensive zero emission bus program in the country. As the primary bus operator in the East Bay, AC Transit has expanded from hydrogen fuel-cell electric buses to battery electric buses. The program includes on-site hydrogen production and fueling, electric charging, on-site fleet maintenance, and workforce training.

ZERO NET ENERGY CENTER

The Zero Net Energy Center in San Leandro is an educational facility, co-sponsored by the local electricians’ union (IBEW) and the National Electrical Contractors Association (NECA), that supports training of over 2,000 electricians annually. The building is a deep energy retrofit of a 1980s office building. Its innovative design and state-of-the-art technologies in solar, wind, solar thermal, lighting, and building automation systems are regularly used in the curriculum. These features enable an energy use reduction of 75% compared to similar US buildings and lower its carbon footprint to an estimated 175 tons of CO₂ per year, all at comparable construction cost to conventional construction methods.



Saildrone Mission Control in Alameda. Courtesy of City of Alameda.

- Pursuing market development efforts such as StopWaste's partnership with East Bay EDA to retain and attract green businesses to reduce waste and accelerate the decarbonization of the built environment.
- Sharing best practices across East Bay jurisdictions regarding laws and regulations targeting sustainable construction, clean energy generation, and waste reduction.
- Proactively invest in zero-emission technologies to dramatically reduce greenhouse gas emissions, e.g., Port of Oakland's construction of zero-emissions truck charging stations to enable cleaner freight and cargo-handling.

9. Bolster the East Bay's diversity of arts, culture, parks, and other essential assets to ensure a vibrant and cohesive region.

Challenges and Opportunities

The East Bay's vast collection of arts and culture organizations, institutions, and venues express the rich diversity of our region's cultures and communities. We also benefit from an extensive and varied parks system through the East Bay Regional Park District's preservation and stewardship of 73 parks, 1,250 miles of

trails and 55 miles of shoreline. The East Bay boasts an abundance of art galleries, museums, science centers, and community gathering spaces that support the health, well-being, and sense of belonging and inclusion for our residents. These arts, culture, parks, and essential assets have made the East Bay's quality of life an attraction for residents, workers and visitors, as well as provide diverse employment opportunities, generate significant economic activity in the region and beyond.

Opportunities exist to address three major challenges: 1) usable, family-friendly parks are not evenly distributed throughout the region, 2) rising costs for commercial spaces and housing are making it difficult for arts and cultural organizations to operate and to retain their workforces, and 3) the need to strengthen the resiliency of the arts and culture sector through pandemic-related investments to make them fit for reopening and enable digital/hybrid offerings to ensure financial sustainability.

BLACK CULTURAL ZONE

Formed by a powerful coalition of Black residents, leaders, organizers, and advocates, as well as more than 30 Black-led organizations, the Black Cultural Zone (BCZ) was established in 2014 to address the disparate impact of decades of disinvestment in East Oakland and more recent displacement of Black residents and legacy businesses by centering Black arts and culture within a community development framework. BCZ successfully transformed a vacant lot into a center for cultural, community and commercial activity, which the community renamed Liberation Park. Today, Liberation Park is home to the AKOMA Outdoor Farmers Market, a bi-weekly farmers market prioritizing local Black and Brown farms, in addition to local retail, restaurants and food trucks, artists and makers, and health and wellness providers.

THE SOGOREA TE' LAND TRUST

Sogorea Te' is centered in Huchuin, the ancestral homeland of the Confederated Villages of Lisjan, now known as the East Bay (Ohlone territory). The Sogorea Te' Land Trust is an urban indigenous women-led land trust focused on cultural revitalization, land restoration and bringing Lisjan's vibrant traditions back to the land. The organization's critical work is funded in large part by the Shuumi Land Tax, a voluntary annual or monthly contribution that non-Indigenous people living on traditional Lisjan territory make to acknowledge the community's deep history and to support community development activities.

How Do We Respond?

Bolstering the East Bay's arts, culture, and parks assets will require enhanced collaboration and coordination between arts and culture organizations to advocate for shared needs and concerns—including the perennial need for additional funding. Expanded promotion of the East Bay as a whole (as noted in Priority 2) can also feature and support these destinations and organizations. Resolving access challenges to parks will require concerted efforts to improve low-cost transportation options to existing parks, and to continue seeking opportunities and funding to expand parks and other recreational opportunities in underserved areas.

- Examples of potential implementation opportunities include:
- Convening diverse arts and culture organizations to identify shared needs and strategies for addressing those challenges at the local and regional scales.



Umoja Skating Rink at East Oakland's Liberation Park. Photo Courtesy of Black Cultural Zone.

- Developing a toolkit of policy options and funding mechanisms for cities to use for providing commercial spaces to arts and culture non-profit organizations at below-market rate rents. For example:
 - » Partnering with property owners and developers on privately-owned public spaces and/or affordable commercial spaces for community organizations that provide essential neighborhood services, especially in areas most impacted by the pandemic as well as those most vulnerable to gentrification pressures.³⁴
- Enhance capacity-building, technical assistance and funding mechanisms which can enable arts and culture organizations to adapt to new business models.
- Enhancing transit service to parks and other recreation.
- Expanding funding mechanisms for acquiring, building, and maintaining parks that can also serve multiple benefits, including "green" infrastructure (e.g., stormwater management, ecological restoration, edible parks)

³⁴ Urban Displacement Project, UC Berkeley.

10. Bolster the East Bay's diversity of arts, culture, parks, and other essential assets to ensure a vibrant and cohesive region.

Challenges and Opportunities

The disparate impacts of the COVID-19 pandemic were a stark reminder of the longstanding inequities that exist in the East Bay, both geographically and by gender, race, ethnicity, and immigration status. These inequities include differences in quality, access, and ability to afford child care, education, job training, and health resources. At the same time, the pandemic has created a new oppor-

tunity to address these challenges by elevating awareness of these inequities by renewing emphasis on funding “human infrastructure,” and clearly demonstrating that the success of our economy truly does depend on the resilience of our entire workforce.

How Do We Respond?

With the COVID-19 pandemic fresh in our minds, a unique opportunity exists to implement transformational changes to better support the East Bay's vulnerable residents and workers. The East Bay's stakeholders can collaboratively develop, pursue, and deploy new funding resources and investments in education, workforce development, child-care, and health resources. This is also a moment when new possibilities may exist to pursue adoption of public policies in East Bay jurisdictions that will support livable worker wages and benefits that will help protect our workforce against future disasters and economic shocks.

Examples of potential implementation opportunities include:

- Assessing and closing gaps in health resources and human infrastructure investments, with a particular focus on needs demonstrated by the COVID-19 pandemic's impacts.
- Expanding and increasing childcare subsidies in order to support our workforce.
- Expanding public-private partnerships to improve low-cost health care access throughout the East Bay.
- With more people experiencing homelessness across the region, leveraging local, state, and federal funding will be critical to provide comprehensive support services.

LA CLÍNICA DE LA RAZA

La Clínica's goal is to ensure every person has access to high-quality, culturally appropriate health care, regardless of their ability to pay. Serving both Alameda and Contra Costa communities, La Clínica's sites are located in the most underserved areas where the need for healthcare services is the highest so resources are closest to those who need them the most. Throughout the pandemic, La Clínica has been critical to Contra Costa County's vaccination efforts, teaming up with Contra Costa County to facilitate COVID testing and vaccinations for communities of color and other underserved and disproportionately impacted segments of the population.

ALAMEDA COUNTY COMMUNITY FOOD BANK

Alameda County Community Food Bank (ACCFB) is at the forefront of comprehensive approaches to ending hunger and poverty. From social services to libraries to schools, ACCFB works with public, private, and nonprofit organizations to advocate for solutions to end poverty, increase access to school meal programs, and scale efforts to provide healthy food to more households during the pandemic. ACCFB is also a key partner on reducing food waste and fighting climate change. Through its Food Recovery Program, ACCFB provides retailers an outlet for surplus food while leveraging its network and transportation resources to increase food access.



Point Pinole Regional Shoreline Park. Photo by Marc Crumpler.

- Pursuing legislative and policy solutions that expand livable wages, physical and mental health care, and paid sick leave benefits.
- Examining and working to resolve geographic, linguistic, inability to take time off work, and other obstacles to accessing existing services and programs.
- Invest in and enhance the local pipeline of educators, childcare, healthcare, and other frontline workers by aligning education and training with employer needs, as well as building new training pathways to accommodate regional demand.

11. Develop solutions to improve public safety outcomes while reducing systemic biases and encounters between community residents and law enforcement agencies.

Challenges and Opportunities

East Bay EDA's stakeholders emphasized concerns that current approaches to public safety are overly reactive and reliant on law enforcement, and a system that is frequently accompanied by systemic negative outcomes for lower-income residents and people of color. These negative outcomes for specific communities that already confront systemic barriers to success further impede our region's efforts to enhance our workforce's overall preparedness, resiliency, and access to jobs and economic opportunity. The growing awareness of these systemic issues and growing momentum in reforming our approaches to public safety create new opportunities to pursue alternative systems to ensure the safety of our communities, while also reducing systemic biases and unlocking the potential of all East Bay residents.

CENTER FOR RESTORATIVE JUSTICE AND RESTORATIVE ECONOMICS (RESTORE)

Located in East Oakland, Restore is the first center for restorative justice and restorative economics in the country. Restaurant Opportunities Centers United will have their first Oakland restaurant on the ground floor, where they will train individuals to get front-of-house jobs and incubate businesses from low-income communities of color. In addition, Restore will serve as a hub for the Ella Baker Center's initiatives to end mass incarceration and provide dedicated space for Alameda County's restorative justice programs, in which victims feel heard and supported, conflicts are resolved, and communities are strengthened.

How Do We Respond?

Many of the East Bay's communities are pursuing their own programs and policies to reform their approaches to delivering public safety outcomes. These efforts can be better coordinated and leveraged to share information about effective best practices, advocate for required resources, and examine new policies and programs that can be pursued throughout the region. Additionally, the investments in human infrastructure included in Priority 3 set the groundwork for enhancing the safety of our communities by providing enhanced resources and opportunities for all residents.

Examples of potential implementation opportunities include:

- Collaborative information sharing and development of revised approaches to delivering public safety outcomes, including public agencies/jurisdictions and non-profit partners.
- Development of policies, programs, and spaces aimed at creating communities in which all residents are welcome and safe.
- Expanding and scaling existing education and workforce training programs with proven effectiveness and track records
- Supporting non-profit partner organizations that are working toward public safety solutions, such the Center for Employment Opportunities and the Center for Restorative Justice and Restorative Economics in East Oakland.



Located in East Oakland, Restore is the first center for restorative justice and restorative economics in the country. Courtesy of Designing Justice Designing Spaces.

ANCHORS IN COMMUNITIES (ARC)

Generations of disinvestment and harmful policy decisions have drained communities of basic resources and disconnected them from the chance to live up to their potential. While people of color and low- and moderate-income families are disproportionately affected by this injustice, their barriers to opportunity holds all of us back from uplifting our values and advancing our region's economic potential. The mission of Anchors in Resilient Communities (ARC) is to address the social, economic, and environmental determinants of health by leveraging the assets and capacities of Bay Area anchor institutions and community-based partners. This work will focus on expanding community wealth and ownership, improving health outcomes, and strengthening the capacity of communities of color and low- and moderate-income residents to be resilient in the face of climate and economic disruption.

12. Champion efforts to develop integrated socioeconomic data sets and metrics to evaluate equity outcomes over time.

Challenges and Opportunities

Throughout the East Bay Forward process, stakeholders noted the challenges in obtaining readily available socioeconomic data that can be used to measure and track metrics gauging equity outcomes and changes over time in terms of race, ethnicity, gender, income, and language—especially for smaller geographies. In some cases, this data is available from public sources such as the U.S. Census but requires further analysis and processing to disaggregate detailed information. In other cases, data exists but is scattered across many sources, and few organizations have the expertise and resources to regularly gather information that they seek. Finally, many equity-related metrics are not tracked consistently at all, such as information about the race of small business owners. Better and more consistent tracking of data will create an opportunity for East Bay EDA's stakeholders to better target their efforts and to better understand the results of their actions in closing equity gaps.

BAY AREA EQUITY ATLAS

The Bay Area Equity Atlas was developed through a partnership of PolicyLink, The San Francisco Foundation, and the USC Equity Research Institute and is built upon a comprehensive data support system to track the state of equity across the region and equip community leaders with data to inform solutions for inclusive prosperity. As the Bay Area has enjoyed the benefits of rapidly evolving and growing economy, it has also been susceptible to significant socioeconomic challenges that have led to a regional housing shortage that has fueled increased gentrification and a rapid growth in wealth inequality. Community leaders have lacked access to necessary data to drive solutions forward, making robust, disaggregated data critical to informing strategies for equitable growth.

How Do We Respond?

East Bay EDA's stakeholders should collaboratively work toward developing a shared understanding of metrics required to track equity outcomes, and to understand which data sources already exist versus opportunities to track new data sources. With this understanding, these stakeholders can effectively champion the development of shared resources that integrate available data disaggregated by chosen metrics.

Examples of potential implementation opportunities include:

- Collectively assess data needs and advocate for enhanced data collection by equity indicators and metrics—such as race, gender, income, and language at smaller geographies—in order to improve outreach and targeted resources.
- Based on an understanding of current gaps in available data, work toward expanding data collection within the East Bay's jurisdictions
- Explore and develop partnerships and other opportunities to create resources providing required equity metrics data
- Identify and refine related efforts in other disciplines, jurisdictions, and networks to help aggregate, analyze, and streamline data collection and facilitate transparent in reporting

ALAMEDA COUNTY UPWARD MOBILITY ACTION PLAN

With the support of the Urban Institute, Alameda County was selected through a national competition to be one of eight counties nationally that will be developing an Upward Mobility Action Plan, a customized roadmap that identifies steps for the county to take to improve economic and social mobility outcomes for vulnerable families and residents. As this work continues forward, the next step will be to dive into the existing metrics data, including local data sources and existing frameworks and plans, to assist counties in determining focus areas for mobility action. Once the plan elements have been developed and finalized, stakeholders in Alameda County will be able to measure and monitor progress against these metrics and better understand gaps and challenges.

VI.

APPENDICES



Small business corridor in Downtown Walnut Creek. Courtesy of the City of Walnut Creek.

APPENDIX A: GROSS REGIONAL PRODUCT BY INDUSTRY IN THE EAST BAY

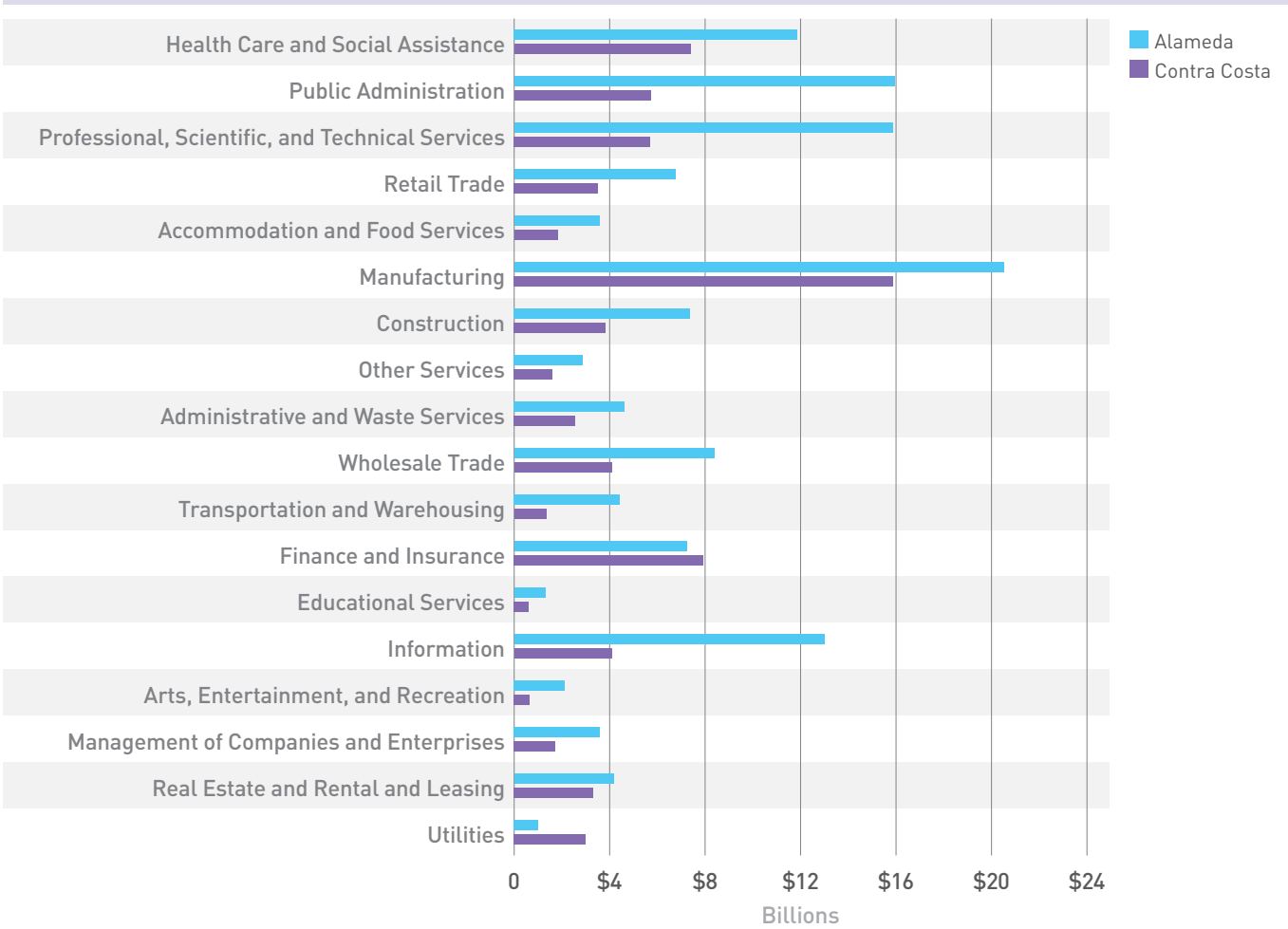
This appendix provides more detail on the gross regional product for each industry sector in Alameda and Contra Costa counties. Industries with higher GRP contribute greater economic output. Traded sectors, such as Manufacturing, Professional Services, and Information, produce a greater GRP per job than primarily household-serving sectors, such as “Accommodation and Food Services” or Retail Trade.

FIGURE 37

Jobs and Gross Regional Product by Industry and County, 2019				
Industry	JOBS		GRP (\$ Billion)	
	Alameda	Contra Costa	Alameda	Contra Costa
Health Care and Social Assistance	117,058	68,090	\$11.86	\$7.39
Public Administration	120,546	50,279	\$15.94	\$5.71
Professional, Scientific, and Technical Services	88,755	32,503	\$15.86	\$5.69
Retail Trade	74,567	44,214	\$6.75	\$3.51
Accommodation and Food Services	67,580	37,431	\$3.58	\$1.83
Manufacturing	85,763	16,827	\$20.51	\$15.88
Construction	58,680	32,822	\$7.37	\$3.84
Other Services	49,336	28,787	\$2.88	\$1.60
Administrative and Waste Services	48,328	28,276	\$4.63	\$2.55
Wholesale Trade	36,813	9,587	\$8.38	\$4.09
Transportation and Warehousing	35,428	10,164	\$4.44	\$1.35
Finance and Insurance	19,884	23,012	\$7.22	\$7.93
Educational Services	22,301	11,096	\$1.31	\$0.61
Information	22,162	7,788	\$12.99	\$4.08
Arts, Entertainment, and Recreation	17,141	9,561	\$2.12	\$0.64
Management of Companies and Enterprises	16,682	8,913	\$3.59	\$1.71
Real Estate and Rental and Leasing	13,963	10,130	\$4.16	\$3.32
Total	896,325	433,777	\$134.58	\$74.72

Source: EMSI, 2021; Strategic Economics, 2021.

FIGURE 38
Comparison of Gross Regional Product by Industry and County, 2019



Source: EMSI, 2021; Strategic Economics, 2021.

APPENDIX B: FASTEST-GROWING INDUSTRIES BY PAYROLLED BUSINESS GROWTH

This appendix describes the growth in business establishments by industry from 2014 to 2019. Business growth is one indicator of industry dynamism and entrepreneurship in the East Bay and can potentially identify promising industry subsectors for ongoing business expansion and creation. However, it is important to note that industries with rapidly growing numbers of establishments

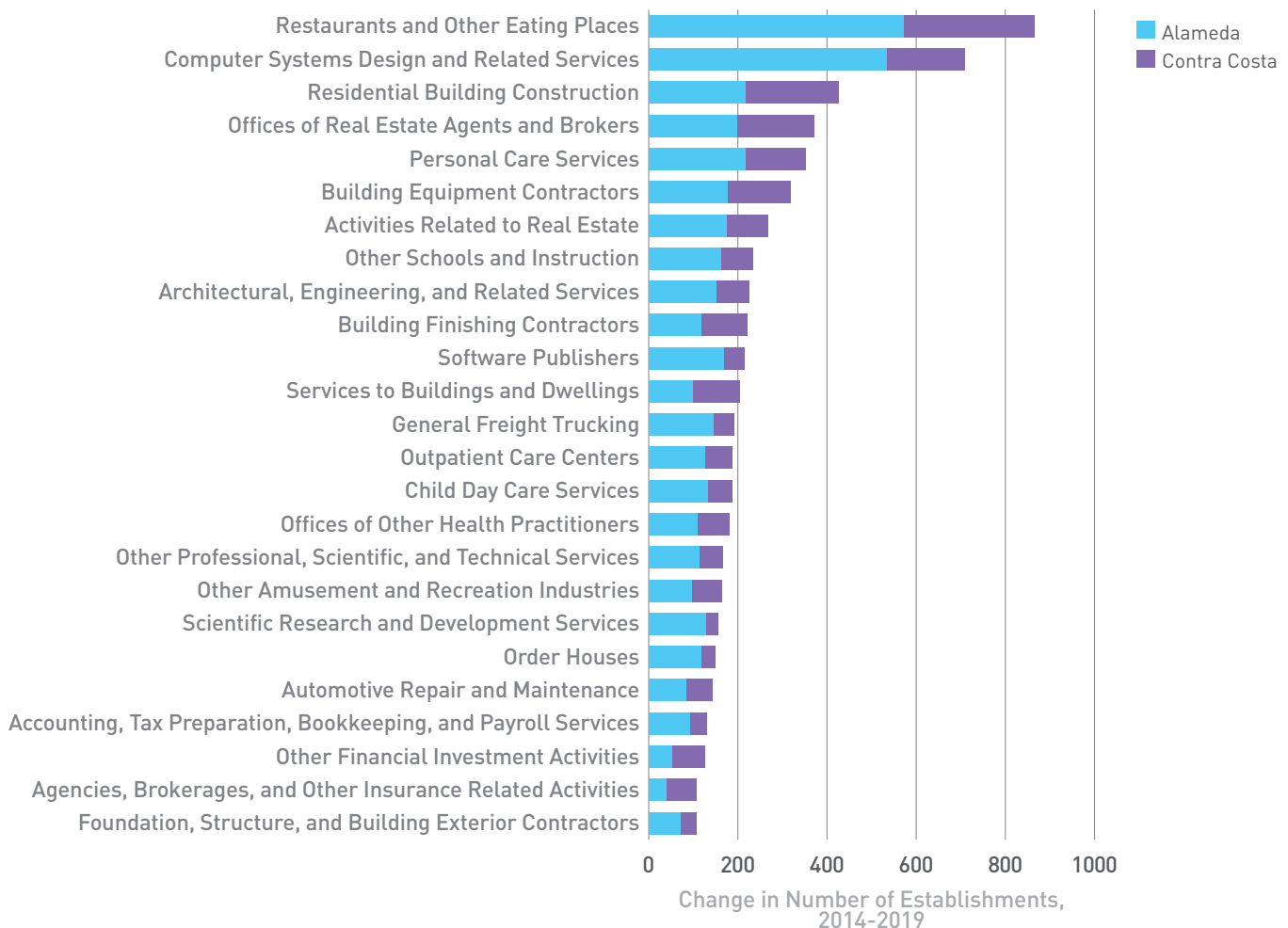
are not always the industries with the highest employment growth.

Industry Subsectors that Added the Most New Establishments

Figure 38 shows the twenty industry subsectors that added the greatest numbers of new establishments in the East Bay between 2014 and 2019, even if they were not necessarily the fastest growing in terms of percent change in establishments. The East Bay's ongoing strength in creative technology and design was reflected by the large share of new establishments created in subsectors such as Computer Sys-

FIGURE 39

Industry Subsectors that Added the Greatest Number of New Establishments in the East Bay, 2014-2019



The chart excludes industry subsector "6241 – Individual and Family Services," which added 6,317 establishments in the East Bay. This subsector includes businesses classified as NAICS code 624120 (Services for the Elderly and Disabled), which consists almost entirely of in-home caregivers enrolled in the State's In-Home Supportive Services Program managed by the California Department of Social Services. Data for this subsector is excluded from the results because its high rates of new establishment formation actually reflect individual locations at which an in-home caregiver is working.

Source: U.S. Bureau of Labor Statistics OCEW via FMSI 2021

tems Design (865), Software Publishers(214), “Architecture, Engineering, and Related Services” (226), “Scientific Research and Development Services” (including biotech) (155), and Ecommerce within the “Electronic Shopping and Mail-Order Houses” subsector (149).

Many of the East Bay’s new establishments also fell within subsectors that primarily serve the East Bay’s significant residential and, secondarily, worker populations. Examples include restaurants, real estate agents, personal care, private educational services and tutoring centers, day care, health care, and recreation services. While some new establishments may be part of larger chains, these industries also typically represent opportunities for entrepreneurial activity with relatively low training barriers to starting a business, such as restaurants and nail or hair care.

Growth in construction-related establishments was bolstered both by the East Bay’s existing concentration of this industry and by significant property development activity in re-

cent years. Examples of construction-related industry subsectors that added large numbers of establishments in the East Bay included “Residential Building Construction” (426), “Building Equipment Contractors” (319), “Architecture, Engineering, and Related Services,” (226), and “Building Finish Contractors” (222).

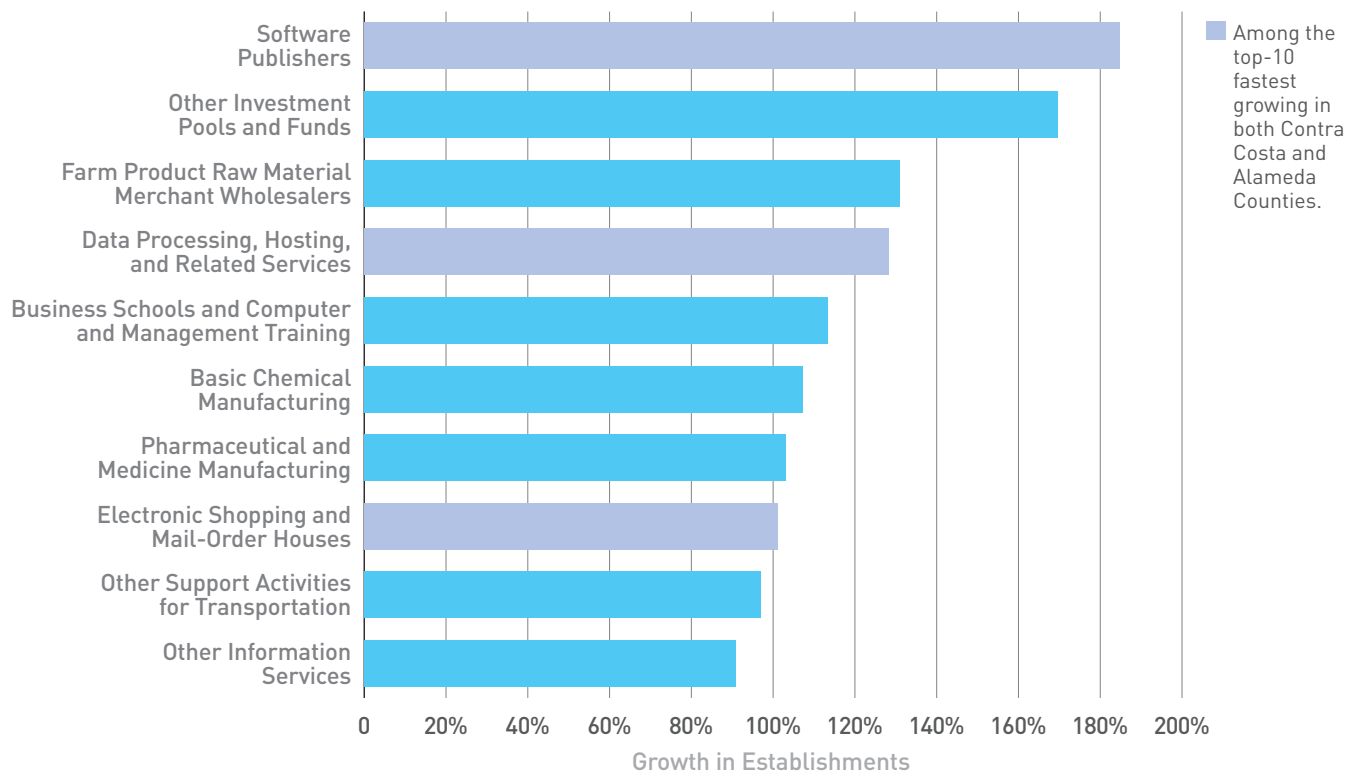
Finally, new establishments in “General Freight Trucking” (192) and “Electronic Shopping and Mail-Order Houses” (149) indicate the ongoing role of logistics and distribution in the East Bay, especially as ecommerce activity grows.

County Comparison of New Establishment Formation

Figures 39 and 40 show the ten industry subsectors whose numbers of establishments grew most rapidly between 2014 and 2019 in Alameda County and Contra Costa County respectively. Alameda County and Contra Costa County share two industry groups that rapidly grew in number of establishments between 2014 and 2019 in both counties:

FIGURE 40

Fastest-Growing Industry Subsectors by New Establishment Formation, Alameda County, 2014 to 2019



Note: Excludes industry subsectors with 10 or fewer establishments.

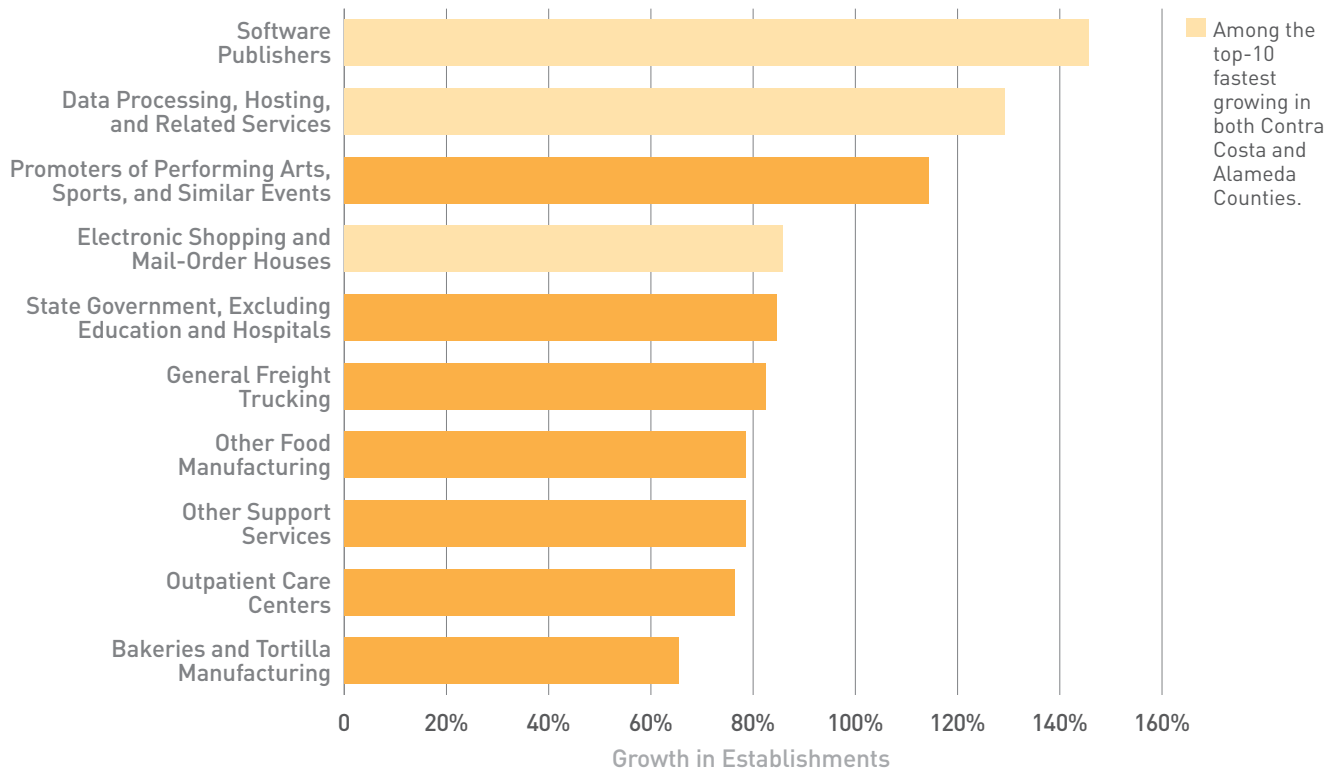
Source: U.S. Bureau of Labor Statistics QCEW via EMSI, 2021.

- The Computer Technology industry continued to drive rapid formation of new establishments in both Alameda and Contra Costa County:** Alameda and Contra Costa County shared only three industry subsectors among their respective ten fastest-growing, and all three subsectors are directly tied to the Computer Technology industry. These subsectors included Software Publishers, “Data Processing and Hosting Services,” and Ecommerce activity (“Electronic Shopping and Mail-order Houses”).
- Goods movement-related industry subsectors were also among the fastest-growing in both Alameda and Contra Costa Counties:** Collectively, several fast-growing subsectors in the two counties represent different aspects of goods movement activity in the East Bay. These include General Freight Trucking in Contra Costa County and Raw Product Raw Material Wholesalers and “Other Support

Activities for Transportation” in Alameda County. Some locations of businesses in the previously noted “Electronic Shopping and Mail-order Houses” subsector may also consist of fulfillment centers.

Alameda County’s other fastest-growing industries, by number of establishments, included finance (“Other Investment Pools and Funds”), “Pharmaceutical and Medicine Manufacturing,” Basic Chemical Manufacturing, and business- and technology-related education. This mix indicates the county’s ongoing acceleration of its strengths in Biomedicine, Biotechnology, Business Services, and Financial Services within the overall East Bay. Contra Costa County’s other fastest-growing industries, by number of establishments, were a mix of Event Promotion, State Government offices, Business Services, Outpatient Care Centers, and Food Manufacturing (including “Bakeries and Tortilla Manufacturing” and Other Food Manufacturing).

FIGURE 41

Fastest-Growing Industry Subsectors by New Establishment Formation, Contra Costa County, 2014 to 2019


Note: Excludes industry subsectors with 10 or fewer establishments.

Source: U.S. Bureau of Labor Statistics QCEW via EMSI, 2021.

FIGURE 42**Middle-Wage Occupations with Most Projected Openings in the East Bay, 2018 to 2028**

Occupation	Total Job Openings	Median Annual Wages	Entry Level Education	On-the-Job Training
Construction Laborers	15,960	\$61,057	No formal education credential	Short-term on-the-job training
Carpenters	13,620	\$73,189	High school diploma or equivalent	Apprenticeship
Bookkeeping, Accounting, and Auditing Clerks	13,620	\$54,468	Some college, no degree	Moderate-term on-the-job training
First-Line Supervisors of Office and Administrative Support Workers	12,300	\$66,945	High school diploma or equivalent	None
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	11,060	\$72,518	High school diploma or equivalent	Moderate-term on-the-job training
Maintenance and Repair Workers, General	9,010	\$54,224	High school diploma or equivalent	Moderate-term on-the-job training
Fitness Trainers and Aerobics Instructors	6,460	\$60,733	High school diploma or equivalent	Short-term on-the-job training
Food Service Managers	5,040	\$51,451	High school diploma or equivalent	None
Automotive Service Technicians and Mechanics	5,000	\$53,276	Postsecondary non-degree award	Short-term on-the-job training
Licensed Practical and Licensed Vocational Nurses	3,950	\$67,595	Postsecondary non-degree award	None
Property, Real Estate, and Community Association Managers	3,850	\$74,400	High school diploma or equivalent	None
Production, Planning, and Expediting Clerks	3,510	\$61,703	High school diploma or equivalent	Moderate-term on-the-job training
Paralegals and Legal Assistants	3,190	\$61,552	Associate's degree	None
Graphic Designers	3,030	\$65,278	Bachelor's degree	None
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	3,020	\$54,860	Bachelor's degree	None
Insurance Sales Agents	2,990	\$66,506	High school diploma or equivalent	Moderate-term on-the-job training
Machinists	2,950	\$57,633	High school diploma or equivalent	Long-term on-the-job training
Roofers	2,730	\$51,702	No formal education credential	Moderate-term on-the-job training
Securities, Commodities, and Financial Services Sales Agents	2,680	\$58,781	Bachelor's degree	Moderate-term on-the-job training
Electrical and Electronics Engineering Technicians	2,620	\$64,990	Associate's degree	None

Note: Low wage: less than \$50,000 in annual wage; Middle-wage: \$50,000 - \$75,000; High-wage: Over \$75,000.

Source: California EDD, 2021; Strategic Economics, 2021.

APPENDIX C: OCCUPATIONS TO WATCH

The data in this appendix describes occupations with a large number of projected openings in the East Bay. Figure 42 shows the fastest-growing middle-wage occupations, which are occupations with annual salaries between \$50,000 and \$75,000. This range is based on the cost of living in the East Bay, and was informed by the California HCD's area median income tables for East Bay counties in 2021. The table is organized by the number of projected new jobs from 2018 to 2028. Many of these occupations, such as Construction Laborers, Carpenters, and "First-Line Supervisors of Office and Administrative Support Workers" require only a high school diploma or less. Some occupations have "middle-skill" en-

try requirements, meaning they require more than a high school degree but less than a four-year degree. This could include a post-secondary non-degree award, a two-year Associate's degree, or attending college but not earning a degree. The middle-skill, middle-wage jobs with the most openings are "Bookkeeping, Accounting, and Auditing Clerks", Automotive Service Technicians, and "Licensed Practical and Vocational Nurses."

Figure 41 shows the top posted occupations that require a four-year degree in the East Bay. This table reflects current job openings, showing openings from May to August 2021. Most unique openings are associated with Management, "Computer and Mathematical", and Healthcare Practitioners and Technical" occupations.

FIGURE 43

Top Posted Occupations that Require a Bachelor's Degree in the East Bay, May to August 2021

Occupation	Total Postings	Unique Postings	Median Posting Duration
Management Occupations	139,145	36,042	32 days
Computer and Mathematical Occupations	142,206	35,635	30 days
Healthcare Practitioners and Technical Occupations	133,239	29,748	30 days
Sales and Related Occupations	118,778	25,877	30 days
Transportation and Material Moving Occupations	113,782	24,584	22 days
Office and Administrative Support Occupations	82,803	22,494	24 days
Business and Financial Operations Occupations	73,775	18,580	30 days
Architecture and Engineering Occupations	69,725	16,204	34 days
Educational Instruction and Library Occupations	29,338	8,703	29 days
Life, Physical, and Social Science Occupations	31,536	7,940	32 days
Community and Social Service Occupations	23,137	6,407	30 days
Arts, Design, Entertainment, Sports, and Media Occupations	16,311	4,976	28 days
Protective Service Occupations	22,119	3,802	29 days
Legal Occupations	7,049	2,341	31 days

Source: EMSI, 2021; Strategic Economics, 2021.

APPENDIX D: ABOUT EMSI DATA

EMSI is a commercial data service provider that specializes in customized geographical data on a range of economic-related metrics. Strategic Economics relied on EMSI data provided by East Bay EDA for many of the quantitative analyses in this report. EMSI data was used for analyses on industry employment, gross regional product, payrolled business growth, and current job postings for occupations that require a Bachelor's degree. EMSI relies on custom methodologies for all their data. EMSI's own methodology descriptions are quoted below. More information on the methodologies can be found here: <https://kb.EMSIdata.com/methodology/>

INDUSTRY EMPLOYMENT DATA

Industry data is the backbone of EMSI's core LMI data. EMSI industry data is data about businesses, categorized by type—hospitals, oil refineries, grocery stores, etc. The Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW) dataset provides detailed employment counts and earnings information for 95% of the employed workforce in the United States, broken out by industry. The employment counts data provided by this dataset are the gold standard of employment counts throughout EMSI data. Where necessary, EMSI fills in suppressed data points in QCEW using data from the Census's County Business Patterns (CBP) dataset. More information on the extent of suppressions in QCEW and the importance of EMSI's unsuppression processes, see this article.

EMSI uses other datasets to provide data for the remaining 5% of the employed workforce not covered by QCEW. EMSI uses American Community Survey (ACS) data to provide job counts and earnings data for self-employed workers. Industry job counts and earnings data are available back to 2001.³⁵

Gross Regional Product Data

GRP, or Gross Regional Product, is GDP (Gross Domestic Product) calculated for a smaller region. All the same components—earnings, taxes, profits, less subsidies—must be calculated at the regional level.

EMSI's sources for GRP data include the following:

- *EMSI's industry earnings data (BLS's Quarterly Census of Employment and Wages, along with multiple supplementary data sets)*
- *BEA Gross State Product (GSP) dataset*
- *EMSI's national Input-Output model*
- *BEA National Income and Product Accounts (NIPA)*

EMSI does not use BEA's GMP (metro-level GDP) or GCP (county-level GDP) datasets. GMP does not agree with GSP, so we favor GSP; however, EMSI's final results are similar to both GSP and GMP. EMSI evaluated GCP for possible inclusion in our calculation of GRP, but decided against it due to a lack of available component detail, as well as negative client feedback regarding potentially questionable source data. For more information, see EMSI's review of BEA GCP.

EMSI's national input-output model breaks national GDP out into its components—earnings, taxes, profits, and subsidies all by 6-digit NAICS. Each component must then be modeled down to the regional level.

Model to State Level

The usual method of creating state-level estimates for taxes, profits, and subsidies (3 of the 4 components of GRP) is to apply national coefficients to state earnings (the fourth component), creating state estimates for the first three components. The BEA also publishes state-level component totals for each state, so EMSI uses those totals to control the state values created by applying national coefficients to state earnings. The result is more accurate

35 EMSI, <https://kb.EMSIdata.com/methodology/EMSI-data-basic-overview/>

state-level data that utilizes EMSI's state-level earnings data as well as the BEA's state-level component totals.

If the BEA has not yet reported GSP data for the working year, the latest available GSP data is scaled to match totals taken from BEA National Income and Product Account (NIPA) tables, which are updated quarterly.

Model to County Level

The final step is to move to county-level GRP data. EMSI data provides county-level earnings figures (one component of GRP), and we must calculate the other three components. They are calculated individually by creating ratios at the state level using earnings data. For instance, county-level taxes are calculated by finding the ratio of state-level taxes to state-level earnings. That ratio is then applied to county-level earnings and solves to county-level taxes. The process is repeated for each component for each 6-digit industry. The result is each of the GRP components at the county level.³⁶

Payrolled Business Growth Data

The Payrolled Business Growth appendix relies on Quarterly Census of Employment and Wages (QCEW) estimates, which is a quarterly count of employees, payrolled businesses, and wages covering 95 percent of U.S. jobs. This data is summarized by EMSI. The following is an excerpt from EMSI's glossary about payrolled business data.

"Also referred to as a "Payrolled Business Location", an establishment is a single physical location of some type of economic activity (a business), used for reporting purposes in government data sources.

A single company may have multiple establishments. As an example, a single company with its corporate office in New York, a paper manufacturing plant in Georgia, and fifteen warehouses in various cities would comprise a total of seventeen establishments, and each establishment would be classified according to its own type of activity. In this case, three different industries would be used:

- *Corporate, subsidiary, and regional managing offices*
- *Paper (except newsprint) mills*
- *General warehousing and storage³⁷*

Job Postings Data

EMSI job postings data is gathered by scraping over 100,000 websites, including company career sites, national and local job boards, and job posting aggregators. Over 1.5 million companies are represented in EMSI data.

Job postings are assessed for likely duplicates using a machine learning algorithm, which determines whether two postings are duplicates based on text similarity, job title, company name, and location. Job postings posted more than six weeks apart will not be considered potential duplicates. Duplicate jobs openings posted in separate cities will not be deduplicated and will appear as multiple postings.

Each job posting is further enriched with value-add processes including:

- *Job title and company standardization*
- *Skill extraction and tagging*
- *SOC and NAICS code determination and assignment*
- *Education and experience determination³⁸*

³⁶ EMSI, <https://kb.EMSIdata.com/methodology/grp-methodology/>

³⁷ EMSI, <https://kb.EMSIdata.com/glossary/>

³⁸ EMSI, <https://kb.EMSIdata.com/methodology/EMSI-data-basic-overview/>

VII.

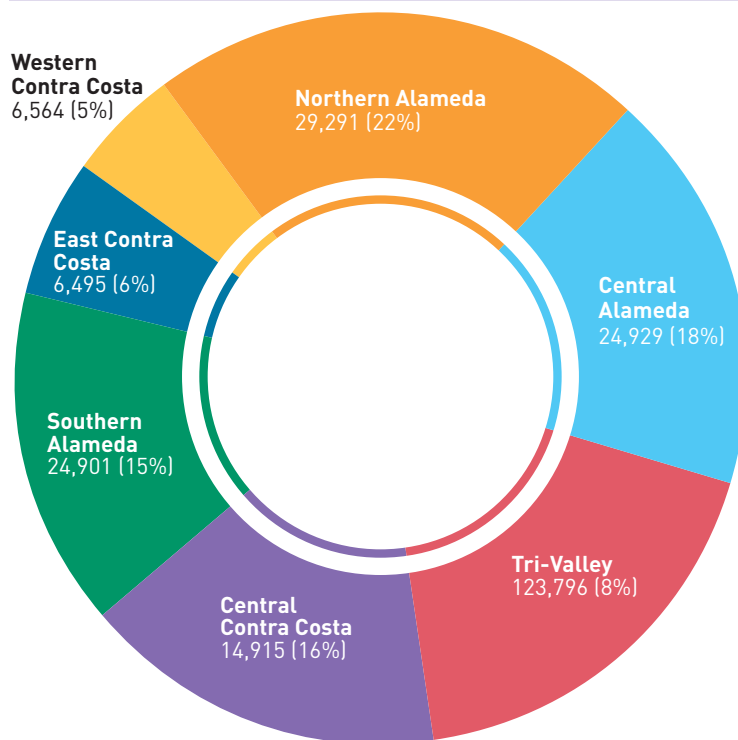
ECONOMIC PROFILES OF EAST BAY SUBAREAS

The East Bay consists of seven distinct subareas. This section provides an economic snapshot of each subarea.



EmeryStation West, an innovation & life sciences hub. Courtesy of Wareham Development.

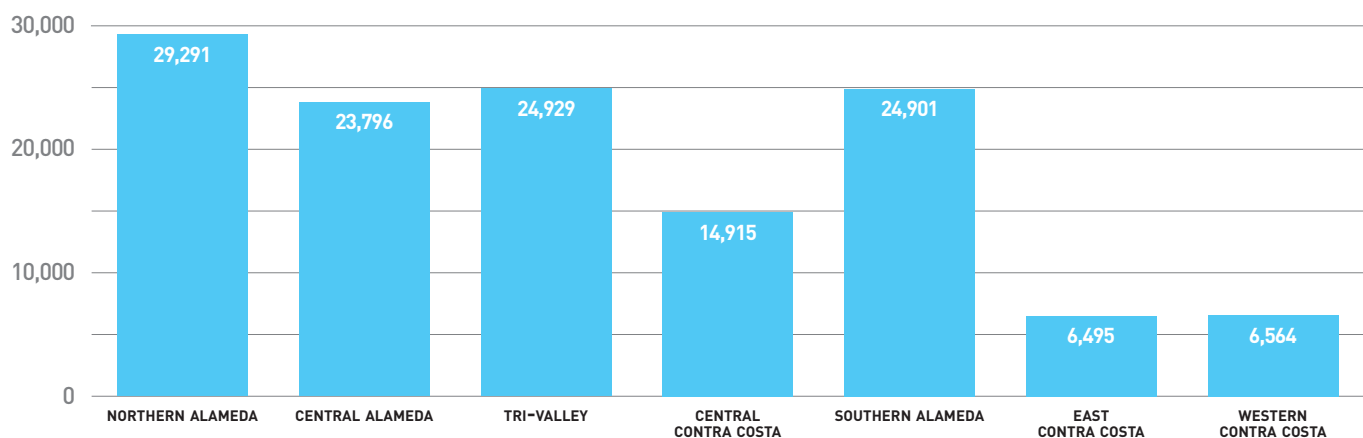
Distribution of East Bay Jobs by Subarea, 2019



Source: Pitchbook, 2021; Strategic Economics, 2021.

The following profiles describe each of the seven subareas in the East Bay. For each subarea, the overall population and jobs trends are provided, as well as primary places (major cities and unincorporated communities) and key transportation access features. The profiles also include detailed discussion of each subarea's sectoral employment composition, as well as key defining attributes for each subarea. While each subarea was impacted by the pandemic in different ways, this section focuses on the characteristics of the subarea before the pandemic began. The figures show the distribution of jobs by subarea in 2019 and the change in jobs by subarea between 2014 and 2019.

Distribution of East Bay Jobs by Subarea, 2019



Source: East Bay EDA Economic Outlook reports, 2013-2018/19; Pitchbook, 2021; Strategic Economics, 2021.

NORTHERN ALAMEDA

Primary Places: Most of Oakland (excluding portions of East Oakland), Berkeley, Emeryville, Albany, Alameda, Piedmont

Access: BART (all six lines); Interstate 80, Interstate 580, Interstate 880, Highway 24, Capital Corridor; San Francisco Bay Area Ferry System (WETA)

Sectoral Composition:

- Northern Alameda is the economic engine of the East Bay. It has a diverse and growing employment base and has the largest share of jobs among the subareas.
- After the Public Administration sector (17 percent of jobs), the largest sectors are: “Health Care and Social Assistance” (13 percent, or 38,000 jobs); and Professional Services (12 percent, or 34,000 jobs).
- Many Professional Services jobs are in “Architecture and Engineering,” Computer Systems Design, and other technical services sectors.
- Employment in the Information sector grew 52 percent in Northern Alameda from 2014 to 2019, adding nearly 4,000 jobs. Large employers including Pixar and Marqeta are located here.
- Northern Alameda has strong concentrations of firms involved in biomedical, computer tech, and other scientific research and development activities that cut across different sectors.
- There are over 11,000 manufacturing jobs in Northern Alameda. Nearly 3,000 are associated with Food and Beverage Manufacturing, and 2,800 are in the “Medical Equipment and Supplies Manufacturing” sector, which is part of Biomedical.
- Twenty-six percent of jobs in Northern Alameda are associated with “in-person sectors,” which include: “Food Services and Accommodation” (9 percent), Retail Trade (7 percent); Other Services (6

percent), and “Arts, Entertainment and Recreation” (3 percent).

» Northern Alameda has a large share of East Bay’s jobs in the arts, with 37 percent of East Bay jobs in the “Arts, Entertainment, and Recreation” sector located here.

Defining Attributes:

- Downtown Oakland is located at the center of the BART system, which is a strategic advantage for the subarea. Northern Alameda residents have excellent access to regional job centers, and workers can easily commute to Northern Alameda from across the Bay Area via BART.
- UC Berkeley and the Lawrence Berkeley National Laboratory are key fixed assets for Northern Alameda. Both foster an environment that supports the subarea’s diverse, innovative activities. For example, many biomedical startups in Emeryville and Berkeley are linked to projects that start at these institutions. UC Berkeley also draws highly talented students to the East Bay, who eventually become part of the East Bay’s workforce.
- Firms in Northern Alameda attracted \$3 billion in venture capital investments in 2020, half of total venture capital investment in the East Bay. The categories that received the most investment were: Biomedical (\$868 million); Computer Tech (\$640 million); Food Innovation (\$550 million); and CleanTech (\$366 million).

Northern Alameda

Jobs	294,000
Job Share	22%
Job Growth	11%
Population	442,500
Population Share	16%
Population Growth	2%

The largest awards went to the following firms: Zymergen (bio-manufacturing); Perfect Day (plant-based dairy); Marqeta (payment processing platform); Astra (space rocket equipment manufacturer); Fivetran (data integration platform); Pivot Bio (microbial nitrogen fertilizer developer); and Good Eggs (sustainable grocery delivery platform).

- The Port of Oakland seaport is located within Northern Alameda and is a critical foundation of the East Bay's goods movement ecosystem.
- Northern Alameda is distinct in that it contains many of the East Bay's pedestrian-oriented commercial districts. Some of these are Bay Area destinations for shopping, dining, culture, and nightlife. Many "in-person" jobs in Northern Alameda are located in these types of areas.
- The housing crisis is most acute in Northern Alameda. Neighborhoods in Northern Alameda, especially those near BART stations and job centers, have the strongest housing demand in the East Bay.
- Long-time residents in historic communities of color in Berkeley and Oakland have faced the most intense displacement pressures within the East Bay as these communities gentrify. Low-income renters have been most vulnerable. Some of these communities, including West Oakland and parts of East Oakland, have higher shares of adults with lower levels of educational attainment.

SOUTHERN ALAMEDA

Primary Places: Fremont, Union City, and Newark

Access: BART (Berryessa to Richmond, Berryessa to Daly City); Interstate 880, Interstate 680, Highway 84, Highway 238, Capital Corridor

Sectoral Description:

- The number of jobs in Southern Alameda grew faster than other subareas from 2014 to 2019, adding 24,000 jobs. Half of this growth was driven by employment in Manufacturing industry sectors.
- Manufacturing accounts for 23 percent of jobs, or 44,000 jobs, while Professional Services accounts for 13 percent of jobs (25,000).
- Health Care accounts for only 9 percent of jobs (17,000 jobs) which is smaller share than other subareas.
- In Southern Alameda, the share of "in-person" sectors—which include Accommodation and Food Services, Retail Trade, Other Services, and Arts, Entertainment, and Recreation—is the smallest among the subareas.
- The subarea has the highest share of East Bay's manufacturing jobs and has a significant share of these jobs compared to the entire Bay Area (LQ of 2.9). While 8,000 of these jobs were associated with Tesla opening in the former NUMMI space in Fremont, there was also strong growth in Electronic Product manufacturing, Metal/Machinery Manufacturing, and Biomedical Manufacturing.

Southern Alameda

Jobs	194,569
Job Share	15%
Job Growth	15%
Population	371,878
Population Share	13%
Population Growth	4%

- The subarea also serves as a center for logistics, especially Wholesale Trade (LQ of 2.4 compared to the Bay Area). There are over 12,000 jobs in Wholesale Trade in Southern Alameda, one of the largest concentrations of wholesale trade jobs in the East Bay.

Defining Attributes:

- Southern Alameda is a primary epicenter of scientific research and development activity in the East Bay, including in advanced manufacturing and CleanTech.
- The subarea, especially Fremont, plays a large role in the Bay Area's biomedical ecosystem, providing "scale-up" manufacturing space for growing biomedical firms. The subarea also has a strong cluster of medical equipment manufacturing. This subregion also attracts a high share of the East Bay's venture capital funding associated with computer technology.
- Southern Alameda features easy access to the Northern Alameda and San Jose job centers, as well as San Mateo County via the Dumbarton Bridge. The recently opened Berryessa BART station will reinforce this subregion's connections to Silicon Valley, especially when the BART extension to San Jose and Santa Clara is completed.
- Southern Alameda is also easily accessible to a large share of the Bay Area workforce, including San Mateo County workers who have some of the highest levels of educational attainment in the Bay Area.
- The subarea's proximity to Silicon Valley and large supply of lower-cost land relative to other parts of Silicon Valley is a competitive advantage, especially for advanced manufacturing firms.
- Many jobs in the subarea, particularly those in lower-density flex/industrial buildings, are difficult to access without a car. The area is highly dependent on Interstate 880, which experiences high levels of traffic congestion.
- In 2020, firms in the subarea attracted \$1.5 billion in venture capital awards, and over \$1 billion of this was associated

with "Computer Tech" firms. There were also sizeable investments in Biotechnology firms. Notable firms include Pony.ai (autonomous vehicles), Rain Therapeutics (oncology therapy), Spin Memory (semiconductor manufacturing), and Raxium (holographic display technology).

- Union City has a higher share of people with low levels of educational attainment and lower incomes compared to surrounding communities, creating an opportunity to target workforce and economic development strategies to expand access to quality jobs paying living wages.
- High demand for housing, office, and R&D space is creating pressures to redevelop existing industrial buildings in portions of the subarea.

CENTRAL ALAMEDA

Primary Places: Hayward, San Leandro, Castro Valley, much of East Oakland, unincorporated areas including Castro Valley, San Lorenzo, Ashland, and Cherryland.

Access: Interstate 880, Highway 237, BART (Berryessa to Richmond line; Berryessa to Daly City line), Capitol Corridor

Sectoral Composition:

- "Health Care and Social Assistance" is the largest industry sector in Central Alameda, accounting for over 40,000 jobs (17 percent of jobs) in the subarea.

Central Alameda

Jobs	240,500
Job Share	18%
Job Growth	11%
Population	619,500
Population Share	22%
Population Growth	2%

- Logistics activities define this subarea, which includes the Oakland Airport. Logistics employment in the subarea is highly concentrated compared to the Bay Area. The subarea's Wholesale Trade industry has a jobs LQ of 2.0, and Transportation and Warehousing has an LQ of 2.8 (compared to the Bay Area).
- Central Alameda also has the second largest share of Manufacturing jobs in the East Bay, after Southern Alameda. The subarea had approximately 20,000 Manufacturing jobs as of 2019, which accounted for one-fifth of Manufacturing jobs in the East Bay, and eight percent of jobs in the subarea.
- In Central Alameda, traditional manufacturing sectors known for providing middle-wage positions with low barriers-to-entry provide the most jobs overall. Most of these sectors grew from 2014-2019. These include Food Manufacturing, Wood Product Manufacturing, Metal Product and Machinery Manufacturing, and Transportation and Equipment Manufacturing. There are many firms in these traditional sectors (like Upside Foods, a plant-based food manufacturer) that are producing innovative products, and others are constantly innovating their processes in ways that make them "advanced manufacturing".
- Central Alameda is the East Bay's most populous subarea and is highly accessible to regional job centers. Housing is relatively more affordable than other parts of Alameda County, though certain areas, particularly those with strong access to BART, are experiencing displacement pressure.
- Central Alameda also has many electronic product manufacturing jobs, which is closely linked to Bay Area strengths. Hayward plays a similar, albeit smaller role to Fremont in providing "scaling-up" space for biomedical firms.
- Construction jobs are also highly concentrated in the subarea (LQ of 1.7, compared to Bay Area), with ties to the subarea's large supply of PDR land.
- Households in the subarea generally have lower incomes and lower levels of educational attainment compared to other parts of the East Bay. San Leandro and parts of East Oakland have high shares of people aged 25 and over with some college or lower educational attainment.
- Firms in Central Alameda were awarded nearly \$800 million in venture capital investments in 2020, which accounted for 13 percent of total funding in the East Bay that year. Biomedical firms receiving the largest awards were: Upside Foods (plant-based meat); RefleXion Medical (biology-guided radiotherapy); Geltor (bio-design); and Halio (smart-tinting glass).

Defining Attributes

- Central Alameda has a large supply of industrial land, which is tied to all aspects of "PDR" (Production, Distribution, and Repair) activities, such as warehousing and other logistics uses that support the Oakland Airport, and manufacturing facilities that serve advanced manufacturing and food manufacturing subsectors.

TRI-VALLEY

Primary Places: Alameda: Dublin, Pleasanton, Livermore, Contra Costa: San Ramon, Danville

Access: Interstate 580, Interstate 680, BART (Dublin/Pleasanton to Daly City line)

Sectoral Composition:

- Professional Services is the Tri-Valley's largest industry sector, accounting for 12 percent of total jobs, or approximately 30,000 jobs. Many of these jobs are associated with scientific research and development, computer technology, and architecture and engineering.
- "Health Care and Social Assistance" and Retail Trade are the next largest sectors, with 11 percent and nine percent of total jobs respectively.
- The Tri-Valley has a large share of the East Bay's jobs in the Management of Companies and Enterprises sector. Nearly half of the jobs in this sector in the East Bay are in the Tri-Valley. Corporations have historically favored the Tri-Valley for corporate headquarters because the Tri-Valley is a suitable place for lower-density campus-style offices that can accommodate many workers (e.g., Safeway and Ross Stores).
- The Information sector is growing rapidly in the Tri-Valley. The sector grew 41 percent from 2014 to 2019, adding nearly 3,000 jobs. Most Information employers in the Tri-Valley are engaged in software publishing, data processing, and other high-tech activities. The software firm Workday recently opened new offices near BART in Pleasanton.
- The Tri-Valley is an increasingly attractive location for high-tech firms, especially those in computer technology, as well as some biomedical firms. Livermore's two national labs support these highly innovative activities.

Defining Attributes:

- The Tri-Valley has strong anchors in scientific R&D, healthcare, and software, which foster an environment of innovation, as well as a diversified and growing employment base.
- The Tri-Valley is one of the fastest-growing subareas, both in terms of population and employment growth. Job and population growth in the Tri-Valley both outpaced that of the East Bay.
- The Tri-Valley is strategically positioned between the Inner East Bay and the Central Valley. The planned Valley Link rail line will connect the Tri-Valley to Stockton, strengthening this relationship.
- The Tri-Valley benefits from hosting two national laboratories—Lawrence Livermore National Lab (LLNL) and Sandia National Lab. These labs engage in cutting edge scientific research, and LLNL is a national leader in computing research.
- Firms in the Tri-Valley were awarded approximately \$470 million in venture capital funds in 2020. Most of these funds were associated with "Computer Tech" firms. The largest awards went to Tekion (digital automobile retail platform); Degreed (digital education/skills development platform); and Air Protein (meat alternative technology).
- Planning, infrastructure, and development projects are shifting areas near the Tri-Valley's BART stations become more walkable and transit-oriented.

Tri-Valley

Jobs	234,000
Job Share	18%
Job Growth	12%
Population	393,000
Population Share	14%
Population Growth	8%

EASTERN CONTRA COSTA

Primary Places: Antioch, Brentwood, Pittsburg, Oakley, Bay Point

Access: BART (Antioch to SFO), Highway 4, Highway 160

Sectoral Composition:

- Public Administration is the largest sector, which accounts for nearly one-in-five jobs, or approximately 15,000 jobs.
- Household-serving sectors also contribute large shares of jobs in Eastern Contra Costa. “Health Care and Social Assistance” accounts for 16 percent of jobs, or approximately 12,000 jobs. Other large sectors include Retail Trade (12 percent of jobs); Construction (11 percent) and “Accommodation and Food Services” (9 percent).
- Eastern Contra Costa also has a large share of the Bay Area’s jobs in the Utilities sector. Approximately one-third of the Bay Area’s Utilities jobs are located here. Most Utilities jobs in Eastern Contra Costa are related to power generation and water irrigation and treatment.

Defining Attributes:

- Eastern Contra Costa is one of the most rapidly growing subareas in terms of population, attracting growing numbers of Bay Area residents seeking lower housing costs.

- While Eastern Contra Costa provides relatively affordable housing, residents endure long commutes to access the Bay Area’s largest job centers.
- Areas near BART stations have attracted some smaller housing developments, but development activity is generally limited for denser, multifamily housing.
- While the subarea’s distance from the Bay Area’s largest population and jobs concentrations creates an obstacle to attracting employers, communities in Eastern Contra Costa are proactively working to attract more jobs and investment to the area to improve job access for residents. These efforts include identifying and seeking funding for infrastructure needs that improve access and opportunities to attract commercial development.
- Many communities in Eastern Contra Costa are communities of color that have high shares of adults with lower educational attainment. Challenges exist in linking the local workforce to high-quality and accessible job opportunities throughout the region.
- Economic development efforts in the area include the Northern Waterfront Economic Development Initiative (see separate text box), and individual city and county efforts to attract development activity and employers—with many also seeking to attract growth of “green” jobs, such as Bombardier’s rail car assembly facility in Pittsburg.

Eastern Contra Costa

Jobs	78,000
Job Share	6%
Job Growth	9%
Population	342,000
Population Share	12%
Population Growth	8%

WESTERN CONTRA COSTA

Primary Places: Richmond, El Cerrito, San Pablo, Pinole, Hercules

Access: Interstate 580, Interstate 80, BART (Richmond to SFO, Richmond to Berryessa), Capitol Corridor

Sectoral Composition:

- Public Administration is the subarea’s largest sector, which accounts for 15 percent of jobs, or over 11,000 jobs.
- The two largest sectors are both household-serving. “Health Care and Social Assistance” and Retail Trade each account for 12 percent of total jobs, or nearly 9,000 jobs each.
- Western Contra Costa also has over 8,000 jobs in Manufacturing, or 11 percent of its total jobs. Nearly 3,000 of these jobs are associated with oil refineries, including Chevron and Phillips 66. Food and Beverage Manufacturing and Metal/Machinery Manufacturing also account for a large share of Manufacturing jobs, with 1,500 and 900 jobs respectively.
- Nine percent of jobs in the subarea, or approximately 7,000 jobs, are associated with Logistics (both Wholesale Trade and Transportation and Warehousing). These jobs partly support activities at the Port of Richmond.

Defining Attributes:

- Chevron in Richmond and the Phillips 66 oil refineries in unincorporated Rodeo are two of the subarea’s largest employers. While there is a tension between supporting these jobs and protecting the environment, some refineries have begun exploring strategies around a “just transition” to renewable fuels while preserving job opportunities. Phillips 66, for example, is in the early stages of a process to transition to producing renewable fuels, as a part of the “Rodeo Renewed” plan.
- Residents in Richmond and San Pablo, which are both communities of color, generally have lower levels of educational attainment and lower incomes. Residents in these communities often have less access to education/career advancement opportunities.
- Western Contra Costa has lower housing costs than nearby Northern Alameda, and locations in the subarea near BART are relatively accessible to Berkeley, Downtown Oakland, and San Francisco.
- Western Contra Costa is also accessible to Marin County via the Richmond-San Rafael bridge. A large share of workers in Marin County commute from Western Contra Costa.

Western Contra Costa	
Jobs	78,000
Job Share	6%
Job Growth	9%
Population	342,000
Population Share	12%
Population Growth	8%

CENTRAL CONTRA COSTA

Primary Places: Walnut Creek, Lafayette, Concord, Martinez, Pleasant Hill

Access: BART (Antioch to SFO), Interstate 680, Highway 24, Highway 4, Capital Corridor

Sectoral Composition:

- “Health Care and Social Assistance” is the largest sector, accounting for 18 percent of total jobs, or 39,000 jobs.
- Retail Trade is the second-largest sector, with 10 percent of jobs, or 21,000 jobs, followed by Accommodation and Food Services which has nine percent of jobs (18,000 jobs).
- Most office jobs are in Professional Services (18,000 jobs), and “Finance and Insurance” (14,000 jobs)
- “Finance and Insurance” is particularly concentrated in Central Contra Costa. It has a location quotient of 2.0, compared to its concentration in the Bay Area. 34 percent of Finance and Insurance jobs in the East Bay are located here.
- 4,700 jobs in the Manufacturing sector are located in this subarea. Over one-third of these jobs are associated with oil refineries, such as Marathon, Tesoro Golden Eagle, and Shell.
- Other manufacturing activities include printing, medical equipment, and chemical manufacturing.

Defining Attributes:

- Central Contra Costa is the primary job center for Contra Costa County. Walnut Creek has the largest concentration of office jobs in the county.
- While Central Contra Costa provides the most jobs within Contra Costa County,

the number of jobs has not increased as rapidly as other subareas. Most job growth occurred in household-serving sectors.

- Walnut Creek includes some of the East Bay’s best-performing regional shopping centers or malls, including Broadway Plaza.
- The oil refineries in Martinez are some of the subarea’s largest employers. There is a tension between supporting these jobs and protecting the environment. However, some refineries have begun exploring strategies around a “just transition.” Marathon is currently exploring strategies around transitioning to renewable energy production.
- Residents in Central Contra Costa are better positioned to access regional jobs via BART than Eastern Contra Costa, but workers still face relatively long commutes to major job centers besides Downtown Oakland.
- Martinez and other communities along the Northern Waterfront were historically oriented around legacy manufacturing activities, such as the oil refineries. These businesses are still important to the local economy today, but broader changes in manufacturing have de-emphasized the regional significance of these facilities compared to larger concentrations of manufacturing jobs elsewhere.

Central Contra Costa

Jobs	78,000
Job Share	6%
Job Growth	9%
Population	342,000
Population Share	12%
Population Growth	8%