Building Ladders to the Future

IN STOCKTON, CALIFORNIA

UNIVERSITY OF THE PACIFIC

Center for Business and Policy Research

The James Irvine Foundation



Executive Summary

Grounded in a comprehensive assessment, this report distinguishes between two facets of employment trajectories in Stockton. At one end of the spectrum, there is occupational employment around a subset of rapidly growing, but relatively lower-paying occupations. On the other, there is a subset of higherpaying occupations in need of a skilled workforce. This analysis illustrates career planning ladders to help workers connect these opportunities, and describes an equity-focused and employer-responsive system to grow more good-paying jobs in Stockton. Threaded throughout are worker voices that remind us of the scope and scale of the need.

Current employment trends in the Stockton area clearly illustrate the need for action. Between 2010 and 2019, the median wage of a job in the Stockton area has plummeted from 75% to only 69% of the California median wage. Nearly half of the Stockton area's job growth in the past five years has been driven by fulfillment centers where typical jobs pay only slightly above the minimum wage. Education funding has increased, but because of a dearth of qualified teachers, Stockton's schools have among the highest concentration of substitute teachers and teaching assistants in the nation. Other industries, including healthcare, show similar patterns – lowerskill and lower-paid jobs grow while higher-wage opportunities go unfilled.

The analysis and insights developed in this report can help change the trajectory for workers in Stockton. Using real-time employer data, we developed a unique job-skills relationship map. That map is designed to describe integrated pathways to build both career lattices and ladders that foster and expand middle-skilled job opportunities in Stockton. We describe pathways to current middleskill opportunities in healthcare, education and construction, and illustrate emerging industries that could help Stockton further expand higher-paying jobs. We also recognize the role that exogenous factors play; industries are shape-shifting with technology and regional dynamics are guiding the private sector. Policy priorities at the state are generating public sector investments that will transform new workforce opportunities for the future. In an increasingly complex environment, career lattices, or non-traditional paths, will become an incredibly important tool to equip workers and employers alike as they navigate the workforce landscape.

Based on the analysis, the report concludes with insights and recommended actions developed in partnership with the Mayor's office in Stockton. To further this work, it will take collective effort and impact in partnership with local workforce stakeholders, including employers. The four recommendations include: 1) Systems Building: Navigate Learning and Training Pipelines, 2) Employer Engagement: Expand Apprenticeship Pathways, 3) Emerging Partnerships: Nurture Workforce & Technology Opportunities, and 4) Worker Supports: Develop an Equity-Oriented Training Fund. These actions will support Stockton's workers and businesses, encourage new investment in people and technology, and generate a more prosperous future for the people of Stockton.

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ACRONYMS

U.S.

BA	Bachelor of Arts
BACEI	Bay Area Council Economic Institute
BS	Bachelor of Science
СА	California
CARE	Cooperative Agencies Resources for Education
CBPR	Center for Business and Policy Research
CoS	City of Stockton
CoSMO	City of Stockton Mayor's Office
CSU	California State University
EOPS	Extended Opportunity Programs and Services
LEHD	Longitudinal Employer- Household Dynamics
MEL	Monitoring, evaluation, and learning
MSA	Metropolitan Statistical Area
O*NET	Occupational Information Network
SJC	San Joaquin County
SOC	Standard Occupational Classification
TDL	Transportation, Distribution and Logistics
TJIF	The James Irvine Foundation

United States



Foreword MAYOR TUBBS

Alongside the University of the Pacific, my office is thrilled to support the release of the "Middle-Skilled Jobs Analysis: Building Ladders to the Future." This practical analysis builds on the overarching strategy laid out in our Workforce Development Action Plan — and does so, recognizing that we need to build both traditional and non-traditional ladders to livingwage jobs in our community.

This report synthesizes the needs and gaps in key sectors, and points us toward opportunities on the horizon – all guided by the data. We know all too well that too many of our residents in Stockton are struggling to make ends meet, even while working two or more jobs. But it doesn't have to be this way. Collectively, we can build the career pathways to middle-skilled jobs that leverage the strengths and assets of our community.

But to do that, we have to start from the premise that economic growth does not have to be zero sum. We can instead build a new, more informed, inclusive economic development.

That work began long before COVID-19, but the pandemic has exposed the added vulnerabilities borne disproportionately by low-wage, front-line workers. The economy, especially now, is not working for too many folks – particularly when paychecks often don't meet the cost of rent. Furthermore, what's considered a "basic need" for families is rapidly increasing barriers to their economic participation as many newly contend with things like food insecurity, child care and internet access.

Now, more than ever, it's clear that we cannot have conversations about building economic mobility for our workforce without addressing deeply entrenched issues of racial and gender equity – particularly as we seek to create opportunity for all.

My hope for and challenge to each of us is that we actively engage with this analysis and seek out bold, unconventional solutions to address the pressing gaps in our ecosystem. We each have a role to play in shepherding middle-skilled opportunities for the workers in our region.



Preface // THE WORLD IN 2020

This report was originally scheduled for release in mid-2020, but a coronavirus had other plans for the world. As cities and counties up and down the state grappled with organizing a coherent response to the COVID-19 pandemic, we paused to observe the impacts in real time. By the summer of 2020, as unemployment numbers spiked in response to large swaths of the economy closing down and small businesses shuttering (some permanently), it became clear that a report of this nature was even more important to help illuminate our path forward.

While we don't discuss the specific impacts of COVID-19 unemployment in this analysis, we acknowledge that it's critical to understand the skill needs and employment gaps of our workforce. As the exact long-term economic impacts of the public health crisis are yet to be understood, we recognize that the analysis in this report can be a useful foundation from which to build and support many of our region's workers. This is particularly important as we seek to highlight and build the bridges and pathways from entry-level jobs to middle-skilled opportunities for our communities.

Framing this Report in Context

Broadly, this report aligns and connects to several local, regional, statewide and national efforts to foster better quality, living-wage jobs. Most significantly, it identifies the key sectors where higherwage opportunities are projected to be in need. This effort then directly builds on the 2018 *Workforce Development Action Plan*¹, its *Skills PACT* framework, the resulting Mayor's Office *Skills Taskforce*, and other local and regional economic development efforts.²

In developing this body of work, we sourced similar efforts in other regions, including the Bay Area Council's Workforce of the Future initiative³, and the Los Angeles region's Center for a Competitive Workforce as models for connecting employereducator partnerships.⁴ Similarly, PolicyLink's Equitable Growth Initiatives and Jobs For the Future's (JFF) Ensuring Equity in Advancement focus area were important in framing the report's recommendations to develop equitable, transformative career opportunities.⁵ This project is also closely aligned to the California Governor's Office of Business and Economic Development Regions Rise Together⁶ approach, and hits some of the key themes outlined in the Inland California Rising summit held in Stockton in 2019.

Stockton: Employment Trends and Regional Context

As the largest city in one of California's fastest-growing counties, Stockton plays a key role in the regional labor market. Figure 1 illustrates the connections of Stockton employers and workers to each other and broader markets. It shows most working Stockton residents have jobs outside the city, and the majority of those with jobs located in Stockton reside elsewhere. Thus, it is important that this analysis consider and integrate regional and inter-regional opportunities for coordination and collaboration even as it focuses on Stockton. All communities in the region can learn from this analysis and have a stake in its success.

NOTE: * = Source 1 and ** = Source 2

SOURCE 1: U.S. Census Bureau, 2017 LEHD Origin-Destination Employment Statistics, and 2017 1-Yr American Community Survey. SOURCE 2: U.S. Census Bureau, 2017 LEHD Origin-Destination Employment Statistics Data (2002-2017). Washington, DC: U.S. Census Bureau, Longitudinal-Employer Household Dynamics Program, accessed on 9/21/2020 at https://lehd.ces.census.gov/data/#lodes. LODES 7.4.

Outside **Stockton** labor force

Work in Stockton but reside outside 61,848**

Work & reside in Stockton 38,116**

Stockton

resident (16+)

labor force

95,232*

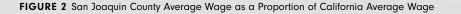
Unemployed resident in Stockton **9,308***

> Working Stockton resident but work outside 68,460**

FIGURE 1 Stockton's Population, Workforce and Labor Force

It is well documented that Stockton and San Joaquin County lag behind the state economically, and an ever-growing share of the population is enduring long commutes to access better-paying job opportunities in the Bay Area. Since the Great Recession, the job growth rate in the Stockton area has outpaced the growth rate in the state of California and the U.S., but most of the new jobs being created pay less than the jobs that were lost or the jobs being created in other regions. Figure 2 illustrates how the average wage of a job in San Joaquin County has declined compared to the average California wage over the past decade. In 2009, the average San Joaquin County job paid 76% of the state average, but this declined to 69% by 2019.

SINCE THE GREAT RECESSION, THE JOB GROWTH RATE HAS OUTPACED THE RATE IN CALIFORNIA, BUT MOST OF THE NEW JOBS BEING CREATED PAY LESS THAN THE JOBS THAT WERE LOST.



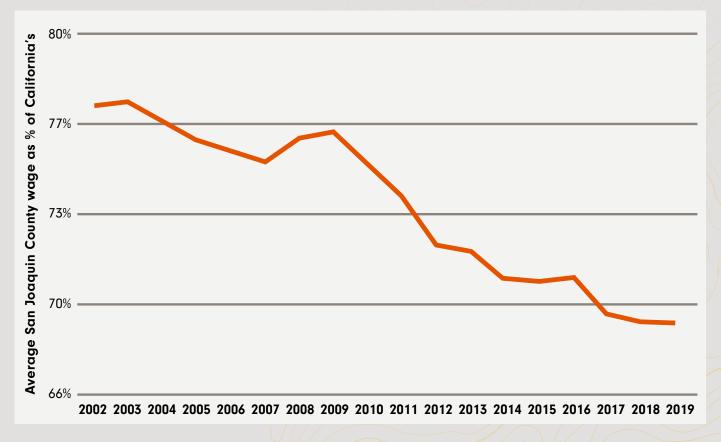


Table 1 shows the real median wage in Stockton has declined 6% since 2010, meaning that the typical job has not kept up with inflation. The data clearly shows the urgent need to develop higher-paying job opportunities in and around Stockton, and to ensure Stockton's workers have the skills needed to access both existing and new opportunities discussed in this analysis.

Middle-skill jobs are an important focus because they usually pay enough to allow workers to support their families, including typical expenses for food, housing and other costs. Table 2 below reports estimates from the MIT Living Wage Calculator that suggest the hourly rate an individual living in San Joaquin County needed to support oneself and a family ranged from \$9.80 to more than \$40 per hour in 2019. Almost all households with children required adults to earn wages above the current Stockton median to achieve a living wage. See Stockton's 2018 Workforce Development Action Plan⁷ for a more detailed analysis.

TABLE 1 Overall Occupational Earnings Context

	STOCKTON MSA	CALIFORNIA	USA
Mean Hourly Wage	\$23.98	\$29.47	\$25.72
% Δ Real Mean Wage 2010 to 2019	-0.7%	3.1%	2.8%
Median Hourly Wage	\$18.31	\$21.24	\$19.14
% Δ Real Median Wage 2010 to 2019	-6.3%	-0.5%	0.3%

SOURCE: US Bureau of Labor Statistics, Annual May, Occupational Employment Statistics & Annual Avg. Consumer Price Index-All Urban.

TABLE 2 San Joaquin County Living Wage (2019)

WAGE PER HOUR	0 CHILDREN	1 CHILD	2 CHILDREN	3 CHILDREN
1 Adult	\$11.84	\$26.87	\$33.08	\$42.93
2 Adults (1 Working)	\$19.59	\$24.78	\$27.53	\$32.71
2 Adults (Both Working)	\$9.80	\$14.90	\$17.98	\$22.28

SOURCE: MIT's Living Wage Calculator. Available at: https://livingwage.mit.edu/counties/06077

1.1 Workforce Trends

In developing an analysis to grow and develop middle-skilled jobs, it is necessary to understand the existing structure and dynamics of Stockton's workforce and its training system. Analysis of key characteristics in each of Stockton's major occupational groups helped provide that context. Using growth, earnings, technological change, economic policy priorities, regional comparative advantage and demographic dynamics as well as industry interests and local training programs, we identified two key subsets of jobs: 1) relatively lower-paying but rapidly growing jobs, and 2) higherpaying occupations in need of skilled workers. Together, these encompass half of all current employment in the Stockton MSA and represent the basic dimensions for workforce advancement within the existing economic structure.

To understand the key features of existing employment in Stockton, we begin with a summary of the employment context and then describe seven major occupational groups that appear to have significant need and potential to be leveraged for further opportunities. They were identified from the 23 major groups contained in the occupational classification system based on an analysis of job growth, earnings, technological change, economic policy priorities, regional comparative advantage and demographic dynamics as well as industry interests and organization. That process led to our identifying the following: Detailed profiles of the selected occupations are included in Appendix A, but this section reports on major features of these two subsets of jobs. Table 3 gives a summary of these occupations' earnings and employment as well as their relative concentration, or location quotient (LQ). Features distinguishing the groups are:

- Earnings inequality is higher in the lower-paying, faster-growing occupations.
- Higher shares of people of color are found in the lower-paying, faster-growing occupations.
- Workers in the higher-paying occupations face lower probabilities of future automation.
- Limited formal training necessary for the lowerpaying jobs facilitates access to employment, but earnings from those jobs makes pursuit of additional qualifications and career advancement a challenge.

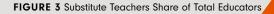
These features highlight the role career pathways can play in advancing social equity. They also illustrate the broader social importance of human capital development.

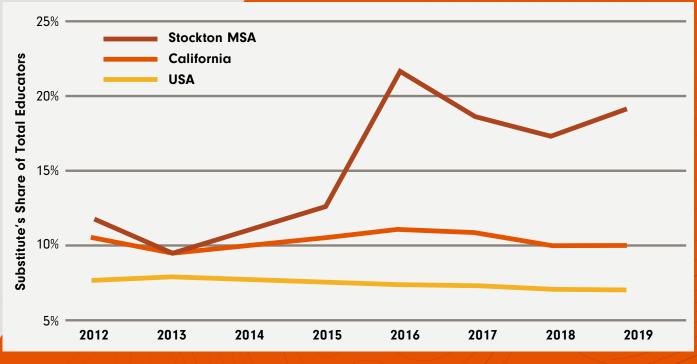
LOWER-PAYING, HIGH-GROWTH OCCUPATIONS

- Healthcare support occupations
- Transportation and material moving occupations
- Production occupations
- Education: Teaching assistants and substitutes

OPPORTUNITIES IN HIGHER-PAYING OCCUPATIONS

- Healthcare practitioners and technical occupations
- Educational instruction and library occupations
- Construction and extraction occupations
- Installation, maintenance and repair occupations





SOURCE: U.S. Bureau of Labor Statistics, Occupational Employment Survey

FIGURE 4 Transportation and Warehousing Industry Employment

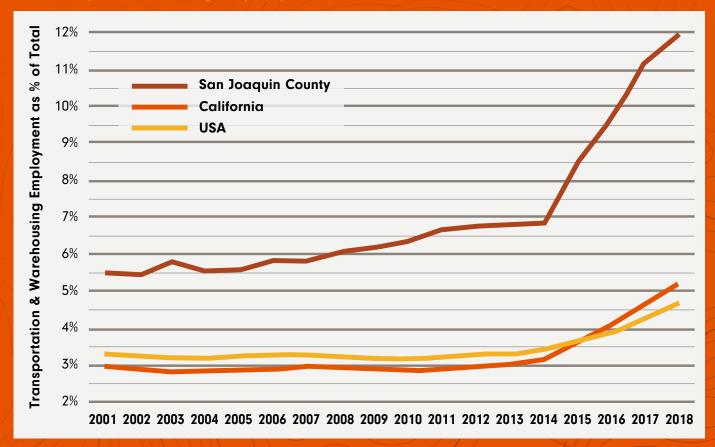
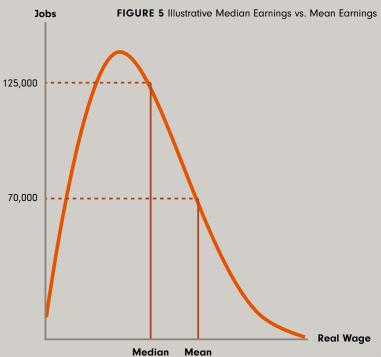


TABLE 3 Comparative Earnings and Employment

	MEDIAN	MEAN	EMPLOYMENT
All Employed	\$18.31	\$23.98	252,850
LOWER-PAYING, HIGH-GROWTH			
Health Support	\$12.77	\$14.66	13,690 LQ: 1.22
Goods Movement	\$16.75	\$18.66	43,310 LQ: 1.91
Production	\$17.37	\$19.32	14,400 LQ: 0.91
Teacher Assistants		\$16.97	3,650 LQ: 1.6
Substitute Teachers		\$20.76	3,900 LQ: 3.9
HIGHER-PAYING, SCARCE SKILLS			
Installation	\$23.74	\$25.09	9,530 LQ: 0.97
Educational	\$25.30*	\$28.83*	12,890** LQ: 1.1**
Construction	\$26.69	\$27.76	10,410 LQ: 0.98
Health Practitioners	\$42.87	\$47.31	13,030 LQ: 0.87

NOTE: *=including TAs and Subs, **=Excl. TAs & Subs

Divergence of median from mean earnings can indicate inequality among workers. Figure 5 illustrates this as it shows median earnings are less than mean when a smaller number of top earners receive a disproportionate share of earnings. When income growth is concentrated at the top, the mean gets larger while the median is not affected. Growing inequality between mean and median earnings has been a feature of the American workforce since the late 1970s and reflects an increasing gap between wage and productivity growth.



1.2 Alignment and Policy Context

When we think about macro-level alignment and the broader policy context, highlighted below are strategic state-level priorities that resulted in local investments. These may be areas for the future growth of middle-skilled job pathways — whether that's functionally (e.g., apprenticeships, higher education, etc.), or regionally (Regions Rise Together, Northern California Megaregion).

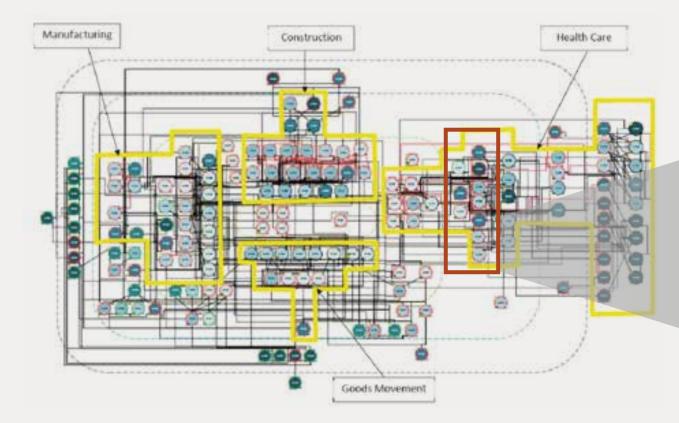
The State of California is actively prioritizing apprenticeship pathways through its California Apprenticeship Initiative. In collaboration with the State of California's Labor & Workforce Development Agency, the California Community College Chancellor's Office and the California Workforce Development Board, the San Joaquin County Workforce Development Board presented the High School Apprenticeship Program model from Switzerland. In partnership with the County Office of Education, San Joaquin County's High School Apprenticeship Program Initiative will uniquely focus on private sector employers, but also include public agencies in San Joaquin County and their Civil Service systems. At the same time, Gov. Gavin Newsom highlighted Stockton as worthy of further investment with the decision to allocate \$2 million to study the feasibility of a new CSU campus in Stockton.

In tandem, the State of California has outlined key strategic investment priorities around climate and housing, particularly in the context of the Central Valley. In 2019, Gov. Newsom signed an executive order to build affordable housing on excess state lands, with Stockton selected as the first partner city. In 2019 and 2020, Stockton received significant public investments for green infrastructure by California Climate Investments – particularly through programs of the Air Resources Board. Stockton Unified School District

MANY OF THESE PUBLIC INVESTMENTS WILL HAVE LONG-TERM IMPLICATIONS FOR FUTURE WORKFORCE TRAINING AND JOB OPPORTUNITIES.

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received \$4.8 million to build clean mobility and electric vehicle access for schools. Several months later, Southwest Stockton was designated as an AB 617 community to improve air quality. Most recently, the City of Stockton was awarded a \$10.8 million Transformative Climate Communities grant to implement climate resilient projects. Many of these public investments will have long-term implications for future workforce training and job opportunities, particularly in career pathways for construction and maintenance.



1.3 Our Unique Approach: Job-Skills Relationship Mapping

Using the skills requested in real-time labor market data, we created a job-skills relationship map (JSRM) for Stockton as pictured in Figure 6. The JSRM illustrates the many ways skills relate to different jobs.⁸ This type of information can be helpful in identifying pathways to support development of middle-skilled job opportunities. In Figure 6, higherskilled jobs are represented by increasing distance from the center. Most of the occupations identified in Sections 2-4 are represented as career clusters outlined in yellow on the JSRM. These clusters contain numerous occupations that are traditionally linked in a linear or sequential ladder to increasingly higherskilled jobs.

Job relationship mapping identifies existing and potential pathways to middle-skilled jobs. While this can include profiles of workers moving from one

employer to another (job-to-job moves), the initial focus is on linkages among skills, occupations and industry structures. By integrating those linkages with local data on employment, job growth, specialization and earnings, we have developed a job-skills relationship map (Figure 6). The map informs the occupational needs and opportunities selected in Sections 2-4 to direct workforce and economic development efforts. It also recognizes skill relationships across jobs and their associated industries, which supports the pursuit of alternative career pathways and highlights skill needs.

Career pathways are not necessarily linear progressions from novice to expert in a specific career cluster. For instance, a warehouse associate in a goods movement company who developed some machine operation skills could be able to take a higher-earning job as an equipment operator at a manufacturer. With additional training, that manufacturing equipment experience could lead to work as a molding operator or tool and die maker with even higher earnings.

However, the job-skills relationship approach recognizes that some occupations also have significant opportunities for movement between pathways to move up to higher-skilled occupations. In this context, an entry-level occupation could get one's career started, but as opportunities or interest in further advancement in that career become limited, its skills relationship would be used like a branch or lattice work to move across to another occupation with better prospects or greater opportunities to use their skills and interests.

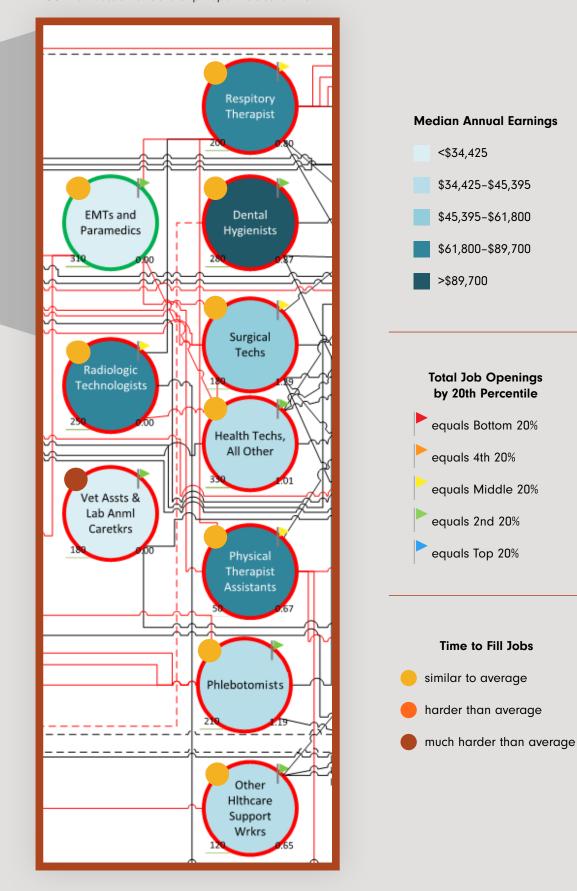


FIGURE 6 A Jobs-Skills Relationship Map of the Stockton MSA

Current Trends: Lower-Paying Occupations, Rapid Growth and High Concentration

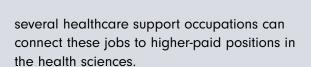
The first subset of current occupations we identify are several that are relatively low paying with significant growth and high employment concentration. It consists of healthcare support occupations, transportation and material moving occupations, production occupations, and teaching assistants and substitute teachers. While further details of each occupation are provided in Appendix A, a few features of the occupations in this subset are worth highlighting.

2

In the instance of transportation and material moving jobs, they reflect a locational, competitive advantage that needs to be leveraged for higher value-added industries. Healthcare support jobs represent a starting point in a career ladder that is closely connected to middle-skilled and high-skilled healthcare practitioner jobs with significant local, regional and inter-regional demand. Production jobs represent an important employment area potentially linking job skills from transportation and material moving jobs and supporting development of catalytic industries that seek to leverage Stockton's locational advantage to transform economic opportunities. Creating a skills ecosystem capable of transformative change also requires foundational support from the education sector, and we thus bring attention to multiple challenges created from the increased prevalence of teaching assistants and substitute teachers in the Stockton area.

2.1 Healthcare Support Occupations

Healthcare support occupations include 19 jobs ranging from home health aides and personal care aides to nursing assistants and pharmacy aides.⁹ In terms of earnings, the median wage in health support occupations is about 23% lower than the median for all jobs.¹⁰ While these jobs have relatively low wages they are forecast to grow significantly during the next decade.¹¹ Despite the low wage and growing nature of these jobs, our Job-Skills Relationship Map, described in Section 1.3 (figure 6), shows that needed skills in



Using an analysis of local occupational employment patterns, we found that healthcare support workers are concentrated in the healthcare and social assistance industry with 85% of these jobs in that industry. Healthcare support jobs tend to engage more women than men with 83% of healthcare support workers being female compared to their composing just 45% of all occupational employment. The racial/ethnic features of these employees show that African Americans form 14% of the occupational group despite

being just 6% of the total employed, and Asians form a further 20% of these workers but are just 15% of the employed.

This occupational group has had several changes in its definition over the last decade that makes analyzing trends in its employment and earning difficult.¹² In the most recent occupational data from 2019, we see that the Stockton MSA has a location quotient of 1.22, indicating that the employment share locally is 1.22 times the share of employment found for the nation as a whole. That level of location quotient suggests a local concentration in this occupational group, which may mean a locational advantage exists. However, given that median earnings in 2019 were just \$12.77 per hour, it is important to identify EMPLOYMENT GROWTH IS FORECAST TO BE AMONG THE HIGHEST RATE FOR ANY OCCUPATIONAL GROUP IN BOTH THE SHORT TERM AND LONG TERM.

SUBSTITUTE COMPENIAND COMPARITIE TO

how these employment opportunities might be leveraged for higher-paying jobs.

Inequality in earnings is near the statewide level with median earnings for the occupational group 13% less than mean earnings. Employment growth in healthcare support occupations is forecast to be among the highest rate for any occupational group in both the short term and long term. Providing training that prepares individuals for these opportunities, but also identifies career pathways to higher-earning middle-skilled jobs, is therefore an important component to this analysis.

2.2 Transportation: Material Moving

Transportation, distribution and logistics jobs include 52 occupations that involve the moving of passengers and products by road, air, rail and water. These jobs include truck drivers, pilots, forklift operators and taxi drivers.¹³ The importance of the goods movement system to Stockton and the regional economy is well established due to the city's central location and extensive transportation infrastructure.¹⁴ However, the significance of that system has dramatically changed in the past decade as Figure 4 illustrates. Factors facilitating this transformation include sustained infrastructure investments, emerging technologies, the local human capital profile and increasing inter-regional integration across Northern California.¹⁵ Given this employment growth, relatively low earnings and significant potential for future replacement through automation, there is a particularly urgent need to build career pathways so that these jobs may be leveraged for higher-skilled, better-paying employment in the future.

These jobs are found in a growing array of industries with 43% of jobs in transportation and warehousing, 15% in retail trade, 13% in manufacturing and 10% in wholesale trade. Men account for 84% of workers in these jobs compared to 55% of the entire workforce. In recent years, technologies have lowered the skills profile of these jobs. Overall, 65% of these jobs are undertaken by individuals

with a high school degree or less as their highest qualification. These workers are also relatively young, with just 14% of employees being 55 years or older.

During the past decade, employment has grown by 89% from nearly 22,000 jobs to more than 41,000. In 2019, the Stockton MSA's location quotient was 1.9, indicating a share of employment 90% higher than that of the nation. This employment growth and high concentration corresponds with the transformation of the area's goods movement system from an important regional center to an inter-regional goods movement hub with similar levels of concentration only seen in a few places across the nation.

While median earnings of \$16.75 per hour in the area are higher than statewide and national levels, the group's mean and median earnings are less than that for all occupations in the Stockton MSA. These then are relatively lower-paid jobs with workers needing to build and develop skills to advance opportunities and generate broader sustainable and inclusive economic benefits. Inequality of earnings within the group is relatively small with median earnings 90% of average in the area.

The rapid growth of these jobs has created employment demand which, even with new automation technologies, has not completely bridged skill gaps. There are several local initiatives to provide these skills. Among these, the TRANSPORTATION, **DISTRIBUTION**, AND LOGISTICS **JOBS INCLUDE 52 OCCUPATIONS** THAT INVOLVE THE MOVING OF **PASSENGERS AND PRODUCTS BY ROAD**, AIR, RAIL AND WATER... THERE IS A PARTICULARLY **URGENT NEED TO BUILD CAREER** PATHWAYS SO THAT THESE JOBS MAY **BE LEVERAGED FOR HIGHER-SKILLED**, **BETTER-PAYING** EMPLOYMENT IN THE FUTURE.

Transportation, Distribution and Logistics (TDL) Partnership, composed of industry partners including the local community college, San Joaquin Delta College, and the adult education alliance, Delta Sierra Adult Education Alliance, is significant. It has launched several pilot training initiatives through this collaborative workforce training initiative and additional programs are currently being developed.¹⁶ Further training to build these employment opportunities is also supported by the statewide apprenticeship initiative.¹⁷

2.3 Production: Manufacturing Products

Production is a group containing some 108 occupations that involve work to manufacture products and equipment. These jobs include assemblers, woodworkers, machinists, welders and food processing workers.¹⁸ Nationally, technological change is anticipated to reduce the future number of production jobs with more processes becoming automated.¹⁹ However, Section 4.2 of this analysis suggests that in Stockton there seems to be an opportunity to grow production jobs, middle-skill jobs and enhance local manufacturing competitiveness.

Analysis of production workers' employment indicates that the majority (61%) of these jobs are in the manufacturing industry, but 8% of these jobs are also in services. The local production workforce employs a larger share of Hispanics (53%) than the county as a whole (39%). It also has more men (71%) than the overall workforce (55%). In terms of educational attainment, 65% of the workers have a high school degree or lower qualification compared to 43% for the overall workforce locally.

Production jobs declined by 11% in the Stockton MSA between 2010 and 2019, but their share of the total workforce was near the national share with a location quotient of 0.91 in 2019. Earnings for production workers did see a moderate rise in both the real mean and median wage from 2010 to 2019. However, the \$17.37 per hour median wage in 2019 makes this occupational group relatively limited in its ability to provide a living wage. Notably, earnings inequality declined by 3% percent between 2010 and 2019 with the median wage forming 90% of the mean wage in 2019.

With the systemic development of local manufacturing and other industries with significant need for production workers, these jobs can provide an important career entry point. Leveraging these jobs for higher earning potential requires building out local skills in other supporting occupations with higher levels of educational and work training. We discuss this in the context of leveraging manufacturing opportunities for catalytic workforce and economic development in Section 4.2.



THE \$17.37 PER HOUR MEDIAN WAGE IN 2019 MAKES THIS OCCUPATIONAL GROUP RELATIVELY LIMITED IN ITS ABILITY TO PROVIDE A LIVING WAGE.



2.4 Education: Teaching Assistants and Substitutes

Teaching and other professional educator jobs are typically good, middle-skilled and high-skilled jobs with earnings that can support a family. It is because of this they are included in aggregate as part of Section 3.2's higher-paying occupations in need of skilled workers subset. However, there is an important distinction with a part of that larger group; namely, substitute teachers and teaching assistants. The earnings of teaching assistants and substitute teachers are about half that of other teachers. In addition, this part of the major occupational group is growing much faster than others. It has more than doubled between 2012 and 2019, growing from around 3,250 to 7,550 jobs (See Table 13 in Appendix A).

While teacher shortages are a national phenomenon, Figure 3 shows that this mobilization of substitute teachers appears to be particularly pronounced locally. Evidence of this can also be seen in the location quotient for substitute teachers, which rose from 1.8 in 2012 to 3.9 in 2019. That gives the Stockton MSA the 10th-highest concentration nationally out of the 355 MSA for which data is available. Faced with similarly severe teacher scarcity, many other regions across California are also resorting to increased utilization of substitute teachers and teaching assistants,²⁰ but not to the same extent as locally. This can be seen when the local share of employment is compared to the statewide share. In terms of substitute teachers, Stockton has 2.6 times the share statewide; and in terms of teaching assistants, Stockton has 1.5 times the statewide share.

Comparing average earnings for substitute teachers and teaching assistants provides another indicator of the particularly strong local demand for substitute



teachers. As shown in Table 12 of Appendix A, teaching assistants earn 82% the earnings of a substitute in the Stockton MSA, but they earn 87% statewide and 91% nationally. This demand for substitute teachers is also noticeable in annual earnings where substitute earnings are 4% higher locally than statewide.

Understanding and addressing the causes for the high numbers of substitute teachers locally needs to be a priority. Research suggests that a prevalence of substitute teachers is associated with significant reduction in student achievement. This is even more important in the context of disadvantaged students where the reduction in achievement is more likely to reduce their motivation to succeed, creating further barriers to finding family-sustaining middle-skilled jobs.²¹ WHILE TEACHER SHORTAGES ARE A NATIONAL PHENOMENON, THIS MOBILIZATION OF SUBSTITUTE TEACHERS APPEARS TO BE PARTICULARLY PRONOUNCED LOCALLY.

Addressing this growing dependence on substitute teachers and assistants is critically important to the development of a successful middle-skilled jobs analysis. This is closely linked to ensuring an adequate supply of new teachers and retention of existing teachers. It is imperative that this is part of efforts to enhance the local education system as we discuss further in Section 3.2.2.

Opportunity Pathways for Key Industries

3

3.1 Current Opportunities: Higher-Paying Occupations in Need of Skilled Workers

The second subset consists of higher-paying occupations with current needs and a potential to grow in the existing economic structure. These occupations have a limited supply of qualified workers, and thus are potential advancement opportunities for lower-paid workers. It consists of installation, maintenance and repair occupations; construction occupations; teachers and professional education occupations; and healthcare practitioners and technical occupations.

Each of these workforce occupations connects to the broader economic and social fabric. Construction, installation, maintenance, and repair jobs help create and support the built environment. Their earnings typically provide a living wage and a high school education is adequate for an entry-level position. Beside career pathways, construction and installation jobs are important to the middle-skilled jobs analysis as many in these jobs play a substantial role in providing residential housing. In addition, the physical infrastructure provided, maintained and repaired by individuals in these jobs facilitates the safety of residents and supports local economic competitiveness. Similarly, teachers are essential in ensuring the education system facilitates opportunities for residents and is a valuable community asset. Healthcare practitioners encompass a range of middle- and high-

FOR MEANINGFUL AND LASTING CHANGE TO OCCUR IN STOCKTON'S MIDDLE-SKILLED JOB OPPORTUNITIES, THERE NEEDS TO BE FUNDAMENTAL DEVELOPMENT OF THE WORKFORCE AND ECONOMIC SYSTEMS.

skilled jobs that are largely undersupplied in Stockton. These healthcare jobs are also crucial for the local health and behavioral health system to be strong and support a healthy community that facilitates access to learning opportunities.

Building middle-skilled job opportunities requires demand for those workers. As we develop some of the catalytic industries that can build such opportunities for workers, we must invest in the fundamentals. The creation of these opportunities will require solid socio-economic foundations. Thus, building key foundational sectors such as healthcare and education will also support transformative growth. This section identifies industries within those two functions and illustrates their development with examples of existing career pathways that may be leveraged for these goals. To that end, it is helpful to review some of the career pathways enabled by key industries – as we articulate movements from entry-level to high-skill, high-wage jobs.

3.2 Middle-Skilled Career Pathways

For meaningful and lasting change to occur in Stockton's middle-skilled job opportunities, there needs to be fundamental development of the workforce and economic systems. Three sectors are identified as being foundations for building additional transformative employment opportunities: 1) healthcare and social assistance, 2) education, 3) construction and repair.



3.2.1 Healthcare and Social Assistance

This sector provides a continuum of healthcare and social assistance that includes behavioral health services. Among its businesses are healthcare practitioners' offices, hospitals and outpatient care centers, community services, home healthcare, residential care facilities and day care facilities. This is a large sector with 2019 annual average employment estimated to be approximately 35,900.²² The sector is also characterized by rapid growth. The most recent long-term industry forecast by the California Employment Development Department projects a compound annual growth rate of 2.8% or some 10,100 jobs.²³ The sector has a diversity of jobs, but healthcare practitioners and technical and healthcare support jobs compose 62% of the sector's total employment.

As a foundational sector, development of the healthcare and social assistance sector is intended to serve two primary purposes: 1) facilitating access to the sector's services and 2) creating demand and training opportunities for the healthcare support and practitioner who work in

the sector. For many lowwage earners, investing in education to enhance their livelihood is often not an independent decision, but involves balancing tradeoffs with childcare, family and parental care as well as medical insurance. In this context, building the healthcare and social

BUILDING THE HEALTHCARE AND SOCIAL ASSISTANCE SECTOR SERVES TO INCREASE ACCESS FOR THE MOST VULNERABLE MEMBERS OF THE STOCKTON COMMUNITY.

assistance sector serves to increase access for the most vulnerable members of the Stockton community. Given the limited resources available to low-wage earners, increasing access to this sector's health and social services is needed if they are to pursue training for a middle-skilled job.

Building a competitive local healthcare and social assistance sector is also necessary to ensure a range of employment and training opportunities are available to health science workers and those looking to pursue a career in them. Since careers involve a diverse spectrum of skills ranging from relatively low educational attainment to those with some of the highest levels, it is a sector that allows for a continuum of worker development. To that end, Stockton can not only build the number of health science jobs to meet needs, but develop and adapt the skills of the existing healthcare workforce to increase career mobility, ensure an ability to participate in a rapidly advancing industry and provide quality services to its residents.

WORKER'S VOICE: HOPE PROGRAM

"I have been employed at Dignity Health-St. Joseph's Medical Center for 15 years in administrative roles, but my dream has always been to be a nurse. For years, getting admitted into a nursing program has been out of reach. But with a recently approved program (by the California Board of Registered Nursing), I was accepted into Helping Our People Elevate (HOPE) and was admitted directly into San Joaquin Delta College's 18-month accelerated registered nursing program. Becoming a nurse in a local program that partners with my employer helps ensure I can continue to work while I pursue my education. Through this opportunity I am finally able to improve the economic conditions for myself and my family."

- Shazia Begum, HOPE Program Participant

HealthForce Partners launched the Helping People Elevate Program (HOPE) to offer local high school students and health care workers a direct pipeline into San Joaquin Delta College's nursing program in partnership with local health care facilities. The HOPE Program has not only become a creative and innovative solution to address the nursing shortage in the Stockton area, it also provides an opportunity to elevate community members equitably and sustainably.

3.2.1.1 Healthcare Practitioners and Technical Occupations

The healthcare practitioners and technical group consists of 61 occupations that promote health and wellness. Healthcare practitioners and technical occupations include registered nurses, physicians and surgeons, as well as dietitians and nutritionists.²⁴ Driven by an aging population with growing healthcare needs and workforce transitions, these occupations in the Stockton MSA are forecast to grow by more than 1,100 jobs annually through 2026.²⁵ With the median wage in healthcare practitioners and technical jobs 134% higher than the median for all occupations, it is crucial in terms of both the health needs of the population and the earnings opportunities of these jobs that they are a focus of the middle-skilled jobs analysis.

Using an analysis of local occupational employment patterns, healthcare practitioners and technical workers' industries of employment were overwhelmingly (78%) concentrated in the healthcare and social assistance industry. Healthcare practitioner jobs tend to engage more women than men with 69% being female compared to their composing just 45% of all occupational employment. The racial/ethnic features of the healthcare practitioner workforce show that Hispanic populations are underrepresented, making up just 17% of these jobs compared to 39% of the total employed. In contrast, while Asians form 15% of the total employed, they have 32% of these jobs.

Between 2010 and 2019, healthcare practitioner employment grew by 20% but its share declined, leading the area's location quotient to decrease from 1.02 to 0.87. In terms of earnings, the 2019 median wage for healthcare practitioners and technical jobs was \$42.87 per hour. Earnings inequality decreased in the decade from 2010 to 2019 with the median wage equaling 91% of the mean wage in 2019. These earnings were significantly higher than national levels with mean local wages 18% higher and median wages 31% higher. The relatively lower level of employment coupled with the higher earnings suggests that there may be a local shortage of skills in these occupations.

An example of a career ladder in healthcare is illustrated in Figure 8. If someone is interested in the healthcare field, but not able to undertake a lengthy study at a college or university, they might begin by pursuing training as a medical assistant. From there, with additional vocational training and completion of a certification exam, they could be able to conduct basic nursing tasks as a licensed vocational nurse (LVN). If they decide to pursue further training in nursing, they could undertake a two-year associate degree in nursing (ADN) that would qualify them for registered nurse (RN) licensure. They could pursue further training to obtain a bachelor's in science in nursing (BSN) through an RN-BSN program. The RN-BSN qualification would allow them to pursue further qualifications at the master's level and higher nursing qualifications such as an advanced practice registered nurse (APRN). To meet the anticipated demand for healthcare jobs, University of the Pacific launched a new School of Health Sciences, its first new school in 30 years. The school will offer new advanced degree programs in nursing, clinical nutrition, social work and occupational therapy, and clinical placement for students at partnering health organizations.

Stockton has some of the greatest health needs in San Joaquin County,²⁶ but specializations and costs in the sector encourage creative pursuit of countywide and regional development initiatives. Coordinating training and collaborative provision of services with other communities offers an opportunity to leverage resources and build a stronger regional health and social services system. An important example of this type of coalition is the HealthForce Partners of Northern San Joaquin Valley. It has developed a partner-based strategy that coordinates resources for development of career pathways in the local healthcare sector.²⁷ This effort was launched in response to several analyses that showed growing demand and a growing shortage of healthcare workers in the San Joaquin Valley, especially in nursing.²⁸ After several years of coalition building, the partnership was launched in 2018 with an initial focus on a pilot pathway to increase the number of registered nurses. This effort sought to decrease disconnect, duplication of efforts and multiple programspecific demands. With significant success aligning investments, coordinating data and leveraging input and funding, the partnership has rapidly grown to include training pathways in half a dozen areas.²⁹

THESE OCCUPATIONS ARE FORECAST TO GROW BY OVER 1,100 JOBS ANNUALLY THROUGH 2026.



FIGURE 7 An illustrative career pathway in healthcare.

	Occupation and Mean Hourly Wage	Education Level	Industry-Valued Certifications, Skills and Competencies, and Example Training Programs
High Skill	Registered Nurse \$55.18	Bachelor's degree, Associate's degree with 5+ years of experience	INDUSTRY-VALUED CERTIFICATIONS Registered Nurse SKILLS AND COMPETENCIES Acute and critical patient care; treatment planning; patient evaluation and monitoring; case management and care plans CURRENT HEALTHFORCE NSJV PROJECTS Helping Our People Elevate (HOPE) program for incumbent workers and high school students at San Joaquin Delta College
Middle Skill	Licensed Practical and Licensed Vocational Nurses \$28.58	Associate's Degree	INDUSTRY-VALUED CERTIFICATIONS Licensed Vocational Nurse/Licensed Practical Nurse SKILLS AND COMPETENCIES Cardiopulmonary resuscitation; patient care; treatment planning; long-term care; rehabilitation; medication administration EXAMPLE TRAINING PROGRAMS Advanced College - Stockton Xavier College - Stockton
Entry Level	Medical Assistant \$18.02	Postsecondary non-degree award	INDUSTRY-VALUED CERTIFICATIONS California Certifying Board for Medical Assistants SKILLS AND COMPETENCIES Vital signs measurement; patient preparation; cleaning; injections; communication skills; basic computer skills EXAMPLE TRAINING PROGRAMS Lincoln Technical Academy/Lodi Adult School

NOTE: All wages are mean hourly wage in the Stockton area.

3.2.2 Educational Instruction & Library Occupations

While Stockton hosts the main campuses of the public community college, San Joaquin Delta College, and the private non-profit university, University of the Pacific, most of these education services jobs are in the region's 14 school districts. Education, training and library service jobs grew from 14,850 jobs in 2012 to 20,440 jobs in 2020, which equates to a compound annual growth rate of 4.7%. In terms of future growth, the most recent longterm occupational forecast by the California Employment Development Department projects growth of some 3,400 jobs or a compound annual growth rate of 1.8%.³⁰ The Educational Services Industry has 44% of total employment in education, training and library jobs.

3.2.2.1 Teachers & Professional Education Occupations

There are 62 occupations in the education, training and library group in addition to the substitute teachers and teaching assistants discussed in Section 2.4. The jobs include a range of teachers from preschool and elementary to secondary and postsecondary as well as instructional coordinators, archivists and librarians.³¹ These jobs are critical components of the community's skills ecosystem and fundamental to building a holistic transformative skills pathway for better middle-skilled jobs. Educational occupations typically require a bachelor's degree or higher, so these workers are relatively high-skilled, particularly given the lower skill structure of the local workforce.

There is a disproportionate share of women in these careers (75%) compared to their overall composition of the workforce (45%). Whites account for 56% of jobs in the group compared to a 36% share of the total workforce. Educational workers also tend to be older with 25% age 55 years and older compared to 19% for the entire local workforce.

Excluding substitutes and teaching assistants who in 2019 composed 37% of the entire occupational group, employment has grown by 12% from 11,600 in 2012 to 12,890 in 2019. Earning opportunities in educational jobs is good with a 2019 median hourly wage of \$25.30. However, both mean and median earnings declined in real terms between 2010 and 2019. While the median wage was 88% of the mean wage in 2019, that had decreased from 94% of the mean wage in 2010. Given the structural need and significant opportunity to expand middle-skilled jobs by growing education, training and library jobs, development of these is focused on in Section 3.1.2 through the educational services.

EDUCATING & TRAINING FUTURE TEACHERS IN STOCKTON

Pacific's Benerd College is the largest teacher credentialing and continuing education school for teachers in the region. Teachers College of San Joaquin also offers teaching and administrative credentialing, career and technical education, and paraprofessional training for educators. THE EDUCATIONAL SERVICES INDUSTRY HAS 44% OF TOTAL EMPLOYMENT IN EDUCATION, TRAINING AND LIBRARY JOBS



FIGURE 8 An illustrative career pathway in education.

	Occupation and Mean Hourly Wage	Education Level	Industry-Valued Certifications, Skills and Competencies, and Example Training Programs
High Skill	School Leader (Principal/Assistant Principal) \$59.70	Master's in Administration	 INDUSTRY-VALUED CERTIFICATIONS Administrative services credential SKILLS AND COMPETENCIES Teaching; writing; communication skills; planning; budgeting; English; special education EXAMPLE TRAINING PROGRAMS Teachers College of San Joaquin, master's degree in education with educational leadership and school development concentration
Middle Skill	Middle School Teacher \$37.65	Bachelor's Degree	 INDUSTRY-VALUED CERTIFICATIONS <pre>Certified Teacher/Teaching Credential</pre> SKILLS AND COMPETENCIES <pre>Teaching; lesson plans; scheduling; progress reports; presentation skills; communication skills; English; teamwork/collaboration</pre> EXAMPLE TRAINING PROGRAMS University of the Pacific, bachelor's degree with single subject secondary education specialization
Entry Level	Teaching Assistant \$16.97	Associate's Degree	 INDUSTRY-VALUED CERTIFICATIONS Teacher Assistant Certificate SKILLS AND COMPETENCIES Teaching; communication skills; physical abilities; organizational skills; English; writing; planning EXAMPLE TRAINING PROGRAMS San Joaquin Delta College, early childhood education, associate of art's degree & associate in science degree

NOTE: All wages are mean hourly wage in the Stockton area.

3.2.3 Construction & Related Occupations

This sector consists of enterprises that are primarily engaged in the construction of buildings or engineering projects such as highways and other infrastructure. While these businesses' activities are frequently managed at a fixed place of business, their construction activities are performed at multiple project sites. Construction is identified as a foundational industry for several reasons. First, Northern California is faced with a housing shortage that is creating a range of socio-economic problems. Ensuring the sector has the capacity to provide the necessary scale of housing at an affordable price will be a critical part of addressing that need. In addition, modern infrastructure that is built and maintained by this sector is a foundation for economic growth and safeguarding communities' health and safety. Lastly, there are many jobs in the construction sector that pay a living wage, and the sector has a range of established trade-based career ladders.

The construction and extraction occupational group consists of 59 occupations that involve the building of structures. Construction and extraction jobs include designing and building structures that range from factories and houses to roads and levees. Jobs within this group include carpenters, plumbers, electricians and iron workers.³² New home construction since the housing crisis of the 2000s has been a slow process for many communities across Northern California and the residential construction labor force is still recovering. Increasing construction jobs is directly related to policy priorities promoting new single-family and multi-family construction to increase housing stocks and efforts to build out low-income housing to combat homelessness.

Analysis of local occupational employment patterns shows construction jobs being overwhelmingly (85%) concentrated in the construction industry. The area's construction workforce has a larger share of Hispanics (62%) in the workforce than are employed in the county as a whole (39%), it also has significantly more men (99%) than the overall workforce (55%). In terms of educational attainment, 71% of construction workers have a high school diploma or lower qualification compared to 43% for the overall workforce.

Nationally, construction jobs are forecast to grow faster than the average for all occupations. Encompassing a period of recovery from the housing crisis between 2010 and 2019, construction jobs have grown at a faster rate in the Stockton MSA than statewide or nationally. In terms of comparative shares, local employment is near national levels with a location quotient of 0.98.

With a 2019 median hourly wage of \$26.69, earnings for construction jobs were 46% higher than the median for all occupations in the Stockton MSA.³³ Earnings inequality is also very low for construction jobs with the median wage at 96% of the average wage.

NATIONALLY, CONSTRUCTION JOBS ARE FORECAST TO GROW FASTER THAN THE AVERAGE FOR ALL OCCUPATIONS.

The construction industry's annual average 2019 employment is estimated to be approximately 24,000.³⁴ In terms of growth, the most recent long-term industry forecast by the California Employment Development Department projects compound annual growth of 2.5% or some 3,100 jobs.³⁵ There are many small establishments in the sector with 57% of all establishments having five or fewer employees. Using an economic model of the San Joaquin County economy, we estimate that 2018 construction revenues exceeded \$2.8 billion.³⁶ Similarly, the sector's value added was over \$1.6 billion with an average annual employee compensation of \$50,170. While it contains several occupations, about 72% of all sector employment is in construction and extraction jobs.

Training of construction and extraction workers can begin at several Stockton-area high schools through their career technical education programs. In addition, there are a range of degree programs in the University of the Pacific's School of Engineering and Computer Science and degree and certificate programs at San Joaquin Delta College. Another important provider of construction and extraction worker training are the registered apprenticeship programs operated by the San Joaquin Building & Construction Trades Council. There are some 23 programs offered through these union apprenticeships, which provide training for construction and extraction jobs as well as many installation and repair jobs.³⁷



FIGURE 9 An illustrative career pathway in construction.

	Occupation and Mean Hourly Wage	Education Level	Industry-Valued Certifications, Skills and Competencies, and Example Training Programs
High Skill	Construction Manager \$54.60	Bachelor's Degree	INDUSTRY-VALUED CERTIFICATIONS General Contractor License SKILLS AND COMPETENCIES Project management; budgeting; scheduling; construction management; quality assurance and control; occupational health and safety EXAMPLE TRAINING PROGRAMS Cal State East Bay construction management bachelors of science
Middle Skill	Electrician \$28.50	Postsecondary non-degree award	INDUSTRY-VALUED CERTIFICATIONS Electrician Certification SKILLS AND COMPETENCIES Electrical work; repair; electrical systems; wiring; hand tools; transformers; schematic diagrams; voitmeters; rigid conduit; circuit breakers EXAMPLE TRAINING PROGRAMS San Joaquin and Calaveras Counties Joint Apprenticeship and Training Committee (JATC) Apprenticeship Program
Entry Level	Electrician's Assistant \$14.70	High School	INDUSTRY-VALUED CERTIFICATIONS Electrician Trainee Registration SKILLS AND COMPETENCIES Wire pulling; electrical experience; conduit bending; insulation; cable cutters; electrical metallic tubing running; power drills EXAMPLE TRAINING PROGRAMS San Joaquin Delta College, electrical technology certificates

NOTE: All wages are mean hourly wage in the Stockton area.

3.2.3.1 Installation, Maintenance and Repair

Installation, maintenance and repair workers include 52 occupations that engage in a variety of jobs ranging from the installation of computerized and mechanical systems to their preventative maintenance, troubleshooting and repair. Specializations include vehicles such as aircraft, buses, trucks and automobiles; equipment like telecommunication, medical, as well as heating and air conditioning; and other parts of our built environment like home appliances, security systems and wind turbines.³⁸ Employment of these individuals takes place across a wide variety of business activities. Automotive repair and maintenance accounts for the highest level of employment at 8% of all jobs in the group, with the next highest level of employment in building equipment contractors at 7.7% of jobs.³⁹ Nationally, installation jobs are forecast to grow near the average for all occupations.⁴⁰

Men account for 98% of workers in these jobs, while whites form 47% of workers in this group compared to their 36% share of the total workforce. Half of these jobs are undertaken by individuals with a high school degree or less as their highest qualification. Employment growth locally was near statewide and national rates with an 18% increase between 2010 and 2019. In terms of comparative shares, local employment is near national levels with a location quotient of 0.97.

Despite declining in real terms between 2010 and 2019, median earnings were still 30% higher than the overall median wage for the Stockton MSA at \$23.74 per hour in 2019. There was also little inequality, with the median wage equaling 95% of the mean wage. These are encouraging features given the predominantly technical training that many jobs in this group require and the relatively scarce higher education attainment levels of the area.

WORKER'S VOICE: RISING SUN CENTER FOR OPPORTUNITY

"I gave knowledge to the community on how to save money and be more energy efficient. I installed products [in households] such as powerstrips, light bulbs, showerheads and aerators. Nobody would have taught me this before Rising Sun. They gave me a big opportunity, and I'm now pursuing a cosmetology certification as an eyelash technician."

Rising Sun runs an annual Climate Careers program every summer that primarily employs youth between the ages of 15 and 22. This is the first job for many of these individuals. Youth are trained to install various energy and water efficiency devices in the homes of Stockton residents who sign up for the program. Residents receive the service and installations at no-cost.

10% employment growth FROM 2010 TO 2019



4 Stockton in the Context of the Megaregion

4.1 Emerging Jobs in Key Industry Opportunities

Developing and supporting the foundational sectors described in Section 3.2 will help ensure inclusive opportunities exist and are accessible to all Stockton's residents, but that alone is not enough. Structural change is needed that integrates workforce and economic development to create higher value-added middle-skilled and high-skilled pathways for Stockton's residents.

The best opportunities for Stockton have Northern California linkages or respond to California challenges and initiatives. Inter-regional dependencies have grown substantially in recent decades and leveraging those, and existing infrastructure, appear to offer a major opportunity to increase demand for middle-skilled and high-skilled jobs as well as increase the supply of skills for those jobs. However, pursuing these growing connections should not preclude efforts to identify other businesses, including those which might already have a local presence. Priority should be placed on identifying businesses that facilitate the knowledge and value intensity of Stockton's skills ecosystem and support institutions for inclusive growth.

Using our workforce and employer assessments we can identify over a half-dozen subsectors in manufacturing where the Stockton MSA has a concentration of employment that suggests a special comparative advantage.⁴¹ Using location-specific business intelligence data from Dun & Bradstreet we cross-referenced those sub-sectors with existing business in the Bay Area and identified over 5,000 businesses. Building on and partnering with other regional workforce and economic development agencies, those businesses represent an important beginning towards building an inter-regional business opportunity network to retain northern California businesses and develop broader capabilities and resilience.

4.2 Industry Examples with Middle-Skill Needs and Opportunities

While numerous industries are likely able to support transformative workforce and economic development, our analysis suggests that manufacturing's favorable job-skills synergies, established capabilities, and infrastructure needs make it a priority sector. Stockton's manufacturing job-skills connectivity to other important occupational clusters became readily apparent in our analysis of occupational trends and potential career ladders and lattices to middle-skilled jobs. Stockton has been a significant manufacturing center since its earliest development. While those capabilities continue to evolve and diversify, many of its activities are strongly connected with surrounding food and agricultural industries.



MANUFACTURING'S FAVORABLE JOB-SKILLS SYNERGIES, ESTABLISHED CAPABILITIES AND INFRASTRUCTURE NEEDS MAKE IT A PRIORITY SECTOR.

> Situated within the crossroads of the north and south Central Valley and the Bay Area, its manufacturing capabilities are enhanced by its locational advantage.

Stockton is uniquely positioned as a manufacturing and logistics hub. It is in a fast-growing area with relatively inexpensive real estate that is the geographic center of the Northern California Megaregion, a 21-county area with a population of more than 12.6 million. It also has an extensive multimodal transportation infrastructure, including four major freeways, a major inland deep water port, a regional airport with rapidly growing air freight service and two national (Class-1) rail lines with major intermodal rail freight terminals.

Combining these job synergies, established capabilities and locational advantages with increasing interregional linkages across the megaregion, it is possible to identify some specific areas of manufacturing to focus initial efforts. These include:

- Established San Francisco Bay Area manufacturers in sub-industries where existing Stockton business in those sub-industries have demonstrated competitiveness,
- Manufactured housing,
- Advanced manufacturing, and
- Additive manufacturing, distribution, and mass customization.

4.2.1 Industrialized Construction / Manufactured Buildings

Growing demand for housing, commercial properties and infrastructure has already been highlighted as being a challenge for most Northern California communities. Industrialized construction is a building system that focuses on increasing the productivity of the construction sector by manufacturing structural components off-site and then transporting and assembling them at the build site.⁴² Stockton and its neighboring communities are well positioned to support and foster this industry given its relatively lower cost structure and proximity to high-value building sites. In fact, several significant off-site construction manufacturers are already operating in the Stockton area.⁴³ Therefore, supporting and building their workforce capabilities is seemingly another important focus area for development. In these efforts, identifying higher value-added components of the business's operations should be a focus to ensure existing advantages are leveraged for additional opportunities.

4.2.2 Advanced Manufacturing

Advanced manufacturing encompasses the breadth of the product or equipment value chain from concept to end-of-life considerations. Using innovative technology, advanced manufacturing involves versatile production methods that deploy resources more efficiently and enable better quality, flexibility and customization. It is characterized by intelligent machines and products frequently linked together to create intelligent systems and networks. Notably, many lower-skill processes are automated which, in the context of the local production worker, will require an increased skills profile through workplace-based skills development, career and technical education programs. In this sense, advanced manufacturing is an integration of manufacturing, information technologies and direct-to-consumer fulfilment activities. Given these findings, Stockton's increased integration with the San Francisco Bay Area should be explored to see what opportunities may be leveraged. Building a local identity focused on supporting these types of businesses may enable local opportunities to be developed closer to the back-office technology from the Bay Area, particularly in new and emergent advanced manufacturing technologies. Identifying skill pathways to leverage and develop Stockton's existing aerospace businesses into additional advanced manufacturing enterprises could be an initial focus of these symbiotic, knowledge-intensive and advanced manufacturing development efforts.44

4.2.3 Additive Manufacturing, Distribution and Mass Customization

Lastly, there may be significant opportunities to build higher-value business activity in Stockton within its transportation and material moving capabilities. Processes and product technologies within these jobs are already being combined into more dynamic, converged business models. Stockton and several of its neighboring communities across the region host many of these enterprises in which the line between manufacturing, wholesale, distribution and consumer sales becomes increasingly blurred.

Growing local productive capabilities with these new business models can facilitate customization of otherwise standard products, meet different customer needs without unique marketing efforts and reduce risk while enhancing value to customers. As these capabilities significantly increase the knowledge intensity of large uniform distribution models, targeted growth of these businesses appears to offer significant opportunities to grow middle-skilled and high-skilled jobs in Stockton.

THERE MAY BE SIGNIFICANT OPPORTUNITIES TO BUILD HIGHER-VALUE BUSINESS ACTIVITY IN STOCKTON WITHIN ITS TRANSPORTATION AND MATERIAL MOVING CAPABILITIES.

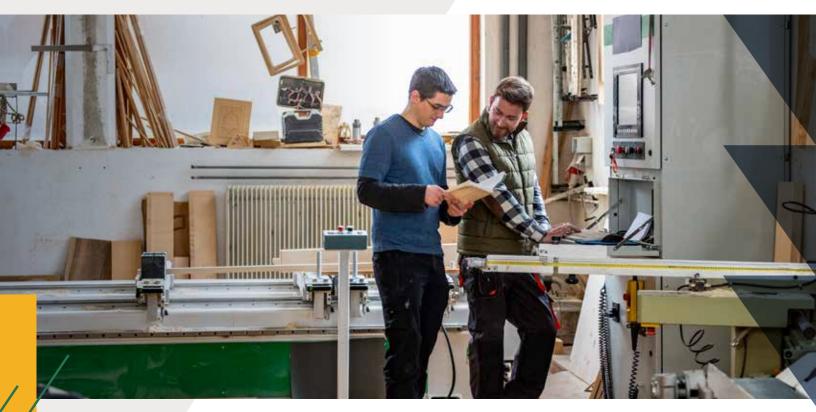


FIGURE 10 An illustrative career pathway in manufacturing.

	Occupation and Mean Hourly Wage	Education Level	Industry-Valued Certifications, Skills and Competencies, and Example Training Programs
High Skill	Industrial Production Manager \$47.78	Bachelor's Degree	 INDUSTRY-VALUED CERTIFICATIONS Project management certification SKILLS AND COMPETENCIES Production management, budgeting, scheduling, occupational health and safety EXAMPLE TRAINING PROGRAMS University of the Pacific's engineering management and business administration bachelor's degrees
Middle Skill	Computer Numerically Controlled (CNC) Tool Operator \$21.58	Postsecondary non-degree award	INDUSTRY-VALUED CERTIFICATIONS CNC Certification SKILLS AND COMPETENCIES Machine operation, machinery, troubleshooting, predictive/ preventative maintenance, grinders EXAMPLE TRAINING PROGRAMS San Joaquin Delta College, Computer Numerical Control Operator/Programmer Certificate and Machining technology Associate in Science
Entry Level	Production Worker \$16.15	High School	INDUSTRY-VALUED CERTIFICATIONS Forklift operator certification SKILLS AND COMPETENCIES Wire pulling; electrical experience; conduit bending; insulation; cable cutters; electrical metallic tubing running; power drills EXAMPLE TRAINING PROGRAMS Central California Safety Council, forklist training - Stockton

NOTE: All wages are mean hourly wage in the Stockton area.



Where Next? Insights from the Analysis

The analysis from the sections above provides an understanding of Stockton's employment trends, the opportunities and gaps of several key industries, a snapshot of career pathways, and Stockton's context within the Megaregion. Most significantly, it establishes a baseline for where Stockton's workforce needs and opportunities sit currently. Using this analysis to ground the workforce needs in the data, we set out to define how the local context of Stockton guides the direction of our future efforts. For example, how can we build on our local assets to support employment and workforce? Where do these assets most support the key industries outlined above? This section addresses those questions through a portfolio of recommendations below that range from connected learning pathways, to sparking emergent opportunities and intentionally investing in equity-oriented outcomes.

HOW CAN WE BUILD ON OUR LOCAL ASSETS TO SUPPORT EMPLOYMENT AND WORKFORCE?

Ultimately, the success of these efforts will depend on how well we prioritize and institutionalize workforce stakeholder coordination in Stockton. We envision a world in which this coordination and problem-solving function is led by employers and serves to inform the county-level Workforce Development Board of new priorities and challenges faced by workforce operators across the region. Stockton has an active collective impact model, enabled through the Reinvent South Stockton Coalition. The Mayor's Office currently serves as the workforce backbone organization, and its Skills Taskforce has to date focused on key stakeholder engagement through strategic alignment and research. Bolstered by the data, we can kickstart this effort towards its evolution as we seek to implement interventions that will address the priorities and gaps that we've pinpointed through this body of work.

5.1 Systems Building: Navigate Learning & Training Pipelines

We know that parts of our information system for workforce development are disconnected or outright broken, whether that pertains to stand-alone learning modules, or certificate and credentialing programs. Much of the system-level success for Stockton's workforce is dependent on relevant information being adequately mapped and coordinated.

WE MUST PRIORITIZE THE INFORMATION SYSTEMS THAT CAN ABLY CONNECT THE CONSTELLATION OF TRAINING OFFERINGS.

Education demonstrates an interesting example; substitute teacher and teaching assistant positions doubled from 2012 to 2019 (Section 2.4). While these positions fill a critical short-term solution for an overall scarcity of teachers in Stockton, there are two important considerations drawn from the section's analysis: 1) their earnings are about half of other teachers, and 2) prevalence of substitute teachers is generally linked to reduced student achievement. Students should be set up for success in the workforce, long before they actually enter it. We can do that while preparing a stable education career pipeline for future teachers.

To that end, education-centered service opportunities are an important aspect of Stockton's workforce ecosystem. Stockton Service Corps (SSC) manages roughly 100 service fellows who provide educational services (tutoring and mentorship of young people, particularly first-generation students, as they navigate high school and transition to and through college). Service opportunities are a critical entry point for first-time job seekers in the education field. These examples demonstrate that we must prioritize the information systems that can ably connect the constellation of training offerings. Without those systems, we risk the creation of learning pipelines that forget to connect to the open jobs they're ostensibly designed to help fill.

Overall, there is a substantial network of workforce development organizations and programs in Stockton. They make up a complex lattice of career pathways that cut across numerous industries and sectors, but the skill paths to these opportunities must be visible particularly as we seek to comprehensively chart the presence of those career paths in given sectors. Over the last two years, Stockton has explored and begun to evaluate a range of prospective partners that seek to help build these information systems. They include a lifelong learning platform (Bendable), a credential registry (Credential Engine), a credential integration tool (Merit) and a range of skills marketplaces (SkillSmart and MyVerse). However our systems are designed and implemented, this is a mission-critical objective that will help our students and workforce to understand exactly how their learning decisions will impact their future job prospects.



5.2 Employer Engagement: Expand Apprenticeship Pathways

For many occupations, the pursuit of higher education has been the traditional pathway to advance economic mobility. However, the cost of education coupled with the opportunity cost of not working can be prohibitive, especially for already low-wage groups. Both pre-apprenticeships and apprenticeships can offer an experience-based model that provides industry exposure and is more accessible than one governed strictly by educational attainment.

The construction and extraction occupational group consists of 59 occupations and is nationally forecasted to be the fastest-growing group (Section 3.2.3). The central career pathway highlighted for this occupation group centers on apprenticeships. Of particular interest is the installation, maintenance and repair occupation group, which consists of 52 occupations and employs individuals across a broad range of activities. That scope demands a flexible model that will allow for applications across many occupations.

One of Stockton's unique apprenticeship programs is that of Regional Transit District's (RTD) electric bus maintenance. In August 2020, RTD graduated its first two apprentices from its three-year program and now has another four enrolled and projected to graduate in 2023. Apprentices have the opportunity to learn about and work on medium-duty electric vehicles. Climate policies and investments highlighted (in Section 1.2) indicate that clean mobility is a priority of Stockton, the Central Valley and the state. As policy continues to move transit infrastructure toward green technologies, apprenticeships such as RTD's will support the implementation of those technologies with a skilled workforce.

Though Stockton does have apprenticeship programs for trades such as electricians and plumbers, it should explore successful apprenticeship programs across multiple industries, including private and public. For

example, the county is starting to lead on this front with a high school apprenticeship program - including a focus on IT and other areas in automotive and health. Still, more can be done. Stockton can leverage both state-supported

59 occupations IN CONSTRUCTION AND EXTRACTION FORECASTED TO BE THE FASTEST GROWING GROUP

apprenticeships and non-traditional pathways as examples of an "Earn & Learn" model, particularly as an avenue for leadership development and talent attraction. In addition to lowering the financial barriers for workers entering an industry, communitybased, nonprofit organizations are already innovating by offering fellowship pathways for many college students and graduates looking to return home to find entry-level and middle-skilled jobs.

5.3 Emerging Partnerships: Nurture Workforce & **Technology Opportunities**

Technology is reshaping jobs old and new. While the analysis doesn't explicitly highlight technology as a growth area for Stockton, it's an underlying driver for key sectors in our region. At the same time, however, we know that many young people in Stockton don't have reliable access to technology training, and even if locally available, many will have to leave the region to find companies hiring for their relevant skill set. We may strengthen our regional competitiveness by building those technology partnerships locally.

CodeStack Academy is Stockton's first immersive and accelerated code school offered by the San Joaquin County Office of Education. To build the capabilities of the tech training ecosystem that CodeStack promotes, the authors of this report spearheaded a joint initiative with CodeStack to develop an interactive online tool with selectable career and skill pathways. Partnering with local tech training institutes will provide real-life project experience for that workforce, while also building the usability of the Jobs-Relationship Mapping tool itself. A secondary use case would be integrating, when available, the inventory of the learning and training pathways (referenced in 5.1). As we explore adjacent opportunities, we're also paying attention to cross-sector workforce collaborations between online-only education institutions like Calbright College and tech ecosystem enablers like Bitwise Industries.

INVESTMENT IN TECHNOLOGY OPPORTUNITIES SERVES BOTH A CAPACITY-BUILDING FUNCTION ACROSS OCCUPATION GROUPS AND IS AN OCCUPATION GROUP OF ITS OWN.

But technology is also colliding with key sectors in Stockton, namely healthcare and additive manufacturing. As the public health crisis wears on, we've identified needs-particularly in healthcare. In the case of contact tracing, we believe there are opportunities to build low-barrier and novel middle-skilled pathways for people with entry-level interest in either healthcare or technology. The analysis also shows us that high-potential industries like additive manufacturing hold the potential to offer new types of opportunities for transportation and material moving. There are ways to build exposure to those areas through local maker spaces like HATCH Workshop or the San Joaquin County Office of Education's FabLab.

Varying levels of technological proficiency increasingly undergird almost all occupations (those mentioned and those not), and we must address this need across existing and emerging opportunities for our workforce. Investment in technology opportunities serves both a capacity-building function across occupation groups and is an occupation group of its own. A broad push for greater local technology [change objectForKey:NSKeyVa proficiency could afford new opportunities to a Stockton workforce that would extView.textAlignment = alignme otherwise have to seek them elsewhere, while also increasing the capabilities of adjacent occupational groups.

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5.4 Worker Supports: Develop Equity-Oriented Training Fund

Stockton is the home to a resilient workforce that has faced numerous and consistent socioeconomic challenges due to historical and racial inequities. There are crucial distinguishing characteristics of low-wage and high-wage occupation groups that reflect those inequities (referenced in Section 1.1).

As a result, people of color are more likely to operate in low-wage work – and this is of particular note while there is an increased threat of automation for this type of work.⁴⁵ In parallel, earnings inequality is higher in low-wage work and barriers to career development are higher for low-wage groups. These are disparities that exist in Stockton's workforce. A compounding effect is the exclusion of people of color from the workforce in the first place. According to census data, Stockton's population is 21% white, and the sum of people identifying as African-American, Asian-American, Hispanic or Other is 79%. Meanwhile, Stockton's workforce is 36% white, and the sum of people identifying as African-American, Asian-American, Hispanic or Other is 64%.

HealthForce Partners provides an example of inclusive and equitable workforce development in the Northern San Joaquin Valley. In Healthcare Practitioners and Technical Occupations, Hispanic populations are underrepresented, comprising only 17% of the occupational group but 39% of total workforce. HealthForce Partners is helping to address this gap by partnering with Futuro to grow the network of credentialed allied healthcare workers. Established by Kaiser Permanente and SEIU-United Healthcare Workers West (SEIU-UHW), Futuro Health offers a low-cost, membership-based online curriculum for Spanish speakers. The English for Allied Health program aims to recruit 1,000 Spanish speakers in California. Using this model as inspiration, we can be intentional about building equity by bringing more people of color into the workforce.

To that end, we must continue to make the economic and professional ladders to high-wage occupations more accessible to people of color. An equity-oriented training fund would lower its bottom rung. At the same time, employer demand for rapid responses on workforce training is only growing. A fund of this nature could provide the early experimental capital to test innovative tools - whether that's for coalition building, new training, alternative financing or creative outreach and marketing - particularly for hard-to-reach communities. In partnership with employers, this fund would remove barriers for low-wage workers looking to access middle-skilled jobs. But scale within the broader ecosystem is an important consideration. If new offerings are determined to be reliable and beneficial for workers, the team would refer them to the county to access state-supported funding to benefit more inclusive pools of workers - whether that's first-time job seekers, young people, veterans or those formerly incarcerated. Stockton's response must be nimble if we are to produce positive workforce development outcomes.

WE KNOW THERE ARE AN INCREDIBLE ARRAY OF PROGRAMS, OFFERINGS AND WORKFORCE ORGANIZATIONS WORKING DILIGENTLY TO EXPAND OPPORTUNITY FOR STOCKTON'S WORKFORCE.

We now have the opportunity to ground that work in evidence, and coordinate even more closely as we build systems, engage employers to build job-specific pathways and invest in worker support.

Acknowledgements

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Endnotes

1 The Workforce Development Action Plan is available at: https://www.pacific.edu/documents/ school-business/BFC/Workforce%20Development%20 Action%20Plan_FINAL.pdf

2 The City of Stockton's (CoS) 2015 Economic Development Strategic Plan as well as San Joaquin County's (SJC) 2019-2024 Comprehensive Economic Development Strategy. Increasing economic integration and linkages within and between regions are also significant factors in the identification of industries to support transformative change and analyses by the Center for Business and Policy Research (CBPR) in its North San Joaquin Valley Index and the Bay Area Council Economic Institute's Northern California Megaregion assessment were drawn upon in framing those forces.

3 For further details see: https://www.bayareacouncil. org/policy/workforce-of-the-future/

4 For further details see: https://competitiveworkforce.la

5 For further details on PolicyLink's Equitable Growth Initiative see: https://www.policylink.org/our-work/ economy/equitable-growth and for information on JFF's Equitable Advancement focus area see: https:// www.jff.org/what-we-do/

6 For further information on the Regions Rise Together initiative see: https://gov-opr.maps.arcgis.com/apps/Cascade/index.html?appid=d056b93e3116413cbd1a d25cc4245221

7 The Workforce Development Action Plan is available at: https://www.pacific.edu/documents/ school-business/BFC/Workforce%20Development%20 Action%20Plan_FINAL.pdf

8 For further details of the Labor Insight analysis tool see: https://www.burning-glass.com/products/labor-insight/

9 For a detailed list of health science occupations, please refer to the O*Net website: https://www.onetonline.org/find/career?c=8&g=Go

10 For a nationwide profile of healthcare occupations, see the US Bureau of Labor Statistics Occupational Outlook Handbook at: https://www.bls.gov/ooh/ healthcare/home.htm

11 Detailed local employment projections are available from the California Employment Development Department at: https://www. labormarketinfo.edd.ca.gov/data/employmentprojections.html

12 Describe occupational changes in health support.

13 For detailed list of transportation, distribution and logistics occupations, please refer to the O*Net website: https://www.onetonline.org/find/ career?c=16&g=Go

14 See, for example: https://www.sjcog.org/249/ Goods-Movement and https://www.sjcog.org/389/ Warehousing-and-Logistics

15 See, for example: https://www.pacific. edu/Documents/school-business/BFC/ TransportationWarehousing_CBPR_2019.pdf

16 https://www.deltacollege.edu/campus-offices/ instruction-and-planning/career-technical-educationand-workforce-development/dsaea

17 https://foundationccc.org/What-We-Do/Workforce-Development/Workforce-Services/California-Apprenticeship-Initiative

18 For detailed list of production occupations, please refer to the O*Net website: https://www.onetonline. org/find/family?f=51&g=Go

19 For a nationwide profile of production occupations, see the US Bureau of Labor Statistics Occupational Outlook Handbook at: https://www.bls.gov/ooh/production/home.htm

20 See, for example, A. Podolsky and L. Sutcher (2016). "California Teacher Shortages: A Persistent Problem," Learning Policy Institute. **21** See for example: Miller, R. T., Murnane, R. J., & Willett, J. B. (2008). Do worker absences affect productivity? The case of teachers. International Labor Review, 147(1), 71–89. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1564-913X.2008.00024.x

22 Employment estimate from the US Bureau of Labor Statistics Quarterly Census of Employment and Wages, 2019 Annual Averages for Private, Federal, State and Local employment. Updated: 2020-01-2 Data available at: https://www.bls.gov/cew/

23 State of California Employment Development Department, Long-Term Industry Employment Projections. Updated: 2019-09-11 Data available at: https://data.edd.ca.gov/browse

24 For a nationwide profile of healthcare occupations, see the US Bureau of Labor Statistics Occupational Outlook Handbook at: https://www.bls.gov/ooh/ healthcare/home.htm

25 California Employment Development Department, long-term Stockton-Lodi MSA occupational projections 2016-2026: https://www.labormarketinfo.edd.ca.gov/ file/occproj/stoc\$occproj.xlsx

26 For further details see: https://www.dignityhealth. org/-/media/cm/media/documents/CHNA/CHNA-St-Josephs-Stockton.ashx?la=en&hash=CA343949D9F647 E7FE0721ACADAD18C8D608D80D

27 For further details see: https://healthforcepartners.net

28 For further details on the registered nurse workforce in the San Joaquin Valley see: https:// healthforce.ucsf.edu/sites/healthforce.ucsf.edu/ files/publication-pdf/UCSF%20Central%20Valley%20 Workforce%20RN%20Forecasts%202018-03-26.pdf

29 Currently, the pathways are: 1) Registered Nursing,
2) Certified Nursing Assistant, 3) Clinical Lab Scientists,
4) Medical Assistants, 5) Veteran transition to "civilian" healthcare careers, and 6) Behavioral health. For details see: https://healthforcepartners.net/

30 State of California Employment Development Department, Long-Term Occupational Employment Projections. Updated: 2019-05-28 Data available at: https://data.edd.ca.gov/browse **31** For detailed list of education, training and library occupations, please refer to the O*Net website: https://www.onetonline.org/find/family?f=25&g=Go

32 For detailed list of construction and extraction occupations, please refer to the O*Net website: https://www.onetonline.org/find/family?f=47&g=Go

33 For a nationwide profile of construction and extraction occupations, see the US Bureau of Labor Statistics Occupational Outlook Handbook at: https://www.bls.gov/ooh/construction-and-extraction/home.htm

34 Employment estimate from the US Bureau of Labor Statistics Quarterly Census of Employment and Wages, 2019 Annual Averages for Private, Federal, State and Local employment. Updated: 2020-01-2 Data available at: https://www.bls.gov/cew/

35 State of California Employment Development Department, Long-Term Industry Employment Projections. Updated: 2019-09-11 Data available at: https://data.edd.ca.gov/browse

36 The model was created using the IMPLAN PRO v.3 economic analysis software and 2018 data.

37 For further information on the San Joaquin County Apprenticeship Programs provided by the San Joaquin Building Trades Council see: https://www. sjbuildingtrades.org/?zone=/unionactive/view_article. cfm&HomeID=514984&page=Union20Apprenticeship2 0Programs

38 For detailed list of installation, maintenance and repair occupations, please refer to the O*Net website: https://www.onetonline.org/find/ family?f=49&g=Go

39 For a nationwide profile of installation, maintenance and repair occupations, see the US Bureau of Labor Statistics Occupational Outlook Handbook at: https://www.bls.gov/ooh/installationmaintenance-and-repair/home.htm

40 For a nationwide profile of installation, maintenance and repair occupations, see the US Bureau of Labor Statistics Occupational Outlook Handbook at: https://www.bls.gov/ooh/installationmaintenance-and-repair/home.htm **41** These manufacturing sub-sectors include the following: NAICS 311 Food manufacturing; NAICS 312 Beverage and tobacco product manufacturing; NAICS 321 Wood product manufacturing; NAICS 322 Paper manufacturing; NAICS 326 Plastics and rubber products manufacturing; NAICS 332 Fabricated metal product manufacturing; NAICS 337 Furniture and related product manufacturing.

42 For further details on the need to advance construction productivity see for example: https://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/reinventing-construction-through-a-productivity-revolution

43 Examples include California Modulars: https:// californiamodulars.com/; Entekra: https://www. entekra.com/; and Katerra: https://www.katerra.com/

44 The City of Stockton's current aerospace development initiative is described on their website at: http://www.stocktongov.com/files/Aerospace.pdf

45 Asare, Martinho-Truswell, Petheram and Rogan (2019) "AI and the Future of Work in Stockton" available at: http://mtubbs.com/wp-content/uploads/2019/11/ Stockton-AI.pdf





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