

Kern Coalition CERF Summary

Regional Plan Part 1

- 1. Regional Summary:** *A summary background of the demographic and socio-economic conditions of the region, highlighting areas with low and high economic diversification and resiliency, as well as any industry trends that impact the regional economy. The regional summary must identify regional inequities, such as economic, health, and environmental inequities, currently facing communities in the region. The regional summary must include the following analysis and discussion:*

Regional Summary Introduction

This Regional Summary will showcase Kern County and its five subregions, East, West, North, South, and Central through three perspectives: first, Economy and Economic Development followed by Climate and Environmental Impacts, offering perspective into climate impacts, and ending with a Public Health Analysis, exploring the factors shaping the health of Kern’s population. Economic, climate, and physical well-being is intrinsically linked in Kern County, shaping the community and thereby this regional summary.

Looking at Kern County through an economic lens, its diverse industries include healthcare, agriculture, oil and gas, renewable energy, aerospace, and more. The main economic drivers in Kern are related to the Utilities and Energy Sectors, Aerospace Advancements, Agriculture, Export-Oriented Trade, and Higher Education Institutions. One of the key factors affecting Kern is the disparity in household incomes and the difficulty in affording basic needs. The lack of secondary education and an inability to acquire higher education is often due to cultural, lingual, or monetary barriers, all which affect earning potential for Kern County’s residents.

Kern experiences economic challenges and disparities for certain demographic groups. Poverty, lower education, and unemployment rates are generally higher for people of color living in Kern compared to their white counterparts.

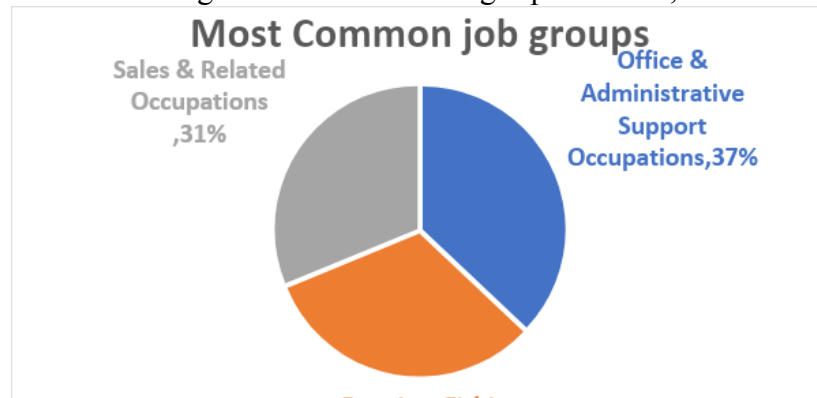
Due to its location within the Central Valley, Kern County contains a lot of similar climate conditions throughout the region. The whole county is susceptible to more frequent and extreme weather events, such as storms, flash floods, and wildfires. These very events could lead to potential property damage, infrastructure disruptions, and human safety risks. Heat waves have also been on the rise in recent years; vulnerable populations including farmworkers, construction workers and others who work outdoors are at risk for heat-related illnesses. Through flash flooding and an increase in moisture, disease-carrying vectors, like mosquitos, are also becoming more prevalent. This has caused disadvantaged communities without adequate healthcare access to be affected by diseases like West Nile and Zika viruses. Over time, heatwaves and extreme weather events can have long lasting impact on Kern’s economy. Drought, soil degradation and loss of soil fertility can contribute to a loss of crops and therefore a loss of income for many people, affecting the economy and leading to population displacement and pressure on housing resources.

With regard to Public Health, Kern County communities suffer from public health disparities as a result of poverty, educational inequities, environmental conditions, and a lack of community features like healthy foods and accessible healthcare. All these factors add up to Kern County ranking as one of the least healthy counties throughout California.

Economy and Economic Development – Kern County Overview

Regional economic industry trends: Agriculture and Energy

Kern County’s economic development opportunities are multi-faceted. These opportunities revolve around the county’s growing opportunities in the healthcare industry, their dominant role in traditional agriculture and oil and gas production, and the new emphasis on renewable energy



sources such as wind, solar, geothermal, and biofuels. The most common job groups, by number of people living in Kern County are Office & Administrative Support Occupations (36,017 people), Farming, Fishing, & Forestry Occupations (30,911 people), and Sales & Related

Occupations (30,359 people). Similarly, the most common employment sectors for those who live in Kern County are Health Care & Social Assistance (40,702 people), Agriculture, Forestry, Fishing & Hunting (40,334 people), and Retail Trade (36,250 people)¹.

Agriculture

Another longstanding industry in Kern is agriculture, an industry that offers continued stability, unlike oil and gas production. Kern is the number one agriculture-producing county in the nation as of 2022², producing potatoes, lettuce, garlic, onions, tomatoes, bell peppers, and 80% of the carrots in the nation³. Kern also produces grapes, citrus fruits, pistachios, almonds, and milk. These crops all account for approximately \$6.3 billion in revenue⁴. As an employment

¹ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#economy>

² KGET; Kern County is the top agricultural producer in nation; October 25, 2022; <https://www.kget.com/news/state-news/kern-county-is-the-top-agricultural-producer-in-nation/#:~:text=Kern%20County%20managed%20to%20edge.%2C%20up%201.47%25%20from%202020>

³ UC Davis Department of Plan Sciences, Vegetable Research & Information Center; Kern County Overview; August 21, 2020; https://vric.ucdavis.edu/virtual_tour/kern.htm#:~:text=Kern%20County%20Overview&text=Other%20important%20Vegetable%20crops%20grown,value%20of%20over%20%24320%20million

⁴ UC Davis Department of Plant Sciences, Vegetable Research & Information Center; Kern County Overview; August 21, 2020; https://vric.ucdavis.edu/virtual_tour/kern.htm#:~:text=Kern%20County%20Overview&text=Other%20important%20Vegetable%20crops%20grown,value%20of%20over%20%24320%20million

sector, it stands as the second largest industry in Kern County with 40,334 employed, behind Health Care & Social Assistance (40,702 employed)⁵.

The median earning for those employed in this sector is \$37,247 per year in Kern⁶ County, which is higher than the national average of \$29,680 per year⁷. While this sector remains steady in terms of employment opportunities, those opportunities are unequal due to the disparities between the occupation's earning potential and the number of opportunities available. Kern County is without current, specific occupational data; however, looking at the data available for the country, it is clear that there are imbalances in terms of earnings. US data indicate that the highest earning occupation in this category, First-Line Supervisor, has a median annual salary of \$54,490⁸ while the lowest earning occupation, Graders/Sorters of Agricultural Products, has median annual earnings of only \$32,550⁹. According to the national data available from the US Bureau of Labor Statistics, there are more First-Line Supervisors (27,670 employed as of 2021) than Graders and Sorters (23,280 employed as of 2021). When considering earnings for the Agricultural sector, it is important to note that the agricultural sector heavily utilizes undocumented workers (approximately 41% of crop farmworkers in 2021 were unauthorized immigrants¹⁰), which may skew the accuracy of the data available for this sector.

In order to determine areas of growth in this sector and the appropriate path to high-wage occupations in agriculture, more data needs to be collected. Additionally, an effort to collect data from unauthorized workers must be made to truly understand the wide array of job quality that agricultural workers have. By leveraging advancements in precision agriculture techniques and agriculture technology, Kern can increase its agricultural productivity and value-added food manufacturing, contributing to economic diversification and job creation in more high-wage occupations.

Carbon Management

Kern is poised for economic growth and diversification through the development of the Carbon Management Industry. The placement of the carbon management site in unincorporated areas presents a unique opportunity to channel economic benefits to those communities, particularly through property tax income that could range from \$24.2 million to \$56.2 million¹¹. Additionally, projected sales tax revenue between \$4.2 million and \$7.9 million can further

⁵ Data USA; Kern County, CA; <https://datausa.io/profile/geo/kern-county-ca#demographics>

⁶ Data USA; Kern County, CA; <https://datausa.io/profile/geo/kern-county-ca#demographics>

⁷ U.S. Bureau of Labor Statistics; Occupational Outlook Handbook: Agricultural Workers. <https://www.bls.gov/ooh/farming-fishing-and-forestry/agricultural-workers.htm#tab-7>

⁸ U.S. Bureau of Labor Statistics; Occupational Employment and Wage Statistics; First-Line Supervisors of Farming, Fishing, and Forestry Workers; May 2022.

<https://www.bls.gov/ooh/farming-fishing-and-forestry/agricultural-workers.htm#tab-7>

⁹ U.S. Bureau of Labor Statistics; Occupational Employment and Wage Statistics; First-Line Supervisors of Farming, Fishing, and Forestry Workers; May 2022.

<https://www.bls.gov/ooh/farming-fishing-and-forestry/agricultural-workers.htm#tab-7>

¹⁰ US Department of Agriculture, Economic Research Service; Farm Labor; August 7, 2023;

<https://www.ers.usda.gov/topics/farm-economy/farm-labor/#legalstatus>

¹¹ Natelson Dale Group, Inc., Analysis of Potential Fiscal and Economic Benefits of Kern County Carbon Management Industry; April 4, 2023;

https://psbweb.co.kern.ca.us/planning/pdfs/cmbp/CMBP_Potential_Fiscal_Economic_Benefit_Analysis.pdf

enhance local economic resources, fostering development and improved living standards in these areas¹².

A key driving force behind these opportunities is potential job creation and payroll generation. The Carbon Management Industry, at full buildout, has the capacity to support between 13,500 and 22,000 permanent jobs directly and indirectly¹³. This would result in a considerable total payroll ranging from \$1.1 billion to \$1.8 billion per year, indicating substantial income distribution within the community¹⁴. With an average annual wage of approximately \$80,000, this industry has the potential to uplift the standard of living for residents while fostering a more diverse and robust economy¹⁵.

The development of the Carbon Management Industry presents a multifaceted economic opportunity for Kern. It has the potential to bring about transformative changes by boosting property tax and sales tax revenues, driving business activity, and creating a substantial number of well-paying jobs. Due to the newness of the industry it is currently not possible to quantify the number of jobs in terms of wages and other benefits. However, looking at Fossil Energy and Carbon Management hiring trends for the U.S. Office of Fossil Energy and Carbon Management, there are a wide variety of occupation types available that range in skill-level. These include Carbon Transportation, Maintenance, various types of Engineering, and Management¹⁶. It is also important to note the potential negative consequences related to this industry. Historically, these facilities pollute and have a negative impact in the communities they are intended to serve.

Energy

The California Energy Research Center (CERC) plays a crucial role in driving economic development in Kern. By facilitating collaboration between CSU Bakersfield faculty, students, and local energy-related industries and agencies, CERC fosters research and innovation in various energy sectors, such as oil, wind, solar, and biofuels¹⁷. Through its collaborative efforts, CERC aims to identify the specific needs and opportunities within these industries, which can lead to advancements in technology, improved efficiency, and cost-effectiveness. As a result, the research and development activities undertaken at CERC can attract new investments and businesses to the region, creating job opportunities and boosting the local economy. Additionally,

¹² Natelson Dale Group, Inc., Analysis of Potential Fiscal and Economic Benefits of Kern County Carbon Management Industry; April 4, 2023;

https://psbweb.co.kern.ca.us/planning/pdfs/cmbp/CMBP_Potential_Fiscal_Economic_Benefit_Analysis.pdf

¹³ Natelson Dale Group, Inc., Analysis of Potential Fiscal and Economic Benefits of Kern County Carbon Management Industry; April 4, 2023;

https://psbweb.co.kern.ca.us/planning/pdfs/cmbp/CMBP_Potential_Fiscal_Economic_Benefit_Analysis.pdf

¹⁴ Natelson Dale Group, Inc., Analysis of Potential Fiscal and Economic Benefits of Kern County Carbon Management Industry; April 4, 2023;

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¹⁵ Natelson Dale Group, Inc., Analysis of Potential Fiscal and Economic Benefits of Kern County Carbon Management Industry; April 4, 2023;

https://psbweb.co.kern.ca.us/planning/pdfs/cmbp/CMBP_Potential_Fiscal_Economic_Benefit_Analysis.pdf

¹⁶ Office of Fossil Energy and Carbon Management; Jobs; 2023; <https://www.energy.gov/fecm/jobs-and-internships>

¹⁷ U.S. Census Bureau; American Community Survey 5-year estimates; 2021; Retrieved from Census Reporter Profile page for East Kern CCD, Kern County, CA;

<http://censusreporter.org/profiles/06000US0602990800-east-kern-ccd-kern-county-ca/>

by focusing on sustainable and renewable energy sources, CERC contributes to the state's broader efforts to transition towards a greener and more environmentally friendly energy landscape, positioning Kern County as a leader in the clean energy sector and attracting further investments and opportunities in this rapidly growing industry.

In 2022, the California Resources Corporation (CRC) pledged \$2.5 million to support various initiatives in Kern County in partnership with Kern Community College District and California State University, Bakersfield¹⁸. This investment represents a significant contribution to the workforce and economic development in the region. By collaborating with the Central Valley Mother Lode Regional Consortium, which works with eight community college districts and fifteen community colleges, the funding can be strategically utilized to promote workforce development and create a skilled workforce tailored to the needs of the local industries. The implementation of the Strong Workforce Program (SWP and K12 SWP) allows for targeted training and education programs that align with the demands of the job market¹⁹. As a result, this initiative can equip individuals with relevant skills and qualifications, making them more employable in the rapidly evolving job market. This investment not only enhances the employability of the local workforce but also strengthens Kern County's overall economic competitiveness, attracting businesses that seek to access a skilled labor pool and contribute to the region's economic growth.

Together, the California Energy Research Center (CERC) and the Central Valley Mother Lode Regional Consortium create a synergistic impact on economic development in Kern County. While CERC focuses on research and innovation in the energy sector, Central/Mother Lode Regional Consortium's investment in workforce development complements these efforts by ensuring that the local population has the necessary skills to benefit from emerging opportunities in the energy and other industries. By aligning research, education, and workforce development, these programs create a favorable environment for economic growth and prosperity in Kern. Furthermore, by promoting sustainable and clean energy solutions, the region can attract investments from environmentally conscious businesses and industries, contributing to both economic development and environmental sustainability. As these programs continue to evolve and expand, Kern is well-positioned to thrive in the ever-changing economic landscape of California.

Higher Education

Kern boasts four institutions of higher education: California State University, Bakersfield and three community colleges: Bakersfield College, Taft College, and Cerro Coso College. In Kern County, there are currently 27,593 people aged 18 to 24 enrolled in college or graduate school, according to Census data²⁰. Despite the prevalence of institutions of higher education, the

¹⁸ Spectrum News 1; Kern County farmers say water infrastructure is needed to curb drought; September 13, 2021; <https://spectrumnews1.com/ca/la-west/environment/2021/09/13/kern-county-farmers-say-water-infrastructure-is-needed-to-curb-drought>

¹⁹ North Kern Water Storage; Fact Sheet: Sustains Farms, Preserves Groundwater; August 2016; <https://www.northkernwsd.com/wp-content/uploads/2018/08/Produced-Water-Fact-Sheet.pdf>

²⁰US Census Bureau; School Enrollment; 2021; <https://data.census.gov/table?t=Education&g=050XX00US06029&tid=ACSST1Y2021.S1401>

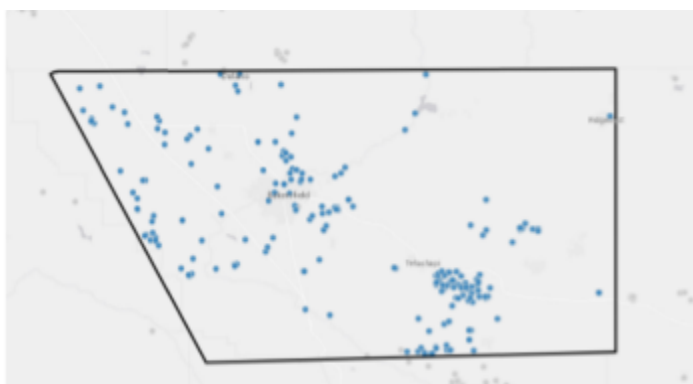
college enrollment rate for residents remains low at 16.10%. This is less than Fresno County, Kern’s peer, which has a college enrollment rate of 20.70%.

In addition to providing educational opportunities to the population, these institutions also provide employment opportunities. Within Educational services, there is a large variety of types of occupations. These include Management, Business, Science, and Arts occupations (59.2% of educational service careers) and Service occupations (approximately 29% of opportunities)²¹. With a wide range in occupations and earning potentials, these colleges provide job opportunities at varying levels of pay and skill.

With more monetary investment in education and an emphasis on the importance of education in the community, the region’s diverse educational offerings could provide a future with a workforce that fuels economic growth across various sectors while earning livable wages.

Oil and Gas

Kern has a longstanding history as the leading producer of oil and gas in California, traditionally accounting for a significant portion of the economic resources within the county. Kern is the top oil and gas producer in the state—producing 95% of the state’s oil and gas²². In 2020, an analysis revealed the oil and gas industry contributed nearly \$200 million to the local economy.²³ Until recently, the Oil & Gas industry accounted for over 15% of property taxes paid in Kern County²⁴.



Map of Power Plants in Kern County, California
California Energy Commission; Resource Area Data; 2023.

While Kern has relied on the revenue attributed to the oil and gas industry, a shift in California’s priorities has threatened this longstanding industry and the careers of those who work in it. As the world increasingly shifts toward sustainability, Kern’s strategic position in the energy sector opens doors for investments, innovation, job creation, and environmental stewardship. Given Kern’s abundant sunlight and wind resources, it has the potential to become a hub for renewable energy generation. This sector can address environmental concerns and attract investments, foster innovation, and create high-quality jobs.

²¹US Census Bureau; American Community Survey; Industry By Occupation for the Civilian Employed Population 16 Years and Over; 2021;

<https://data.census.gov/table?q=graduation+rates&t=Occupation&g=050XX00US06029&tid=ACSST1Y2021.S2405>

²² US Department of the Interior: Bureau of Land Management; About Oil and Gas: California; <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/about/california#:~:text=California%20Oil%20and%20Gas&text=More%20than%2095%25%20of%20all,of%20the%20San%20Joaquin%20Valley>

²³ US Department of the Interior: Bureau of Land Management; About Oil and Gas: California; <https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/about/california#:~:text=California%20Oil%20and%20Gas&text=More%20than%2095%25%20of%20all,of%20the%20San%20Joaquin%20Valley>.

²⁴ Kern County Planning and Natural Resources Department; Kern County Oil and Gas Property Tax Revenue Analysis: County, Cities, Schools, and Special Districts. July 10, 2020.

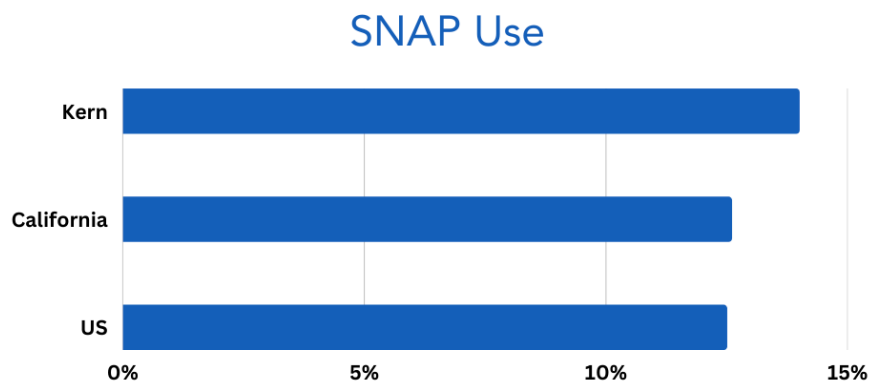
Net Assessed Valuations and Economic Resilience

Kern’s economic development opportunities are also influenced by its impressive Net Assessed Valuations, indicating a robust economic foundation. The significant increase in net assessed value from \$103.5 billion in 2021-22 to an estimated \$115.3 billion in FY 2022-23 (an 11.3% increase) showcases an economy with potential for continued growth²⁵. Despite the county’s historical growth rate of 1.88% per year since 2014, which has been lower than the consumer price index’s 27.65% change over the same period, the consistent upward trend signifies a stable economic environment²⁶.

This trajectory highlights the forces that shape Kern’s economic landscape. The gradual but steady increase in assessed valuation indicates Kern is a county maintaining a balance between economic growth and affordability, fostering an environment conducive to attracting businesses and investment. Kern’s low growth rate compared to other counties in California positions it uniquely as a location with relatively controlled inflationary pressures, making it an attractive destination for businesses seeking long-term stability.

Inequities in economic development across the region.

The economic development disparities in Kern County are evident when analyzing the median household and family incomes. The figures indicate that the average income levels are relatively low, with a median household income of \$58,217 although 45% of residents make less than \$50,000 per year²⁷. This suggests that a significant portion of the population, 45%, may struggle to make ends meet and experience financial insecurity. Data collected on Supplemental



Nutrition Assistance Program (SNAP) benefits shows that approximately 168,932 people in Kern receive SNAP benefits, indicating that many Kern families are unable to afford basic necessities without additional support²⁸. Furthermore, the

earnings disparity based on educational attainment is substantial. Individuals with a bachelor’s

²⁵ ABC News; Kern agriculture brought in a bumper crop of county revenue in 2021; October 11, 2022; <https://www.turnto23.com/news/local-news/kern-agriculture-brought-in-a-bumper-crop-of-county-revenue-in-2021#:~:text=The%20top%20five%20commodity%20crops,to%20%246.3%20billion%20in%20value.>

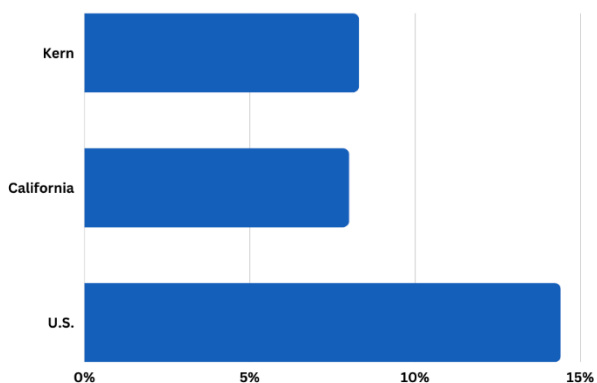
²⁶ CRC; CRC in the Community; <https://www.crc.com/esg/crc-in-the-community/default.aspx>

²⁷ Census Reporter; Kern County CA; data from ACS 2021; <https://censusreporter.org/profiles/05000US06029-kern-county-ca/>

²⁸ U.S. Census Bureau; SNAP Benefits Recipients in Kern County, CA [CBR06029CAA647NCEN]; Retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/CBR06029CAA647NCEN>.

degree earn a median income of \$58,600, which is significantly higher than those with just a high school diploma at \$29,200, and even more so compared to those without a high school diploma, who only earn \$20,000 on average²⁹. This highlights the impact of education on earning potential in Kern, proving that such disparities in educational attainment can have far-reaching implications for the future workforce and economic prospects, potentially perpetuating cycles of poverty. Investing in education and skill development programs may improve economic prospects for Kern’s residents.

Unemployment Rate Comparison



Another concerning aspect of economic inequity in Kern is the high percentage of adults who are out-of-work, which stands at 8.3%³⁰. This figure is lower than the national rate of 14.4% and the state rate of 8%, indicating a higher prevalence of unemployment or underemployment in the county³¹. The fact that nearly 70% of the unemployed Kern residents have a high school diploma or less underscores the link between education levels and employment opportunities³². Addressing this issue requires targeted efforts to

provide job training, re-skilling, and workforce development programs tailored to the needs of the local labor market. By equipping individuals with the necessary skills and qualifications, Kern can work towards reducing unemployment rates and creating a more inclusive and prosperous economy for its residents. Additionally, targeted initiatives could focus on providing support and opportunities to underrepresented and marginalized communities to uplift them and narrow the existing economic disparities in the region.

Therefore, there are several sources and indicators of Kern’s economic inequality. Low median and household family income, a substantial number of individuals receiving SNAP benefits, and low educational attainment collectively indicate a region where many residents are struggling to meet their basic needs. Addressing these inequities is crucial not only for the well-being of individuals and families but also for the overall economic development and growth potential of Kern County. Efforts to provide targeted support, improve educational opportunities, and enhance access to stable employment can help mitigate these disparities and create a more equitable economic landscape.

Major low- and high-wage industries and occupations in the region.

²⁹ First 5 Kern; About Kern County; <https://www.first5kern.org/about-us/about-kern/>

³⁰ State of California; Employment Development Department; Monthly Labor Force Data for Counties; July 2023

³¹ Comprehensive Economic Development Strategy (CEDS); County of Kern, CA; October 31, 2021; <https://www.kerncounty.com/home/showpublisheddocument/7279/637913287179270000>.

³² Comprehensive Economic Development Strategy (CEDS); County of Kern, CA; October 31, 2021; <https://www.kerncounty.com/home/showpublisheddocument/7279/637913287179270000>.

home prices has made homeownership even more challenging, particularly for low-income households.

The vulnerability of noncitizens in the region further compounds the economic disparities. Roughly 12.7% of Kern residents are noncitizens, rendering them susceptible to being undercounted, which can lead to inadequate resource allocation and representation⁴⁵. Additionally, the high proportion of renters in Kern County, constituting 42.8% of the population, presents challenges in accurate demographic counts, which hinders the allocation of resources based on actual population needs⁴⁶.

The overall economic condition in Kern County remains a concern. The poverty rate in the county is 18.6% compared to the state's rate of 12.3%⁴⁷. This data highlights the disparities in income distribution and the challenges faced by a significant portion of the population in Kern County.

Moreover, while Kern's cost of living is not necessarily higher based on basic necessities, it becomes less affordable due to the relatively low earnings of its least-paid workers compared to their essential expenses. This indicates that even when families can afford their basic needs, households may still struggle to achieve financial stability and save for the future.

The concentration of special revenue funds in the Human Services sector underscores the extent of economic disparities in the county. With \$606.5 million allocated public assistance programs such as CalWORKs, CalFresh (SNAP), and Medi-Cal, it's evident that a substantial portion of the population requires support to meet their basic needs⁴⁸. The allocation of funds towards Aging and Adult Services further emphasizes the vulnerabilities faced by segments of the population who require additional assistance due to their age or health conditions⁴⁹.

With regard to the education sector in Kern, significant inequities in economic well-being across Kern County are revealed, showing disparities in income and access to basic needs. A glaring disparity is that, prior to California's Universal Meals implementation, 71.4% of Kern students were on reduced-price meal plans⁵⁰. This statistic points to a high level of poverty and food insecurity among the student population, indicative of a broader economic struggle among families in the area. Such disparities in income can have far-reaching implications for the future workforce and economic prospects of these students, potentially perpetuating cycles of poverty.

Addressing these economic disparities in Kern will require comprehensive efforts, including measures to increase affordable housing options, enhance job opportunities, and provide support to vulnerable populations. It is essential to prioritize initiatives that uplift the

⁴⁵ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

⁴⁶ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

⁴⁷ U.S. Census Bureau; American Community Survey 1-year estimates. Retrieved from Census Reporter Profile page for Kern County, CA; 2021. <http://censusreporter.org/profiles/05000US06029-kern-county-ca/>

⁴⁸ Kern County; Recommended Budget Fiscal Year 2022-2023; August 2022;

<https://www.kerncounty.com/home/showpublisheddocument/9015/638046251015170000>

⁴⁹ Kern County; Recommended Budget Fiscal Year 2022-2023; August 2022;

<https://www.kerncounty.com/home/showpublisheddocument/9015/638046251015170000>

⁵⁰ California Department of Education; Free or Reduced-Price Meal (Student Poverty) Data; 2022-23;

<https://www.cde.ca.gov/ds/ad/documents/frpm2223.xlsx>

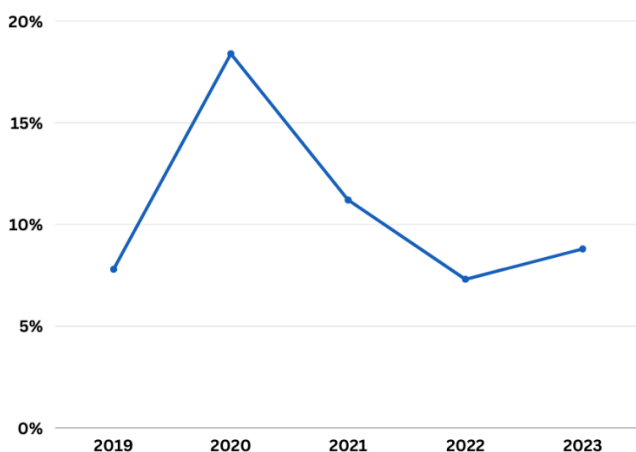
most economically disadvantaged communities to promote inclusive economic growth and improve the overall well-being of residents in the county.

Economic Shocks: Climate and the COVID-19 Pandemic

Kern faces several economic shocks which are shifting the landscape of the economy in the region. First and foremost is the declining oil industry. While Kern has a history of being California’s top energy producer, particularly in terms of oil, the current climate priorities are threatening that industry. As the country moves toward cleaner energy sources, Kern struggles to adjust to these shifting values and priorities.

The state of California implemented recent rulings to not renew fracking or drilling permits, moving away from fossil fuels and those traditional types of energy. As a result, Kern

Unemployment Rates in Kern County by Year



has had to adjust. This has been done through the creation of renewable energy plants as well as the planning of carbon management centers mentioned previously. Another industry facing challenges as a result of climate change is agriculture. While the climate changes and weather patterns shift, the agricultural sector has been impacted by floods as well as by droughts. Though infrastructure has been built in the past to handle the unpredictable weather patterns in California, these historic measures are no longer

meeting the needs of the agricultural suppliers and workers⁵¹. Additionally, the State Water Resources Control Board has contributed to the complications by eliminating surface water supplies for farms in California in 2021⁵². As a result, the agricultural sector must adjust or risk losses in revenue, crops, and jobs over time. Ongoing adaptations to climate changes are necessary to have a thriving economy.

Overall, the COVID-19 pandemic presented various economic challenges for Kern, impacting its budget, workforce, and allocation of funds. While the region managed to withstand some economic shocks better than other comparable areas, there were concerns about the distribution of relief funds and the focus on racial equity and community engagement in the recovery process. Addressing these challenges and ensuring a more equitable recovery will require careful planning and targeted investments in vulnerable communities.

⁵¹ Spectrum News 1; Kern County farmers say water infrastructure is needed to curb drought; September 13, 2021; <https://spectrumnews1.com/ca/la-west/environment/2021/09/13/kern-county-farmers-say-water-infrastructure-is-needed-to-curb-drought>

⁵² Spectrum News 1; Kern County farmers say water infrastructure is needed to curb drought; September 13, 2021; <https://spectrumnews1.com/ca/la-west/environment/2021/09/13/kern-county-farmers-say-water-infrastructure-is-needed-to-curb-drought>

The COVID-19 pandemic delivered a substantial economic shock to Kern County, leaving an indelible impact on its economic landscape. Kern County's 2020 GDP of \$45.2 billion suffered a concerning decrease of 4.89% from the previous year. This was directly attributable to the early and unprecedented effects of the pandemic, which disrupted businesses, supply chains, and consumer behavior, creating a significant decline in economic activity.

As the pandemic swept through Kern County and the nation at large, urgent measures were taken to alleviate the economic strain on the population. Government funding initiatives were swiftly implemented to provide support for individuals and businesses grappling with the sudden economic downturn. These resources were crucial in safeguarding the financial stability of countless households and aiding struggling businesses, helping to prevent an even more severe economic crisis.

However, as the threat of COVID-19 gradually receded, the population that had relied on these pandemic-related resources faced a challenging transition. The funding that had been a lifeline for individuals and businesses began to dwindle, and crucial programs designed to provide economic stability were phased out. This abrupt shift left vulnerable residents grappling with the sudden loss of support that had become essential for their survival during the height of the pandemic.

The estimated cost to the Kern economy due to the COVID-19 recession was approximately \$1.7 billion⁵³. The unemployment rate skyrocketed during the pandemic, shooting from 8% in June 2019 to 17.5% in June 2020, exacerbating economic hardships in the area⁵⁴. While unemployment rates have begun to return to normal, they still remain higher than pre-pandemic rates.

Kern received \$174,853,685 in funds from the American Rescue Plan Act (ARPA) to address the pandemic's impacts⁵⁵. Some of the ARPA money was spent on a Premium Pay Program for eligible county employees, including law enforcement, to compensate them for their work during the pandemic⁵⁶. While acknowledging the importance of compensating frontline workers, the funds would have been beneficial if also directed towards other essential workers, such as grocery shop workers, transit workers, healthcare workers, and agricultural workers⁵⁷.

⁵³ KGET; Pandemic cost Kern economy \$1.7 billion in 2020, but positive signs emerging; 2021; <https://www.kget.com/news/local-news/pandemic-cost-kern-economy-1-7-billion-in-2020-but-positive-signs-emerging/>

⁵⁴ Kern County Network for Children; Important Facts About Kern's Children 2020; 2020; <https://kern.org/kcnc/wp-content/blogs.dir/4/files/sites/21/2020/10/Final-2020-Child-Facts.pdf>

⁵⁵ California Pan-Ethnic Health Network (CPEHN); CPEHN Report Card Kern County 15467; 2022; <https://www.cpehn.org/assets/uploads/2022/05/CPEHN-Report-Card-Kern-County-15467.pdf>

⁵⁶ KGET; Pandemic cost Kern economy \$1.7 billion in 2020, but positive signs emerging; 2021; <https://www.kget.com/news/local-news/pandemic-cost-kern-economy-1-7-billion-in-2020-but-positive-signs-emerging/>

⁵⁷ California Pan-Ethnic Health Network (CPEHN); CPEHN Report Card Kern County 15467; 2022; <https://www.cpehn.org/assets/uploads/2022/05/CPEHN-Report-Card-Kern-County-15467.pdf>

Funding Areas Listed in the Kern County Recovery Plan	Amount Planned to be Allocated⁵⁸
Support for homelessness, behavioral health, and substance use	\$15,000,000
Access to health care services through the Public Hospital	\$10,000,000
Improve educational opportunities through the Countywide Library System	\$2,450,000
Economic stability of tourism industry	\$600,000
Improve job training opportunities	\$150,000
Economic Stability	\$25,836,000
Neighborhood improvements including flood mitigation, water and sewer improvements, and public WiFi	\$41,487,000
Estimated revenue loss to be used for governmental services	To be determined
Funding Areas in 2022 SLFRF Compliance Report	Total Expenditures⁵⁹
Access to health care services - Public Hospital	\$10,000,000.00
Economic Stability - Premium Pay for eligible public employees	\$22,390,123.50
Co-Response Homeless Engagement Teams	\$0.00
Rapid Response	\$0.00
Behavioral Health Mobile Evaluation Team	\$0.00
Non-Congregate Navigation Center	\$0.00
Water, Sewer, and other Infrastructure	\$0.00
Tourism and Economic Recovery	\$0.00
ETR/BAS Job Training	\$27,280.00
ETR Transitional Jobs Program	\$0.00
Economy Recovery	\$0.00
Countywide Investments in Public Parks	\$0.00
Aggregate Disbursements to Individuals	\$22,390,123.50

A significant portion of the ARPA funds was used to keep county services operating despite budget shortfalls caused by the pandemic. These funds were allocated to various areas, including police, detentions, probations, animal control, and park improvements. However, the largest amounts went to stabilization and revenue loss, other areas such as public health emergency impacts, water infrastructure, sewer infrastructure, and public WiFi at county parks⁶⁰.

Despite receiving State and Local Fiscal Recovery Funds (SLFRF), Kern County did not allocate these funds towards COVID-19 response or community-based organizations⁶¹. In fact, community-based organizations that approached the county to assist were turned away in some

⁵⁸ County of Kern Recovery Plan State and Local Fiscal Recovery Funds As of July 31, 2021 Report

⁵⁹ SLFRF Compliance Report - SLT-0545 - P&E Report - 2021 Report Period : March - December 2021

⁶⁰ California Pan-Ethnic Health Network (CPEHN); CPEHN Report Card Kern County 15467; 2022; <https://www.cpehn.org/assets/uploads/2022/05/CPEHN-Report-Card-Kern-County-15467.pdf>

⁶¹ KGET; Pandemic cost Kern economy \$1.7 billion in 2020, but positive signs emerging; 2021; <https://www.kget.com/news/local-news/pandemic-cost-kern-economy-1-7-billion-in-2020-but-positive-signs-emerging/>

instances. Some funds were used for the county’s criminal-legal system, and there was criticism that little emphasis was placed on racial equity and community engagement in the SLFRF implementation.

Although Kern County suffered some economic setbacks, the city of Bakersfield experienced a relatively smaller drop in overall GDP during the pandemic compared to other cities and communities⁶². Additionally, wages grew in Bakersfield during this period, while other regions experienced wage declines. However, specific sectors like agriculture and manufacturing saw a drop in employment, unlike employment in the transportation and warehousing sectors, which grew⁶³.

In this narrative of economic shock, the pandemic’s dual role is evident: it first led to a crisis, prompting swift and necessary interventions to mitigate economic devastation. Yet, as the pandemic’s grip began to loosen, the abrupt cessation of funding and programs created a new set of challenges for the county. The sudden evaporation of social supports that had been lifelines for countless individuals created an economic jolt that required individuals, businesses, and policymakers to adapt to a rapidly changing reality.

Kern’s experience serves as a reminder of the profound impact of external shocks on local economies and communities. The initial pandemic-driven funding played a vital role in cushioning the economic blow, but the subsequent withdrawal of resources also highlighted the importance of designing and implementing policies that provide a bridge to sustained recovery. By reflecting on these experiences, Kern can prepare for future challenges and ensure that its economic resilience and support systems remain strong and adaptable in the face of unforeseen disruptions.

Climate and Environmental Impact – Kern County Overview

Anticipated Climate Impacts and Vulnerability Factors

Kern County, located in California faces vulnerability from a wide range of climate impacts due to its diverse geography and economic activities, as highlighted in the “Climate Change and Health Profile Report of Kern County” by the California Department of Public Health and UC Davis⁶⁴. The report indicates that the region experiences more frequent and intense extreme weather events including storms, flash floods, and wildfires. These events also coincide with rising temperatures due to frequent and prolonged heatwaves. These factors lead to many being at risk of heat-related illness and heat stress, particularly for vulnerable populations like children, elderly, and outdoor workers. In 2010, the report includes data stating that 48,620

⁶² California State University Bakersfield; Kern Economic Journal; 2022;
<https://maindata.csub.edu/sites/maindata.csub.edu/files/2022%20Kern%20Economic%20Journal%20Second%20Quarter.pdf>

⁶³ California State University Bakersfield; Kern Economic Journal; 2022;
<https://maindata.csub.edu/sites/maindata.csub.edu/files/2022%20Kern%20Economic%20Journal%20Second%20Quarter.pdf>

⁶⁴ Climate Change and Health Profile Report – Kern County, 2017,
https://www.cdph.ca.gov/Programs/OHE/CDPH%20Document%20Library/CHPRs/CHPR029Kern_County2-23-17.pdf

outdoor workers were at an “increased risk of heat illness,” emphasizing the importance of acknowledging heat-related challenges within Kern County. In 2017, the Current Employment Statistics program (CES), reported that there were 62,238 agriculture jobs in Kern County, an increase of 21.8% from previous years⁶⁵. With these jobs being prevalent in Kern, it demonstrates that a solid number of individuals are putting themselves at risk in order to make a living.

Along with weather events and rising temperatures, air pollution, climate change, land, and water pollution play a vital role in the vulnerability of Kern County, particularly in disinvested communities. With higher temperatures plaguing Kern, this also worsens air quality issues, particularly in urban areas like Bakersfield, resulting in an increase in respiratory diseases and cardiovascular problems. Just like with the heat-related illnesses, these problems primarily affect vulnerable populations, including children, the elderly, individuals with pre-existing respiratory conditions, low-income communities, and those who spend significant time outdoors. The “Climate Change and Health Profile Report of Kern County,” conducted by the California Department of Public Health and UC Davis (Miriam Barcellona Ingenito, 2014) highlight a range of health issues connected to air quality concerns, such as asthma, allergies, chronic obstructive pulmonary disease (COPD), and other cardiovascular and respiratory diseases.

Climate change does attribute to the rising temperatures spreading throughout Kern, but also influences disease-carrying vectors, such as mosquitoes, presenting a heightened risk of vector-borne diseases like West Nile Virus and Zika Virus. Extreme weather events like flash flooding leading to an increase in moisture, which in turn leads to an increase in disease-carrying vectors such as the aforementioned mosquitoes, flies, ticks, and waterborne pathogens from agricultural runoff. Along with these vectors, climate change patterns also influence vegetation and pollen generation, resulting in elevated levels of allergens and a rise in instances of allergies and respiratory problems, adding more health concerns for residents of Kern County. Climate change also can have an impact on water sources which could then lead to water quality issues and reduced availability. This could significantly impact agriculture and livestock production countywide.

Kern County’s vulnerability to these climate impacts is influenced by several factors. The region’s diverse geography including desert regions and mountainous terrain, exposes different parts of the county to various climate impacts, such as extreme heat, and wildfires. Rapid urbanization, particularly in areas like Bakersfield experiencing significant growth, can exacerbate vulnerabilities, leading to heat islands and poor air quality due to industrial activities and transportation emissions.

Socioeconomic factors also play a role in increasing vulnerability. Low-income communities in Kern County may have limited access to resources and face challenges in coping with the impacts of climate change. Additionally, aging infrastructure may be less resilient to extreme weather events, increasing the risk of damage and disruption during storms and floods. Changes in land use, including agricultural expansion and deforestation, can affect local ecosystems and contribute to climate-related issues such as soil erosion and reduced water availability.

Furthermore, certain communities in Kern County may have limited access to climate-related information and resources, which can hinder their ability to prepare for and respond to climate impacts effectively. The region’s heavy reliance on climate-sensitive

⁶⁵ Employment in the Kern County Oil and Agriculture Sectors, August 2019,

<https://www.kerncog.org/wp-content/uploads/2009/10/Oil-and-Agriculture-Report-Final-Nov-2019.pdf>

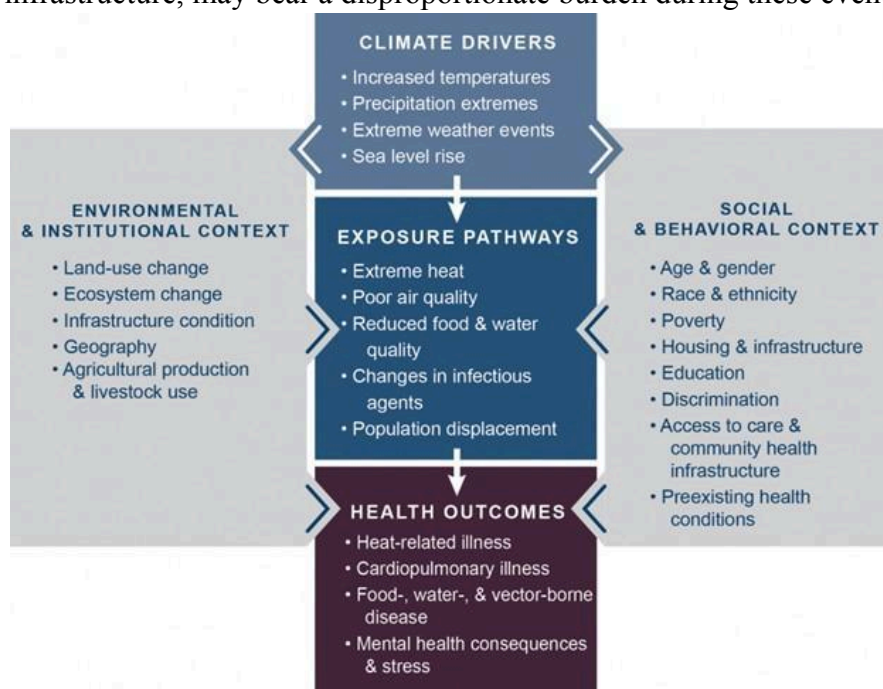
industries, such as agriculture and oil production, also makes it vulnerable to climate impacts on these sectors, such as water scarcity and extreme weather events.

Addressing the anticipated climate impacts and reducing vulnerability in Kern County will require comprehensive and tailored strategies. This includes investing in resilient infrastructure, promoting sustainable land use practices, enhancing community resilience, and ensuring equitable access to resources and information for all residents. By proactively addressing these challenges, Kern County can better protect its communities and resources from the adverse effects of climate change.

Short-term and Long-term Climate Impacts

In Kern County, climate change has both short-term and long-term impacts on its people and economy, with certain communities being disproportionately affected and workers facing increased occupational hazards.

In the short term, Kern County is vulnerable to extreme weather events, such as storms, flash floods, and wildfires, which can lead to property damage, disrupt infrastructure, and pose risks to human safety. Disinvested communities, which often lack adequate resources and infrastructure, may bear a disproportionate burden during these events.⁶⁶ Additionally, heatwaves



are becoming more frequent in the short term, posing health risks and increasing the prevalence of heat-related illnesses and stress, particularly for vulnerable populations like the elderly, children, and outdoor workers. The agricultural sector may also suffer from losses due to changes in precipitation patterns and temperature fluctuations, affecting crop yields and impacting the region’s economy and food security. Moreover,

short-term heatwaves can increase energy demands for cooling, putting stress on energy systems and potentially leading to power outages, which can adversely affect businesses and residents.

Long-term changes in precipitation patterns may lead to water scarcity, impacting agriculture, industries, and residential water supplies, further affecting disinvested communities with limited access to water resources. Moreover, long-term exposure to higher temperatures and

⁶⁶ Impacts on Climate Change Graphic, 2016, https://www.hhs.gov/climate-change-health-equity-environmental-justice/climate-change-health-equity/index.html?utm_source=news-releases-email&utm_medium=email&utm_campaign=august-21-2023

air pollution can lead to increased respiratory and cardiovascular diseases, disproportionately affecting vulnerable communities with limited access to healthcare.

Long-term climate change can also result in more frequent and intense heatwaves and extreme weather events, leading to increased occupational hazards for workers, particularly those in outdoor and manual labor sectors. The economic disruptions caused by these long-term climate impacts can disrupt supply chains, affect businesses, and lead to economic losses, potentially exacerbating inequalities and impacting disinvested communities that rely heavily on specific industries. In some cases, long-term climate impacts can also lead to population displacement and migration, straining social services and increasing pressures on housing and resources in host communities.

Addressing these short-term and long-term impacts in Kern requires a comprehensive approach to climate adaptation and mitigation. Proactive Measures, such as investing in resilient infrastructure, improving healthcare access, implementing sustainable land use practices, and ensuring equitable distribution of resources, can help reduce the disproportionate impacts on disinvested communities and protect workers from occupational hazards. Additionally, collaborative efforts between government, businesses, and communities are crucial in building resilience and fostering a sustainable future for all residents of Kern County in the face of climate change.

Major Sources of Air Pollution, Water Pollution, Toxic, and Hazardous Waste and Their Impacts on Diverse Communities

In Kern County, there are several major sources of air pollution, water pollution, toxic, and hazardous waste, which can have significant impacts on diverse communities, particularly disinvested communities.

Air pollution in Kern County is primarily generated from transportation, including vehicle emissions from cars, trucks, and buses, especially in urban areas and along major highways. Diesel trucks are a major factor in the release of air pollution contaminants and in an article from Bakersfield.com News⁶⁷, a warehouse project located in Bakersfield, off of highway 99, would be attributed to a rise in diesel truck activity. A resident comment states that, “We have very high asthma rates, not just in the Central Valley but in that area specifically,” going on to mention high amounts of traffic related to trucks coming from other, nearby, distribution centers. The diesel trucks emit nitrogen oxide (NOx) that can cause respiratory problems like asthma, bronchitis, lung irritation and lung cancer. Also emitted from the trucks are diesel particulate matter which are soot particles comprised of carbon, ash, metallic abrasion particles, sulfates, and silicates. These matter particles can enter a person’s respiratory system and lead to cancer, heart disease, respiratory illness, and death. For these types of facilities and other hazardous waste disposal locations, they are historically set up near disadvantaged communities and predominantly Latinx or composed of people of color.

Agricultural activities, including the use of fertilizers, pesticides, and other chemicals, also contribute to air pollution, releasing volatile organic compounds (VOCs) and particulate matter, which can affect air quality in rural areas. Disadvantaged communities near agricultural fields may face respiratory problems and other health concerns due to exposure. Kern County is

⁶⁷ Residents Express Concerns Over Proposed Warehouse Project, Article, 2022, https://www.bakersfield.com/news/residents-express-concerns-over-proposed-warehouse-project/article_5e47c67a-5bc9-11ed-9c70-2b2bd80722dd.html

also a major oil-producing region, and oil and gas operations, including drilling, refining, and flaring, release various air pollutants such as volatile organic compounds (VOCs) and nitrogen oxides (NOx). These emissions can have adverse health effects on nearby communities, particularly disinvested neighborhoods located close to oil wells and refineries.

Water pollution in Kern County is mainly influenced by agricultural runoff, as the extensive agriculture in the region involves the use of fertilizers, pesticides, and other chemicals that can contaminate surface and groundwater through runoff. Disinvested communities near agricultural areas may face challenges in accessing clean and safe drinking water. Additionally, oil and gas operations can also contribute to water pollution through spills, leaks, and improper disposal of wastewater, posing risks to disinvested communities relying on groundwater sources for drinking water. Industrial facilities in Kern County may discharge pollutants into nearby water bodies, affecting water quality. Disadvantaged communities located near industrial sites may experience higher exposure to water pollutants and limited access to clean water resources.

Just like water and air pollution, toxic and hazardous waste is very prominent in Kern County through industrial and hazardous waste sites. Since Kern is widely known for oil production, there are a lot of fracking wells near schools and disadvantaged communities. In an article by Yessenia Funes in 2016⁶⁸, it is stated that there are ten school districts that are less than a mile from fracking wells. These fracking wells emit Hydrogen Sulfide, Benzene, and Xylene, all of which are very harmful to residential health. In a quote from Madeline Stano, attorney with CRPE (Center on Race, Poverty, and the Environment), she says, “It’s really heartbreaking to see young students of color on the playground surrounded by all sorts of industries that are polluting them and influencing what’s happening in their lives without anyone choosing or planning that.” (Funes, 2016). The impacts of these sources of pollution are not evenly distributed, with disinvested communities often facing a disproportionate burden of environmental hazards. They may experience higher rates of respiratory illnesses, cardiovascular diseases, and other health problems due to exposure to air and water pollution. Additionally, limited access to clean water and healthcare resources can further exacerbate health disparities in these communities.

Addressing the environmental challenges faced by disinvested communities in Kern County requires comprehensive efforts, including stricter regulations, better enforcement of environmental laws, community engagement, and investment in sustainable and equitable development practices. By promoting environmental justice and ensuring fair access to resources, Kern County can work towards a healthier and more sustainable future for all its residents.

Major Sources of Greenhouse Gas (GHG) Emissions and Their Impacts on Diverse Communities

In Kern County, greenhouse gas (GHG) emissions primarily stem from various industries, such as, agriculture, oil and gas operations, and transportation, each with significant impacts on diverse communities, particularly disinvested communities, exacerbating existing environmental and health disparities.

In agriculture’s case, there are many ways greenhouse gases are produced during production. When certain fertilizers and manure are utilized in agriculture, methane (CH₄) and

⁶⁸ For Some California Kids, Back-to-School Means Back To The Dangers of Fracking Wells, Article, 2016
<https://colorlines.com/article/some-california-kids-back-school-means-back-dangers-fracking-wells/>

nitrous oxide (N₂O), potent greenhouse gases, are released into the atmosphere and surrounding communities. These communities are low-income, disinvested communities that thrive from agriculture production at the cost of utilizing these fertilizers for crop production. With livestock, it is a very similar situation as manure originates from these dairies which release methane based on the number of animals housed at that location. There is no exact data for these operations as they originate in smaller communities and the difficulty in producing data surrounding greenhouse gas emissions from small agriculture producers.

For oil and gas production, it is mentioned above that fracking wells emit Hydrogen Sulfide, Benzene, and Xylene. Drilling, producing, and distributing oil and fuels have a huge impact on the communities surrounding these locations. As mentioned with the greenhouse gases from agriculture, it is difficult to track the exact amount of greenhouse gases produced from oil drilling and production as a lot of oil and fuel is produced daily.

Lastly, transportation is another major greenhouse gas producer as a lot of vehicles and trucks still produce fumes from vehicle exhaust pipes. These exhausts release carbon dioxide (CO₂) and other harmful pollutants into the atmosphere. Big traffic lanes and transport routes are going to release the most greenhouse gases, though obtaining data on how much is released is unavailable. The effects of these greenhouse gas emissions released and pollutants that follow, lead to very similar health effects that have been touched upon in other sections.

Assessing Impacts on Targeted Emerging Industries, Sectors, or Clusters and Hindrances to Proposed Plans and Transition Strategies

Climate change and the environmental impacts have had a plethora of effects on emerging industries. One of the key sectors affected is agriculture and food production, which play a crucial role in the county's economy. With climate change and extreme weather situations, crop yields and productivity are affected by water scarcity, increased temperatures, and evolving precipitation patterns. Drought also reduces water availability that affects crop yield, that leads to economic losses for farmers and producers.

Another impact that is present through emerging industries revolve around Carbon Capture and Storage, that alludes to technology that reduces carbon dioxide (CO₂) emissions from the source before being released into the atmosphere. The carbon dioxide is transported and stored in storage underground. This technology is in its early planning stages for Kern County and faces opposition from environmental justice organizations due to negative effects, such as potential leaks that would allow for captured CO₂ to be released and damage the environment and human health. There are also energy challenges that are connected with carbon capture as it would require the implementation of energy sources in order to capture and transport CO₂ for storage.

Public Health Analysis – Kern County Overview

A snapshot of the impacts of current economic trends and climate change effects on public health.

Discussed in-depth in the Economy and Economic Development section of this report, Kern County's economic base has been rooted in traditional agriculture and oil and gas production, all of which contribute to public health challenges as detailed below. A shift in California's energy priorities, however, has threatened this longstanding oil and gas industry and Kern Community College District

Kern High Road Transition Collaborative

the livelihood of those who work in it. A new emphasis on renewable energy sources such as wind, solar, geothermal, and biofuels may bring about a viable economic replacement industry as well as new trends in agriculture which may ameliorate some of the health challenges caused by these traditional industries.

As detailed earlier in the Climate and Environmental Impact section of this report, Kern County is also challenged by climate change-related conditions that affect public health. Climate change has brought about higher temperatures and shifting weather patterns which can result in higher rates of heat-related illnesses and heat stress, respiratory diseases and cardiovascular problems which disproportionately affect vulnerable populations, including children, the elderly, individuals with pre-existing respiratory conditions, low-income communities, and those who work outdoors.

Climate change also influences the distribution of vector-borne diseases like West Nile virus and Zika virus. Changing climate patterns also affect pollen production, leading to higher allergen levels and increased cases of allergies and respiratory issues.

Kern County also faces significant challenges related to air pollution and its concomitant adverse health effects such as asthma, allergies, chronic obstructive pulmonary disease, and other cardiovascular and respiratory diseases. These are further detailed in the analysis below.

Socioeconomic factors also play a role in increasing vulnerability, especially in disinvested areas like those in the South Kern subregion where health issues such as diabetes, obesity and high blood pressure are some of the highest in the five subregions. High-poverty communities such as Arvin and Lamont in South Kern have limited access to resources, and experience barriers of language and poor education levels, which, in turn, lead residents to have limited access to climate-related information and resources which can hinder their ability to prepare for and respond to climate impacts effectively.

Compounding these statistics is the fact that Kern County is the third largest county (8,132.2 sq. mi.) in California; transportation is a barrier to healthcare access for those who live outside the immediate Bakersfield Metro area. Vehicle ownership is important particularly when it comes to transport to hospitals, a high percentage of which are in the Central Kern area with only a few in outlying areas in Tehachapi and Ridgecrest (East Kern subregion) and Delano (North Kern subregion). Residents living outside the Bakersfield Metro area must seek healthcare services outside their community; however, many residents of these outlying communities live in poverty and are more likely to live in a household without a vehicle.

Main causes of chronic illnesses and diseases in the region, relative to economic, climate and environmental factors

Data from County Health Rankings and Roadmaps 2023⁶⁹ ranks Kern County as one of the least healthy counties in California, both in terms of health outcomes and health factors. Health outcomes represent how healthy a county is currently, in terms of both length and quality of life. Health factors are those things that can be modified to *improve* the length and quality of life. Out of 58 California counties, Kern County ranked 53 out of 58 for health outcomes and 56 out of 58 for health factors.

Overall, the life expectancy of residents in Kern County is 76.5 years as compared to 81.0 years in California. County Health Rankings and Roadmaps cites years of potential life lost

⁶⁹ County Health Rankings and Roadmaps, 2023,

<https://www.countyhealthrankings.org/explore-health-rankings/california/kern?year=2023>

before age 75 as 8,700 years (per 100,000 population); the statistics for years of potential life lost are even more dismal when disaggregated by race.

Kern County Years of Potential Life Lost Rate/Premature Death⁷⁰	
American Indian & Alaska Native	9,800
Asian	4,900
Black	15,400
Hispanic	7,300
White	10,100

Many chronic illnesses in Kern County can be traced back to health factors such as obesity and smoking, others are a product of poverty and environment. County Health Rankings and Roadmaps data cites the leading causes of death for people under 75 in Kern County, in order, as: cancer, heart disease, accidents, diabetes mellitus and chronic lower respiratory diseases such as chronic obstructive pulmonary disease (COPD)—which includes emphysema and chronic bronchitis—as well as asthma, pulmonary hypertension, and occupational lung diseases.

The Centers for Disease Control and Prevention indicates risk factors for preventable cancers include cigarette smoking and secondhand smoke exposure, exposure to sun, being overweight or obese, excessive alcohol use and infectious diseases, including hepatitis B and C and STDs such as human papillomavirus. 2023 County Health Rankings data indicates that 15% of adults in Kern County smoke, 18% drink excessively and 35% of adults are obese. Being overweight or obese is associated with at least 13 types of cancer, including uterine cancer, breast cancer, and colorectal cancer.

Obesity and smoking go hand-in-hand as risk factors for other chronic illnesses such as heart disease and diabetes. In fact, high obesity rates result in more people suffering from heart disease and diabetes in Kern County than any other part of the state. According to County Health Rankings 2023, two-thirds (35%) of Kern County residents are overweight or obese. The age-adjusted death rate from diabetes for Kern County was 37.8 deaths per 100,000 population during the 2017-2019 three-year period; California averaged 21.3 deaths per 100,000 population for the same time period. Severe obesity further increases the risk of coronary heart disease and end-stage renal disease as well.

Additionally, Kern County and specifically, Bakersfield, have the worst air quality in the entire *country* due to particle pollution — a continuing trend for at least three consecutive years. In its 2023 State of the Air report, the American Lung Association reported Kern County’s largest city was at the top of the list for two out of three factors considered for ranking the most polluted cities in the nation: 1) year-round particle pollution and 2) short-term particle pollution, the amount of daily and annual particulate matter filling the air. Pollution from Particulate Matter (PM) 2.5 (tiny inhalable particles or droplets in the air that are 2.5 microns or less in width) can be deadly and causes nearly 48,000 premature deaths in the United States every year, according to the report.⁷¹ The American Lung Association also cites air pollution as a contributing factor to

⁷⁰ CDC WONDER: Premature Mortality includes all deaths among people under age 75, age-adjusted, 2018-2020

⁷¹ American Lung Association, State of the Air Report 2023,
<https://www.lung.org/research/sota/city-rankings/most-polluted-cities>

asthma, cardiovascular disease, lung cancer, developmental damage, increased susceptibility to infection, especially in children, worsened COPD symptoms, lung tissue swelling and irritation, low infant birth weight, and shortness of breath. Wildfires, vehicular exhaust, agriculture burning, pesticides and dust all contribute to the unhealthy state of Kern County air.

Most chronic illnesses such as COPD, diabetes and heart disease need considerable management to improve length and quality of life. Poverty and lack of access to adequate healthcare are barriers to proper disease management; impoverished people often lack insurance and transportation and face barriers such as language skills and poor education to effectively manage a chronic illness. Unmet social needs, environmental factors, and barriers to accessing health care contribute to worse health outcomes for those people with lower incomes.

A simple lack of providers is also a barrier to care for many in Kern County. 2023 County Health Rankings and Roadmaps data indicates Patient-to-Primary Care Provider ratios are high in Kern County, 2,020:1, when compared to California at 1,230:1. Community Health Centers, a health care safety net for low income and impoverished residents, are fewer in number in the East and West Kern Subregions. There are no hospitals in the West and South Kern Subregions. A similar lack of dentists (1,970:1) and mental health providers (440:1) further impacts access to health care in Kern County.

A closer look at provider shortages must also include the fact that the majority of physicians in California are White. According to California's Department of Health Care Access and Information's (HCAI) 2020 report, 39% of healthcare professionals are White as compared to 19% Hispanic, 21% Asian, 5% Black, and 13% multiracial. Racial and cultural differences between healthcare providers and patients can affect communication which can impact both clinicians' and patients' decisions with regard to treatment and care management. Language accessibility is also a factor in barriers to care. Language barriers keep patients from accurately describing their symptoms and providers from explaining diagnoses in a way that is understood by the patient and the patient's family, potentially leading to poorer health outcomes and hospital readmissions.

Health disparities across the region, disaggregated by race, gender, and other demographics

Health disparities result from multiple factors, including poverty, educational inequalities, environmental conditions (e.g., poor air quality), community features (e.g., inadequate access to healthy foods, limited personal support systems and violence), inadequate access to health care (e.g., lack of providers, lack of transportation), language barriers and individual and behavioral factors. While the effects of COVID-19 have slowed, the recent pandemic underscored these disparities vividly. As of June 30, 2023, 2,654 Kern County residents died as a result of COVID. Over half who died were Hispanic, and 35.7% were white. While making up 5.1% of the county population, African Americans were 5.7% of the deaths.⁷²

Kern County is the third largest county (8,132.2 sq. mi.) in California, and home to nearly 916,108 people. While approximately 583,873 people live in the Central Kern Subregion, which includes the Metro Bakersfield area, 10.2% of the population lives in low population density areas (500 or fewer people per square mile and less than 2,500 people). Roughly 56.8% of the

⁷² Kern Department of Public Health Services, June 30, 2023, https://www.bakersfield.com/news/2-years-later-kern-releases-updated-covid-19-death-data/article_823d2158-42da-11ee-84da-7bf9da5cb61f.html

population is Hispanic, 30.4% are White, 6.3% are Black, and 5.8% are Asian. Approximately 19.4% of persons in Kern County live in poverty; the per capita income in the past 12 months was \$25,328, with a median household income of \$58,824. (All data, US Census Poverty Status in the Past 12 Months, 2021 5-year Estimates). While the overall Kern County poverty rate of 19.4% is higher than that of California at 12.3%, the story is told even more clearly when poverty is disaggregated by race, sex and other demographics.

Kern County, Poverty by Race

Race	Total	Poverty Rate
Black	42,584	31.6%
Native Hawaiian/Pacific Islander	1,103	23.1%
American Indian/Alaska Native alone	8,439	23.0%
Some other race alone	120,515	22.1%
Hispanic	479,886	22.0%
Two or more races	110,570	18.4%
Asian	43,087	14.4%
White	284,920	14.0%

US Census, Poverty Status in the Past 12 Months, Table S1701, 2021, 5-Year Estimates

Kern County, Poverty by Sex

Sex	Total	Poverty Rate
Male	438,607	17.3%
Female	436,219	21.4%

US Census, Poverty Status in the Past 12 Months, Table S1701, 2021, 5-Year Estimates

Kern County, Educational Attainment by Race

Race	Less than High School Graduate
Hispanic	38.5%
Some other race alone	37.9%
Two or more races	30.5%
American Indian/Alaska Native alone	26.6%
Black	15.9%
Asian	15.0%

Native Hawaiian/Pacific Islander	11.9%
White	9.5%

US Census, Educational Attainment, Table S1501, 2021, 5-Year Estimates

Kern County, Poverty Rate for the Population 25 years and Older for Whom Poverty Status is Determined by Educational Attainment Level

Educational Attainment Level	Poverty Rate
Less than high school graduate	26.4%
High school graduate (includes equivalency)	17.2%
Some college or associate's degree	13.5%
Bachelor's degree or higher	5.1%

US Census, Educational Attainment, Table S1501, 2021, 5-Year Estimates

Kern County, Median earnings in the past 12 months of Population 25 Years+ with Earnings

Educational Attainment Level	Male Median Earnings	Female Median Earnings
Less than high school graduate	\$29,044	\$17,036
High school graduate (includes equivalency)	\$38,272	\$23,914
Some college or associate's degree	\$50,241	\$30,034
Bachelor's degree or higher	\$74,238	\$52,887

US Census, Educational Attainment, Table S1501, 2021, 5-Year Estimates

The subregions of Kern County range widely in educational attainment from the East Kern Subregion where 14.11% of residents over 25 years have less than a high school education to the South Kern Subregion where 45.0% of the residents over 25 have less than a high school education. Not surprisingly, the population in poverty is at its second lowest percentage in the East Kern Subregion (15.97%) and at its highest in the South Kern Subregion (28.77%).

Poverty also leads to food insecurity which contributes to a myriad of health problems. Feeding America is a non-profit organization that tracks food insecurity and food costs for the overall population and children in every county, congressional district, and state. 2021 Feeding America data⁷³ indicates 10.5% of California overall experiences food insecurity. However, 13.0% of Kern County overall suffers from food insecurity, and 18.2% of Kern County children under 18 experience food insecurity. Racial disparities are even more telling. In Kern County, 25.0% of Black residents are food insecure; 15.0% of Hispanic residents are food insecure and 9.0% of Whites are food insecure.

⁷³ Feeding America, 2021 data, <https://map.feedingamerica.org/county/2021/overall/california/county/kern>

Additionally, the cost of groceries has risen faster than most Kern County wages. In 2019, the average meal cost was \$2.98; in 2020, that cost rose to \$3.19. The latest data from 2021 Feeding America data indicates that the average cost of a meal has risen to \$3.57, a 10.6% increase from the previous year.⁷⁴

More Kern County residents are using local resources in response to food insecurity as well. Community Action Partnership of Kern (CAPK) reported an increase in the number of residents using the local food bank. During the peak times of the pandemic, CAPK experienced a substantial increase in pounds of food distributed reaching 33 million pounds countywide compared to approximately 19 million to 23 million pounds of food distributed annually.

In addition to poverty, educational attainment, lack of healthcare providers, and environmental factors such as poor air quality, other disparities experienced by Kern County residents include social factors such as violence. Violence undermines people's health by causing injury, disability, and premature death. Violence itself is a social determinant of health, a result of the environments in which people live and children grow. Those who grow up and live in environments with limited social, educational, and economic opportunities and where violence, racism, and community and domestic instability are daily stressors are at increased risk of multiple forms of violence.⁷⁵

County Health Rankings 2023 cites the homicide rate of Kern County as 11 deaths per 100,000 population, more than twice the California homicide rate. Kern County deaths due to suicide were 14 per 100,000 population; the state rate was 10 per 100,000. In Kern County, there were 14 firearm-related deaths per 100,000 people; the California rate was eight firearm-related deaths per 100,000 people. In Kern County, there were 17 deaths from motor vehicle crashes per 100,000 people; the California state rate was 10 per 100,000 people. Additionally, in Kern County, 32% of motor vehicle crash deaths involved alcohol as opposed to 28% in California overall.

Statistics from the California Employment Development Department (EDD) indicate approximately 7% of Kern County residents over 18 and under 65 are employed as farm workers (2019), an occupation long-known for linkage to health problems due to exertion, sun exposure, dehydration, dust and chemical contact and on-the-job injuries and accidents. A study released in February 2023 by UC Merced's Community and Labor Center included new survey data which suggests farmworkers face significant medical problems, are largely without access to health care, often endure unfair treatment at work and struggle with mental health issues while existing mostly outside the social safety net.⁷⁶ Barriers that keep farmworkers from accessing health care include poverty, lack of insurance, concern about citizenship status, language differences, lack of convenient transportation and limited hours of operation at health clinics.

The survey results indicated only 49% of farmworker respondents had health insurance, only 43% had visited a doctor in the prior 12 months and only 35% had visited a dentist in the

⁷⁴ Ibid.

⁷⁵ California Department of Public Health, Violence and Social Determinants of Health, Report: *Preventing Violence in California, Volume 1: The Role of Public Health (PDF)*, 2017, <https://www.cdph.ca.gov/Programs/CCDC/DCDC/SACB/CDPH%20Document%20Library/Violence%20Prevention%20Initiative/VPI%20Volume%201%20Version%201%2024%2019%20ADA.pdf>

⁷⁶ Farmworker Health in California, 2023, https://clc.ucmerced.edu/sites/clc.ucmerced.edu/files/page/documents/fwhs_report_2.2.2383.pdf?_gl=1*_1csmv7x*_ga*ODU00TMymS4xNjIxMDEyNTE0*_ga_TSE2LSBDQZ*MTY5MTAxMjUxNC4xLjAuMTY5MTAxMjUxNC42MC4wLiA

same time frame. Only 16% had ever been screened for skin cancer and only 21% had been screened for colorectal cancer. Between one-third and one-half reported having a chronic medical condition—diabetes (20%) hypertension (19%) and anxiety (10%) were the most common.

Subregion Analysis

Economy and Economic Development – East Kern County

The East Kern subregion encompasses a range of incorporated cities like California City, Ridgecrest, and Tehachapi, alongside unincorporated communities like Boron, Mojave, and Rosamond. Notably, this subregion hosts significant establishments such as the Mojave Air and Space Port, Edwards Air Force Base, and China Lake Naval Air Weapons Station (NAWS). Within its boundaries, the East Kern subregion encompasses both Disadvantaged Communities and Low-Income Community census tracts, highlighting the diverse socioeconomic landscape within this area.

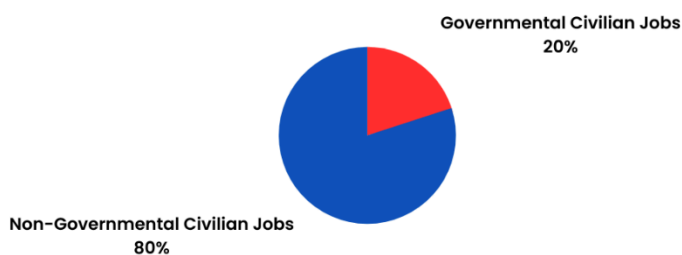
Economic development opportunities and forces in the region

Renewable energy (part of the Energy, Construction, and Utilities sector) presents a major force in Kern’s economic landscape. The county’s abundant wind resources have led to the installation of more wind turbines than any other county in the entire nation, positioning Kern as a frontrunner in wind energy generation. Moreover, with its solar projects the region is capitalizing on its sunny climate to attract investments and create jobs in the solar energy sector. Kern’s ongoing biofuels innovations also signify opportunities for additional revenue and career prospects.

In addition to wind and solar energy, the county’s potential in geothermal energy is worth noting. The Coso Geothermal Project signifies Kern’s commitment to harnessing its geothermal resources for energy generation⁷⁷. Geothermal energy is a clean and renewable source with the capacity to power communities and industries while minimizing environmental impacts. Not only will this shift toward cleaner energy and away from traditional oil and gas will likely lead to more long-term stability in Kern’s local economy, it will also benefit the local population by decreasing air pollutants and their associated health risks. Additionally, Kern’s commitment to geothermal power is likely to attract further investments, stimulate job creation, and bolster Kern as an environmentally conscious hub for energy development.

The military sector is a dominant force in East Kern’s economy, with a primary focus on the China Lake area. East Kern’s economy heavily relies on federal government civilian jobs, constituting more than 21% of total employment in the region, significantly higher than the national average of about 2%⁷⁸. NAWS China Lake and Edwards Air Force Base (AFB) are key contributors to

KERN
GOVERNMENTAL CIVILIAN JOBS VS NON-GOVERNMENTAL CIVILIAN JOBS



ounty;

, Ca; 2017;

the local economy, both in terms of real estate assets and employment opportunities. Due to the sensitive nature of military data and therefore its inaccessibility, the precise number of jobs, types of occupations, and their associated wages in the East Kern subregion or Kern County. However less granular data is available which shows the number of Active Duty Members by area (i.e., Europe, East Asia, and the Western Hemisphere). This data shows that as of 2021, there were 1,169,045 Active Duty Members located in the United States⁷⁹.

The military installations' substantial impact is reflected in East Kern's economic structure. The region's economy is historically tied to defense-related activities, with these installations controlling vast amounts of real estate assets and employing thousands of full-time personnel⁸⁰. The facilities encompass a diverse range of occupations, including active duty military personnel, reserve personnel, and civilian workers⁸¹. Beyond the installations themselves, there's an additional economic ecosystem formed by suppliers and service providers located in proximity to these military bases.

In comparison to the Greater Antelope Valley, in the Mojave area of Kern County, where retail trade, healthcare, and lodging, restaurants, and bars dominate the employment landscape, East Kern has historically relied on military-related employment. The presence of military installations like NAWS China Lake and Edwards AFB significantly influences the distribution of industries and occupations within East Kern County. Consequently, high-wage opportunities in East Kern are often tied to defense-related positions and the technical expertise required for the military's operations.

However, despite the military sector's dominance, other industries also play a role in East Kern's economy. While the military provides high-wage jobs, the region also experiences employment in industries such as retail, healthcare, and logistics, albeit to a lesser extent than the Greater Antelope Valley. Agriculture, food manufacturing, and business services are leading industry sectors in the broader North, Central, and South Kern subregions, but their prominence might differ in East Kern due to the preeminence of the military sector.

The Mojave Inland Port, set to be operational by 2024, also presents a compelling economic development opportunity driven by private investment, a strategically advantageous location, and substantial potential for job creation and revenue generation⁸². Unlike traditional projects reliant on public funding, the port's funding from private sources ensures its independence from public financial resources, enhancing its sustainability. Mojave's proximity to a fully operational 24/7 airport equipped with a heavy-lift aircraft runway, coupled with its accessibility through two major highways, positions it as a highly connected logistical hub encompassing 402 acres of land⁸³.

⁷⁹Department of Defense; 2021 Demographics: Profile of the Military Community; 2021; <https://download.militaryonesource.mil/12038/MOS/Reports/2021-demographics-report.pdf>

⁸⁰Kern County; Economic Diversification Plan, East Kern County, Ca; 2017; <https://www.kerncounty.com/home/showdocument?id=1692>

⁸¹Kern County; Economic Diversification Plan, East Kern County, Ca; 2017; <https://www.kerncounty.com/home/showdocument?id=1692>

⁸² Kern Sol News; MOJAVE INLAND PORT WILL BRING THOUSANDS OF JOBS TO KERN COUNTY; 2022; <https://southkernsol.org/2022/08/22/mojave-inland-port-will-bring-thousands-of-jobs-to-kern-county/>

⁸³ Kern Sol News; MOJAVE INLAND PORT WILL BRING THOUSANDS OF JOBS TO KERN COUNTY; 2022; <https://southkernsol.org/2022/08/22/mojave-inland-port-will-bring-thousands-of-jobs-to-kern-county/>

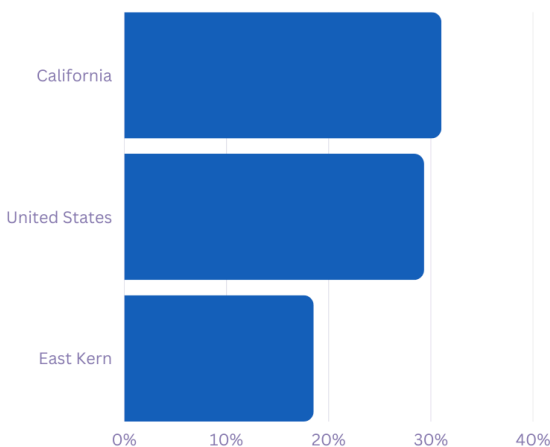
Central to this opportunity is the significant impact on job creation and labor income. The establishment of the Mojave Inland Port is projected to generate around 3,000 new jobs in Kern County, contributing nearly \$230 million to labor income⁸⁴. As the port is in the early stages of creation, it is not possible to determine the exact occupations available or their wages. Beyond local benefits, the port’s operations are expected to have a substantial economic ripple effect, generating over \$500 million in annual economic impact for California as a whole and contributing approximately \$80 million in tax revenues⁸⁵.

While other industries like retail, healthcare, and logistics still contribute to the local economy, their significance might be overshadowed by the aerospace, renewable energy, and military sector’s pervasive impact on employment and economic dynamics in East Kern.

Inequities in economic development across the region.

The disparities in unemployment rates within East Kern are evident. Areas like Ridgecrest and Tehachapi exhibit lower unemployment rates than the state of California. In contrast, Boron, California City, and Mojave grapple with unemployment levels that are more than double the state average. This discrepancy in job opportunities highlights the uneven

Higher Education Rates



distribution of economic growth and job creation, perpetuating inequalities among communities.

The education system in Kern County also plays a role in perpetuating economic inequalities. The substantial financial assistance provided through the Title I Every Child Succeeds Act, aimed at aiding schools with high numbers of low-income children, underscores the prevalence of economic hardship in the region⁸⁶. While this support is vital, it also reflects the persistence of socioeconomic disparities and the need for targeted interventions.

The inequities in economic development across East Kern County are deeply rooted and multifaceted. Education, employment opportunities, immigration status, and housing all intersect to create a landscape where certain communities face greater challenges in achieving economic prosperity. Addressing these disparities requires a comprehensive approach that encompasses education reform, targeted job creation, and initiatives to accurately account for the diverse

⁸⁴ Kern Sol News; MOJAVE INLAND PORT WILL BRING THOUSANDS OF JOBS TO KERN COUNTY; 2022; <https://southkernsol.org/2022/08/22/mojave-inland-port-will-bring-thousands-of-jobs-to-kern-county/>

⁸⁵ Kern Sol News; MOJAVE INLAND PORT WILL BRING THOUSANDS OF JOBS TO KERN COUNTY; 2022; <https://southkernsol.org/2022/08/22/mojave-inland-port-will-bring-thousands-of-jobs-to-kern-county/>

⁸⁶ Ed Data; Kern County; 2022; <http://www.ed-data.org/county/Kern>

population. Without such efforts, the inequalities are likely to persist, perpetuating the cycle of disadvantage for many residents in East Kern County.

Major low- and high- wage industries and occupations in the region.

In East Kern, the economic landscape is characterized by a unique mix of industries that significantly impact both low and high-wage sectors. While agriculture, food manufacturing, business services, healthcare, retail, and logistics dominate the North, Central, and South Kern subregions, the presence of military installations, particularly in the China Lake area, is a defining feature of East Kern’s economy.

Low-wage industries in East Kern often revolve around agriculture and food manufacturing, which align with the broader regional trends. These industries employ a substantial workforce consisting of over 12,000 employees but may offer lower wages due to the nature of the work and seasonal fluctuations⁸⁷. Additionally, retail and logistics contribute to the employment landscape, but the wage levels in these sectors can vary widely based on specific job roles and skill requirements.

On the other hand, the military industry is a major high-wage sector in East Kern. Military installations of Naval Air Weapons Stations, such as NAWS China Lake and NAWS Headquarters, play a pivotal role in driving the region’s economy. These installations have a profound impact, offering approximately 11,000 full-time positions, from specialized technical roles to administrative positions⁸⁸. The military industry’s influence is not only reflected in the employment figures but also in the significant real estate assets and economic activity associated with these installations. The presence of these military installations brings stability to the local economy and can lead to higher average wages in the region.

It’s noteworthy that East Kern County’s economic dependency on federal government civilian jobs, comprising over 21% of the total employment, is distinctive compared to national averages⁸⁹. This highlights the unique economic dynamics of the region, where the military installations serve as a key driver of both employment and economic growth. The military industry’s high-wage jobs contribute to the prosperity of East Kern and create a unique economic identity for the area.

In conclusion, the economic landscape of East Kern is characterized by a mix of industries that span both low and high-wage sectors. While agriculture, food manufacturing, and business services are prominent low-wage industries, the military industry, centered around military installations like NAWS China Lake, stands out as a significant high-wage sector. The military’s substantial employment, real estate assets, and economic influence underscore its importance in shaping East Kern’s economic dynamics.

Lake Isabella’s high-wage industries include Educational Services and Health Care & Social Assistance, suggesting a focus on education and healthcare services that demand

⁸⁷ Data USA: East Kern; 2021; <https://datausa.io/profile/geo/>

⁸⁸ Natelson Dale Group, Inc., Analysis of Potential Fiscal and Economic Benefits of Kern County Carbon Management Industry; April 4, 2023;

https://psbweb.co.kern.ca.us/planning/pdfs/cmbp/CMBP_Potential_Fiscal_Economic_Benefit_Analysis.pdf

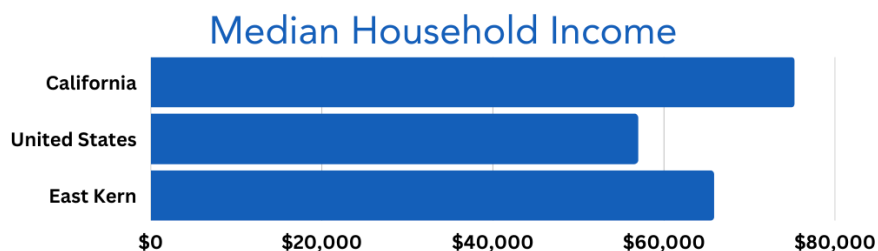
⁸⁹ Kern County; Economic Diversification Plan, East Kern County, Ca; 2017;

<https://www.kerncounty.com/home/showdocument?id=1692>

specialized skills and qualifications. Conversely, Retail emerges as a low-wage industry, highlighting roles that may have limited earning potential⁹⁰.

Economic well-being and the cost of living across the region

Economic well-being and the cost of living across East Kern are complex and reveal a mix of both advantages and challenges. The median household income of \$65,810 is a notable aspect, exceeding Kern’s median income (\$58,824) by 10% but falling short of California’s (\$84,097) by 80%⁹¹. This suggests that while East Kern residents may enjoy a higher income compared to their county counterparts, they still face disparities when compared to the broader state context. This could be due to the region’s unique economic composition, including the prevalence of military-related employment and the interplay of various industries.



The poverty rate of 15.2% in East Kern is concerning, especially as it surpasses the rest of California’s rate by 25%⁹². Despite a relatively higher median household income, a significant proportion of the population still faces economic hardship. This could reflect the presence of specific demographic groups or industries that experience income inequality or other economic challenges. Addressing this elevated poverty rate will likely require targeted interventions, such as improving job opportunities, providing access to affordable housing, and ensuring access to education and training programs.

The cost of living in East Kern appears more affordable than in the broader California context. The median home value of \$194,500 is considerably lower than the state median of \$573,200, making homeownership more attainable for residents in East Kern⁹³. However, 42.8% of residents rent their homes⁹⁴.

The majority of residents in this region (84.9%) have a high school diploma or higher⁹⁵. However, the lower percentage of individuals with bachelor’s degrees or higher suggests that there may be limitations to certain higher-paying job opportunities that require advanced degrees.

⁹⁰ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

⁹¹ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#economy>.

⁹² U.S. Census Bureau; American Community Survey 5-year estimates; 2021; Retrieved from Census Reporter Profile page for East Kern CCD, Kern County, CA; <http://censusreporter.org/profiles/06000US0602990800-east-kern-ccd-kern-county-ca/>

⁹³ U.S. Census Bureau; American Community Survey 5-year estimates; 2021; Retrieved from Census Reporter Profile page for East Kern CCD, Kern County, CA; <http://censusreporter.org/profiles/06000US0602990800-east-kern-ccd-kern-county-ca/>

⁹⁴ U.S. Census Bureau; American Community Survey 5-year estimates; 2021; Retrieved from Census Reporter Profile page for East Kern CCD, Kern County, CA; <http://censusreporter.org/profiles/06000US0602990800-east-kern-ccd-kern-county-ca/>

⁹⁵ U.S. Census Bureau; American Community Survey 5-year estimates; 2021; Retrieved from Census Reporter Profile page for East Kern CCD, Kern County, CA; <http://censusreporter.org/profiles/06000US0602990800-east-kern-ccd-kern-county-ca/>

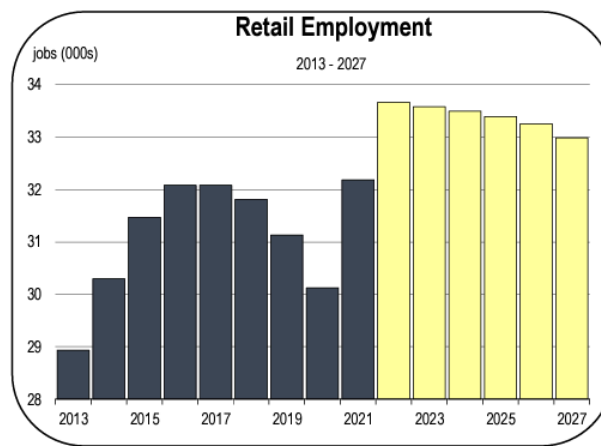
The economic landscape across East Kern is marked by significant disparities that underscore the inequities faced by its residents. The region’s reliance on SNAP, with approximately 14% of its population utilizing them, is indicative of the prevailing economic challenges⁹⁶. Education stands out as a key factor in these disparities. While only 18.5% of East Kern residents aged 25 and above hold a bachelor’s degree or higher, California and the US boast higher rates at 31% and 29.3% respectively⁹⁷. Despite this, East Kern has a relatively higher percentage of college-educated residents compared to Kern County and the Greater Antelope Valley. Simultaneously, the lower proportion of East Kern residents without a high school diploma suggests a mixed educational landscape

In summary, economic well-being in East Kern is characterized by a median household income that outpaces Kern County but lags behind California as a whole. The elevated poverty rate presents a challenge despite the relatively higher income levels. The cost of living, particularly in terms of home values, is more affordable compared to the rest of California, potentially contributing to a more accessible housing market. Educational attainment, while relatively high in terms of high school graduates, suggests room for growth in achieving higher levels of post-secondary education, which could positively impact economic opportunities and well-being in the long term.

Economic Shocks

PANDEMIC

The economic repercussions of the COVID-19 pandemic were deeply felt in East Kern, largely due to its high concentration of service industry workers (over 12,000 as mentioned earlier) who both lived and worked in the region. The pandemic-induced shutdowns dealt a blow to small businesses⁹⁸⁹⁹, resulting in widespread job losses and a subsequent economic downturn. With businesses closing and many industries grinding to a halt, the livelihoods of countless individuals were suddenly and significantly impacted. The resulting spike in unemployment rates to 18.7% in the county exacerbated the need for various forms of support within the community, as many found themselves



From: 2022 State of California, County-Level Economic Forecast

⁹⁶ Statistical Atlas; Income Demographics: Kern County;

<https://statisticalatlas.com/county/California/Kern-County/Occupations>

⁹⁷ Kern County; Economic Diversification Plan, East Kern County, Ca; 2017;

<https://www.kerncounty.com/home/showdocument?id=1692>

⁹⁸ ABC 23; COVID-19 - One Year Later: A breakdown of COVID-19's impact on businesses; 2021

<https://www.turnto23.com/news/coronavirus/one-year-later-a-breakdown-of-covid-19s-impact-on-businesses>

⁹⁹ Bakersfield.com; Business start-up surge bright spot in pandemic; 2021;

https://www.bakersfield.com/kern-business-journal/business-start-up-surge-bright-spot-in-pandemic/article_ffbc5c62-ee67-11eb-8aa4-5bc1db6e2881.html

grappling with sudden financial instability and uncertainty¹⁰⁰.

In response to the crisis, various public funding and assistance programs were implemented to provide a safety net for those adversely affected. These programs aimed to bridge the gap created by lost incomes and disrupted employment. They played a vital role in alleviating the immediate financial burdens faced by individuals and families, helping them cover basic necessities and maintain a semblance of stability during the pandemic's tumultuous early stages. However, as the situation evolved and the pandemic's intensity fluctuated, the availability and scope of these assistance programs began to wane.

The decline in support programs, whether due to budget constraints or changing priorities, has left a gap in the safety net that was previously helping individuals weather the storm. As a result, those who still require assistance are finding themselves in a precarious situation, lacking the necessary resources to navigate the ongoing economic difficulties effectively. This underscores the importance of finding sustainable solutions to address the problems facing our most vulnerable populations, ensuring that those who remain vulnerable are not left behind without the necessary assistance they require to rebuild their lives and regain economic stability.

SHIFTING INDUSTRIES

In recent years, the aerospace sector in East Kern County has witnessed a significant trend of relocation from beyond the boundaries of California¹⁰¹. This movement of aerospace industries toward the region has brought about notable shifts in the economic landscape. The infrastructure of the Mojave Air and Space Port continues to play a crucial role in the area's pursuit of growth and innovation, particularly in research, scientific, and technical industries. While the departure of aerospace companies may have posed challenges to the local economy, the Mojave Air and Space Port stands as a resilient and strategically important asset, serving as a foundation for advancing East Kern's economic prospects.

The aerospace industry's relocation from areas like New York to East Kern County signifies a dynamic transformation within the region's economic fabric¹⁰². The arrival of these industries has prompted the need for workforce diversification to ensure continued economic vitality. Although this shift has presented certain challenges, it also opens the door to new opportunities for innovation and growth. Moreover, the presence of the Mojave Air and Space Port emerges as a cornerstone in the area's efforts to navigate this transition. Mojave Air & Space Port Aerospace in Mojave has seen dramatic growth due to increased demand within both the private and government sectors. The port boasts over 2,500 employees and has worked with

¹⁰⁰Citizen Times; Data Central: Unemployment Rate - Kern County, CA (June 2023)

<https://data.citizen-times.com/unemployment/kern-county-ca/CN0602900000000/>

¹⁰¹ Bakersfield.com Kern County's aerospace industry on the radar at CSUB; March 2019;

https://www.bakersfield.com/news/kern-countys-aerospace-industry-on-the-radar-at-csub/article_7186713a-3c80-11e9-b295-6f86a5b5cb13.html

¹⁰² Bakersfield.com; Aerospace startup from New York coming to eastern Kern County for testing and research; August 2023;

https://www.bakersfield.com/news/aerospace-startup-from-new-york-coming-to-eastern-kern-county-for-testing-and-research/article_0a2df2c2-3183-11ee-8bf8-b335c229cb60.html

over 70 companies¹⁰³. This cutting-edge facility not only preserves the region’s legacy in aerospace but also paves the way for the cultivation of research and advanced technological enterprises. The Mojave Air and Space Port’s infrastructure stands as a testament to East Kern’s commitment to fostering an environment conducive to breakthroughs in scientific discovery and technological advancement.

Amidst the evolving landscape of the aerospace industry, the Mojave Air and Space Port holds immense potential for catalyzing a resurgence of economic activity in East Kern. Beyond its significance as a mere physical facility, the port acts as a magnet for research institutions, emerging startups, and forward-thinking organizations aiming to capitalize on the area’s unique aerospace heritage. By fostering collaboration and innovation, the port has the capacity to attract new investment, talent, and enterprises that can drive the growth of research-driven, scientific, and technical industries. While the aerospace industries’ departure might have caused short-term disruptions, the presence of the Mojave Air and Space Port underscores East Kern’s proactive approach to cultivating a diversified and resilient economic landscape that capitalizes on cutting-edge technological advancements and fuels sustainable economic development.

INFLATION:

Current inflation rates create a cascading impact on the cost of living, specifically impacting communities already facing economic difficulties. Elevated costs for essential commodities and services worsen poverty rates, placing greater hurdles for vulnerable groups to fulfill their fundamental necessities. Despite these challenges, East Kern’s economic environment also unveils fresh prospects. The establishment of the Mojave Inland Port, designed to decrease shipping expenses and emissions through truck rerouting, offers a hopeful outlook for the region. This initiative possesses the potential not only to mitigate inflation through enhanced transport efficiency but also to foster economic expansion by decreasing environmental consequences and enhancing logistical connections.

Climate and Environmental Impact – East Kern County

East Kern County encompasses a diverse array of cities and small towns, including incorporated municipalities like California City, Ridgecrest, and Tehachapi, as well as unincorporated towns such as Boron, Mojave, and Rosamond. The region is further distinguished by the presence of notable military and aerospace installations, including the Mojave Air and Space Port, Edwards Air Force Base, and the China Lake Naval Air Weapons Station. This geographical expanse is characterized by a rugged and arid terrain, encompassing desert landscapes, sprawling mountain ranges, and vast open spaces. Key geological features, such as the iconic Mojave Desert, the majestic Sierra Nevada Mountains, and the scenic Tehachapi Mountains, contribute to the region’s distinctive identity.

¹⁰³ Kern Economic Development Corporation; 2019-2020 Kern County Market Overview & Member Directory. https://kernedc.com/wp-content/uploads/2019/09/AC5152-Kern-EDC-2019-Market-Overview-Member-Directory-January-2019_WEB.pdf

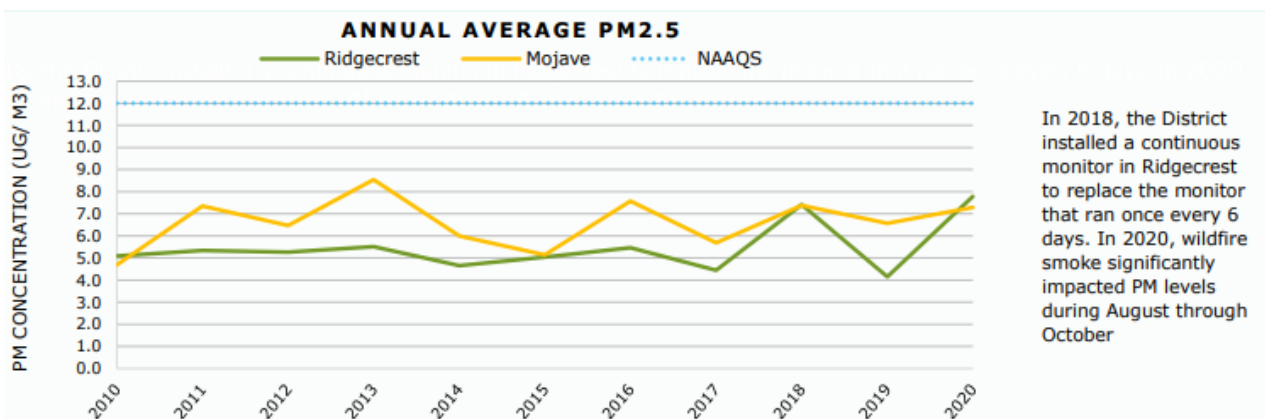
The climate of East Kern County exhibits variability across its diverse landscapes. A predominant high desert climate prevails, typified by hot and arid summers, contrasted by relatively mild winters. Temperature extremes are a hallmark, with summer highs often soaring beyond 100°F (37°C), while winter nights can bring chilly conditions. Precipitation is notably limited, with scant rainfall throughout the year, a circumstance that has intensified concerns regarding water scarcity within the region.

The unique geographical characteristics of East Kern County have led to the establishment of various military installations and renewable energy initiatives. While traditional agriculture plays a less dominant role in comparison to other regions, military operations, energy development, mining activities, and aerospace industries contribute significantly to the local economy. This diversity of economic activities also introduces specific challenges related to pollution and environmental impact. According to a report by the Air Pollution Control District conducted during 2020-2021¹⁰⁴, energy development, mining, military operations, and aerospace endeavors emerge as primary sources of pollutants in the region.

Mining activities, exemplified by operations like the “Golden Queen” mine in Mojave, release a range of pollutants, including sulfur oxides, carbon monoxide, and nitrogen oxides. Research, design, testing, and development of weapons systems and military technologies at China Lake and Edwards Air Force Base also contribute to the emission of toxic air pollutants. These emissions stem from various sources, including gasoline storage, landfills, treatment facilities, and testing facilities for jet and rocket propulsion systems.

In the same report issued by the Air Pollution Control District, they provide information about the annual average levels of particulate matter in Mojave and Ridgecrest for the year 2020. These levels were notably influenced by the presence of wildfire smoke resulting from the wildfires that occurred during that period, particularly between August and October. Particulate matter consists of minuscule solid particles and tiny liquid droplets that remain suspended in the air. These particles encompass a range of compounds that pose risks when breathed in. The risk increases with the size reduction of particles, as smaller ones can infiltrate deep into the lungs and even enter the bloodstream.

The vast wildfires that engulfed East Kern County and the mountainous areas had a substantial impact on these annual averages of Particulate Matter 2.5. These averages, which had previously remained stable at 4.0 and 5.0, surged to 8.0 and beyond. This marked increase occurred over the course of just a year when compared to previous years' data.



East Kern County is also home to significant wind and solar energy farms, particularly in Tehachapi and Cameron Canyon. These renewable energy installations collectively produce 3,500 megawatts of electricity. While the construction of these farms initially led to the release of contaminants and pollutants, the operational phase has brought about a period of reduced emissions. These renewable energy facilities are anticipated to remain operational for more than three decades, contributing to a sustainable energy future for the region.

The comprehensive research report on East Kern County’s climate impacts has shed light on the intricate relationships between its communities and industries. By outlining the challenges and vulnerabilities, the report serves as a foundation for further exploration and analysis. Future research endeavors could extend similar methodologies to examine the climate impacts stemming from specific sources, such as Edwards Air Force Base, and their effects on neighboring communities, including California City, which is situated approximately 19 miles away. Through continued investigation, East Kern County aims to enhance its understanding of climate dynamics and develop effective strategies for resilient and sustainable growth.

Public Health Analysis – East Kern County

Kern County Subregional Demographic Data (U.S. Census data source, years cited.)

EAST KERN SUBREGION

Total Pop. (2016-2020)	120,284
Poverty = <100% of FPL (% , 2016-2020)	15.97%
Low Income = <200% of FPL (% , 2016-2020)	35.71%
Racial/Ethnic Minority (% , 2016-2020)	42.76%
Hispanic/Latino (% , 2016-2020)	27.67%
Black (% , 2016-2020)	8.08%
Asian (% , 2016-2020)	2.48%
Amer. Indian/Alaska Native (% , 2016-2020)	1.29%
Native Hawaiian (% , 2016-2020)	0.04%
Under 18 (% , 2016-2020)	23.92%
65 and older (% , 2016-2020)	15.68%
Less than High School Ed. (adults 25+ , % , 2016-2020)	14.11%
Adults Ever Told Have Diabetes (% , 2020)	10.41%
Adults with No Dental Care in Past Year (% , 2020)	39.50%
Adults with No Usual Source of Primary Care (% , 2018)	23.45%
Adults Who Are Binge Drinkers (% , 2020)	18.57%
Adults Who Smoke (% , 2020)	15.35%
Adults Who Are Obese (% , 2020)	32.77%
Adults with High Blood Pressure (% , 2020)	29.34%

The total population of the East Kern subregion is approximately 120,184. Of the five subregions, East Kern faces the fewest challenges; it has the second-lowest levels of residents who are classified as impoverished (15.97%) or low-income (35.71%). East Kern also has the

lowest percentage of racial/ethnic minority residents (42.76%) and the highest percentage of high school graduates of residents who are older than 25 (85.89%). East Kern is also home to the highest percentage of adults who are 65 years or older (15.68%) and the lowest percentage of persons under 18 years of age (23.92%). Not surprisingly, East Kern also has the highest rate of adults with high blood pressure, a chronic disease that is often associated with aging. However, percentages of those adults who smoke (15.35%) or are obese (32.77%) are the lowest for the five subregions. There is one acute care hospital in the subregion, three community health centers and nine rural health clinics. The East Kern subregion also has the lowest percentage of adults with no usual source of primary care (23.45%) as well as the lowest percentage of adults who have had no dental care in the past year (39.50%) indicating that East Kern residents are accessing health and dental care more successfully than other subregions.

Economy and Economic Development – West Kern County

Encompassing a cluster of cities and census-designated places (CDPs) such as Derby Acres, McKittrick, Mettler, and Taft, the West Kern subregion emerges as a dynamic area. Within this subregion, there is a presence of both Disadvantaged Communities (DACs) and Low-Income Community census tracts, adding complexity to its socioeconomic landscape. The area is also home to a large Indigenous community which has historically gone underserved.

Economic development opportunities and forces in the region

West Kern has seen a multifaceted economic landscape defined by various growth opportunities and forces. One of the most notable areas of development lies in the construction sector, which has experienced an astonishing 480% workforce increase based on recent census data¹⁰⁵. Construction does not necessarily provide stable work, something that the community pointed out as being paramount to the quality of the occupation. While construction provides employment opportunities, the need for more stable job prospects is evident.

The Wholesale Trade sector has also emerged as a significant player in West Kern's economic development, with a noteworthy 50% workforce growth¹⁰⁶. This diversification reflects a maturing economy that extends beyond traditional sectors.

Meanwhile, Agriculture, which has been a longstanding pillar of the region's economy, continues to play a crucial role. However, the growth trajectory in this sector appears to be mixed, with some areas experiencing a 15% increase in the workforce while others suffer up to a 40% decline¹⁰⁷. This disparity underscores the need for targeted strategies to either bolster the agricultural workforce or capitalize on the skills of agricultural workers to transition them to industries experiencing more growth.

¹⁰⁵ Data from the Census Bureau ACS 5-year Estimate for zip codes: 93628, 93251, 93313, 93252, 93249, 93224, 93226.

¹⁰⁶ Data from the Census Bureau ACS 5-year Estimate for zip codes: 93628, 93251, 93313, 93252, 93249, 93224, 93226

¹⁰⁷ Data from the Census Bureau ACS 5-year Estimate for zip codes: 93628, 93251, 93313, 93252, 93249, 93224, 93226

The potential of Outdoor Recreation and Tourism presents a promising avenue for West Kern's economic prosperity. The presence of attractions such as the Oil Museum in Taft and the proximity to national forests, monuments, lakes, reservoirs, and wildlife preserves offers a unique opportunity to capitalize on the sub-region's natural beauty and cultural heritage. Leveraging these assets could create a new wave of economic growth by attracting visitors, generating revenue, and fostering job creation in the hospitality, entertainment, and service industries. By tapping into these resources, West Kern can position itself as a sought-after destination for travelers seeking both leisure and adventure.

While construction and Wholesale Trade exhibit impressive workforce growth, the imperative for stable employment underscores the need for diversified and sustainable job opportunities. Agriculture remains a vital sector, albeit with varying growth patterns. Capitalizing on natural resources, nearby attractions, and cultural offerings could offer a new wave of prosperity for the sub-region.

Inequities in economic development across the region.

In West Kern, there are evident inequities in economic development that arise from the region's industrial composition, environmental concerns, education, and the pursuit of clean energy alternatives. The presence of numerous power plants and fossil fuel extraction operations has been a hallmark of the local economy. This is echoed in the rate of employment in Mining, Quarrying, & Oil & Gas Extraction in this area, which is approximately 15%—more than the other dominant industries of educational services (12%), agriculture (10%), and construction (7%). However, this industry has raised environmental concerns due to its negative impacts on the environment and public health. Legislative efforts aimed at curbing the environmental repercussions have the potential to impact the stability of this industry, potentially affecting jobs and economic activity in the region.

The transition from fossil fuel-dependent industries to cleaner energy alternatives is a noteworthy development in addressing these inequities. The commitment to creating programs that support clean energy initiatives and job creation is a crucial step in mitigating the negative environmental effects of fossil fuel extraction. These initiatives not only help to align the economy with sustainable practices but also pave the way for a more diverse range of employment opportunities that are less environmentally harmful.

While Educational Services make up a substantial percentage of the workforce, comparatively, at 12%, the industry is experiencing a workforce decline, indicating educational services may be becoming less available. Educational attainment presents another barrier to economic development in West Kern. Rates of educational attainment in West Kern show a relatively lower percentage of individuals with a bachelor's degree or higher (13.1%) compared to those who are high school graduates or higher (77.3%). The importance of education in securing higher-wage employment is a challenge for many residents. Insufficient access to quality education and training opportunities can limit the skill set of the local workforce, inhibiting their ability to access well-paying jobs in emerging industries like clean energy or other sectors requiring specialized knowledge.

A less quantifiable barrier is that of cultural differences. Talking to members of the community, it has become evident that they feel cultural barriers are significant when seeking employment. These sentiments are also echoed about language barriers in the area.

To address these inequities, West Kern needs comprehensive strategies. Transitioning to cleaner energy sources and fostering industries with a smaller environmental footprint can drive sustainable growth. Investing in educational initiatives, vocational training, and skill development programs can help break down the educational barrier, creating pathways to higher-wage employment for the local population. Collaborative efforts between policymakers, industries, educational institutions, and the community will be essential in creating a more equitable and prosperous economic landscape in West Kern.

Major low- and high-wage industries and occupations in the region.

In West Kern, there is a diverse range of both low- and high-wage industries and occupations that contribute to the region’s economic landscape.

Among the high-wage industries, Computer, Engineering, and Science (i.e., computer engineers, data and security analysts, programming, IT consulting, and web and software developers) stand out as a major contributor to the region’s economy. This industry likely includes technology-related companies, engineering firms, and scientific research establishments, offering well-paying jobs to individuals with specialized skills and knowledge. The Education, Legal, Community Service, Arts, and Medical Assistance sectors also represents a high-wage industry, encompassing a broad range of professions such as educators, legal professionals, social workers, and medical assistants¹⁰⁸. Additionally, the Healthcare Practitioners and Technical Occupations industry, which includes roles like physicians, surgeons, and other specialized medical professionals, offers competitive salaries due to the advanced training and expertise required.

In terms of high-wage occupations, Architecture and Engineering Occupations command some of the highest salaries, with an average of \$156,953, with approximately 5,800 workers (or 1.69%) in these occupations as of 2020¹⁰⁹. This category includes roles such as architects, engineers, and other professionals involved in designing and creating structures and systems. Computer and Mathematical Occupations, with an average salary of \$87,955, reflect the significance of technology-related roles in West Kern¹¹⁰. Computer and Mathematical employment accounts for only 1.64% of the workforce, which is approximately 5,600 people. Educational Instruction and Library Occupations also offer relatively high salaries, averaging \$74,018, which encompasses a range of education-related roles¹¹¹. These occupations are more available compared to the two previously mentioned occupation areas, with 20,920 workers, which is roughly 6.03% of the population.

¹⁰⁸ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

¹⁰⁹ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

¹¹⁰ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

¹¹¹ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

West Kern’s lowest-wage industries include the Service sector, Sales and Office positions, and Natural Resources, Construction, and Maintenance industries. These sectors may encompass roles that involve manual labor, routine tasks, and customer service positions.

Low-wage occupations in West Kern include Personal Services and Care, with an average salary of \$9,063¹¹². This category might involve jobs in the hospitality and personal care industries. Healthcare Support occupations have an average salary of \$11,842, and Food Preparation and Service roles offer an average salary of \$10,893¹¹³. These occupations are often entry-level positions and may involve providing essential services in healthcare or the food industry. A significant issue with these occupations, which needs addressing, is the lack of stability and consistency, something community members throughout the county noted was important to them in their career. The inconsistent schedules and low pay that is commonplace in these sectors affect overall economic well-being on an individual and holistic level.

In conclusion, West Kern presents a range of high- and low-wage industries and occupations that contribute to the economic landscape. High-wage industries like Computer, Engineering, and Science offer opportunities for specialized skills and training. Meanwhile, low-wage industries like Service and Food Preparation highlight the challenges faced by workers in entry-level positions or without specialized skills. Addressing the disparities between these sectors and providing pathways to skill-based careers could be key to fostering economic growth and creating opportunities for advancement in West Kern County. While data specifically for Indigenous peoples’ occupations in this subregion is not available, it is important to note that they would likely indicate further disparities which need addressing.

Economic well-being and the cost of living across the region

Economic well-being and the cost of living in West Kern reflect a complex interplay of factors, with both challenges and opportunities shaping the region’s socioeconomic landscape. The median household income of \$46,628 in West Kern County is notably lower than the 80% of Kern County (\$58,824) and significantly below the amount in California (\$84,097)¹¹⁴. This income disparity can contribute to economic strain for many residents, affecting their ability to meet basic needs and achieve financial security.

West Kern’s SNAP usage varies widely based on the zip code, indicating disparities in economic wellness across the subregion. The lowest rate of SNAP usage is 11.2% in Mettler while the highest rate of SNAP usage comes in at a staggering 29.9% in McKittrick¹¹⁵. McKittrick is not alone in its high percentage; Taft has SNAP use rates of 24.4%. Most other

¹¹² Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

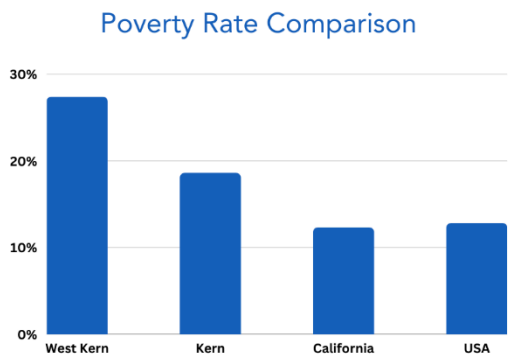
¹¹³ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

¹¹⁴ U.S. Census Bureau; American Community Survey 5-year estimates; Retrieved from Census Reporter Profile page for West Kern CCD, Kern County, CA; 2021;

<http://censusreporter.org/profiles/06000US0602993635-west-kern-ccd-kern-county-ca/>

¹¹⁵ U.S. Census Bureau; American Community Survey 5-year estimates for zip codes: 93268, 93251, 93313, 93249, 93224 ,93226.

towns within the subregion have SNAP usage rates between 12-14%, making McKittrick and Taft even more notable¹¹⁶.



The poverty rate of 27.4% in West Kern is a notable concern, double that of California’s rate (12.3%) and 1.4 times higher than Kern’s average mentioned earlier¹¹⁷. This statistic underscores the economic disparities that exist in the region, with a significant portion of the population struggling to rise above the poverty line. This can impact residents’ access to quality education, healthcare, and overall well-being, thereby limiting their economic mobility and opportunities for advancement.

The median home value of \$191,800 for owner-occupied houses in West Kern County is lower than both the Kern median (\$241,400) and California’s median (\$573,200)¹¹⁸. While this may indicate a more affordable housing market, it’s important to consider the context of the region’s income levels. The gap between median income and home values could contribute to housing affordability challenges for some residents, potentially leading to a mismatch between income and housing costs.

While educational attainment is essential for upward mobility and higher earning potential, the lower proportion of individuals with bachelor’s degrees could impact the region’s access to high-skilled, high-paying job opportunities. This could potentially contribute to the income disparities observed in the region.

In conclusion, economic well-being and the cost of living in West Kern are shaped by a range of factors, including income levels, poverty rates, housing affordability, and educational attainment. While the sub-region has a lower cost of housing compared to the state average, the income disparities and higher poverty rates highlight the need for targeted efforts to improve economic mobility and opportunities for residents. Addressing educational attainment, promoting workforce development, and creating policies that support affordable housing could contribute to a more equitable and prosperous future for West Kern.

Economic Shocks

CLIMATE & PUBLIC POLICY:

The state’s focus on climate contributes to the shifting fossil fuel industry in West Kern, which has historically been a major driver of the region’s economy. As the global focus on

¹¹⁶ U.S. Census Bureau; American Community Survey 5-year estimates for zip codes: 93268, 93251, 93313, 93249, 93224, 93226.

¹¹⁷ U.S. Census Bureau; American Community Survey 5-year estimates; Retrieved from Census Reporter Profile page for West Kern CCD, Kern County, CA; 2021;
<http://censusreporter.org/profiles/06000US0602993635-west-kern-ccd-kern-county-ca/>

¹¹⁸ U.S. Census Bureau; American Community Survey 5-year estimates; Retrieved from Census Reporter Profile page for West Kern CCD, Kern County, CA; 2021;
<http://censusreporter.org/profiles/06000US0602993635-west-kern-ccd-kern-county-ca/>

addressing climate change intensifies, the fossil fuel industry in West Kern is undergoing a profound transformation, primarily centered around carbon management and storage initiatives. This transition is driven by the imperative to reduce carbon emissions, mitigate environmental impacts, and shift towards more sustainable energy practices.

The fossil fuel industry's pivot towards carbon management and storage signifies a recognition of the industry's role in contributing to greenhouse gas emissions and its commitment to finding viable solutions. Carbon management, currently in the planning stages, involves adopting technologies and strategies to capture, reduce, and offset carbon dioxide emissions from industrial processes and energy production. This shift aligns with broader efforts to meet carbon reduction targets and transition towards a lower-carbon energy landscape. However, it is important to note that the effectiveness is unproven in terms of actual carbon emission reduction and there is not long-term information regarding its benefits or harm. Additionally, carbon management is a practice that many feel is unsafe to pursue unless robust protection is put in place for nearby communities. These factors make the growth of this industry a controversial one.

West Kern's embrace of carbon management and storage initiatives however does have the potential to create new economic opportunities in the region. Investments in research, innovation, and technology development in this area can lead to the emergence of new industries and job markets focused on implementing carbon capture and storage solutions. These efforts can also position West Kern as a leader in environmentally responsible practices, attracting businesses and investors who prioritize sustainability.

This transition is not without its challenges though. The adaptation to carbon management and storage technologies requires substantial investments in infrastructure, research, and workforce development. The shift may also have implications for the existing workforce in the traditional fossil fuel industry, necessitating retraining and reskilling efforts. Balancing economic development with environmental priorities will be a key consideration as West Kern navigates this transition.

Climate and Environmental Impact – West Kern County

The West Kern Subregion encompasses a variety of towns and cities, including Derby Acres, Lost Hills, Maricopa, McKittrick, Mettler, and Taft. This diverse area offers a range of landscapes, presenting both opportunities for ongoing oil and gas activities and the potential for developing renewable fuels and carbon management solutions.

In West Kern, numerous oil operations are active. Notably, Taft stands as a prime example, with its foundation built atop a highly active oil field. A KVPR article from April 2020¹¹⁹ reveals that Taft ranks as the *country's* seventh-largest oil industry producer. However, the effects of oil drilling on Taft's environment can be detrimental. Inadequate drilling practices can result in water, air, and soil pollution. Incidents such as spills, leaks, and emissions pose

¹¹⁹ KVPR Article on Taft, 2022,

<https://www.kvpr.org/environment/2022-04-18/in-kern-county-an-oil-town-grapples-with-a-green-future>

threats to the local ecosystem, potentially degrading water quality for the city and its neighboring communities.

Another notable community in this region is Lost Hills, situated in the northwestern sector of Kern County near Interstate-5. Lost Hills is home to the Lost Hills Oil Field, where Chevron has implemented a solar plant to power oil production. This solar facility meets 80% of the field’s energy demands, as confirmed by a Chevron press release¹²⁰. While this adoption of solar power contributes to reduced CO₂ emissions, specific emission reduction figures are not provided.

Maricopa, a West Kern agricultural town, specializes in cultivating crops like grapes, citrus fruits, almonds, and vegetables. However, the region’s status as an oil-rich area coupled with its desert-like climate brings challenges. The combination of high temperatures and pollutants from oil drilling affects Maricopa’s well-being. Similar challenges are faced by other small towns in the vicinity, including Derby Acres, McKittrick, and Mettler, which straddle the line between agricultural pursuits and oil production in desert-like settings. Unfortunately, the exact environmental impact on these towns remains unclear due to limited available data.

West Kern’s collection of towns and cities showcase a complex interplay between oil activities, agriculture, and potential renewable energy endeavors. As these communities navigate their unique circumstances, the delicate balance between economic development and environmental preservation remains a central concern.

Public Health Analysis – West Kern County

Kern County Subregional Demographic Data (U.S. Census data source, years cited.)

WEST KERN SUBREGION

Total Pop. (2016-2020)	81,329
Poverty = <100% of FPL (% , 2016-2020)	15.14%
Low Income = <200% of FPL (% , 2016-2020)	35.46%
Racial/Ethnic Minority (% , 2016-2020)	67.99%
Hispanic/Latino (% , 2016-2020)	51.66%
Black (% , 2016-2020)	5.57%
Asian (% , 2016-2020)	8.81%
Amer. Indian/Alaska Native (% , 2016-2020)	0.35%
Native Hawaiian (% , 2016-2020)	0.01%
Under 18 (% , 2016-2020)	29.16%
65 and older (% , 2016-2020)	9.54%
Less than High School Ed. (adults 25+, % , 2016-2020)	21.57%
Adults Ever Told Have Diabetes (% , 2020)	10.13%
Adults with No Dental Care in Past Year (% , 2020)	44.98%
Adults with No Usual Source of Primary Care (% , 2018)	34.90%
Adults Who Are Binge Drinkers (% , 2020)	18.53%

¹²⁰ Lost Hills – Powering an Oil Field – Press Release, 2022,

<https://www.chevron.com/newsroom/2022/q2/powering-an-oil-field-leave-it-to-the-sun>

Adults Who Smoke (% , 2020)	16.35%
Adults Who Are Obese (% , 2020)	33.68%
Adults with High Blood Pressure (% , 2020)	25.99%

The West Kern subregion includes the lowest population total of the five subregions, approximately 81,329 residents and boasts the lowest poverty (15.14%) and low-income (35.46%) rates of the five subregions. However, West Kern scores the highest percentage of adults with no usual source of primary care (34.90%). A lack of access to health care options for low-income patients could be the reason for this; there are only three community health centers, two rural health clinics and no hospitals in the subregion. Other indicators of poor health include adult obesity at 33.68%, and adult binge drinking at 18.53%. However, West Kern does have the lowest percentage of adults with diabetes, 10.13%, which is even lower than the California average of 10.5%.

Economy and Economic Development – North Kern County

The North Kern subregion comprises cities and CDPs such as Buttonwillow, Cherokee Strip, Delano, Lost Hills, McFarland, Mexican Colony, Shafter, Smith Corner, and Wasco. Within this subregion, there are both Disadvantaged Communities (DACs) and Low-Income Community census tracts, showcasing the socio-economic diversity and challenges present in this area.

Economic development opportunities and forces in the region.

North Kern presents a spectrum of economic development opportunities and forces that warrant attention for sustainable growth and resilience. The region’s prominent industries such as Agriculture, Food Manufacturing, Retail, and Logistics offer a foundation for economic expansion¹²¹. These sectors collectively create jobs, support local businesses, and contribute to the county’s economic vitality.

Despite the opportunities, Kern faces challenges stemming from environmental factors. The significant drought, extreme heat, energy price hikes, and reduced grid stability in the North Kern subregion threaten key industries such as Agriculture and Food Manufacturing. This scenario demands innovative strategies to enhance water conservation, energy efficiency, and adaptive measures to counteract the adverse effects of climate-related challenges¹²².

The county’s proactive response to drought-related water supply challenges in North Kern showcases a potential avenue for economic development. By investing in state-of-the-art technologies, the region’s farmers are demonstrating a commitment to sustainable practices that can not only protect limited water supplies but also drive innovation and efficiency in agriculture¹²³. These investments could potentially serve as a model for other areas facing similar

¹²¹ U.S. Census Bureau; American Community Survey 5-year estimates for zip codes: 93206, 93215, 93249, 93250, 93263, 93280, 93287, 93255, 93240, 93285.

¹²² North Kern Water Storage; Fact Sheet: Sustains Farms, Preserves Groundwater; August 2016; <https://www.northkernwsd.com/wp-content/uploads/2018/08/Produced-Water-Fact-Sheet.pdf>

¹²³ North Kern Water Storage; Fact Sheet: Sustains Farms, Preserves Groundwater; August 2016; <https://www.northkernwsd.com/wp-content/uploads/2018/08/Produced-Water-Fact-Sheet.pdf>

challenges, fostering collaboration and expertise exchange while also opening up opportunities for technology and service providers.

In conclusion, North Kern possesses economic development opportunities rooted in its leading industries, workforce potential, and natural resources. To navigate challenges posed by climate-related impacts, the county can pursue sustainable practices, technological innovations, and collaborative efforts. By leveraging its strengths and addressing vulnerabilities, Kern can forge a path toward resilient and inclusive economic growth that benefits both current and future generations.

Inequities in economic development across the region.

Inequities in economic development across North Kern are evident when considering the dominant industries and the gender disparities present in the region’s workforce. The most prevalent industries in North Kern, including retail, agriculture, manufacturing, and construction, tend to be characterized by lower-wage jobs that often require minimal formal education. This concentration of lower-wage industries can contribute to economic disparities, limiting upward mobility and opportunities for residents who may lack access to advanced education or training. This creates a cycle where economic growth becomes constrained by the lack of high-paying employment options.

Another significant concern is the gender disparity within the workforce, particularly the underrepresentation of women in general. Women in the area account for approximately 40% of the workforce¹²⁴. The fact that fewer women are participating in the workforce highlights systemic challenges that may hinder gender equality and economic growth. Additionally, the substantial wage gap between men and women exacerbates the inequities. For example, in the high paying sector in the area (Public Administration), men’s annual salary is \$86.4k, while women’s annual salary is \$54.4k¹²⁵. In agriculture, men make roughly twice the salary of the women (women’s annual pay: \$15.5k; men’s annual pay: \$30.8k)¹²⁶. The most glaring disparity is that in the information industry where men make an annual average of \$74.9k while women make only \$17.2k annually¹²⁷. The only industry wherein which this disparity actually leans the opposite way is Arts, with women making an average of \$2,000 more than their male counterpart¹²⁸.

¹²⁴ Data from the Census Bureau ACS PUMS 5-Year Estimate. Delano-Wasco-Shafter PUMA; 2020

¹²⁵ Data USA; Delano-Wasco-Shafter PUMA; 2020

<https://datausa.io/profile/geo/delano-wasco-shafter-cities-puma-ca> ; Data USA; Buttonwillow; 2020

<https://datausa.io/profile/geo/buttonwillow-ca> ; ; Data USA; Lost Hills; 2020,

<https://datausa.io/profile/geo/lost-hills-ca>

¹²⁶ Data USA; Delano-Wasco-Shafter PUMA; 2020

<https://datausa.io/profile/geo/delano-wasco-shafter-cities-puma-ca> ; Data USA; Buttonwillow; 2020

<https://datausa.io/profile/geo/buttonwillow-ca> ; ; Data USA; Lost Hills; 2020,

<https://datausa.io/profile/geo/lost-hills-ca>

¹²⁷ Data USA; Delano-Wasco-Shafter PUMA; 2020

<https://datausa.io/profile/geo/delano-wasco-shafter-cities-puma-ca> ; Data USA; Buttonwillow; 2020

<https://datausa.io/profile/geo/buttonwillow-ca> ; ; Data USA; Lost Hills; 2020,

<https://datausa.io/profile/geo/lost-hills-ca>

¹²⁸ Data USA; Delano-Wasco-Shafter PUMA; 2020

<https://datausa.io/profile/geo/delano-wasco-shafter-cities-puma-ca> ; Data USA; Buttonwillow; 2020

Women earning significantly less in wages compared to their male counterparts further perpetuates economic disparities and limits financial independence, making it more difficult for women to achieve economic security and contribute to the region’s development.

Major low- and high- wage industries and occupations in the region.

North Kern’s economic landscape is characterized by a mix of low-wage and high-wage industries and occupations, offering insights into the region’s economic diversity. In Buttonwillow, high-wage industries are concentrated in Manufacturing, reflecting the potential for skilled labor and value-added production¹²⁹. Conversely, low-wage industries encompass Retail, Arts, Entertainment, Recreation, and Accommodations & Food Services, suggesting a reliance on service-oriented and entry-level positions¹³⁰.

The Delano-Wasco-Shafter area’s high-wage occupations encompass a wide spectrum, including Justice and Public Order (2,963 employed), Scientific Research and Development (196 employed), and Petroleum Refining (308 employed). These sectors often involve specialized skills and government involvement, offering relatively higher earning potential. Conversely, low-wage industries in this region span Retail (4,170 employed), Arts, Entertainment, Recreation, and Accommodations & Food Services (26,384 employed in a variety of jobs ranging from restaurant works to performance artists), along with Agriculture, Forestry, and Fishing (19,430 employed), pointing towards a mix of entry-level and service roles¹³¹.

In Lost Hills, high-wage industries are centered around Wholesale Trade (38 employed), indicating potential distribution and trade opportunities. However, low-wage industries like Manufacturing (91 employed) and Arts, Entertainment, Recreation, and Accommodations & Food Services (447 employed) highlight areas where employment opportunities might not offer high earning potential¹³².

McFarland’s high-wage industries encompass a diverse range, including Construction (236 employed), Public Administration (235 employed), and Finance & Insurance (22 employed), Real Estate & Rental & Leasing (35 employed), indicating a mix of skill-intensive roles and administrative positions. Low-wage industries in McFarland involve Wholesale Trade (70 employed), as well as Arts, Entertainment, Recreation, and Accommodations & Food Services (211 employed)¹³³.

Overall, North Kern’s economic landscape showcases a variety of industries and occupations with varying wage levels. While some areas offer opportunities for skilled and well-compensated labor, the ruling industries are service-oriented roles with lower earning potential. Addressing the disparities between high-wage and low-wage industries will be essential to fostering economic growth and enhancing the overall well-being of the region’s workforce.

<https://datausa.io/profile/geo/buttonwillow-ca> ; Data USA; Lost Hills; 2020,

<https://datausa.io/profile/geo/lost-hills-ca>

¹²⁹ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

¹³⁰ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

¹³¹ Data USA; Kern County; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

¹³² Data USA; Lost Hills; 2020, <https://datausa.io/profile/geo/lost-hills-ca>

¹³³ Data USA; McFarland, CA; 2020; <https://datausa.io/profile/geo/kern-county-ca#demographics>

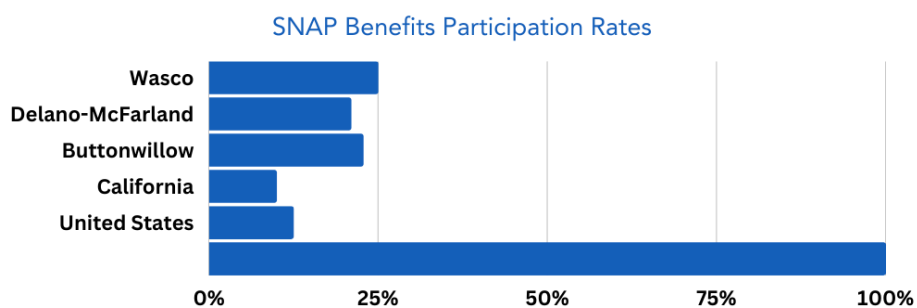
Economic well-being and the cost of living across the region.

North Kern’s economic landscape exhibits a diverse range of economic well-being and costs of living across its towns. The cost of living indices offer insights into the affordability of these areas, impacting residents’ overall economic conditions. Buttonwillow, with a cost of living index of 95.2, reflects a moderately affordable living situation, accompanied by a median income of \$39,433¹³⁴. Delano, Lost Hills, and McFarland maintain similar affordability levels with cost of living indices of 92.5, 94.6, and 93.6, respectively. Delano stands out with a slightly higher median income of \$47,845¹³⁵.

In contrast, towns like Shafter, Smith Corner, Mexican Colony, and Cherokee Strip offer more affordability, boasting cost of living indices ranging from 90.5 to 91.6. Shafter, in particular, presents a notable median income of \$56,111¹³⁶. Woody and Onyx also provide relatively affordable living conditions with cost of living indices of 91.2 and 93.7, respectively. However, Woody stands out with a significantly higher median income of \$95,958¹³⁷.

Nonetheless, some towns in North Kern, including Wasco, Wofford Heights, and Kernville, encounter challenges in terms of both economic well-being and cost of living. These towns experience higher cost of living indices, reflecting increased expenses for residents. Kernville, with a cost of living index of 102.1, and Lake Isabella, with a cost of living index of 97.3, demonstrate relatively higher living costs, and their median incomes of \$39,195 and \$30,830 respectively, underscore the economic disparities¹³⁸.

A notable concern in several towns, such as Wasco, Delano-McFarland, and Buttonwillow, is the high utilization of the Supplemental Nutrition Assistance Program (SNAP), indicating economic challenges for a significant portion of their populations. With SNAP participation rates surpassing state and national averages at 25%, 21%, and 22.8% respectively, these communities demonstrate an urgent need for social assistance and safety net programs¹³⁹. This trend suggests insufficient income to cover basic necessities, which could be attributed to factors such as limited high-paying job opportunities and economic support systems.



¹³⁴ City-Data.com; 2022; <http://www.city-data.com/zips/>

¹³⁵ City-Data.com; 2022; <http://www.city-data.com/zips/>

¹³⁶ City-Data.com; 2022; <http://www.city-data.com/zips/>

¹³⁷ City-Data.com; 2022; <http://www.city-data.com/zips/>

¹³⁸ City-Data.com; 2022; <http://www.city-data.com/zips/>

¹³⁹ U.S. Census Bureau; American Community Survey 5-year estimates; 2021; Retrieved from Census Reporter Profile page for East Kern CCD, Kern County, CA; <http://censusreporter.org/profiles/06000US0602990800-east-kern-ccd-kern-county-ca/>

North Kern's towns showcase a variety of economic conditions and costs of living. While some areas offer affordability and relatively higher median incomes, others struggle with economic hardships and reliance on social assistance programs. Addressing the disparities and challenges highlighted in towns with higher SNAP utilization rates will be essential to promoting equitable economic well-being across the region.

Economic Shocks

AGRICULTURAL IMPACTS:

The impacts of drought and water-usage legislation have had profound effects on North Kern, a region heavily reliant on agriculture. The prevalence of agricultural activities in the area makes it particularly vulnerable to fluctuations in water availability and regulations, resulting in significant economic consequences. While data for the subregion's rate of impact is unavailable, California rates are available and show that the economic impact from agricultural revenue loss due to the 2020-2022 drought in 2022 alone was \$1.7billion, up from \$1.3billion in 2021¹⁴⁰.

The drought's impact on North Kern's agricultural sector has been substantial. Water scarcity limits the ability to irrigate crops and sustain livestock, leading to reduced yields and crop failures. This directly affects the income of farmers and agricultural workers, causing financial stress and even job losses within the sector. Additionally, decreased agricultural output can disrupt supply chains, affecting related industries such as food processing and distribution. The overall economic slowdown reverberates through the community, impacting local businesses and communities that rely on the agriculture-driven economy.

Water-use legislation aimed at addressing water scarcity and resource management can further exacerbate economic shocks. Regulations that limit water extraction or impose higher costs on water usage can increase the operational expenses for farmers and agribusinesses. The need to invest in water-efficient technologies and irrigation systems can strain the finances of already struggling agricultural operations. Additionally, reduced water availability can lead to shifts in crop choices and land use, impacting the economic viability of certain agricultural practices.

The cumulative impact of drought and water-use legislation highlights the vulnerability of North Kern's economy to external factors. The region's heavy reliance on agriculture not only affects the livelihoods of those directly involved in the sector but also has ripple effects throughout the local economy. As a result, economic shocks can lead to reduced income, increased unemployment, decreased local business activity, and even migration from the area in search of better economic opportunities.

Conversely, rain and flooding has led to a disruption in work as well as a loss of crops. Summer storms have increased as a result of climate change, impacting traditional farming methods and crop production in the region. As weather becomes less predictable, rates of job loss and crop loss will likely be exacerbated.

Addressing the economic impacts of these shocks requires a multifaceted approach. This includes investing in water management and conservation measures to mitigate the effects of

¹⁴⁰ The California Department of Food and Agriculture; Economic Impacts of the 2020–22 Drought on California Agriculture; November 22, 2022.

https://wsm.ucmerced.edu/wp-content/uploads/2023/01/Economic_Impact_CA_Drought_V02-1.pdf

drought, as well as providing financial support and resources to farmers and agribusinesses to adapt to changing water-use regulations. Diversifying the local economy beyond agriculture and fostering industries less susceptible to water-related shocks can also help build resilience against future economic challenges.

Climate and Environmental Impact – North Kern County

The North Kern subregion encompasses a diverse range of municipalities, including Buttonwillow, Cherokee Strip, Delano, Lost Hills, McFarland, Mexican Colony, Shafter, Smith Corner, and Wasco. Among these locations are disadvantaged communities and low-income census tracts. Collectively, these factors contribute to the intricate climate dynamics that significantly shape the North Kern region.

Defined by its distinctive geographical placement and surrounding topography, the Mediterranean climate of North Kern County presents unique characteristics. Summers in this area are marked by intense heat and aridity, with temperatures frequently exceeding 90°F (32°C) and occasionally reaching triple-digit values. These elevated temperatures foster an environment conducive to the occurrence of heatwaves during the summer season. Additionally, the region encounters limited precipitation, particularly throughout the summer months, further intensifying its arid conditions.

Notwithstanding the formidable challenges posed by the arid climate, North Kern County plays a vital role in California’s agricultural landscape. Through meticulous water management and adaptive cultivation methods, the region effectively sustains a diverse array of crops, encompassing cotton, almonds, pistachios, and various fruits and vegetables. This thoughtful stewardship of agricultural practices underscores the community’s resilience in the face of climate-related adversities.

A significant element with profound implications for North Kern County, particularly the adjacent areas and cities, is the presence of the “Clean Harbors” facility in Buttonwillow. Operating as a hazardous waste landfill, this site manages waste reception, storage, treatment, and landfill operations. However, past occurrences of contaminated soil samples and the release of hazardous concentrations of zinc and chromium in 2014, as reported by the California Department of Toxic Substances Control (DTSC)¹⁴¹, raise concerns. The landfill’s activities carry the potential for soil contamination, imperiling nearby agriculture and water quality. Inadequate waste management could lead to groundwater pollution and the degradation of aquatic ecosystems, thereby affecting clean water accessibility. Furthermore, emissions from the landfill contribute to air pollution, posing health hazards to local residents. Moreover, the release of methane, a potent greenhouse gas, compounds climate change concerns. Given the landfill’s susceptibility to extreme weather events, strict waste management practices and adherence to environmental regulations are indispensable to mitigate potential climate-related repercussions.

¹⁴¹ DTSC Takes Enforcement Action Against Buttonwillow Landfill, 2014, <https://dtsc.ca.gov/2014/06/24/dtsc-takes-enforcement-action-against-buttonwillow-landfill/>

Water quality represents another pivotal facet intertwined with the presence of “Clean Harbors.” A 2022 water quality report from the City of Delano¹⁴² unveils the existence of diverse chemicals and contaminants in drinking water. The arsenic content in the water measures 4.26 micrograms per liter and is linked to natural deposit erosion, runoff from orchards, and waste generated by glass and electronics manufacturing. The current drinking water standard, or Maximum Contaminant Level (MCL), from the U.S. Environmental Protection Agency (EPA) is 0.010 mg/L or parts per million (ppm).

Another noteworthy contaminant is aluminum, present at a concentration of 0.054 milligrams per liter, with a detection range spanning from 0 to 0.054 milligrams per liter. The cumulative effects of treatment facilities, agricultural pesticides, and production waste further compromise water quality in the region. This intricate nexus of factors underscores the pressing need for comprehensive measures to safeguard water resources.

Chemical or Constituent (and reporting units)	Sample Date	Average Level Detected	Range of Detections	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant ¹
Arsenic (µg/L)	2022	4.26	0-9.6	10	0.004	Erosion of natural deposits; runoff from orchards; glass and electronics production wastes
Aluminum (mg/L)	2022	.054	0-.054	1	0.6	Erosion of natural deposits; residue from some surface water treatment processes

Given Kern County’s substantial role in oil production, numerous cities grapple with heightened exposure to escalated levels of toxic compounds stemming from oil drilling and the release of particulate matter. In Delano, as highlighted in a “Protect Earth Magazine” publication¹⁴³, the mayor perceives this challenge as a dual-fold opportunity—propelling both economic advancement and environmental renewal. The proposed solution involves securely capping and remediating aging oil wells. This strategic initiative holds the potential to steer the city toward a more environmentally sustainable energy paradigm, potentially fostering the creation of over 9,000 well-paying jobs within the next decade. These forward-looking endeavors not only hold the promise of enriching Delano’s ecological fabric but also reinforcing its economic foundation.

For the smaller communities within North Kern, there is limited environmental and climate data. Despite the proximity of these communities, such as Cherokee Strip, located in close proximity to Shafter by 2.6 miles, it is important to gather data from these areas to develop a comprehensive understanding of climate impacts across the entire region. As data is collected for cities like Lost Hills or Delano, a similar effort should encompass the collection and synthesis of data for Cherokee Strip, possibly facilitated through local educational institutions or weather stations.

In conclusion, the North Kern subregion embodies a complex interplay of climate intricacies, economic activities, waste management practices, and water quality considerations.

¹⁴² City of Delano – Annual Water Quality Report + Graphic, 2022, <https://www.cityofdelano.org/DocumentCenter/View/6974/2022-Delano-CCR-Final>

¹⁴³ Protect Earth Newsmagazine, 2023, <https://protectearth.news/its-time-to-speak-up-to-prevent-more-air-pollution-in-delano-and-protect-public-health/>

Disadvantaged communities’ shoulder disproportionate effects of these factors, necessitating a collaborative endeavor to address vulnerabilities and ensure an equitable and sustainable future for the North Kern region.

Public Health Analysis – North Kern County

Kern County Subregional Demographic Data (U.S. Census data source, years cited.)

NORTH KERN SUBREGION

Total Pop. (2016-2020)	134,211
Poverty = <100% of FPL (% , 2016-2020)	21.90%
Low Income = <200% of FPL (% , 2016-2020)	56.68%
Racial/Ethnic Minority (% , 2016-2020)	86.60%
Hispanic/Latino (% , 2016-2020)	76.37%
Black (% , 2016-2020)	3.33%
Asian (% , 2016-2020)	5.94%
Amer. Indian/Alaska Native (% , 2016-2020)	0.64%
Native Hawaiian (% , 2016-2020)	0.00%
Under 18 (% , 2016-2020)	27.89%
65 and older (% , 2016-2020)	9.22%
Less than High School Ed. (adults 25+ , % , 2016-2020)	38.50%
Adults Ever Told Have Diabetes (% , 2020)	12.59%
Adults with No Dental Care in Past Year (% , 2020)	54.63%
Adults with No Usual Source of Primary Care (% , 2018)	30.57%
Adults Who Are Binge Drinkers (% , 2020)	17.85%
Adults Who Smoke (% , 2020)	17.96%
Adults Who Are Obese (% , 2020)	37.13%
Adults with High Blood Pressure (% , 2020)	27.66%

The North Kern subregion, with approximately 134,211 residents, scores on the high end for poverty (21.90%) and low-income (21.90%) populations. North Kern also has the second highest percentage of racial/ethnic minority population (86.60%), the second-highest percentage of Hispanic residents (76.37%) and the second highest percentage of adults 25+ years with no high school diploma (38.50%) in the five subregions. With regard to health challenges, North Kern has the second highest percentage of adults who are diabetic (12.59%), the second highest percentage of adults who are obese (37.13%), and the second highest percentage of adults who smoke (17.96%). Exacerbating the health challenges, North Kern also has the second highest percentage of those adults who have no source of primary care (30.57%). Interestingly, the subregion includes 11 community health centers, nine rural health clinics and one hospital.

Economy and Economic Development – South Kern County

Encompassing a range of urban and rural areas, the South Kern subregion comprises cities and CDPs such as Arvin, Edmundson Acres, Frazier Park, Fuller Acres, Greenfield, Lamont, Pine Mountain Club, and Weedpatch. Within this subregion, there are both

Disadvantaged Communities (DACs) and Low-Income Community census tracts, reflecting the diverse socio-economic landscape and the challenges faced by residents in these areas.

Economic development opportunities and forces in the region.

In South Kern, a range of economic development opportunities and forces are shaping the region's growth and potential. The subregion is characterized by several leading industry sectors, including agriculture, food manufacturing, business services, healthcare, retail, and logistics. These industries play a crucial role in driving economic activity, providing jobs, and contributing to the local economy.

Furthermore, the concentration of various industry sectors such as agriculture, food manufacturing, and logistics underscores the potential for synergies and collaborations. The intersection of these industries can lead to supply chain optimization, increased market access, and the creation of value-added products. For instance, the linkage between agriculture and food manufacturing can result in the production of locally sourced and processed goods, boosting local agricultural economies while also supporting the creation of manufacturing jobs.

In summary, South Kern's economic landscape is characterized by its leading industry sectors, such as agriculture, food manufacturing, business services, healthcare, retail, and logistics. The potential for collaboration and synergy among various industry sectors further amplifies the economic development opportunities in South Kern.

Inequities in economic development across the region.

South Kern grapples with a multifaceted array of economic disparities, underlined by a strikingly high poverty rate, a prevalence of low-income households, significant representation of racial and ethnic minorities, and a notable gap in educational attainment. These factors collectively shape a complex economic landscape that demands focused attention and strategic intervention.

The substantial representation of racial and ethnic minorities, accounting for 87.90% of the population in South Kern, reveals a critical dimension of the region's economic disparities. This demographic makeup often intersects with challenges related to social equity, amplifying the barriers faced by these communities in accessing quality education, job opportunities, and essential resources. The cumulative effect is the further exacerbation of existing economic inequities, creating a cycle that can be difficult to break without targeted efforts.

Furthermore, the statistic highlighting that 45% of residents possess less than a high school education points to a significant educational attainment gap¹⁴⁴. This gap not only limits the potential for individuals to access higher-skilled and better-paying job opportunities, but it also perpetuates the cycle of economic disadvantage, hindering upward mobility and creating challenges for sustainable economic growth.

Addressing these complex inequities necessitates a multifaceted approach that targets both economic and social aspects. Initiatives focused on education reform, accessible workforce development programs, and equitable distribution of resources are essential components of a

¹⁴⁴ U.S. Census Bureau; American Community Survey 5-year estimates; Retrieved from Census Reporter Profile page for South Kern CCD, Kern County, CA; 2021

comprehensive strategy. By ensuring that quality education is accessible to all, providing training opportunities that align with local job markets, and removing barriers that hinder equitable access, South Kern can work toward creating a more inclusive and prosperous economic future for all its residents.

Major low- and high-wage industries and occupations in the region.

In South Kern, the economic landscape encompasses a mix of low- and high-wage industries and occupations that contribute to the region’s workforce and economic vitality.

Among the most common occupations in South Kern are those in the Agriculture, Farming, Fishing, Forestry and Hunting sector (approximately 10,000 employed), reflecting the significance of the region’s agricultural activities¹⁴⁵. Additionally, retail and sales occupations play a major role, currently employing over 2,000 people throughout the subregion, highlighting the importance of local commerce and customer service¹⁴⁶. The transportation sector, including roles related to logistics and movement of goods, is another prevalent category, underlining South Kern’s role as a transportation hub. Installation, maintenance, and repair occupations are also prominent, supporting the upkeep of various facilities and infrastructure¹⁴⁷.

On the low-wage side, occupations such as Food Preparation and Service (approximately 1,100 employed) are notable and consist of roles in the hospitality and food industry.¹⁴⁸. Conversely, high-wage industries and occupations in South Kern include those within Transportation, Warehousing, and Utilities. Management roles, indicative of supervisory and administrative positions, also offer higher wages. These high-wage sectors often require specialized skills, expertise, and responsibility, contributing to the economic well-being of the region.

In conclusion, South Kern exhibits a diverse array of both low- and high-wage industries and occupations. While sectors like agriculture and retail support common and essential job roles, high-wage areas such as transportation and management offer opportunities for more specialized skills and leadership positions, contributing to the overall economic landscape of the region.

Economic well-being and the cost of living across the region

Economic well-being in South Kern is a complex issue with significant challenges, as evidenced by the high poverty rate. South Kern had 6,300 unemployed people as of 2021¹⁴⁹.

Contributing to a poor rate of economic well-being is South Kern’s significant economic inequities, as reflected in key indicators such as poverty rate, low-income households, racial/ethnic minority representation, and educational attainment. With a poverty rate of



¹⁴⁹South Kern Community Survey 5-year estimates; Retrieved from Census Reporter Profile page for Kern County, CA; 2021

¹⁴⁵<https://datausa.io/profile/geo/kern-county-ca#demographics>

¹⁴⁶<https://datausa.io/profile/geo/kern-county-ca#demographics>

¹⁴⁷<https://datausa.io/profile/geo/kern-county-ca#demographics>

¹⁴⁸South Kern Community Survey 5-year estimates; zip codes 93203, 93241, 93307, 93307,

28.77%, the subregion struggles with a substantial portion of its population grappling with financial hardship. This statistic underscores the challenges faced by many residents in accessing basic necessities and opportunities for economic advancement. Additionally, the presence of 62.67% low-income households further emphasizes the economic struggles within the community, indicating limited access to financial resources and stability¹⁵⁰.

Further reflecting the economic hardships experienced by those in South Kern is the utilization of SNAP benefits. The lowest rate of SNAP utilization is 19% in Arvin.¹⁵¹ The other cities in the subregion have SNAP rates between 22% and 24%¹⁵². On average, this subregion shows the highest rate of benefit usage, further indicating a necessity for more economic opportunities.

With nearly 30% of children in the region living in poverty, there is a pressing need to address the root causes of this disparity¹⁵³. The implications of such a high poverty rate for children are far-reaching, affecting their access to quality education, healthcare, and other essential resources. This statistic underscores the importance of targeted interventions and support systems that can alleviate the economic hardships faced by families in South Kern, fostering an environment where children have the opportunity to thrive and succeed.

Another aspect contributing to economic well-being in South Kern is the prevalence of single-parent households. With approximately 40% of children coming from single-parent households, the challenges of raising a family on a single income can be substantial¹⁵⁴. Single-parent households often face higher financial burdens, limited access to support networks, and increased difficulty in balancing work and caregiving responsibilities.

Addressing the economic well-being of these households requires a multifaceted approach that includes access to affordable childcare, job training programs, and financial resources that can empower single parents to provide a stable and nurturing environment for their children. By focusing on both poverty rates and the dynamics of single-parent households, South Kern can work towards building a more equitable and supportive economic landscape for its residents.

Economic Shocks

PANDEMIC

The pandemic has also significantly affected South Kern, with the retail and food service industries, especially small businesses, experiencing economic hardships. Lockdowns, reduced consumer spending, and supply chain disruptions have led to revenue loss and job cuts in local businesses. This underscores the vulnerability of industries reliant on in-person consumer engagement and the importance of diversification and online presence. As a response, innovative

¹⁵⁰ U.S. Census Bureau; American Community Survey 5-year estimates; zip codes 93203, 93241, 93307, 93307, 93203, 93241; 2021

¹⁵¹ U.S. Census Bureau; American Community Survey 5-year estimates; zip codes 93203, 93241, 93307, 93307, 93203, 93241; 2021

¹⁵² U.S. Census Bureau; American Community Survey 5-year estimates; zip codes 93203, 93241, 93307, 93307, 93203, 93241; 2021

¹⁵³ PRB; Kids Data; <https://www.kidsdata.org/search/#/q/kern+county>

¹⁵⁴ PRB; Kids Data; <https://www.kidsdata.org/search/#/q/kern+county>

strategies such as curbside pickup have emerged, providing opportunities for businesses to adapt and potentially reach a broader customer base.

CLIMATE

Climate-related factors such as drought, extreme heat, and energy price increases have directly impacted industries like agriculture, food manufacturing, healthcare, logistics, and retail. These challenges have led to reduced crop yields, increased operational costs, and heightened energy demands, affecting the economic stability of these sectors. In particular, the agriculture industry, a cornerstone of South Kern’s economy, has experienced disruptions due to water scarcity and adverse weather conditions. Due to the prevalence of this industry in South Kern and the number of unemployed people currently, the decline of the agricultural sector could be particularly detrimental to the overall economic landscape in South Kern. These economic harms underscore the need for adaptation strategies that integrate sustainable water management, energy efficiency, and climate-resilient practices. Additionally, such challenges present opportunities for innovation in technology and processes that can mitigate the impact of climate-related disruptions on these industries.

INFLATION

The recent surge in inflation rates has reverberated through the economic landscape, creating a far-reaching impact that burdens communities already grappling with financial burdens. This pressure from inflation translates into elevated costs across essential goods and services, a phenomenon that bears particularly heavy consequences for the vulnerable populations in South Kern. As prices for everyday necessities climb, the struggle to secure basic needs intensifies, driving up poverty rates and further straining the financial stability of those already facing economic challenges. Inflation affects South Kern particularly strongly due to the already high rates of poverty.

A closer look at the Consumer Price Index (CPI) reveals the intricate dynamics at play. The CPI has surged by 2.7%, a figure that reflects the general increase in prices for goods and services¹⁵⁵. To break that down further, food prices have experienced a significant escalation of 4.7%, while energy prices have conversely fallen by 8%, primarily attributed to a decrease in gas prices¹⁵⁶. This mixed landscape underscores the complex interplay of factors shaping inflation rates, impacting various aspects of daily life.

The interconnectedness of these factors reveals the multifaceted nature of inflation’s impact on the cost of living, particularly in regions like South Kern, where already marginalized communities face amplified challenges in their pursuit of economic stability.

Climate and Environmental Impact – South Kern County

South Kern County is home to a diverse array of cities and towns, including Arvin, Edmundson Acres, Frazier Park, Fuller Acres, Greenfield, Lamont, Pine Mountain Club, and

¹⁵⁵ US Bureau of Labor Statistics; Consumer Price Index; July 2023;

https://www.bls.gov/regions/west/news-release/consumerpriceindex_losangeles.htm

¹⁵⁶ US Bureau of Labor Statistics; Consumer Price Index; July 2023;

https://www.bls.gov/regions/west/news-release/consumerpriceindex_losangeles.htm

Weedpatch. This region exhibits a mix of geographical features, encompassing desert terrain, mountain ranges, and agricultural areas, creating distinct microclimates within the area.

Within this varied landscape, South Kern County hosts notable natural attractions, such as the Los Padres National Forest and the Wind Wolves Preserve. The combination of mountainous and forested locales, agricultural lands, and desert, including a portion of the Mojave Desert, results in a range of climates. During the summer months, many towns experience hot and dry conditions, followed by relatively mild winters. For instance, Frazier Park, nestled in the San Emigdio Mountains, enjoys a cooler climate compared to Lamont, which is closer to Bakersfield and the heart of the Central Valley.

Arvin and Lamont stand out as significant agricultural centers within the region, cultivating crops like strawberries, grapes, almonds, and pistachios. However, this agricultural emphasis exposes workers to pollution-heavy environments, particularly in areas at the base of the Tehachapi Mountain range. These locations can act as "traps for air pollution," as noted by the California Air Resources Board¹⁵⁷. Lamont, surrounded by active agricultural lands, faces challenges related to air quality due to the use of operational pesticides that impact the city's atmosphere.

In addition to these factors, several towns in South Kern County contend with various climate impacts. Extreme heat is a concern for areas like Arvin, Greenfield, and Lamont, where high temperatures during the summer can pose health risks and strain energy resources for cooling. Drought and water scarcity are significant challenges in these towns due to Kern County's arid climate, affecting agriculture and local water supplies. Towns situated in or near forested areas, such as Frazier Park and Pine Mountain Club, face the threat of wildfires, especially during dry conditions.

Air quality issues are particularly relevant in communities with extensive agricultural activity, where the use of pesticides and other chemicals can lead to poor air quality and health concerns. Furthermore, the economic impacts of climate change are felt across the region, with shifts in temperature and precipitation patterns affecting crop yields and local economies. Addressing these climate impacts requires tailored strategies that consider the unique characteristics of each town and foster community resilience.

Public Health Analysis – South Kern County

Kern County Subregional Demographic Data (U.S. Census data source, years cited.)

SOUTH KERN SUBREGION

Total Pop. (2016-2020)	133,157
Poverty = <100% of FPL (% , 2016-2020)	28.77%
Low Income = <200% of FPL (% , 2016-2020)	62.67%
Racial/Ethnic Minority (% , 2016-2020)	87.90%
Hispanic/Latino (% , 2016-2020)	80.32%
Black (% , 2016-2020)	4.47%

¹⁵⁷ Arvin/Lamont – California Air Resources Board, 2021, <https://ww2.arb.ca.gov/our-work/programs/community-air-protection-program/communities/arvinlamont>

Asian (% , 2016-2020)	2.09%
Amer. Indian/Alaska Native (% , 2016-2020)	0.92%
Native Hawaiian (% , 2016-2020)	0.17%
Under 18 (% , 2016-2020)	33.73%
65 and older (% , 2016-2020)	7.23%
Less than High School Ed. (adults 25+ , % , 2016-2020)	45.00%
Adults Ever Told Have Diabetes (% , 2020)	13.33%
Adults with No Dental Care in Past Year (% , 2020)	56.53%
Adults with No Usual Source of Primary Care (% , 2018)	25.44%
Adults Who Are Binge Drinkers (% , 2020)	16.73%
Adults Who Smoke (% , 2020)	18.57%
Adults Who Are Obese (% , 2020)	38.92%
Adults with High Blood Pressure (% , 2020)	27.84%

Subregional data indicates the South Kern Subregion struggles with most of the factors that impact public health: poverty, poor educational levels, and high levels of obesity and diabetes. The total population of South Kern is approximately 133,157. Of those, 28.77% live in poverty; 62.67% is classified as low income; 45.0% of the population over 25 has less than a high school education; 13.33% of adults have been diagnosed with diabetes; 38.92% of the adult population is obese. Additionally, 25.44% of adults have no usual source of care or medical home, a factor which leads to poor health outcomes and poor chronic disease management. South Kern also lacks health care facilities that serve the needs of low-income patients. There are only five Community Health Centers in the subregion and no hospitals. Two Rural Health Clinics exist in Arvin and Frazier Park, but Rural Health Clinics do not offer a sliding fee scale like the Community Health Centers and patients without insurance must pay out of pocket.

Economy and Economic Development – Central Kern County

The Central Kern subregion encompasses the Greater Bakersfield area, along with its surrounding cities and designated places such as Edison, Fuller Acres, Oildale, Pumpkin Center, Rosedale, and others. Within the Central Kern subregion, a significant portion of its census tracts falls under categories like Disadvantaged Communities (DACs), Severely Disadvantaged Communities (SDACs), and Low-Income Community census tracts.

Economic development opportunities and forces in the region.

Central Kern presents a landscape of economic development opportunities and influential forces that can shape the region's growth. The Bakersfield area, historically driven by oil and agriculture, confronts challenges within these sectors, yet these legacy industries hold potential for innovation. There is an ongoing momentum that can be harnessed for industry innovation within oil and agriculture.

To enhance economic resiliency, Central Kern must diversify industries, promote inclusivity, facilitate the transition of traditional sectors, and integrate sustainability goals. By leveraging the existing knowledge and skills in the oil and gas cluster, the region can forge new specializations

that align with manufacturing in different sectors. The alignment of oil and gas workforce capabilities with various manufacturing specializations offers promising pathways for growth and transformation.

In comparison to other areas, Bakersfield displays a smaller proportion of workers in Agriculture, Forestry, Fishing, and Hunting, as well as the Mining sectors. This suggests a potential to explore these sectors further, diversifying the economic landscape. Meanwhile, the presence of out-commuters in the Manufacturing and Transportation sectors indicates a capacity for attracting more local talent and fostering local job opportunities. Existing retail/restaurant sales of approximately \$5.8 billion per year, there is a strong foundation for growth in the service and retail sectors, offering prospects for economic expansion¹⁵⁸.

Moreover, the emphasis on industries and clusters like Energy, Utilities, and Construction, Aerospace, Advanced Manufacturing (chemicals, plastics, metalworking, machinery, and food), and Business Services suggests targeted opportunities for Central Kern's economic evolution. These industries align with emerging trends in sustainability, technology, and innovation, propelling the region into a more diverse and dynamic economic future. Overall, the Central Kern region holds the potential to navigate its economic landscape, drawing from its historical strengths while embracing new opportunities for growth and transformation.

One notable economic force is the development of healthcare infrastructure in South Kern. Projects like the new tower at Mercy Hospital Southwest are indicative of the region's commitment to enhancing healthcare services. The addition of private patient rooms, ICU facilities, neonatal care rooms, expanded emergency rooms, and advanced medical technology highlights the effort to provide comprehensive and state-of-the-art healthcare services to the community. These healthcare developments not only improve the quality of care for residents but also stimulate economic growth through job creation, increased demand for medical services, and potential collaborations with other related industries.

Inequities in economic development across the region.

In Central Kern, there exist significant inequities in economic development that are rooted in longstanding socioeconomic challenges. While the region displays economic strength and resilience, several factors contribute to disparities that need attention. The region's overall development is affected by factors such as vulnerability to economic fluctuations stemming from excessive dependence on unpredictable industries, a mismatch between educational attainment and the demands of a technology-oriented global economy, and disparities in economic opportunities.

Bakersfield, a major city in Central Kern, demonstrates disparities in poverty rates among different racial and ethnic groups. While the overall poverty rate is 16.1%, the percentages for specific groups vary significantly¹⁵⁹. White Non-Hispanic residents have a lower poverty rate at

¹⁵⁸ U.S. Census Bureau; American Community Survey 5-year estimates; Lamont, Oildale, Pumpkin Center, Bakersfield, Rosedale, Edison

¹⁵⁹ U.S. Census Bureau; American Community Survey 5-year estimates; Lamont, Oildale, Pumpkin Center, Bakersfield, Rosedale, Edison
Kern Community College District

10.5%, whereas Black residents face a higher rate at 28.6%¹⁶⁰. Similarly, Lamont also grapples with substantial poverty rates, with percentages varying based on race and ethnicity. Lamont's poverty rate is 26.5% with the highest rate of poverty experienced by the Hispanic population at 24%¹⁶¹. These disparities point towards unequal economic opportunities that can hinder overall growth and development.

Educational attainment is another crucial factor contributing to inequities. The relatively low percentage of Bakersfield's population (25 years and over) with a bachelor's degree or higher (22%) compared to California's average (33%) suggests a skills gap that can limit access to higher-paying, technology-oriented jobs¹⁶². This misalignment between the skill set of the local workforce and the demands of the evolving global economy can impede upward mobility for residents.

Addressing these disparities in Central Kern requires a multifaceted approach. Efforts to diversify the economy may reduce vulnerability to shocks in specific industries. Investing in education and skill development could align the workforce with emerging job opportunities. Strategies aimed at promoting inclusivity and equal economic access are essential to ensure that growth benefits all residents, regardless of their background. By addressing these challenges, Central Kern can work towards a more equitable and prosperous economic future for all its communities.

Major low- and high- wage industries and occupations in the region.

Central Kern features a range of industries and occupations with varying mean hourly wages, underscoring the economic diversity within the region. High-wage industries and occupations play a vital role in bolstering the region's economic prosperity. Management positions lead the pack with a mean hourly wage of \$58.41, reflecting the significance of strategic leadership and decision-making. Legal professionals (approximately 750 employed) follow closely, earning an annual wage of \$168,838, contributing to legal services within the region¹⁶³. Similarly, Law Enforcement (approximately 2,700 employed) is a high paying sector with a median annual salary of \$167,061¹⁶⁴. The Architecture and Engineering sector (approximately 2,500 employed), with an annual salary of \$146,808, highlights the importance of innovation and design expertise in shaping Central Kern's infrastructure. Health Practitioners (6,241 employed), with an annual salary of \$198,688, signifies the growing significance of technology-related roles in the region's economy.

Conversely, Central Kern also encompasses low-wage industries and occupations, presenting challenges in ensuring equitable economic opportunities. Food preparation and service roles have a mean hourly wage of \$16.32, often representing entry-level positions in the

¹⁶⁰ U.S. Census Bureau; American Community Survey 5-year estimates; Lamont, Oildale, Pumpkin Center, Bakersfield, Rosedale, Edison

¹⁶¹ U.S. Census Bureau; American Community Survey 5-year estimates; Lamont, Oildale, Pumpkin Center, Bakersfield, Rosedale, Edison

¹⁶² U.S. Census Bureau; American Community Survey 5-year estimates; Lamont, Oildale, Pumpkin Center, Bakersfield, Rosedale, Edison

¹⁶³ Data USA: Central Kern, CA: <https://datausa.io/>

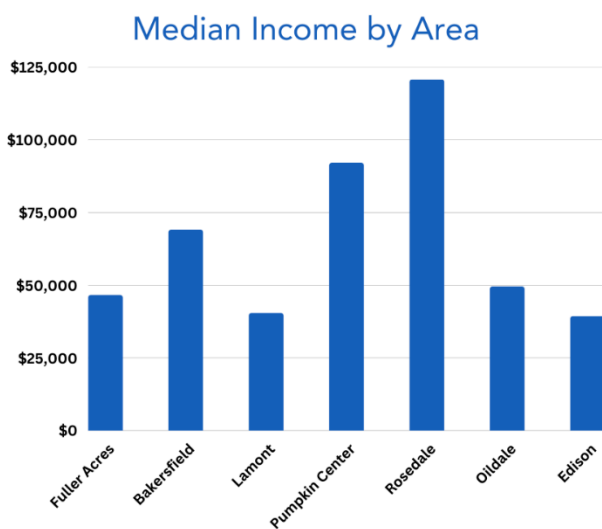
¹⁶⁴ Data USA: Bakersfield, CA: <https://datausa.io/>

hospitality industry¹⁶⁵. Healthcare support occupations, with a mean hourly wage of \$16.87, encompass critical yet lower-paying roles that contribute to patient care. The disparity between healthcare support wages and that of healthcare disparities is particularly glaring. Personal care and service occupations, earning a mean hourly wage of \$18.52, involve jobs related to assisting individuals with various needs¹⁶⁶. The Building, Cleaning, and Maintenance sector, with a mean hourly wage of \$18.69, represents essential but relatively lower-paying roles in maintaining the region’s infrastructure¹⁶⁷.

Economic well-being and the cost of living across the region.

Central Kern exhibits a diverse economic landscape, with variations in economic well-being and the cost of living across its different cities. Despite a median income of \$46,552, the high poverty rate indicates challenges in achieving economic stability for its residents.

Bakersfield, the largest city in Kern, boasts a slightly higher cost of living index of 92.6, indicating a marginally increased cost of living compared to the regional average. With a median gross rent of \$1,219 and a poverty rate of 16.1%, Bakersfield presents a more mixed economic picture. The economic diversity in Bakersfield is clear when looking at the different zip codes,



with median incomes ranging from \$31,992 to \$132,603 depending on the zip code, reflect varying degrees of economic disparity.

Pumpkin Center stands out with a higher median income of \$92,049 and a lower poverty rate of 8.7%, highlighting relatively better economic well-being. The area’s cost of living index at 92.1 indicates affordability in line with the regional norm.

Rosedale, a more affluent area, boasts a low poverty rate of 7.5% and a higher median income of \$120,697.

Although the cost of living index for zip code 93312 is 92.3, implying a slightly elevated cost of living, Rosedale’s strong economic conditions reflect a more prosperous community. Oildale, with a median gross rent of \$1,073, a cost of living index of 92.1, and a poverty rate of 30.5%, faces notable economic disparities despite a median income of \$49,490.

Edison, with a cost of living index of 92.8, experiences a slightly higher cost of living, and its median income of \$39,280, combined with the prevailing poverty rates, underscores economic

¹⁶⁵ U.S. Census Bureau; American Community Survey 5-year estimates; Lamont, Oildale, Pumpkin Center, Bakersfield, Rosedale, Edison

¹⁶⁶ U.S. Census Bureau; American Community Survey 5-year estimates; Lamont, Oildale, Pumpkin Center, Bakersfield, Rosedale, Edison

¹⁶⁷ U.S. Census Bureau; American Community Survey 5-year estimates; Lamont, Oildale, Pumpkin Center, Bakersfield, Rosedale, Edison

challenges for its residents. In summary, Central Kern showcases a spectrum of economic well-being and cost of living levels, with areas like Rosedale and Pumpkin Center enjoying better economic conditions, while Fuller Acres, Lamont, and Oildale grapple with higher poverty rates and associated economic difficulties. Bakersfield and Edison demonstrate varying degrees of economic disparities within their neighborhoods.

Economic Shocks

PANDEMIC

The economic shocks triggered by the COVID-19 pandemic have had profound impacts on Central Kern’s economy, revealing both challenges and opportunities for the region. One notable shift brought about by the pandemic is the changing dynamics of the workforce, favoring suburban and second-tier locations like Kern County. (Second tier refers to an area’s GDP and economic impact.) The pandemic has propelled an increasingly “footloose” workforce, where remote work has become more prevalent, allowing individuals to choose their place of residence based on quality of life rather than proximity to traditional job hubs. This trend could potentially benefit Central Kern by attracting individuals seeking a better quality of life outside densely populated urban centers.

The pandemic has also laid bare the vulnerabilities of certain segments of Central Kern’s workforce. Workers in low-income sectors and occupations that require physical presence, preventing remote work, have faced significant challenges during the pandemic. The inability to work remotely has exposed them to health risks and economic uncertainties. Additionally, the struggles faced by workers in sectors that experienced reduced activity due to shocks, as well as those employed by small businesses, have been pronounced.

The pandemic has underscored the importance of safeguarding workers and workplaces, as well as supporting small businesses in Central Kern. Policies and initiatives aimed at enhancing workplace safety, providing economic relief, and fostering a supportive environment for small businesses have become essential. By addressing these needs, Central Kern can mitigate the negative impacts of economic shocks while positioning itself to capitalize on the shifting trends in workforce dynamics and manufacturing activities.

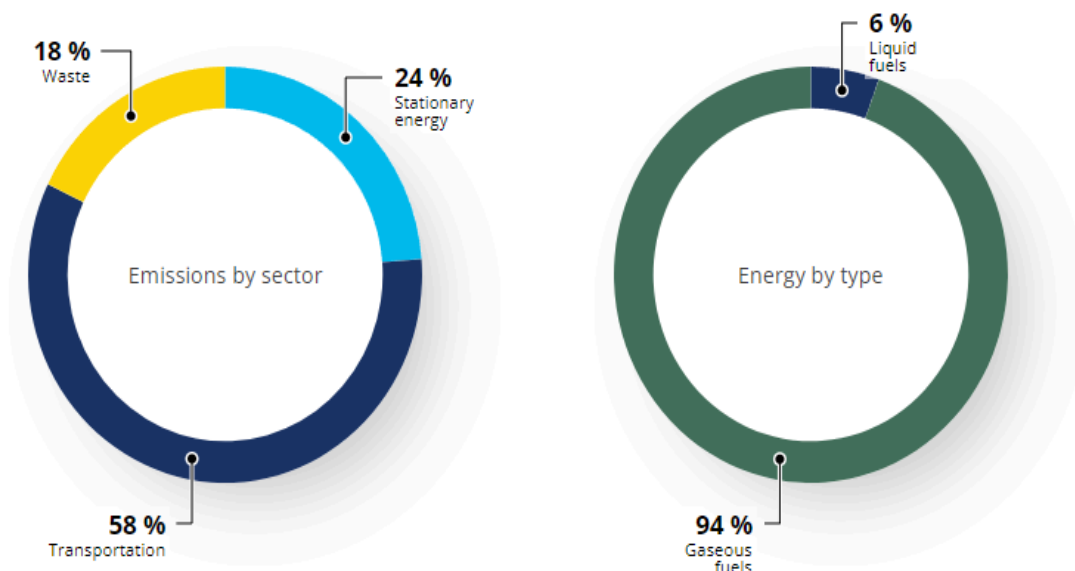
Climate and Environmental Impact – Central Kern County

The Central Kern subregion encompasses several towns and communities, including Bakersfield, Edison, Fuller Acres, Oildale, Pumpkin Center, Rosedale, and others. Similar to the other subregions, Central Kern experiences a semi-arid or Mediterranean climate characterized by relatively mild, wet winters and hot, dry summers. Notably, instances of strong winds occasionally contribute to fire risks and propagation.

In places like Edison, as well as many other locations across Kern, agriculture forms a foundational aspect. Notably, Edison Middle School Farm was inaugurated on May 26th, 2023, marking a significant step toward teaching students about garden management and cultivation. This expansion of agricultural education presents an opportunity for students to engage with the

industry, potentially leading to the incorporation of climate-friendly technologies and practices by the next generation of farmers¹⁶⁸.

Bakersfield, the largest city in Kern County, boasts a population of 407,581 residents across seven zip codes, as per the 2021 U.S. Census Bureau¹⁶⁹. However, its size also leads to notable



transportation emissions. In 2015, data from the Global Covenant of Mayors for Climate and Energy¹⁷⁰ indicated a total of 2,833,891 greenhouse gas (GHG) emissions, with transportation contributing 58% of this figure. It’s worth noting that this data is from 2015 and may have changed due to evolving technologies, such as electric vehicles, and initiatives aimed at reducing emissions.

Smaller towns like Fuller Acres, Oildale, Pumpkin Center, and Rosedale lack substantial data on their climate impacts compared to larger counterparts like Bakersfield. Recognizing this data gap is crucial, highlighting the need for comprehensive data collection efforts to assess the climate impacts of these communities.

Public Health Analysis – Central Kern County

Kern County Subregional Demographic Data (U.S. Census data source, years cited.)

CENTRAL KERN SUBREGION

Total Pop. (2016-2020)	583,873
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¹⁶⁸ Edison Middle School Farm – Bakersfield Now, 2023, <https://bakersfieldnow.com/news/eyewitness-mornings/building-a-brighter-future-edison-middle-school-to-unveil-its-new-farm-friday>

¹⁶⁹ US Census, Demographic & Population, Table DP05, 2021, <https://data.census.gov/table?text=DP05&g=160XX00US0603526>

¹⁷⁰ Bakersfield Greenhouse and Energy Data + Graphic, 2015, <https://dataportalforcities.org/north-america/united-states/california/bakersfield>

Poverty = <100% of FPL (% , 2016-2020)	20.24%
Low Income = <200% of FPL (% , 2016-2020)	43.34%
Racial/Ethnic Minority (% , 2016-2020)	67.55%
Hispanic/Latino (% , 2016-2020)	53.75%
Black (% , 2016-2020)	5.81%
Asian (% , 2016-2020)	5.36%
Amer. Indian/Alaska Native (% , 2016-2020)	0.95%
Native Hawaiian (% , 2016-2020)	0.05%
Under 18 (% , 2016-2020)	30.11%
65 and older (% , 2016-2020)	10.33%
Less than High School Ed. (adults 25+, % , 2016-2020)	23.04%
Adults Ever Told Have Diabetes (% , 2020)	11.06%
Adults with No Dental Care in Past Year (% , 2020)	45.04%
Adults with No Usual Source of Primary Care (% , 2018)	29.03%
Adults Who Are Binge Drinkers (% , 2020)	17.62%
Adults Who Smoke (% , 2020)	15.91%
Adults Who Are Obese (% , 2020)	34.04%
Adults with High Blood Pressure (% , 2020)	26.70%

The Central Kern Subregion is the most populous of the five regions with a population total of approximately 583,873. It includes a mix of urban and rural areas including the city of Bakersfield, and smaller surrounding communities and CDPs. When compared to the other five subregions, the Central Kern Subregion falls in the mid-range for most data, not the highest in any of the data points but not the lowest either. The racial/ethnic minority is 67.55%, with the Hispanic/Latino population making up the majority of that (53.75%). Of note, this subregion has the second highest percentage of young people; 30.11% of the population is under 18. Health issues are also in the mid-range of the subregion percentages: 11.06% of adults have diabetes, 17.62% of adults are binge drinkers, and 34.04% of adults are obese. Central Kern has the second lowest percentage of adults who have high blood pressure but that may be due to the fact that blood pressure issues are more common in an aging population and, as discussed earlier, Central Kern has a high percentage of its population that is under 18 years of age.