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# Social, Economic and Fiscal Impact Assessment for New Lithium Operations in Humboldt County, Nevada

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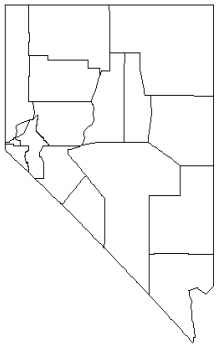

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# Acknowledgments

This report is intended to fulfill the socioeconomic impact assessment requirements under the National Environment Policy Act (NEPA). In addition, this report can be used to assist county, state and land agencies to better understand the social, economic and fiscal consequences from the develop of a new lithium mine, lithium processing plant and sulfuric acid manufacturing plant in Humboldt County. The research team would like to express special thanks to Lithium Nevada, Nevada Mining Association and Nevada's Governor's Office of Economic Development for input and cooperation throughout the study.

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# Executive Summary

Humboldt County is the oldest county in Nevada that has built its economy around agriculture, mining, and tourism. Agriculture leads the state with over 100,000 acres under cultivation, while sustainable tourism is supported through gaming, abundant outdoor recreation opportunities, and excellent hunting and fishing. Mining has been a cornerstone since the beginning with rich mineral deposits of gold, dolomite, opal, purified wood and silver. Today, Humboldt County is working towards expanding its overall mineral mining portfolio to include lithium. Large deposits of lithium have been identified in the McDermitt Caldera area that presents a unique opportunity to develop a significant supply to satisfy increasing market demands.

The purpose of this report is to estimate the economic, fiscal and community impacts from the construction and operation of a new lithium mine, lithium processing plant, and sulfuric acid manufacturing plant in Humboldt County, Nevada. This study contributes to the National Environmental Policy Act (NEPA), Socioeconomic Impact Assessment, for Lithium Nevada Corp. permit application.

## Proposed Operations

The USGS has identified the McDermitt Caldera (Kings Valley Lithium deposit) as among the world's most highly mineralized calderas which contain significant deposits of lithium in smectite and illite clays. Further, the USGS identifies the Kings Valley lithium resource as potentially critical to the United States development of a clean energy economy as defined in the American Recovery and Reinvestment Act (USGS 2016b). To date, at least five distinct lithium deposits have been discovered by Lithium Nevada Corp. within the McDermitt Caldera. Currently, one deposit is proposed for development; containing at least 234 million short tons at a grade of 0.665 percent lithium (USGS 2016b).

## Methodology

Social and economic characteristics of a community are one of the first steps in understanding how a community may respond to change. Understanding current social and economic trends provide a baseline analysis used for assessing economic development projects and community planning efforts.

Economic impacts for the development of a new lithium mine, lithium processing plant and sulfuric acid plant in Humboldt County were estimated using a Humboldt County hybrid IMPLAN economic impact model (IMPLAN Group. LLC, 2016). IMPLAN stands for "Impact Analysis for Planning" and is a commonly used analytical software tool to estimate socioeconomic impacts initially developed by researchers at the U.S. Forest Service. The IMPLAN software is an input-output based model that describes the inter-industry relationships between industries and commodity purchases within a local economy. This model is linear and impacts are estimated on an average annual base to prevent overestimations. For this analysis, primary data was collected from Lithium operators to develop two separate input-output sectors including Lithium Mining and the Lithium Processing. These sectors best represent the proposed operations and used to estimate economic and fiscal impacts on Humboldt County. Types of impacts reported include:

***Direct Impacts:*** Represents the initial operating expenditures and employment.
***Indirect Effects:*** Represents purchases of goods and services from supplying vendors.
***Induced Effects:*** Represents the spending from households due to changes in the production of goods and services generated from direct and indirect purchases.
***Total Impact:*** Summation of direct, indirect and induced effects.

## Humboldt County Demographic Trends

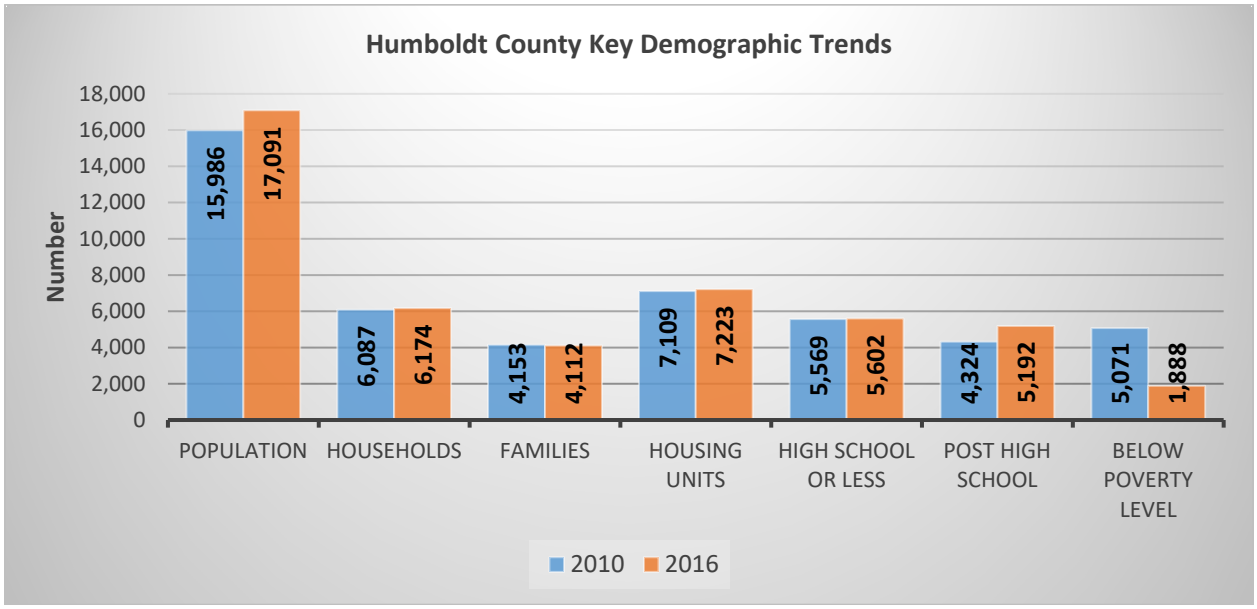
*Humboldt County Key Demographic Trends.*

| | 2010 | 2016 | % Change |
|---|---|---|---|
| **Population** | 15,986 | 17,091 | +6.9% |
| **Median Age** | 36.6 | 35.2 | -3.8% |
| **Veterans** | 1,366 | 1,119 | -18.1% |
| **Households** | 6,087 | 6,174 | +1.4% |
| **Families** | 4,153 | 4,112 | -1.0% |
| **Housing Units** | 7,109 | 7,223 | +1.6% |
| **Housing Units Occupied** | 6,087 | 6,174 | +1.4% |
| **Housing Units Vacant** | 1,022 | 1,049 | +2.6% |
| **Education: High School or Less** | 5,569 | 5,602 | +0.6% |
| **Education: Post High School** | 4,624 | 5,192 | +12.3% |
| **Population Below Poverty Level** | 5,071 | 4,888 | -3.6% |

*Source: US Census/American Fact Finder*

***Key Social Trends between 2010 and 2016***:

- Total population increased 6.9%.
- Hispanic/Latino population increased over 20%
- Median age decreased 3.8% primarily because of an 11% increases in population ages 19 and under.
- Housing unit inventory and occupied housing increased 1.6% and 1.4% respectively. Vacant housing inventory increased 2.6%
- Median housing value increased 8% to $165,100.
- Post high school education increased 12.3%, while education high school or less increased .06%
- Populations below poverty level decreased 3.6%.
- The percentage of the total population at or under the poverty level deceased from 12.7% to 11.8%



## Humboldt County Economic Trends

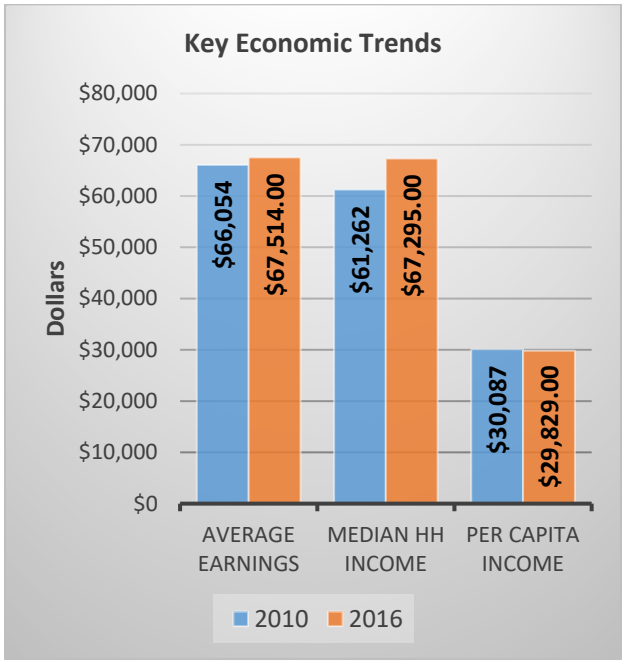
*Humboldt County Key Economic Trends.*

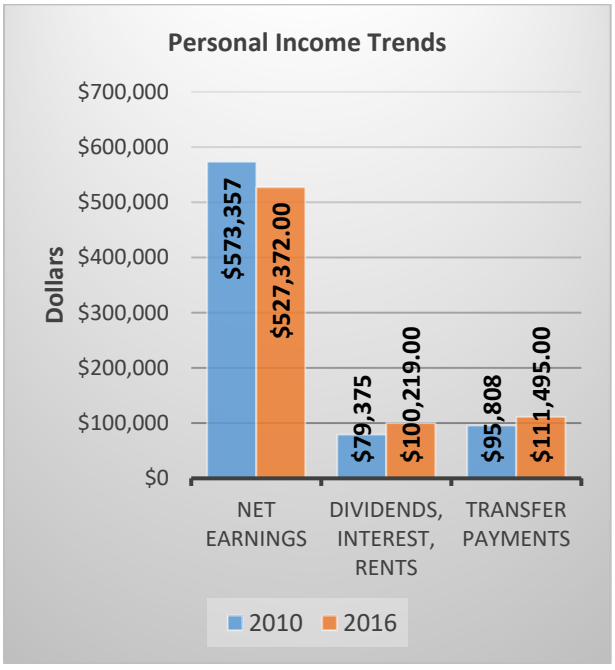
| | 2010 | 2016 | % Change |
|---|---|---|---|
| | | | |
| **Employment** | 8,447 | 8,281 | -1.9% |
| **Labor Force** | 8,218 | 8,968 | 9.1% |
| **Unemployment Rate** | 9.0% | 7.7% | -14.4% |
| **Average Earnings** | $66,054 | $67,514 | +2.2% |
| **Median HH Income** | $61,262 | $67,295 | +9.8% |
| **Personal Income** | $748,540 | $739,086 | -1.3% |
| **Net Earnings** | $573,357 | $527,372 | -8.0% |
| **DIR*** | $79,375 | $100,219 | +26.3% |
| **Transfer Payment** | $95,808 | $111,495 | +16.4% |
| **Per Capita Income** | $30,0857 | $29,829 | -0.8% |

*Source: US Census/American Fact Finder*
*Bureau of Economic Analysis*
*DIR = Dividends, Interest, Rents

***Key Social Trends between 2010 and 2016***:

- Total employment has declined 1.9%, while labor force increased 9.1% and unemployment rate decrease 14.4% to 7.7%.
- Top four employment sectors include mining; government; accommodations & food service; and retail trade accounting for nearly 64% of all employment.
- Top four occupations include construction & extraction; office & administrative support; installation, maintenance, and repair; and transportation and material moving. These occupations account for 40% of all jobs.
- Average earnings and median household income increased 2.2% and 9.8%, respectively.
- Personal income decreased 1.3%, mainly influenced by a 62.1% decrease in proprietors' income.
- Significant increases in dividends, interest rents and transfer payments at 26.3% and 16.4%, respectively.



## Construction Impacts on Humboldt County

Three new facilities, including an open pit mine, processing plant, and manufacturing plant, are proposed for construction in Humboldt County over seven years. Two construction phases will be initiated in years one and five, and each phase will last a total of two years. Phase 1, beginning in year one and concluding in year two, will build an open pit mine, lithium processing plant, sulfuric acid manufacturing plant that will have the capacity to produce up to 33,000 tonnes of Lithium Carbonate. Phase 2, beginning in year five and concluding in year six, will expand all facilities constructed in Phase 1, and double production capacity to 66,000 tonnes of Lithium Carbonate.

Construction economic impacts are considered short-term and not sustainable beyond the scheduled construction timeline. For example, Lithium Nevada Corp. construction projections are estimated to include two phases and spread out over seven years, but the actual construction will only occur over four years, two nonconsecutive two year periods. This results in a four-year economic impact on Humboldt County and not a seven-year economic impact. Annually, direct construction investment is estimated at over $218.3 million, including over $56 million in personal income and 1,000 jobs.

*Construction Projections.*

| Phase 1 | Phase 2 |
|---|---|
| *Two-year construction* including: mine, processing plant and manufacturing plant (Years 1-2) | *Two-year construction expansion* including: mine, processing plant, and manufacturing plant (Years 5-6) |
| Beginning year 3 through 6, production of 33,000 tonnes LCE/year | Beginning year 7 through 46, production of 66,000 tonnes LCE/year |
| Total Investment: $536,614,208 | Total Investment: $336,963,139 |
| Average Annual Investment: $268,307,104 | Average Annual Investment: $168,481,569 |
| **Average four-year annual investment $218,394,336 Direct Jobs = 1,000** | |

Annually, the direct $218.3 million construction investment will generate an additional $47.0 million in indirect and induced activity for a total economic impact of over $264.4 million. This includes over $265.4 million in total personal income and supporting 1,340 total jobs at an overall average wage of $51,200. This level of economic activity will also generate over $8.2 million in state and local taxes.

*Estimated Mine and Plant Annual Construction Impacts on Humboldt County.*

| | Direct | Indirect | Induced | Total | Multiplier |
|---|---|---|---|---|---|
| | | | | | |
| Economic Activity | $218,394,336 | $115,119,708 | $31,917,271 | $265,431,316 | 1.22 |
| Personal Income | $56,553,554 | $4,291,382 | $7,763,556 | $68,608,492 | 1.21 |
| Employment | 1,000 | 97 | 243 | 1,340 | 1.34 |
| Average Wage per Job | $56,553 | $44,241 | $31,948 | $51,200 | |
| | | | | | |
| State & Local Taxes | $4,016,272 | $1,126,478 | $3,071,061 | $8,213,811 | |
| Federal Taxes | $17,437,041 | $1,088,259 | $2,457,810 | $20,983,109 | |

## Annual Operation Impacts on Humboldt County

Beginning year three, Lithium Nevada will transition from Phase 1 construction to Lithium Carbonate production at a maximum capacity rate of 33,000 tonnes per year. This level of production will continue through year six when Phase 2 construction is scheduled to be completed. Beginning year seven, Lithium Carbonate production capacity will expand to 66,000 tonnes per year. Unlike the construction phases discussed in the previous section, annual operations will provide Humboldt County with long-term sustainable economic impacts over the life of the projected, 41 years. Sustainable impacts will include consistent levels of direct, indirect and induced purchases, employment, incomes, and tax revenues.

*Annual Operation Projections.*

| Phase 1 | Phase 2 |
|---|---|
| | |
| *Three-year production* 33,000 tonnes LCE/year (Years 3-6) | *Thirty-nine year production:* Production of 66,000 tonnes LCE/year (Years 7-46) |
| Average Annual Cost: $146,080,527 | Average Annual Cost: $237,534,698 |
| **Average 41-Year Annual Operating Costs $277,366,874 Direct Jobs = 331** | |

Over a 41-year production schedule, Phase 1 & 2, it is estimated that Nevada Lithium will, on average annually, directly spend over $277 million and employ up to 313 jobs, to produce up to 66,000 tonnes of Lithium Carbonate.

Annually, total direct operations will spend over $277 million that generate additional economic activity of over $50 million for a total economic activity of over $332 million in Humboldt County. This level of economic activity includes over $33 million in total personal income and support 540 total jobs at an overall average wage of $62,675. This level of total economic activity is estimated to collect approximately $9.1 million in state and local taxes.

Finally, lithium operations will also generate an excess volume of sulfuric acid and electricity that will be sold on the open market. This activity is estimated to produce annually additional revenues of over $2.1 million for power and $1.8 million for sulfuric acid. If sold within Humboldt County, this will improve economic linkages and meet local demands of businesses that currently importing these goods from outside Humboldt County.

*Estimated Mine and Plant Annual Operation Impacts on Humboldt County.*

| | Direct | Indirect | Induced | Total | Multiplier |
|---|---|---|---|---|---|
| | | | | | |
| Economic Activity | $277,366,874 | $41,154,497 | $14,182,120 | $332,703,490 | 1.20 |
| Personal Income | $24,340,416 | $6,763,008 | $2,733,821 | $33,837,245 | 1.39 |
| Employment | 331 | 136 | 73 | 540 | 1.63 |
| Average Wage per Job | $73,536 | $49,728 | $37,510 | $62,675 | |
| | | | | | |
| State & Local Taxes | $5,280,857 | $2,580,356 | $1,312,409 | $9,173,621 | |
| Federal Taxes | $9,685,824 | $2,826,108 | $1,029,522 | $13,541,454 | |

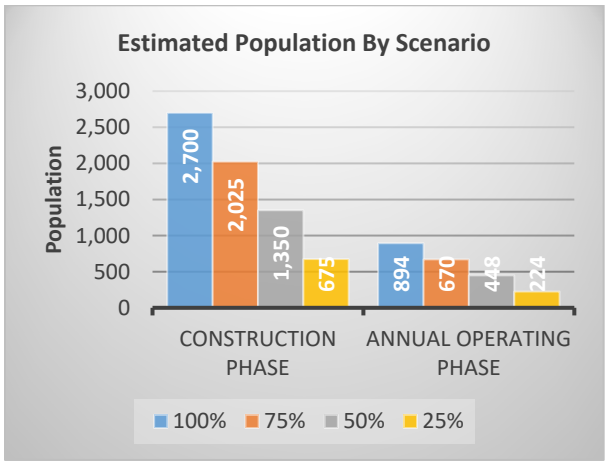
## Other Humboldt County Impacts

The previous section reported that the development of a new lithium mine, lithium processing plant and sulfuric acid manufacturing plant will have positive employment, income and fiscal impact on Humboldt County. It is assumed that the new jobs created by these new enterprises will result in the increased demand for specialized jobs, thus resulting in the importing of labor to meet employment needs. Using the results from the baseline demographic and economic analysis, and the estimated impacts, will help Humboldt County better understand future population changes and demands on public and private goods and services.

Four simulated scenarios are considered and based off estimated increased levels of new lithium mining, lithium processing, and sulfuric acid manufacturing employment reported in the results section. Given that existing Humboldt County residents may fill some new employment opportunities, these scenarios provide varying mixes of imported labor and local labor.

*Impact Scenarios.*

| | |
|---|---|
| Scenario One | 100% new employment from outside Humboldt County |
| Scenario Two | 75% new employment from outside Humboldt County |
| Scenario Three | 50% new employment from outside Humboldt County |
| Scenario Four | 25% new employment from outside Humboldt County |




***Population Impacts.*** Changes in total population are estimated by multiplying the total job impacts by the current average household size in Humboldt County.

***Total Employment Impacts * average household size***

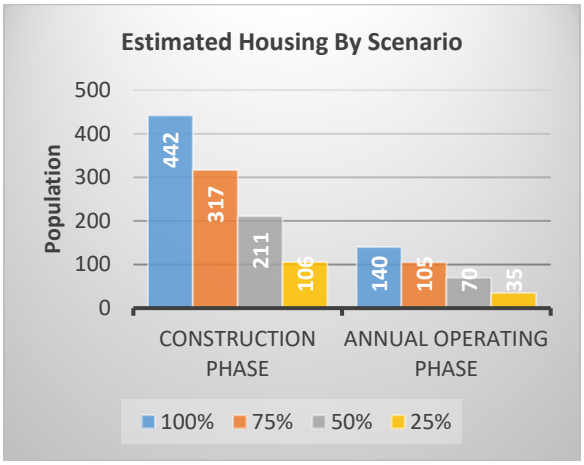
Facility construction (short-term) population impacts range from an increase in the population of 2,700 to 675 new residents. Annual operation (long-term) population impacts range from an increase in the population of 894 to 224 new residents.

***Housing Impacts.*** Changes in housing demands are estimated using the total housing, total population, and new estimated population.

***Total Housing Units / Total Population = Current Housing Units Per Capita (HUPC)***

***HUPC X New Population = Housing Demand***

Facility construction (short-term) housing demand impacts range from an increase of 442 to 106 housing units. Annual operation (long-term) housing demand impacts range from an increase of 140 to 35 housing units.



## Conclusions & Discussion

This report provides a framework and analysis for estimating the social, economic and fiscal impacts on Humboldt County from the development and operations of a new lithium mine, lithium processing plan, and sulfuric acid manufacturing plant. In cooperation with the mining industry, a hybrid IMPLAN model was developed for Humboldt County. Two new sectors were developed, Lithium Mining and Lithium Processing, to best simulate and estimate the impacts of a newly proposed lithium operation in Humboldt County.

Study results show that proposed operations have a significant economic and fiscal impact on Humboldt County. Two levels of impacts were estimated, construction (short-term) and annual operations (long-term).

| **Annual Construction Impacts (4 Years)** | |
|---|---|
| Total Economic Activity | $265,431,316 |
| Total Personal Income | $68,608,492 |
| Total Employment | 1,340 |
| Total State & Local Taxes | $8,231,811 |
| Average Wage Per Job | $51,200 |
| | |
| **Annual Operating Impacts (41 Years)** | |
| Total Economic Activity | $332,703,490 |
| Total Personal Income | $33,837,459 |
| Total Employment | 540 |
| Total State & Local Taxes | $9,173,621 |
| Average Wage Per Job | $62,675 |

The proposed lithium operations will contribute to the diversification of an already strong mineral based industry in Humboldt County. The development is also improving the local linkages for electricity and sulfuric acid used in the mining process that is currently imported from outside the state. Also, the worldwide demand for Lithium Carbonate continues to outpace the supply. For example, advances in clean air technology through battery-powered cars will be a strong driver of Lithium Carbonate consumption in the near future. This provides more value added opportunities and greater impacts on the state of Nevada, especially with the new Tesla Gigafactory built in Sparks, Nevada. Finally, the opportunity for attracting other manufacturing industries exists and may be the beginning of a cluster of industries that use Lithium Carbonate as part of their production process.

With any new or expanding industry, rural counties in Nevada may be challenged to meet the increased demands of new populations, especially when it comes to housing. This study considered the employment impacts for changes in population and potential demands on housing.

Four scenarios were considered with varying mixes of new populations and existing populations meeting employment opportunities (direct, indirect, and induced) created through Lithium Nevada projected operations.

| | Construction | | Operations | |
|---|---|---|---|---|
| Import Labor | People | Housing | People | Housing |
| | | | | |
| 100% | 2,700 | 442 | 894 | 140 |
| 75% | 2,025 | 317 | 670 | 105 |
| 50% | 1,350 | 211 | 448 | 70 |
| 25% | 675 | 106 | 224 | 35 |

Under each of these scenarios, it is estimated that Humboldt County should be able to absorb new populations and potential housing demands as the result of new workers moving to the county. For example, through secondary published data, in 2016, it was reported that there were 1,049 vacant housing units in Humboldt County, which is well within the estimated levels of housing demand. However, this may need to be further verified with county departments to assess the location and conditions of these housing units through comprehensive community development planning. Also, other factors that may be impacted by increases in population and need additional consideration include school sizes, protective services, and various infrastructure capacities.

# Introduction

Humboldt County, Nevada has long built its economy around agriculture, mining, and tourism. Agriculture alone reports over 100,000 acres under cultivation, while sustainable tourism is supported through gaming, abundant outdoor recreation opportunities, and excellent hunting and fishing activity. Mining has been a cornerstone since the county's founding, with rich mineral deposits of gold, dolomite, opal, purified wood, and silver. Today, Humboldt County is working towards expanding their overall mineral mining portfolio to include lithium. Large deposits of lithium currently being identified in the McDermitt Caldera area present a unique opportunity to develop a significant supply to satisfy increasing market demands.

The purpose of this report is to estimate the social, economic, and fiscal impacts resulting from the construction and operation of a new lithium mine, lithium processing plant, and sulfuric acid manufacturing plant in Humboldt County, Nevada. This report is not only relevant to fulfill National Environmental Policy Act (NEPA) requirements, but will also assist in community and economic development planning if the proposed project is developed.

The report is separated into nine sections. The first section provides a descriptive cultural context of Humboldt County. The second and third sections summarize relevant social and economic conditions and characteristics in Humboldt County. The fourth section provides a brief discussion of input-output models and possible errors if models are used as a black box procedure. The fifth section discusses the Humboldt County and Nevada export base economic model. The sixth section reports the economic and fiscal impacts on Humboldt County from the construction of a lithium mine, lithium processing plant, and sulfuric acid manufacturing plant. The seventh section shows the average annual economic and fiscal impacts on Humboldt County from the operations of a lithium mine, lithium processing plant, and sulfuric acid manufacturing plant. The eighth section discusses and estimates some of the additional impacts that Humboldt County needs to consider with the creation of a new lithium mining, lithium processing, and sulfuric acid manufacturing operation. Specifically, estimates are considered for the potential impacts on Humboldt County's total population, housing, and education. The final section provides a summary conclusion and discussion.

# Section 1—Humboldt County Cultural Context

Humboldt County is the oldest county in Nevada, with a description dating back to 1881 of "alkali plains, covered in part with scattering sage-brush, with now and then a tuft of bunch-grass." Indeed, along with sagebrush, rock, the occasional grassy meadow, and lizard, Humboldt County to this day is mostly characterized by flat valleys and mountains with abrupt elevation. And while the county was originally named for the Humboldt River, the county is currently made up of less than 0.1% water. It is this geographic backdrop and an overall desert climate that lends towards citizens of Humboldt County being part self-reliant and part community-driven.


Apart from census-designated places in the county, such as Paradise Valley or Fort McDermitt, Winnemucca is the county's sole incorporated city. Here, as well as around the rest of the county, summer days are hot, and the temperature drops at night. This city, partly due to its rich history, supports activity that makes the city the chief outsourcing center in Humboldt County. For example, Amtrak, with its California Zephyr, provides daily service in Winnemucca towards both San Francisco and Chicago. In fiscal year 2016, this rail service carried a total of 417,322 passengers. Also, Winnemucca houses the headquarters of the Winnemucca Indian colony of Nevada, which is a federally recognized tribe of both Western Shoshone and Northern Paiute Indians.

Winnemucca, together with its surrounding area, is a very involved community. Events are consistently hosted and attended. To name a few as of date of publication: the Winnemucca Nevada Big Game Banquet, the Winnemucca Toy Run, Winnemucca Futures as part of the Boys & Girls Club of Winnemucca, the Basque Festival, real estate workshops, general business workshops, Wine Walks, an archery challenge, and plenty of other year-round festivals. There is also the Humboldt Museum, the Winnemucca Sand Dunes, and of course, the visitor center. But perhaps the main pull, as is usual with rural communities, is the school district. The Humboldt County School District serves the northwestern part of the state. The schools themselves are

housed mainly in Winnemucca, but they extend to Denio, Kings River Valley, McDermitt, Oravada, and Paradise Valley. For a rural town, Winnemucca offers its students and children a wide variety of sports, including not only baseball, basketball, football, and volleyball, but also golf, soccer, tennis, and dance. This brings the community together with weekly events and gatherings, and provides a sense of hometown pride.

The Winnemucca Police Department is also an active part of the community. They are an involved, supportive, and supported organization that hosts their own events, but above all, provides safety and security. Similarly, the Humboldt County Sherriff's Office, located in Winnemucca, "is dedicated to the citizens living and visiting Humboldt County by earning and maintaining their trust and confidence with professional law enforcement services." From interactive comments on the police department web page to the consistent involvement of officers at events around town, it is clear that the police department is a stable core of this rural community and its surrounding areas.

A glance at a satellite map proves Humboldt County's self-reliant solidarity. There are patches of farmland in-between the interstates and the off roads. The occasional owned ranches lie between the occasional mountain peaks. I-80 and U.S. 95, the two main highways, intersect in Winnemucca, where most of everything else tends to congregate. Not only do certain citizens appreciate the rural exclusion, but a coming-together too is a big part of living in this region.

## Lithium Nevada Corp. Operations

There are a few companies that have the knowledge and ability to produce the right quality and quantities of these lithium compounds. Albemarle, Ganfeng and FMC currently produce high grade lithium hydroxide and carbonate in significant quantities, while SQM competes heavily in the lithium carbonate market. These compounds can be produced from several different types of lithium deposits (lithium brine, hard rock, and clay). Albemarle, SQM, Orocobre and FMC all have operating brine assets, while Albemarle and Tianqi have split ownership of the largest hard rock deposit in Australia. In North America, Nemaska is developing a hard-rock operation, while in Silver Peak, Nevada, Albemarle operates a small brine deposit which is the only operating lithium resource within the United States.

Hard rock deposits are usually an open pit mine. They require benefaction of the ore, roasting at high temperature in the presence of sulfuric acid to selectively leach the lithium from

the ore. The lithium enriched solution is then purified, and the lithium is converted to either lithium carbonate or lithium hydroxide.

Brine based lithium deposits are typically lithium chloride in a saturated sodium chloride solution. This requires a different purification process to the hard rock process. In areas with very high evaporation rates, natural evaporation is used to enrich the brine. Lithium is then precipitated as lithium carbonate to separate and purify it. The lithium carbonate is then used as the feedstock for other lithium compound production.

The only new, viable type of deposit currently under development are clay-based deposits. These clays are often found in or around old calderas with special geographic attributes. Within the State of Nevada, one such deposit has been identified in the McDermitt Caldera area. The deposit is located along the Nevada-Oregon border and presents a unique opportunity to develop a significant supply to satisfy the increasing demand.

According to the USGS, there is no global consensus on the definition for "strategic and critical" commodities. In general, it has been accepted as those materials that are considered vital to support societal requirements and Government policy (USGS 2016a). Lithium has been identified as a material that is not found or produced in sufficient quantity in the United States to meet the Nation's requirements and the material is currently being stockpiled by the Defense Logistics Agency (USGS 2016a).

The USGS has identified the McDermitt Caldera (Kings Valley Lithium deposit) as among the world's most highly mineralized calderas which contains significant deposits of lithium in smectite and illite clays. Further, the USGS identifies the Kings Valley lithium resource as potentially critical to the United States development of clean energy economy as defined in the American Recovery and Reinvestment Act (USGS 2016b). To date, at least five distinct lithium deposits have been discovered by Lithium Nevada Corp. within the McDermitt Caldera. Currently one deposit is proposed for development; containing at least 234 million short tons at a grade of 0.665 percent lithium (USGS 2016b).

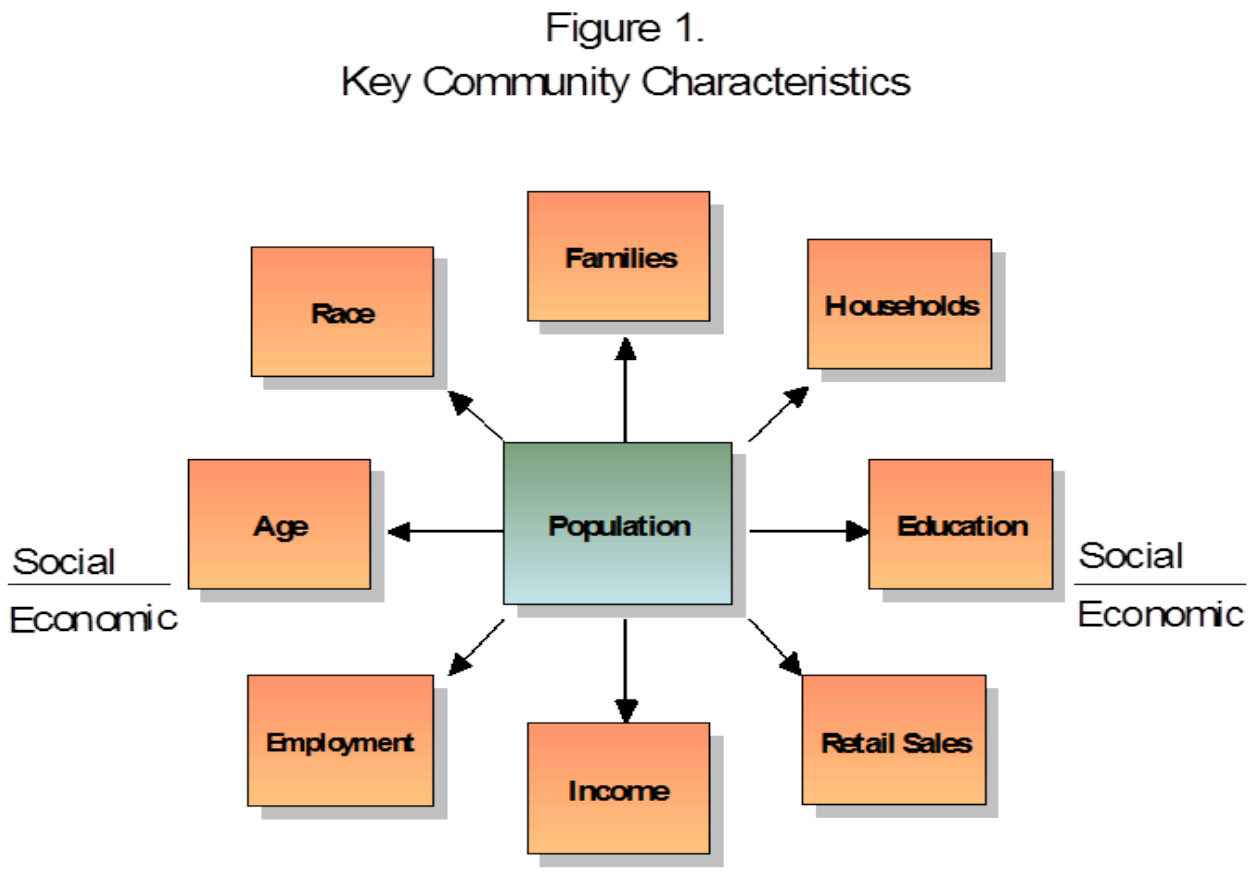
# Section 2—Socioeconomic Conditions

Social and economic characteristics of a community are one of the first steps in understanding how a community may respond to change. Understanding current social and economic trends provides a baseline that can be used for future planning and development purposes. This is the case in Humboldt County, where a relatively mineral-rich county has recently discovered lithium mineral reserves (USGS). Lithium is used in several products that we use every day including batteries, glass & ceramics, lubricants, and pharmaceuticals. The proposed development of a new lithium mine, a new lithium processing plant, and a new sulfuric acid manufacturing plant in Humboldt County could have significant implications on the county's overall social and economic conditions for many years.

The purpose of sections 2 and 3 is to provide Humboldt County with a baseline understanding of the most current social and economic characteristics and trends. Figure 1 shows the specific characteristics that define an area's population. Social metrics include population, age, race and ethnicity, households, families housing, unemployment, education, veterans, and poverty. Economic metrics include employment and income by industry, employment and earnings by occupation, personal income by type, and per capita income. Each indicator is analyzed using the most recent data.

Social and economic data was collected using secondary data sources published by US Census Bureau / American Fact Finder. Basic frequency analysis was performed on all variables for the most recent year and, when available, projections to 2016. Multiple years were reported to identify and understand specific trends occurring in Humboldt County. Tables, graphs and summary findings are presented for each variable in the following pages.

*Figure 1. Key Community Characteristics.*



## Population and Gender

***Key Trends:***

- From 2010 to 2016 the total population has ***increased*** by 6.5%.
- Males outnumber females in every year's estimate from 2010 to 2016.
- The highest population increases were reported annually from 2010 to 2014, but from 2014 to 2016, population has only increased slightly.

*Table 1. Humboldt County Population and Gender Distribution, 2010 to 2016.*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| **Total Population** | 15,986 | 16,249 | 16,511 | 16,800 | 17,003 | 17,067 | 17,091 |
| **Male** | 8,298 | 8,440 | 8,608 | 8,818 | 8,965 | 8,971 | 8,899 |
| **Female** | 7,688 | 7,809 | 7,903 | 7,982 | 8,038 | 8,096 | 8,192 |

*Source: US Census Bureau/American Fact Finder. "DP05: Demographic and Housing Estimates" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*

*Figure 2. Humboldt County Population, 2010 to 2016.*

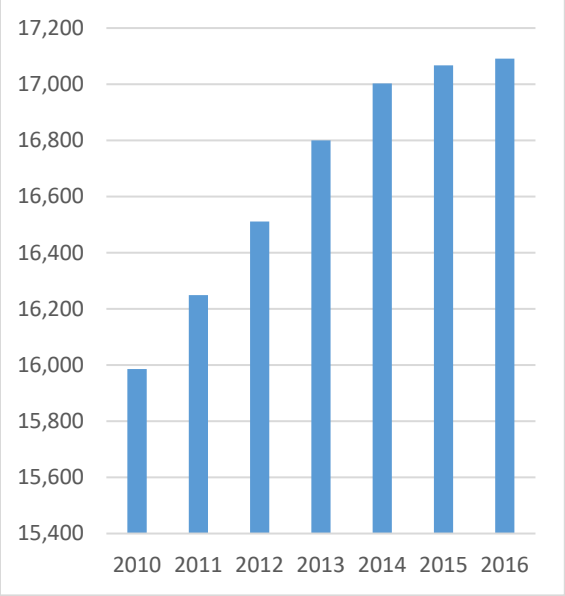
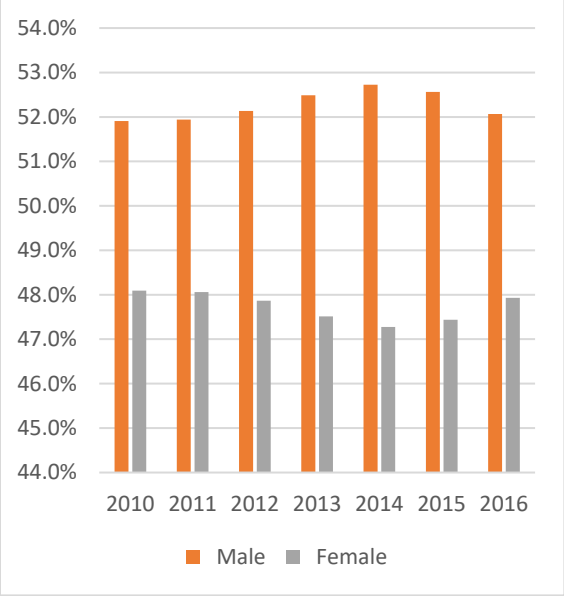



*Figure 3. Humboldt County Percent Distribution of Population by Gender, 2010 to 2016.*



## Age

***Key Trends:***

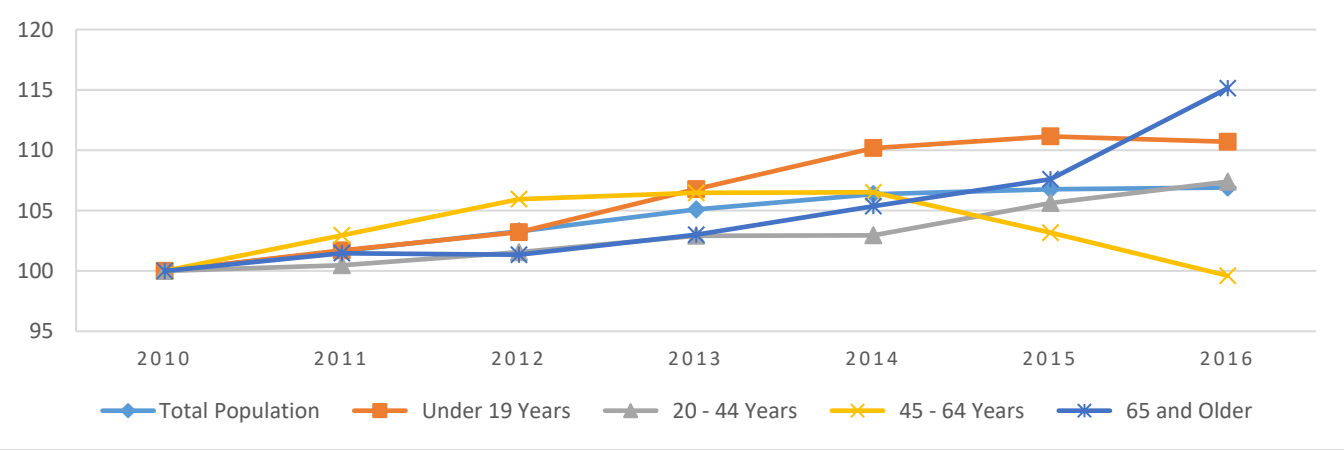
- From 2010 to 2012, the median age remained the same, at 36.6 years. For the four years following, that number slightly ***decreased.***
- Age ranges that ***increased*** in percentage of the population were: 5 to 9 years, 10 to 14 years, 15 to 19 years, 25 to 34 years, 55 to 64 years, 65 to 74 years, 75 to 84 years.

*Table 2. Humboldt County Age Distribution, 2010 to 2016.*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Total population** | 15,986 | 16,249 | 16,511 | 16,800 | 17,003 | 17,067 | 17,091 |
| | | | | | | | |
| **Under 5 years** | 1,235 | 1,233 | 1,248 | 1,278 | 1,296 | 1,273 | 1,312 |
| **5 to 9 years** | 1,091 | 1,053 | 1,231 | 1,290 | 1,351 | 1,265 | 1,245 |
| **10 to 14 years** | 1,350 | 1,401 | 1,281 | 1,321 | 1,344 | 1,478 | 1,494 |
| **15 to 19 years** | 1,088 | 1,158 | 1,157 | 1,198 | 1,258 | 1,279 | 1,223 |
| **20 to 24 years** | 1,059 | 956 | 991 | 993 | 970 | 1,004 | 1,024 |
| **25 to 34 years** | 1,908 | 1,953 | 2,066 | 2,191 | 2,221 | 2,151 | 2,199 |
| **35 to 44 years** | 2,115 | 2,197 | 2,104 | 2,046 | 2,041 | 2,213 | 2,235 |
| **45 to 54 years** | 2,563 | 2,607 | 2,662 | 2,615 | 2,570 | 2,380 | 2,250 |
| **55 to 64 years** | 2,011 | 2,102 | 2,184 | 2,255 | 2,302 | 2,339 | 2,306 |
| **65 to 74 years** | 962 | 973 | 987 | 995 | 1,012 | 1,022 | 1,133 |
| **75 to 84 years** | 447 | 458 | 459 | 445 | 503 | 538 | 550 |
| **85 years and over** | 157 | 158 | 141 | 173 | 135 | 125 | 120 |
| | | | | | | | |
| **Median age (years)** | 36.6 | 36.6 | 36.6 | 35.7 | 35.3 | 35.3 | 35.2 |
| | | | | | | | |
| **PERCENT** | | | | | | | |
| | | | | | | | |
| **Under 5 years** | 7.7% | 7.6% | 7.6% | 7.6% | 7.6% | 7.5% | 7.7% |
| **5 to 9 years** | 6.8% | 6.5% | 7.5% | 7.7% | 7.9% | 7.4% | 7.3% |
| **10 to 14 years** | 8.4% | 8.6% | 7.8% | 7.9% | 7.9% | 8.7% | 8.7% |
| **15 to 19 years** | 6.8% | 7.1% | 7.0% | 7.1% | 7.4% | 7.5% | 7.2% |
| **20 to 24 years** | 6.6% | 5.9% | 6.0% | 5.9% | 5.7% | 5.9% | 6.0% |
| **25 to 34 years** | 11.9% | 12.0% | 12.5% | 13.0% | 13.1% | 12.6% | 12.9% |
| **35 to 44 years** | 13.2% | 13.5% | 12.7% | 12.2% | 12.0% | 13.0% | 13.1% |
| **45 to 54 years** | 16.0% | 16.0% | 16.1% | 15.6% | 15.1% | 13.9% | 13.2% |
| **55 to 64 years** | 12.6% | 12.9% | 13.2% | 13.4% | 13.5% | 13.7% | 13.5% |
| **65 to 74 years** | 6.0% | 6.0% | 6.0% | 5.9% | 6.0% | 6.0% | 6.6% |
| **75 to 84 years** | 2.8% | 2.8% | 2.8% | 2.6% | 3.0% | 3.2% | 3.2% |
| **85 years and over** | 1.0% | 1.0% | 0.9% | 1.0% | 0.8% | 0.7% | 0.7% |

*Source: US Census Bureau/American Fact Finder. "DP05: Demographic and Housing Estimates" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*

*Figure 4. Humboldt County Distribution by Age, 2010 to 2016; Index: 2010 = 100.*




## Employment Participation

***Key Trends:***

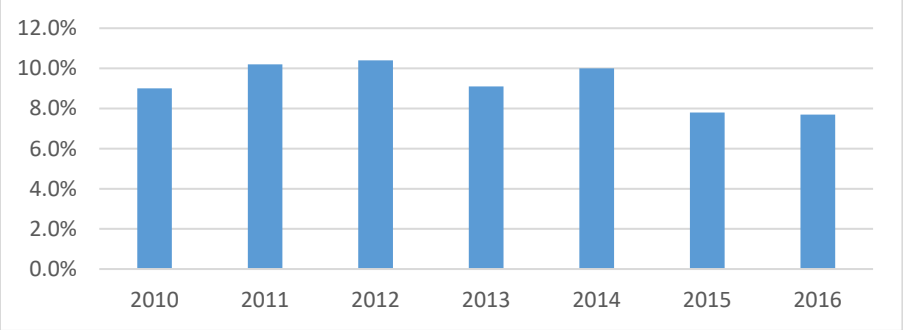
- The unemployment rate has ***decreased*** by 1.3% from 2010 to 2016.
- While the unemployment rate has decreased, the number of people in the labor force has ***increased***.

*Table 3. Humboldt County Employment Participation, 2010 to 2016.*

| Year: | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Population 16 years+** | 12,132 | 12,368 | 12,573 | 12,697 | 12,842 | 12,865 | 12,823 |
| **In labor force** | 8,218 | 8,025 | 8,288 | 8,394 | 8,631 | 9,003 | 8,968 |
| **Unemployment Rate** | 9.0% | 10.2% | 10.4% | 9.1% | 10.0% | 7.8% | 7.7% |

*Source: US Census Bureau/American Fact Finder. "DP03: Selected Economic Characteristics" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*

*Figure 5. Humboldt County Unemployment Rate, 2010 to 2016.*



## Race and Ethnicity

***Key Trends:***

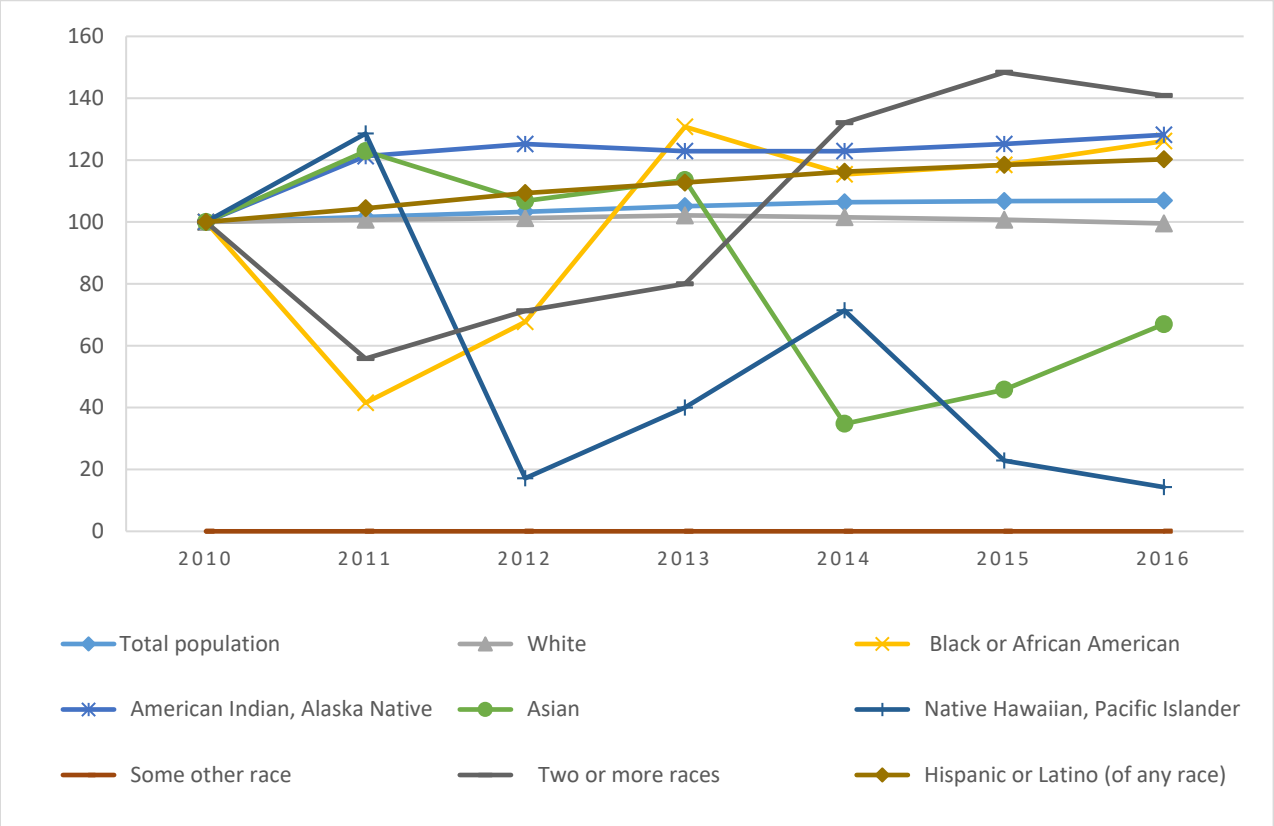
From 2010 to 2016, the Hispanic or Latino population ***increased*** by 20.0%, or by 744 persons. Those with a race not listed here increased from none in this county to a population of nearly 200. Other races and ethnicities that reported increases include American Indians and Alaska Natives, African Americans, and those with two or more races.

*Table 4. Humboldt County Race and Ethnicity, 2010 to 2016.*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Total population** | 15,986 | 16,249 | 16,511 | 16,800 | 17,003 | 17,067 | 17,091 |
| | | | | | | | |
| **White** | 11,246 | 11,324 | 11,386 | 11,486 | 11,419 | 11,329 | 11,192 |
| **Black or African American** | 65 | 27 | 44 | 85 | 75 | 77 | 82 |
| **American Indian, Alaska Native** | 607 | 736 | 760 | 746 | 746 | 760 | 778 |
| **Asian** | 118 | 145 | 126 | 134 | 41 | 54 | 79 |
| **Native Hawaiian, Pacific Islander** | 35 | 45 | 6 | 14 | 25 | 8 | 5 |
| **Some other race** | 0 | 0 | 0 | 0 | 108 | 130 | 198 |
| **Two or more races** | 240 | 134 | 171 | 192 | 317 | 356 | 338 |
| **Hispanic or Latino (of any race)** | 3,675 | 3,838 | 4,018 | 4,143 | 4,272 | 4,353 | 4,419 |
| | | | | | | | |
| **Percentage** | | | | | | | |
| | | | | | | | |
| **White** | 70.3% | 69.7% | 69.0% | 68.4% | 67.2% | 66.4% | 65.5% |
| **Black or African American** | 0.4% | 0.2% | 0.3% | 0.5% | 0.4% | 0.5% | 0.5% |
| **American Indian, Alaska Native** | 3.8% | 4.5% | 4.6% | 4.4% | 4.4% | 4.5% | 4.6% |
| **Asian** | 0.7% | 0.9% | 0.8% | 0.8% | 0.2% | 0.3% | 0.5% |
| **Native Hawaiian, Pacific Islander** | 0.2% | 0.3% | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% |
| **Some other race** | 0.0% | 0.0% | 0.0% | 0.0% | 0.6% | 0.8% | 1.2% |
| **Two or more races** | 1.5% | 0.8% | 1.0% | 1.1% | 1.9% | 2.1% | 2.0% |
| **Hispanic or Latino (of any race)** | 23.0% | 23.6% | 24.3% | 24.7% | 25.1% | 25.5% | 25.9% |

*Source: US Census Bureau/American Fact Finder. "DP05: Demographic and Housing Estimates" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*

*Figure 6. Humboldt County Race and Ethnicity, 2010 to 2016. 2010 = 100.*



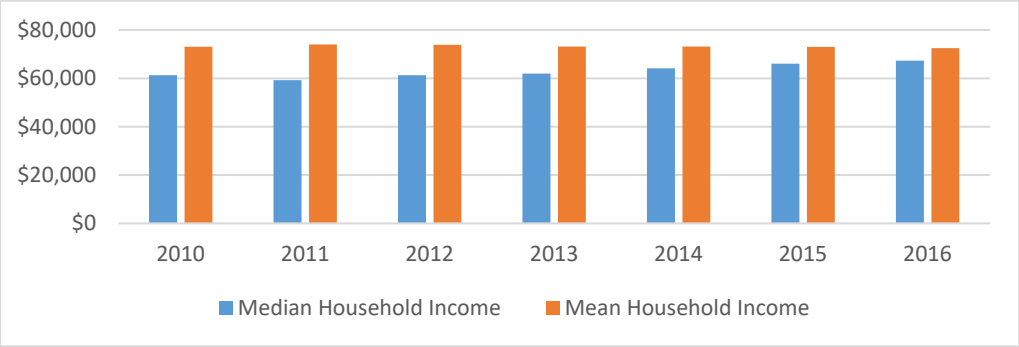
## Households

*Table 5. Humboldt County Household Income, 2010 to 2016.*

| NUMBER | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Total Households** | 6,087 | 6,098 | 6,256 | 6,314 | 6,092 | 6,149 | 6,174 |
| | | | | | | | |
| **Less than $10,000** | 371 | 412 | 483 | 489 | 439 | 424 | 390 |
| **$10,000 to $14,999** | 218 | 250 | 237 | 219 | 149 | 147 | 158 |
| **$15,000 to $24,999** | 598 | 612 | 651 | 686 | 623 | 544 | 519 |
| **$25,000 to $34,999** | 680 | 547 | 467 | 513 | 562 | 526 | 585 |
| **$35,000 to $49,999** | 908 | 973 | 867 | 805 | 641 | 718 | 714 |
| **$50,000 to $74,999** | 1,196 | 1,195 | 1,217 | 1,203 | 1,324 | 1,327 | 1,219 |
| **$75,000 to $99,999** | 903 | 724 | 830 | 816 | 780 | 785 | 923 |
| **$100,000 to $149,999** | 815 | 914 | 995 | 1,098 | 1,133 | 1,261 | 1,216 |
| **$150,000 to $199,999** | 212 | 311 | 351 | 346 | 298 | 291 | 323 |
| **$200,000 or more** | 186 | 160 | 158 | 139 | 143 | 126 | 127 |
| | | | | | | | |
| **Median HH Income** | $61,262 | $59,253 | $61,285 | $61,977 | $64,119 | $66,044 | $67,295 |
| **Mean HH Income** | $73,100 | $73,990 | $73,844 | $73,112 | $73,117 | $73,007 | $72,492 |
| | | | | | | | |
| **PERCENT** | | | | | | | |
| **Less than $10,000** | 6.1% | 6.8% | 7.7% | 7.7% | 7.2% | 6.9% | 6.3% |
| **$10,000 to $14,999** | 3.6% | 4.1% | 3.8% | 3.5% | 2.4% | 2.4% | 2.6% |
| **$15,000 to $24,999** | 9.8% | 10.0% | 10.4% | 10.9% | 10.2% | 8.8% | 8.4% |
| **$25,000 to $34,999** | 11.2% | 9.0% | 7.5% | 8.1% | 9.2% | 8.6% | 9.5% |
| **$35,000 to $49,999** | 14.9% | 16.0% | 13.9% | 12.7% | 10.5% | 11.7% | 11.6% |
| **$50,000 to $74,999** | 19.6% | 19.6% | 19.5% | 19.1% | 21.7% | 21.6% | 19.7% |
| **$75,000 to $99,999** | 14.8% | 11.9% | 13.3% | 12.9% | 12.8% | 12.8% | 14.9% |
| **$100,000 to $149,999** | 13.4% | 15.0% | 15.9% | 17.4% | 18.6% | 20.5% | 19.7% |
| **$150,000 to $199,999** | 3.5% | 5.1% | 5.6% | 5.5% | 4.9% | 4.7% | 5.2% |
| **$200,000 or more** | 3.1% | 2.6% | 2.5% | 2.2% | 2.3% | 2.0% | 2.1% |

*Source: US Census Bureau/American Fact Finder. "DP03: Selected Economic Characteristics" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*
*Median and mean household income are shown in 2016 dollars.*

*Figure 7. Humboldt County Median and Mean Household Income, 2010 to 2016.*



## Families

***Key Trends:***

- From 2010 to 2016, median family income **decreased** by 2.3% overall.
- From 2010 to 2016, the following income brackets ***lost*** the most families overall:
  - $25,000 to $34,999 (-147)
  - $15,000 to $24,999 (-100)
  - $200,000 or more (-64)

*Table 6. Humboldt County Family Income Levels, 2010 to 2016.*

| NUMBER | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Total Families** | 4,153 | 4,243 | 4,290 | 4,218 | 4,056 | 4,069 | 4,112 |
| | | | | | | | |
| **Less than $10,000** | 194 | 161 | 234 | 238 | 232 | 233 | 225 |
| **$10,000 to $14,999** | 46 | 100 | 107 | 82 | 51 | 54 | 35 |
| **$15,000 to $24,999** | 353 | 339 | 237 | 265 | 232 | 241 | 253 |
| **$25,000 to $34,999** | 445 | 393 | 440 | 347 | 337 | 280 | 298 |
| **$35,000 to $49,999** | 498 | 592 | 523 | 467 | 423 | 488 | 481 |
| **$50,000 to $74,999** | 763 | 782 | 728 | 737 | 799 | 852 | 823 |
| **$75,000 to $99,999** | 726 | 579 | 595 | 643 | 675 | 633 | 765 |
| **$100,000 to $149,999** | 755 | 840 | 917 | 965 | 880 | 894 | 840 |
| **$150,000 to $199,999** | 197 | 297 | 351 | 368 | 317 | 293 | 280 |
| **$200,000 or more** | 176 | 160 | 158 | 106 | 110 | 101 | 112 |
| | | | | | | | |
| **Median Family Income** | $75,985 | $75,746 | $76,024 | $77,568 | $76,011 | $73,934 | $74,273 |
| **Mean Family Income** | $83,759 | $85,642 | $85,061 | $84,669 | $82,926 | $81,321 | $79,681 |
| | | | | | | | |
| **PERCENT** | | | | | | | |
| **Less than $10,000** | 4.7% | 3.8% | 5.5% | 5.6% | 5.7% | 5.7% | 5.5% |
| **$10,000 to $14,999** | 1.1% | 2.4% | 2.5% | 1.9% | 1.3% | 1.3% | 0.9% |
| **$15,000 to $24,999** | 8.5% | 8.0% | 5.5% | 6.3% | 5.7% | 5.9% | 6.2% |
| **$25,000 to $34,999** | 10.7% | 9.3% | 10.3% | 8.2% | 8.3% | 6.9% | 7.2% |
| **$35,000 to $49,999** | 12.0% | 14.0% | 12.2% | 11.1% | 10.4% | 12.0% | 11.7% |
| **$50,000 to $74,999** | 18.4% | 18.4% | 17.0% | 17.5% | 19.7% | 20.9% | 20.0% |
| **$75,000 to $99,999** | 17.5% | 13.6% | 13.9% | 15.2% | 16.6% | 15.6% | 18.6% |
| **$100,000 to $149,999** | 18.2% | 19.8% | 21.4% | 22.9% | 21.7% | 22.0% | 20.4% |
| **$150,000 to $199,999** | 4.7% | 7.0% | 8.2% | 8.7% | 7.8% | 7.2% | 6.8% |
| **$200,000 or more** | 4.2% | 3.8% | 3.7% | 2.5% | 2.7% | 2.5% | 2.7% |

*Source: US Census Bureau/American Fact Finder. "DP03: Selected Economic Characteristics" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*
*Median and mean family income are shown in 2016 dollars.*

*Figure 8. Humboldt County Median and Mean Family Income, 2010 to 2016; Index: 2010 = 100.*

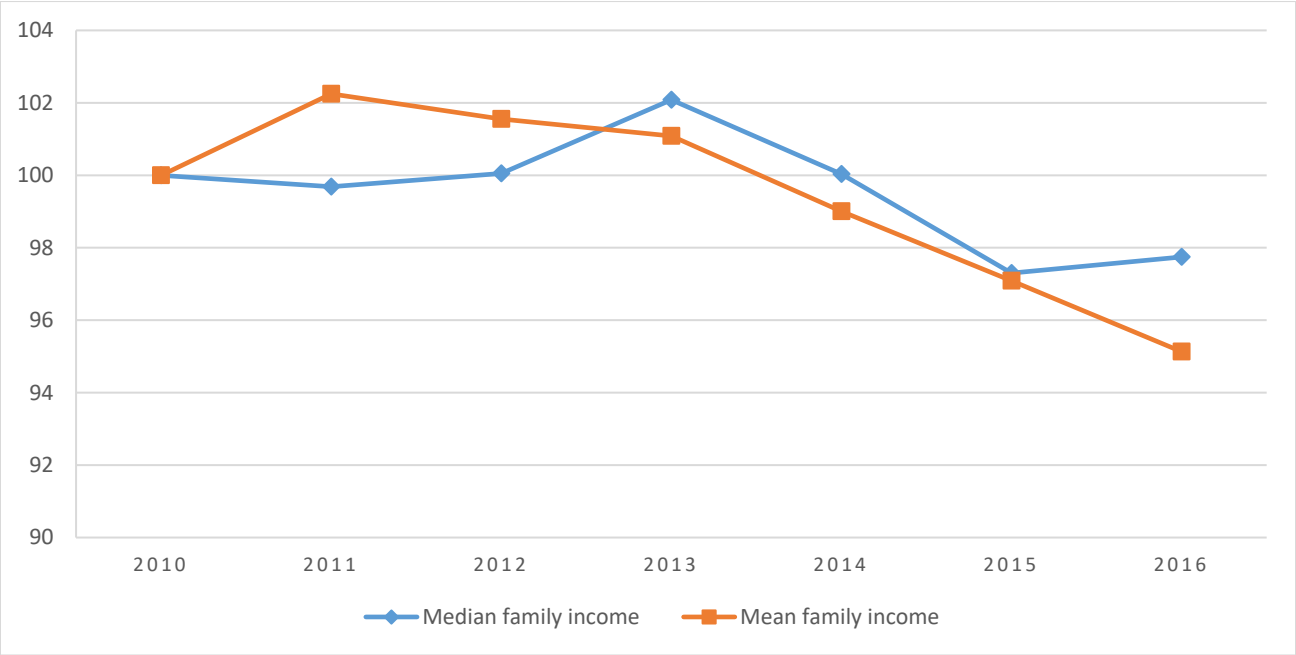
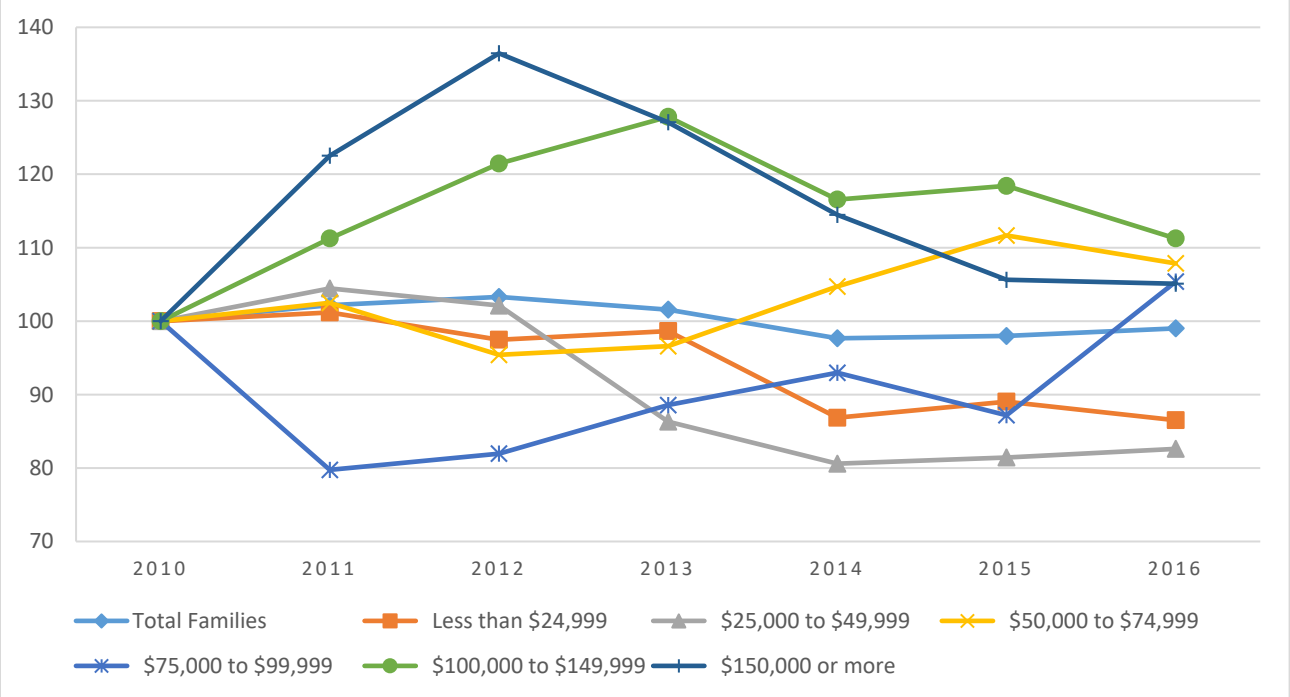



*Figure 9. Humboldt County Family Income Levels, 2010 to 2016; Index: 2010 = 100.*



## Housing

***Key Trends:***

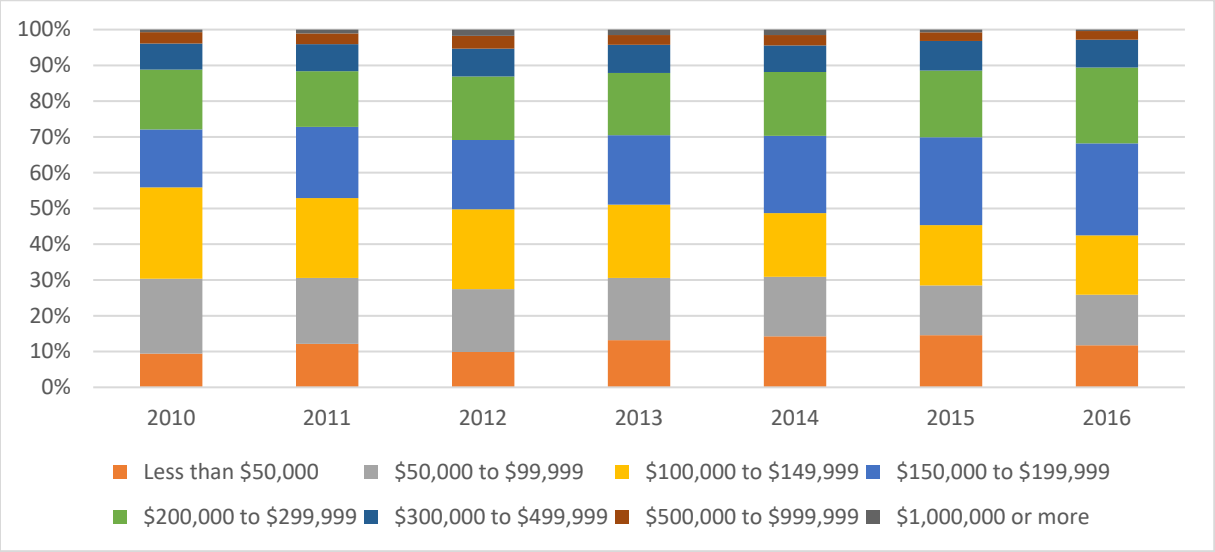
- From 2010 to 2016 the median housing unit value ***increased***.
- In this same timeframe, the number of houses in the brackets between $50,000 and $149,000 ***decreased*** (-30%), while the number of houses in the brackets $150,000 and $499,999 ***increased*** (+30%).

*Table 7. Humboldt County Housing Unit Values, 2010 to 2016.*

| NUMBER | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Owner Occupied Units** | 4,407 | 4,438 | 4,435 | 4,464 | 4,441 | 4,515 | 4,649 |
| | | | | | | | |
| **Less than $50,000** | 416 | 540 | 439 | 588 | 634 | 658 | 547 |
| **$50,000 to $99,999** | 922 | 818 | 778 | 777 | 739 | 628 | 656 |
| **$100,000 to $149,999** | 1,125 | 989 | 991 | 915 | 789 | 762 | 773 |
| **$150,000 to $199,999** | 715 | 885 | 858 | 866 | 961 | 1,107 | 1,195 |
| **$200,000 to $299,999** | 737 | 689 | 788 | 776 | 791 | 844 | 986 |
| **$300,000 to $499,999** | 320 | 337 | 344 | 352 | 331 | 373 | 362 |
| **$500,000 to $999,999** | 320 | 337 | 344 | 352 | 331 | 373 | 362 |
| **$1,000,000 or more** | 32 | 48 | 77 | 68 | 67 | 34 | 19 |
| | | | | | | | |
| **Median Housing Value** | $152,009 | $155,297 | $159,371 | $153,608 | $156,530 | $161,941 | $165,100 |
| | | | | | | | |
| **PERCENT** | | | | | | | |
| | | | | | | | |
| **Less than $50,000** | 9.4% | 12.2% | 9.9% | 13.2% | 14.3% | 14.6% | 11.8% |
| **$50,000 to $99,999** | 20.9% | 18.4% | 17.5% | 17.4% | 16.6% | 13.9% | 14.1% |
| **$100,000 to $149,999** | 25.5% | 22.3% | 22.3% | 20.5% | 17.8% | 16.9% | 16.6% |
| **$150,000 to $199,999** | 16.2% | 19.9% | 19.3% | 19.4% | 21.6% | 24.5% | 25.7% |
| **$200,000 to $299,999** | 16.7% | 15.5% | 17.8% | 17.4% | 17.8% | 18.7% | 21.2% |
| **$300,000 to $499,999** | 7.3% | 7.6% | 7.8% | 7.9% | 7.5% | 8.3% | 7.8% |
| **$500,000 to $999,999** | 3.2% | 3.0% | 3.6% | 2.7% | 2.9% | 2.4% | 2.4% |
| **$1,000,000 or more** | 0.7% | 1.1% | 1.7% | 1.5% | 1.5% | 0.8% | 0.4% |

*Source: US Census Bureau/American Fact Finder. "DP04: Selected Housing Characteristics" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*
*Median housing unit value is shown in 2016 dollars.*

*Figure 10. Humboldt County Housing Unit Values, 2010 to 2016.*




- The number of owner-occupied units increased most in 2015 and 2016, perhaps indicating growth in recent years.

- Relatively sharp year-to-year ***increases*** for the time frame of 2010 to 2016 include:
  - 2011 to 2012, $1,000,000 or more: +38% (29 new home values)
  - 2010 to 2011, $1,000,000 or more: +33% (16 new home values)
  - 2012 to 2013, Less than $50,000: +25% (149 new home values)
  - 2010 to 2011, Less than $50,000: +22% (124 new home values)
  - 2015 to 2016, $200,000 to $299,999: +12% (142 new home values)
  - 2014 to 2015, $150,000 to $199,999: +12% (146 new home values)

- Relatively sharp year-to-year ***decreases*** for the time frame of 2010 to 2016 include:
  - 2014 to 2015, $1,000,000 or more: -100% (33 changed/lost home values)
  - 2015 to 2016, $1,000,000 or more: -84% (15 changed/lost home values)
  - 2012 to 2013, $500,000 to $999,999: -32% (8 changed/lost home values)
  - 2015 to 2016, Less than $50,000: -24% (111 changed/lost home values)
  - 2011 to 2012, Less than $50,000: -23% (101 changed/lost home values)

## Housing Units

*Table 8. Humboldt County Housing Occupancy Information, 2010 to 2016.*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| **Occupancy** | | | | | | | |
| **Total Housing Units** | 7,109 | 7,118 | 7,119 | 7,111 | 7,165 | 7,193 | 7,223 |
| | | | | | | | |
| **Occupied Housing Units** | 6,087 | 6,098 | 6,256 | 6,314 | 6,092 | 6,149 | 6,174 |
| **Vacant Housing Units** | 1,022 | 1,020 | 863 | 797 | 1,073 | 1,044 | 1,049 |
| | | | | | | | |
| **Occupied Housing Units** | 85.6% | 85.7% | 87.9% | 88.8% | 85.0% | 85.5% | 85.5% |
| **Vacant Housing Units** | 14.4% | 14.3% | 12.1% | 11.2% | 15.0% | 14.5% | 14.5% |
| | | | | | | | |
| **Homeowner Vacancy Rate** | 1.3 | 1.4 | 2.1 | 2.1 | 2.2 | 2.4 | 3.1 |
| **Rental Vacancy Rate** | 12.3 | 10.4 | 8.8 | 8.6 | 8.1 | 3.1 | 5.4 |
| | | | | | | | |
| **Housing Tenure** | | | | | | | |
| **Owner-Occupied Units** | 4,407 | 4,438 | 4,435 | 4,464 | 4,441 | 4,515 | 4,649 |
| **Renter-Occupied Units** | 1,680 | 1,660 | 1,821 | 1,850 | 1,651 | 1,634 | 1,525 |
| | | | | | | | |
| **Owner-Occupied Units** | 72.4% | 72.8% | 70.9% | 70.7% | 72.9% | 73.4% | 75.3% |
| **Renter-Occupied Units** | 27.6% | 27.2% | 29.1% | 29.3% | 27.1% | 26.6% | 24.7% |
| | | | | | | | |
| **Avg HH Size, Owner-Occupied** | 2.62 | 2.64 | 2.61 | 2.61 | 2.67 | 2.69 | 2.74 |
| **Avg HH Size, Renter-Occupied** | 2.49 | 2.61 | 2.60 | 2.66 | 2.99 | 2.87 | 2.72 |

*Source: US Census Bureau/American Fact Finder. "DP04: Selected Housing Characteristics" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*
*Median housing unit value is shown in 2016 dollars.*

*Figure 11. Percentage of Occupied and Vacant Housing Units.*

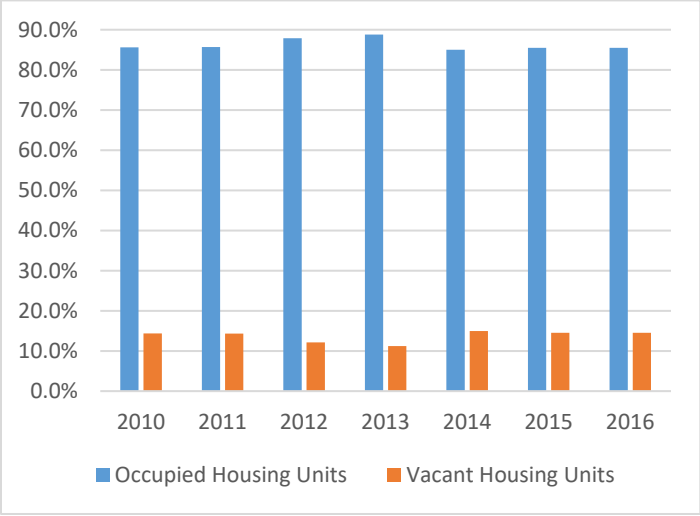


*Table 9. Humboldt County Total Housing Units by Structure, 2010 to 2016.*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| **Units in Structure** | | | | | | | |
| **Total housing units** | 7,109 | 7,118 | 7,119 | 7,111 | 7,165 | 7,193 | 7,223 |
| | | | | | | | |
| **Single Unit** | 3,625 | 3,855 | 4,363 | 4,418 | 4,454 | 4,346 | 4,189 |
| **2- to 4-Units** | 189 | 172 | 180 | 280 | 266 | 325 | 261 |
| **5- to 19-Units** | 313 | 251 | 196 | 224 | 228 | 166 | 151 |
| **20+ Units** | 166 | 167 | 147 | 152 | 146 | 147 | 186 |
| **Mobile Home** | 2,732 | 2,566 | 2,115 | 1,986 | 2,027 | 2,183 | 2,389 |
| **Boat, RV, Van, etc.** | 84 | 107 | 118 | 51 | 44 | 26 | 47 |
| | | | | | | | |
| **Single Unit** | 51.0% | 54.2% | 61.3% | 62.1% | 62.2% | 60.4% | 58.0% |
| **2- to 4-Units** | 2.7% | 2.4% | 2.5% | 3.9% | 3.7% | 4.5% | 3.6% |
| **5- to 19-Units** | 4.4% | 3.5% | 2.8% | 3.2% | 3.2% | 2.3% | 2.1% |
| **20+ Units** | 2.3% | 2.3% | 2.1% | 2.1% | 2.0% | 2.0% | 2.6% |
| **Mobile Home** | 38.4% | 36.0% | 29.7% | 27.9% | 28.3% | 30.3% | 33.1% |
| **Boat, RV, Van, etc.** | 1.2% | 1.5% | 1.7% | 0.7% | 0.6% | 0.4% | 0.7% |

*Source: US Census Bureau/American Fact Finder. "DP04: Selected Housing Characteristics" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*
*Median housing unit value is shown in 2016 dollars*

*Figure 12. Total Housing Units by Structure; Index 2010 =100.*

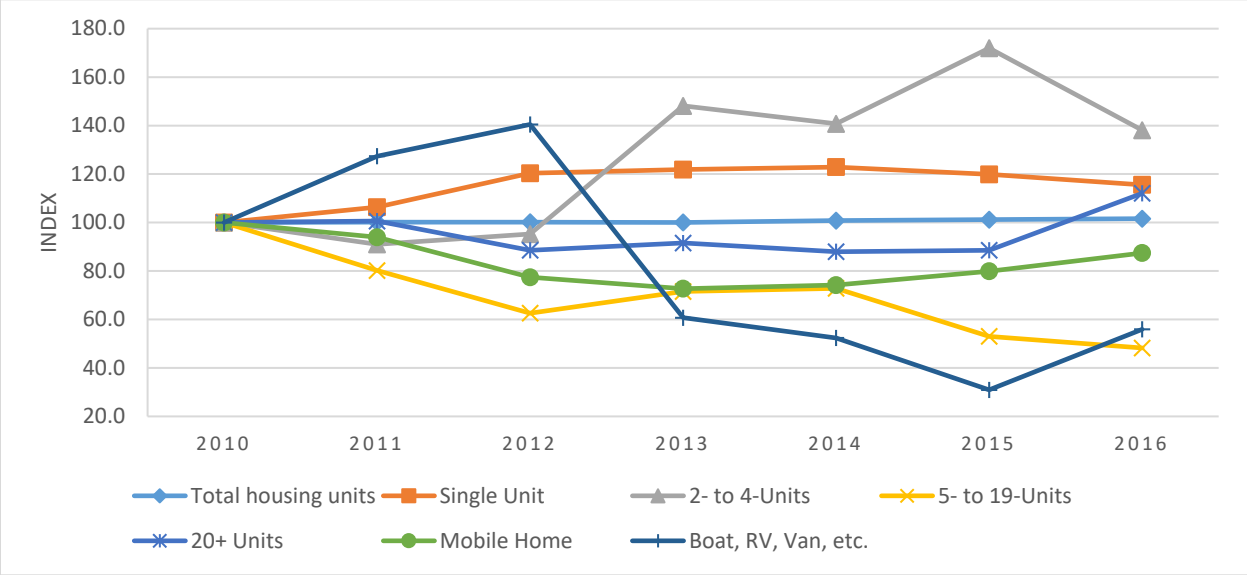
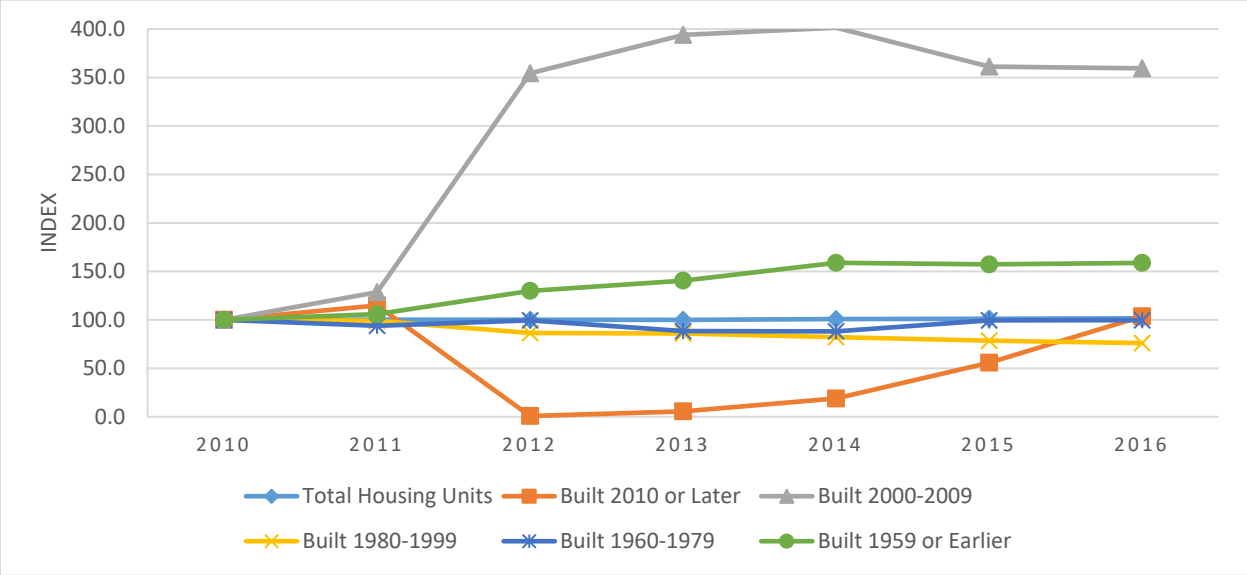


*Table 10. Humboldt County Year Housing Structures were Built, 2010 to 2016.*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| **Year Structure Built** | | | | | | | |
| **Total Housing Units** | 7,109 | 7,118 | 7,119 | 7,111 | 7,165 | 7,193 | 7,223 |
| | | | | | | | |
| **Built 2010 or Later** | 249 | 286 | 2 | 14 | 47 | 139 | 258 |
| **Built 2000-2009** | 217 | 279 | 769 | 855 | 871 | 784 | 780 |
| **Built 1980-1999** | 4,081 | 4,039 | 3,527 | 3,511 | 3,355 | 3,204 | 3,102 |
| **Built 1960-1979** | 1,665 | 1,564 | 1,656 | 1,471 | 1,467 | 1,656 | 1,659 |
| **Built 1959 or earlier** | 897 | 950 | 1,165 | 1,260 | 1,425 | 1,410 | 1,424 |
| | | | | | | | |
| **Built 2010 or Later** | 3.5% | 4.0% | 0.0% | 0.2% | 0.7% | 1.9% | 3.6% |
| **Built 2000-2009** | 3.1% | 3.9% | 10.8% | 12.0% | 12.2% | 10.9% | 10.8% |
| **Built 1980-1999** | 57.4% | 56.7% | 49.5% | 49.4% | 46.8% | 44.5% | 42.9% |
| **Built 1960-1979** | 23.4% | 22.0% | 23.3% | 20.7% | 20.5% | 23.0% | 23.0% |
| **Built 1959 or Earlier** | 12.6% | 13.3% | 16.4% | 17.7% | 19.9% | 19.6% | 19.7% |

*Source: US Census Bureau/American Fact Finder. "DP04: Selected Housing Characteristics" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*
*Median housing unit value is shown in 2016 dollars.*

*Figure 13. Humboldt County Year Housing Structures were Built; Index 2010 = 100.*



## Education

***Key Trends:***

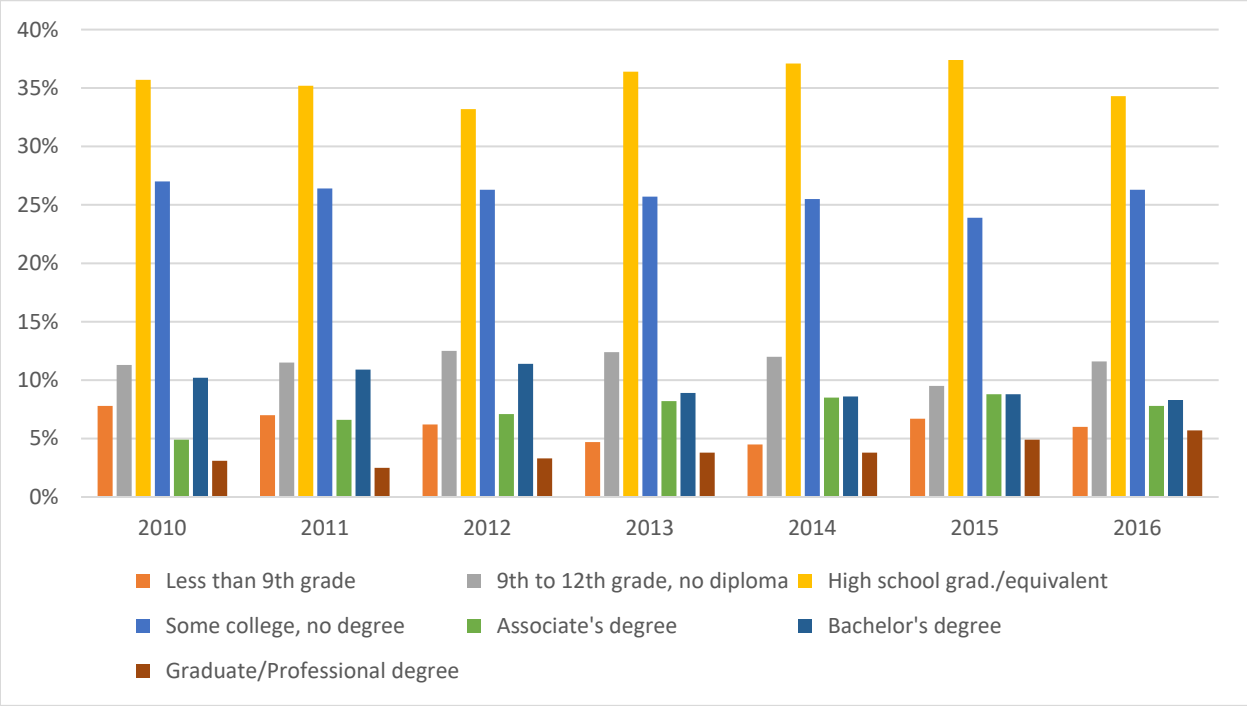
- The number of individuals in Humboldt County with a highest education of an Associate's degree (+37%) and/or Graduate degree (+45%) ***increased*** from 2010 to 2016. However, those with a Bachelor's degree (-18%) ***decreased*** within that same timeframe.
- From 2014 to 2015, the percentage of persons with some college, but no degree, dipped. The year after that, the percentage returned to a relative normal.

*Table 11. Humboldt County Educational Attainment, 2010 to 2016*

| NUMBER | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Pop. 25 and over** | 10,163 | 10,448 | 10,603 | 10,720 | 10,784 | 10,768 | 10,793 |
| | | | | | | | |
| **Less than 9th grade** | 793 | 731 | 657 | 504 | 485 | 721 | 648 |
| **9th to 12th grade No Diploma** | 1,148 | 1,202 | 1,325 | 1,329 | 1,294 | 1,023 | 1,252 |
| **High School Grad. & Equivalent** | 3,628 | 3,678 | 3,520 | 3,902 | 4,001 | 4,027 | 3,702 |
| **Some College No Degree** | 2,744 | 2,758 | 2,789 | 2,755 | 2,750 | 2,574 | 2,839 |
| **Associates Degree** | 498 | 690 | 753 | 879 | 917 | 948 | 842 |
| **Bachelor's Degree** | 1,037 | 1,139 | 1,209 | 954 | 927 | 948 | 896 |
| **Grad/Professional Degree** | 315 | 261 | 350 | 407 | 410 | 528 | 615 |
| | | | | | | | |
| **PERCENT** | | | | | | | |
| | | | | | | | |
| **Less than 9th grade** | 7.8% | 7.0% | 6.2% | 4.7% | 4.5% | 6.7% | 6.0% |
| **9th to 12th grade No Diploma** | 11.3% | 11.5% | 12.5% | 12.4% | 12.0% | 9.5% | 11.6% |
| **High School Grad. & Equivalent** | 35.7% | 35.2% | 33.2% | 36.4% | 37.1% | 37.4% | 34.3% |
| **Some College No Degree** | 27.0% | 26.4% | 26.3% | 25.7% | 25.5% | 23.9% | 26.3% |
| **Associates Degree** | 4.9% | 6.6% | 7.1% | 8.2% | 8.5% | 8.8% | 7.8% |
| **Bachelor's Degree** | 10.2% | 10.9% | 11.4% | 8.9% | 8.6% | 8.8% | 8.3% |
| **Grad/Professional Degree** | 3.1% | 2.5% | 3.3% | 3.8% | 3.8% | 4.9% | 5.7% |

*Source: US Census Bureau/American Fact Finder. "S1501: Educational Attainment" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*

*Figure 14. Humboldt County Highest Educational Attainment, 2010 to 2016.*



## Veterans

***Key Trends:***

- The veteran population ***decreased*** from 2010 to 2016, going from 1,366 to 1,119 (-18%).
- The percentage of veterans with some college education has ***increased*** from 2010 to 2016. The same goes for the percentage of veterans with a Bachelor's degree.
- In the same time, the amount of veterans with a high school diploma notably declined from 2010 to 2016, going from 590 to 379, a 36% decrease.

*Table 12. Humboldt County Veteran Status and Demographics, 2010 to 2016*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| **Civilian Population 18+** | 11,555 | 11,800 | 11,993 | 12,152 | 12,236 | 12,294 | 12,284 |
| **Veteran Population*** | 1,366 | 1,388 | 1,379 | 1,334 | 1,371 | 1,221 | 1,119 |
| **Percent Veteran** | 11.8% | 11.8% | 11.5% | 11.0% | 11.2% | 9.9% | 9.1% |
| | | | | | | | |
| **Male** | 1,300 | 1,332 | 1,265 | 1,221 | 1,265 | 1,112 | 972 |
| **Female** | 66 | 56 | 114 | 113 | 106 | 109 | 147 |
| | | | | | | | |
| **18 to 34 Years Old** | 27 | 37 | 15 | 53 | 67 | 89 | 70 |
| **35 to 54 Years Old** | 511 | 500 | 461 | 406 | 429 | 346 | 301 |
| **55 to 64 Years Old** | 358 | 376 | 443 | 410 | 367 | 295 | 245 |
| **65 to 74 Years Old** | 253 | 251 | 265 | 275 | 298 | 305 | 305 |
| **75 Years and Older** | 216 | 223 | 196 | 192 | 208 | 186 | 196 |
| | | | | | | | |
| **Less than High School** | 152 | 71 | 55 | 77 | 97 | 81 | 95 |
| **High School Graduate** | 590 | 516 | 459 | 435 | 430 | 381 | 379 |
| **Associate/Some College** | 408 | 582 | 627 | 635 | 636 | 547 | 460 |
| **Bachelor's Degree and Higher** | 216 | 218 | 237 | 187 | 206 | 212 | 185 |
| | | | | | | | |
| **PERCENT** | | | | | | | |
| **18 to 34 Years Old** | 2.0% | 2.7% | 1.1% | 4.0% | 4.9% | 7.3% | 6.3% |
| **35 to 54 Years Old** | 37.4% | 36.0% | 33.4% | 30.4% | 31.3% | 28.3% | 26.9% |
| **55 to 64 Years Old** | 26.2% | 27.1% | 32.1% | 30.7% | 26.8% | 24.2% | 21.9% |
| **65 to 74 Years Old** | 18.5% | 18.1% | 19.2% | 20.6% | 21.7% | 25.0% | 27.3% |
| **75 Years and Older** | 15.8% | 16.1% | 14.2% | 14.4% | 15.2% | 15.2% | 17.5% |
| | | | | | | | |
| **Less than High School** | 11.1% | 5.1% | 4.0% | 5.8% | 7.1% | 6.6% | 8.5% |
| **High School Graduate** | 43.2% | 37.2% | 33.3% | 32.6% | 31.4% | 31.2% | 33.9% |
| **Associate/Some College** | 29.9% | 41.9% | 45.5% | 47.6% | 46.4% | 44.8% | 41.1% |
| **Bachelor's Degree and Higher** | 15.8% | 15.7% | 17.2% | 14.0% | 15.0% | 17.4% | 16.5% |

*Source: US Census Bureau/American Fact Finder. "S2101: Veteran Status" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*

**All demographic breakdowns in this table apply to the total veteran population*

*Figure 15. Humboldt County Veteran Age Distribution, 2010 to 2016.*

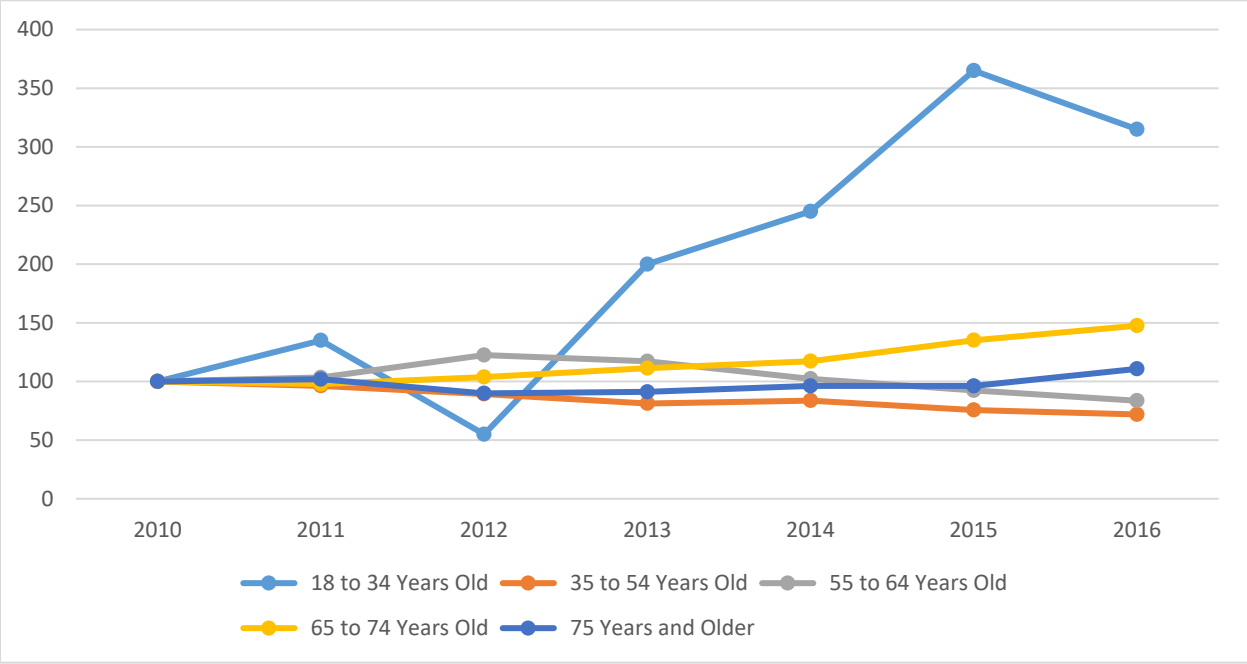
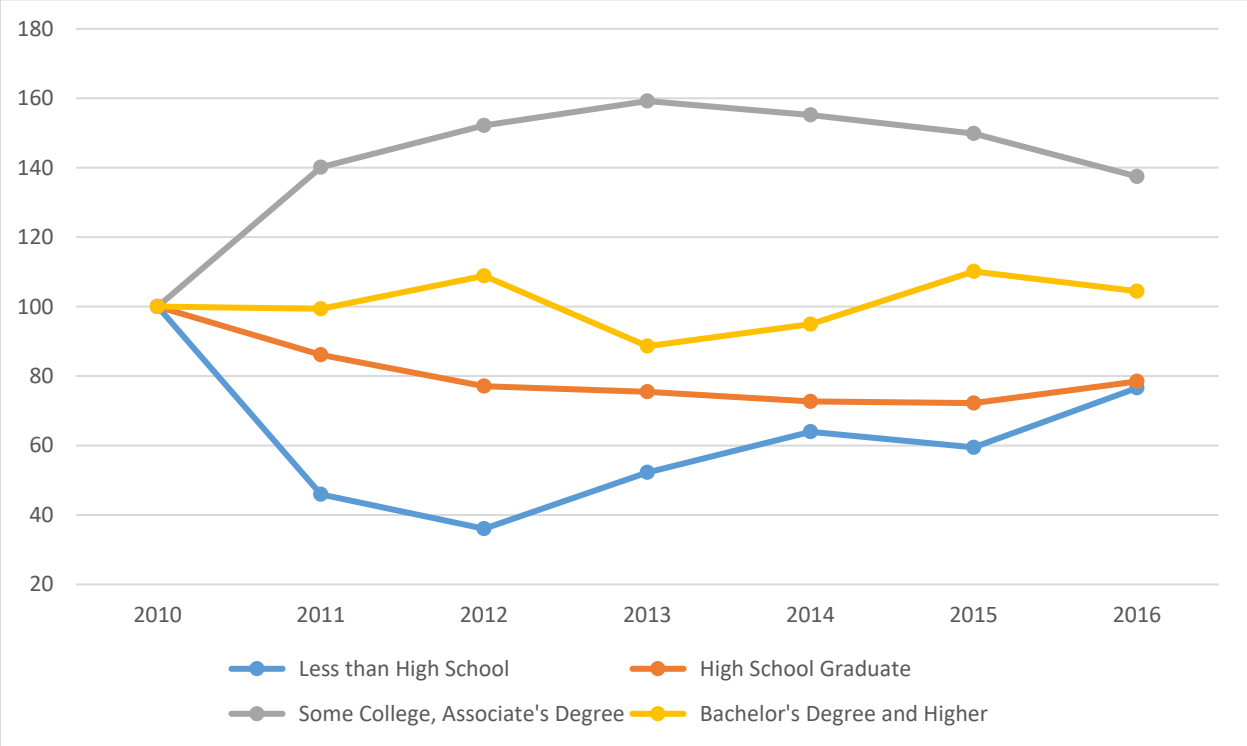



*Figure 16. Humboldt County Veteran Educational Attainment, 2010 to 2016; Index: 2010 = 100.*



## Poverty

The poverty level is annually determined by the US Census Bureau. The first measure was calculated in 1963 by taking the cost of a minimum food diet and multiplying it by three. In 1963, food was calculated to be approximately one-third of an average family's costs. The US Government officially adopted this definition in 1969. Currently, the line is generated each year by taking the 1963 numbers and adjusting for inflation (even though food no longer accounts for one-third of a typical household's costs). In 2016, the income poverty level for a household with two adults and two children under 18 years was $24,339.

The main purpose of the poverty guideline is to determine eligibility of persons within households for federal, state, non-profit, and private assistance programs. Head Start, Low-Income Home Energy Assistance Program, Medicare, Family Planning Services, SNAP, School Breakfast/Lunch Programs, EFNEP, and Job Corps are just a few of the national program that take into account a household's income relative to the poverty guideline.

*Table 13. Poverty Thresholds by Size of Family and Number of Related Children, 2016.*

| **Size of Family** | **Related children under 18 years of age** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Zero | One | Two | Three | Four | Five | Six | Seven | Eight+ |
| **One Person** | | | | | | | | | |
| **Under age 65** | 12,486 | | | | | | | | |
| **Age 65+** | 11,511 | | | | | | | | |
| **Two People** | | | | | | | | | |
| **Householder <65** | 16,072 | 16,543 | | | | | | | |
| **Householder 65+** | 14,507 | 16,480 | | | | | | | |
| **Three** | 18,774 | 19,318 | 19,337 | | | | | | |
| **Four** | 24,755 | 25,160 | 24,339 | 24,424 | | | | | |
| **Five** | 29,854 | 30,288 | 29,360 | 28,643 | 28,205 | | | | |
| **Six** | 34,337 | 34,473 | 33,763 | 33,082 | 32,070 | 31,470 | | | |
| **Seven** | 39,509 | 39,756 | 38,905 | 38,313 | 37,208 | 35,920 | 34,507 | | |
| **Eight** | 44,188 | 44,578 | 43,776 | 43,072 | 42,075 | 40,809 | 39,491 | 39,156 | |
| **Nine or more** | 53,155 | 53,413 | 52,702 | 52,106 | 51,127 | 49,779 | 48,561 | 48,259 | 46,400 |

*Source: United States Census Bureau*

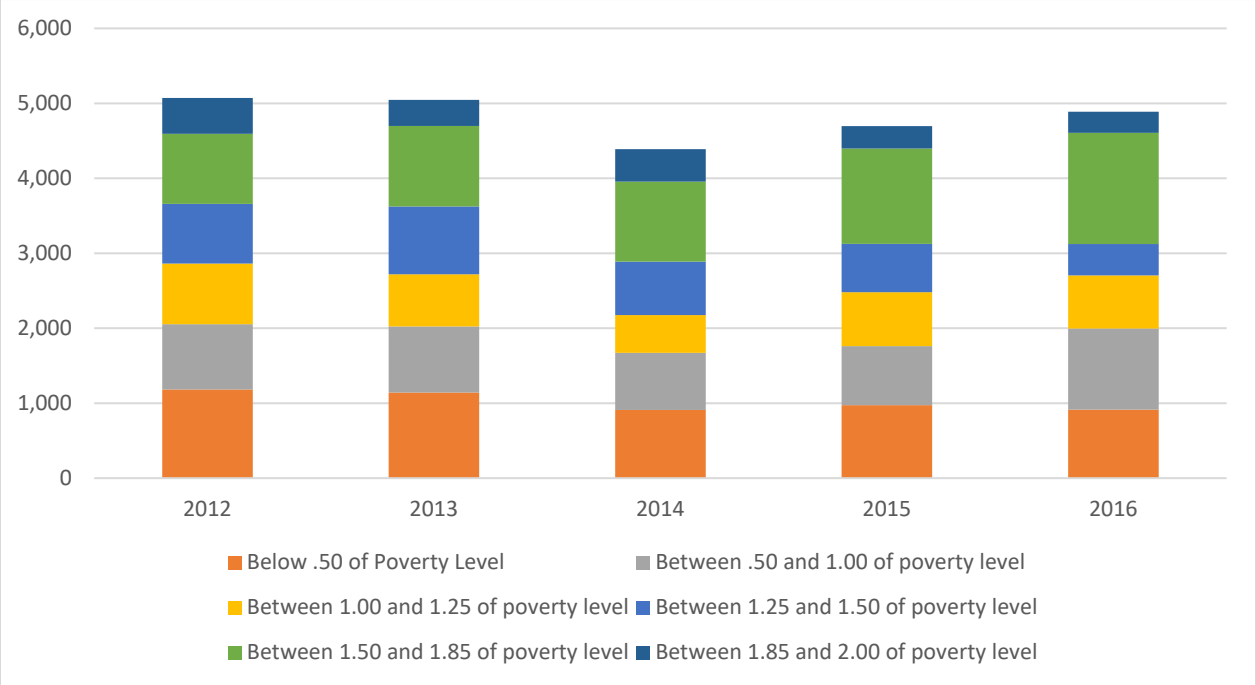
***Key Trends:***

- From 2010 to 2016, the number of people below the poverty level has decreased, going from 2055 persons to 1997 persons.
- Individuals between 1.50 and 1.85 of the poverty level has increased steadily over the timeframe of 2010 to 2016, with an overall increase of 548 persons.
- Individuals between 1.25 and 1.50 of the poverty level has decreased over the timeframe of 2010 to 2016. Most people in this range likely ended up on a higher level.

*Table 14. Humboldt County Poverty Level Among Population, 2012 to 2016.*

| NUMBER | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|
| | | | | | |
| **Total Population for whom Poverty Level was Determined** | 16,229 | 16,469 | 16,635 | 16,825 | 16,847 |
| | | | | | |
| **Below .50 of Poverty Level** | 1,183 | 1,142 | 909 | 973 | 915 |
| **Between .50 and 1.00 of poverty level** | 872 | 881 | 762 | 789 | 1,082 |
| **Between 1.00 and 1.25 of poverty level** | 807 | 696 | 505 | 719 | 707 |
| **Between 1.25 and 1.50 of poverty level** | 797 | 905 | 712 | 645 | 420 |
| **Between 1.50 and 1.85 of poverty level** | 934 | 1,075 | 1,068 | 1,272 | 1,482 |
| **Between 1.85 and 2.00 of poverty level** | 478 | 347 | 432 | 299 | 282 |
| | | | | | |
| **PERCENT** | | | | | |
| | | | | | |
| **Below .50 of Poverty Level** | 7.3% | 6.9% | 5.5% | 5.8% | 5.4% |
| **Between .50 and 1.00 of poverty level** | 5.4% | 5.3% | 4.6% | 4.7% | 6.4% |
| **Between 1.00 and 1.25 of poverty level** | 5.0% | 4.2% | 3.0% | 4.3% | 4.2% |
| **Between 1.25 and 1.50 of poverty level** | 4.9% | 5.5% | 4.3% | 3.8% | 2.5% |
| **Between 1.50 and 1.85 of poverty level** | 5.8% | 6.5% | 6.4% | 7.6% | 8.8% |
| **Between 1.85 and 2.00 of poverty level** | 2.9% | 2.1% | 2.6% | 1.8% | 1.7% |

*Figure 17. Humboldt County Poverty Level Among Population, 2010 to 2016.*



# Section 3—Economic Conditions

This section examines the economic characteristics and conditions for Humboldt County between 2010 and 2017.

## Employment

***Key Trends:***

**Jobs**

- From 2010 to 2017 there was an overall ***decrease*** in total jobs (-2%).
- From 2010 to 2013, the total amount of jobs was on the incline, peaking at over 9,100. However, since 2013, the total amount of jobs has ***decreased***. With that being said, 2016 to 2017 shows a slight increase.
- The highest year-to-year change was from 2011 to 2012, with an ***increase*** of 404 jobs.

**Industry Increases and Decreases**

- Industries that have had notable ***increases*** in total amount of jobs from 2010 to 2017:
  - +65%, Management of Companies, Enterprises, 2016 to 2017
  - +45%, Management of Companies, Enterprises, 2011 to 2012
  - +32%, Transportation, Warehousing, 2011 to 2012
  - +30%, Wholesale Trade, 2011 to 2012
  - +26%, Educational services, 2012 to 2013

- Industries that have had notable ***decreases*** in total amount of jobs from 2010 to 2017:
  - 23: Construction (-47%)
  - 56: Administration and Support (-22%)
  - 62: Health Care and Social Assistance (-21%)

**Noteworthy Changes**

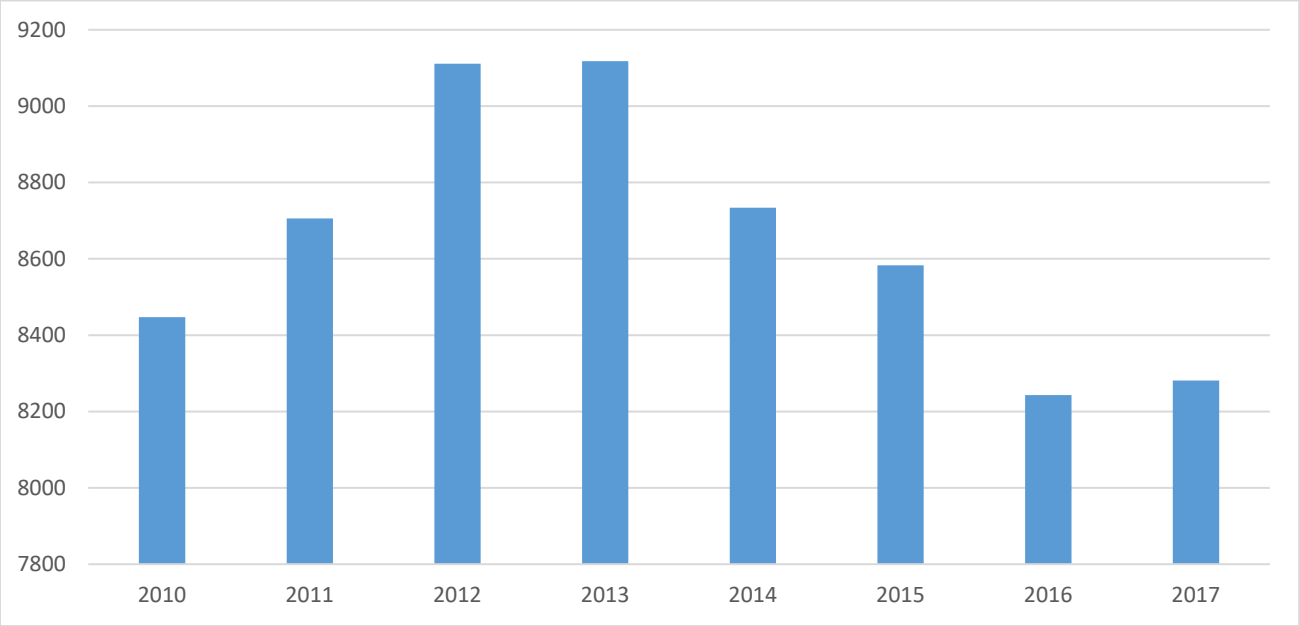
- 2011 to 2012 showed a spike in total number of jobs for the following industries: Mining, Quarry/Oil Gas Extraction, Manufacturing, Wholesale Trade, Transportation and Warehousing jobs, Administrative Support, and Government, Public Admin.
- Professional, Scientific, and Tech Services jobs increased from 2010 to 2011, but after 2012, they began to decline. In recent years, they have seen a slight increase

*Table 15. Humboldt County Total Employment by Industry, 2010 to 2017.*

| Year: | Type* | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|
| **11: Ag, Forestry, Fishing and Hunting** | NSR | 517 | 508 | 506 | 493 | 517 | 575 | 519 | 512 |
| **21: Mining, Quarry, Oil/Gas Extraction** | NSR | 1,769 | 1,840 | 2,081 | 2,122 | 1,990 | 1,938 | 1,796 | 1,841 |
| **22: Utilities** | SR | 134 | 135 | 129 | 130 | 138 | 152 | 155 | 146 |
| **23: Construction** | NSR | 602 | 658 | 520 | 620 | 442 | 405 | 364 | 319 |
| **31: Manufacturing** | NSR | 264 | 252 | 286 | 292 | 255 | 245 | 258 | 263 |
| **42: Wholesale Trade** | SR | 119 | 131 | 171 | 172 | 167 | 159 | 136 | 126 |
| **44: Retail Trade** | SR | 923 | 963 | 997 | 1,004 | 980 | 953 | 913 | 929 |
| **48: Transportation, Warehousing** | SR | 172 | 168 | 222 | 226 | 229 | 248 | 260 | 276 |
| **51: Information** | SR | 78 | 82 | 69 | 66 | 64 | 63 | 66 | 65 |
| **52: Finance and Insurance** | SR | 74 | 77 | 80 | 82 | 84 | 68 | 69 | 71 |
| **53: Real Estate and Rental and Leasing** | SR | 47 | 42 | 41 | 49 | 52 | 48 | 56 | 59 |
| **54: Professional, Scientific, Tech Services** | SR | 118 | 152 | 155 | 134 | 110 | 118 | 127 | 128 |
| **55: Mgmt. of Companies/Enterprises** | SR | 30 | 23 | 34 | 12 | <10 | 17 | 17 | 28 |
| **56: Administrative and Support** | SR | 347 | 419 | 460 | 428 | 356 | 308 | 279 | 272 |
| **61: Educational Services** | SR | 18 | 20 | 14 | 17 | 19 | 19 | 19 | 19 |
| **62: Health Care and Social Assistance** | SR | 374 | 374 | 432 | 302 | 306 | 312 | 296 | 294 |
| **71: Arts, Entertainment, and Recreation** | SR | 115 | 115 | 110 | 104 | 118 | 121 | 124 | 128 |
| **72: Accommodation, Food Services** | SR | 976 | 979 | 990 | 1,046 | 1,061 | 989 | 963 | 946 |
| **81: Other Services (except Public Admin)** | SR | 257 | 268 | 293 | 286 | 267 | 291 | 277 | 272 |
| **90: Government, Public Admin** | PA | 1,511 | 1,494 | 1,523 | 1,532 | 1,575 | 1,553 | 1,549 | 1,582 |
| **99: Unclassified Industry** | - | <10 | <10 | <10 | <10 | <10 | 0 | 0 | <10 |
| **Totals:** | - | 8,447 | 8,706 | 9,111 | 9,118 | 8,734 | 8,583 | 8,243 | 8,281 |

*Source: Emsi 2018.2; QCEW, non-QCEW, Self-Employed*
*For those industries where job data was suppressed, '<10' shows instead of a specific amount.*
**Type of industry is broken into three categories. NSR: Non-Services Related; SR: Services Related; PA: Public Administration.*

*Table 16. Humboldt County Total Employment, 2010 to 2017.*




***Key Trends:***

**Services Related, Non-Services Related, and Public Administration Comparison**

- For the first three to four years of our baseline, from 2010 to 2013, the general trend for all industry types is an *increase*. 2012-2013 is when the total amount of jobs in both services and non-services related industry types peaked.

- Since 2013, the total amount of jobs in both services and non-services related industry types has been on the decline.

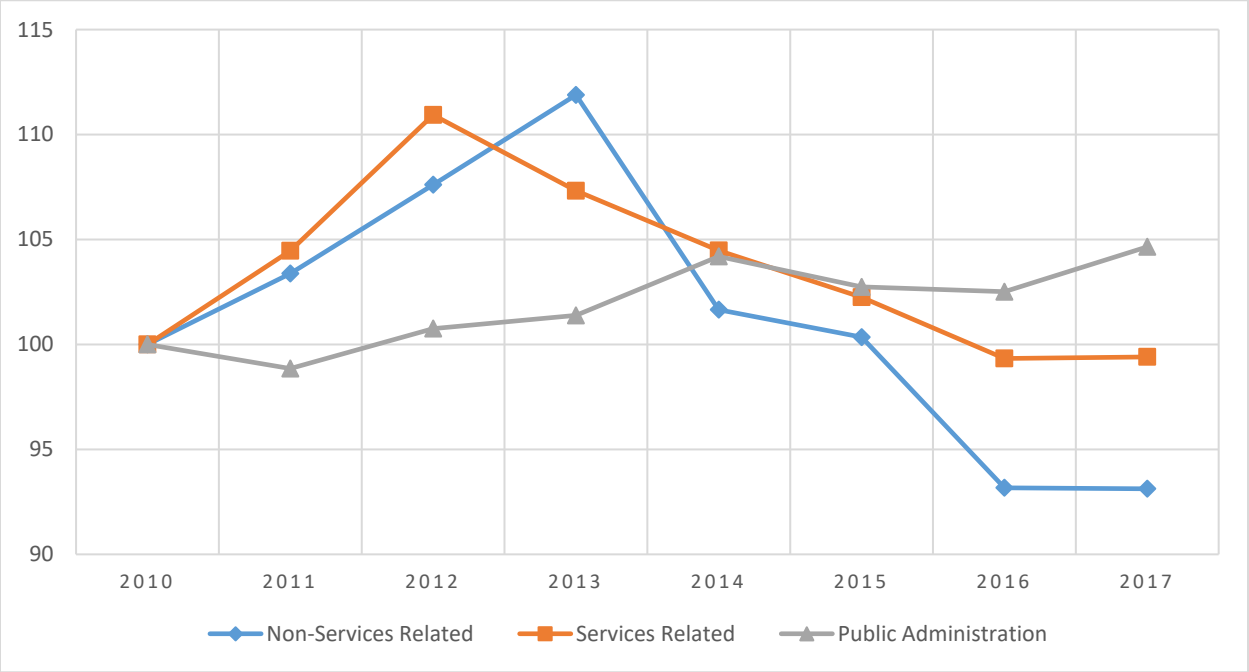
- The Public Administration industry type, which includes NAICS sector 90, has increased overall in the total amount of jobs from 2010 to 2017. The only years in which the amount of jobs slightly dipped in this industry type was from 2010 to 2011, and then in 2014 to 2016.

**Other Specific Industry Changes**

- From 2013 to 2014 and then again from 2015 to 2016 there were relatively large decreases in the amount of total Mining, Quarry, and Oil/Gas Extraction jobs.

- From 2012 to 2013 there were 50 new accommodation and food services jobs. From 2014 to 2015 the amount of total jobs in this industry decreased by that same number.

*Table 17. Humboldt County Total Employment by Industry Type, 2010 to 2017.*




## Employment by Occupation

***Key Trends:***

**General Occupation Trends**

- The following occupation groups have suffered ***decreases*** in recent years: Management, Business, Science, and Arts; Sales and Office; Natural Resources, Construction, and Maintenance; Production, Transportation, and Material Moving.

**Specific Occupation Changes**

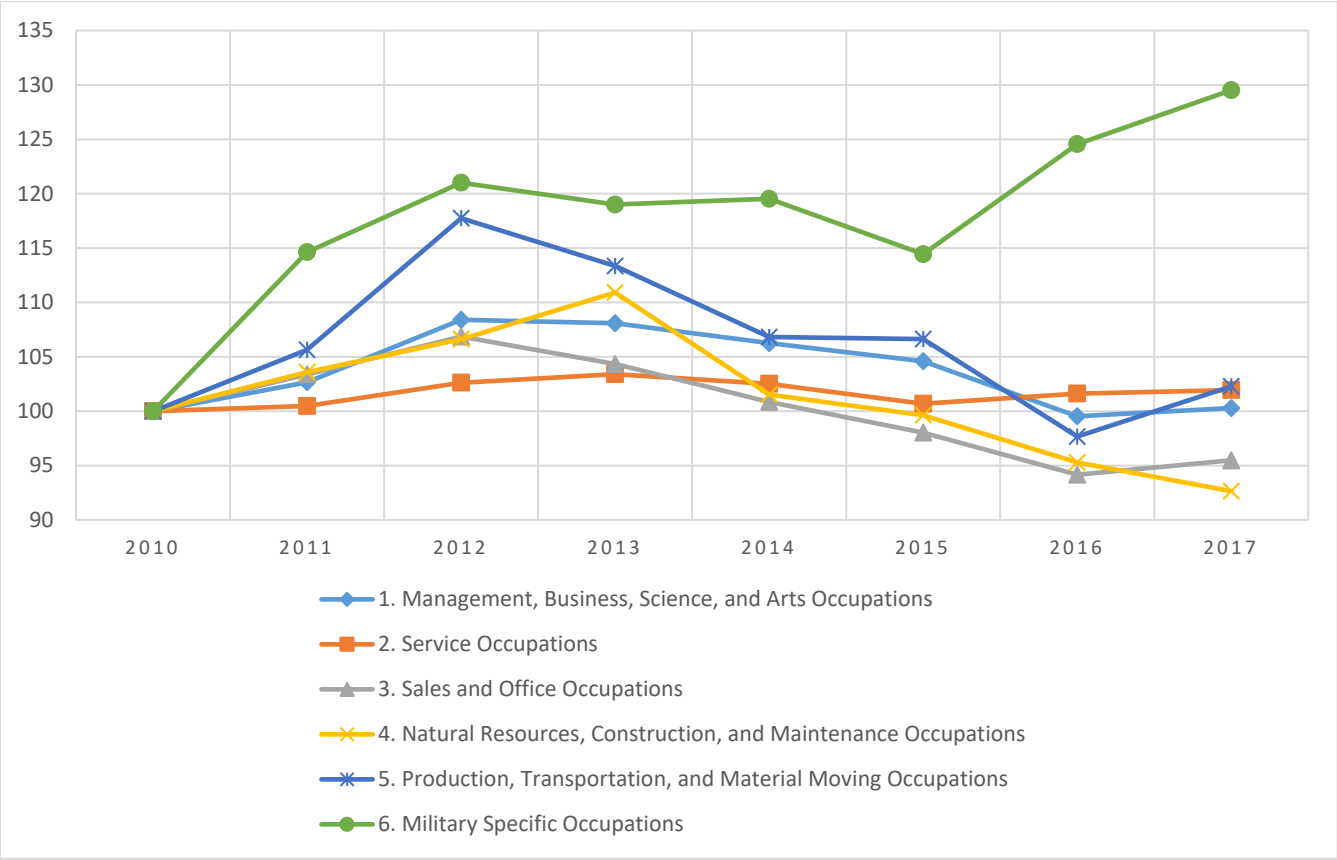
- 2012 to 2013 saw the largest **increase** in jobs for the Construction and Extraction occupation. 2013, however, was the peak year for total jobs, and since then the amount of jobs in that category has dropped year by year.
- From 2010 to 2013 the amount of jobs in the Business and Financial Operations occupation steadily increased. Since then, the amount of jobs in that category has decreased. 2016 and 2017 were the occupation's lowest reporting years. This same trend is seen in the Architecture and Engineering occupation, and to some extent Office and Administrative Support.

*Table 18. Humboldt County Total Employment by Occupation, 2010 to 2017.*

| | Type* | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|
| **11-Management** | 1 | 508 | 503 | 514 | 504 | 483 | 533 | 499 | 511 |
| **13-Business and Financial Operations** | 1 | 169 | 170 | 180 | 180 | 167 | 166 | 158 | 164 |
| **15-Computer and Mathematical** | 1 | 41 | 45 | 49 | 47 | 45 | 44 | 47 | 47 |
| **17-Architecture and Engineering** | 1 | 168 | 184 | 207 | 206 | 180 | 174 | 150 | 157 |
| **19-Life, Physical, and Social Science** | 1 | 184 | 199 | 215 | 216 | 209 | 203 | 190 | 197 |
| **21-Community and Social Service** | 1 | 107 | 97 | 107 | 80 | 77 | 79 | 77 | 80 |
| **23-Legal** | 1 | 22 | 22 | 24 | 26 | 24 | 25 | 27 | 28 |
| **25-Education, Training, and Library** | 1 | 420 | 422 | 430 | 417 | 482 | 442 | 413 | 430 |
| **27-Arts, Design, Entertain, Sports, Media** | 1 | 47 | 54 | 51 | 51 | 52 | 48 | 54 | 54 |
| **29-Healthcare Practitioners and Tech** | 1 | 200 | 220 | 244 | 290 | 261 | 237 | 241 | 203 |
| **31-Healthcare Support** | 2 | 104 | 110 | 118 | 125 | 115 | 114 | 112 | 100 |
| **33-Protective Service** | 2 | 171 | 158 | 152 | 148 | 147 | 172 | 180 | 205 |
| **35-Food Preparation and Serving Related** | 2 | 717 | 726 | 738 | 792 | 799 | 754 | 749 | 741 |
| **37-Building/Grounds Cleaning, Maint.** | 2 | 357 | 357 | 364 | 344 | 336 | 318 | 325 | 321 |
| **39-Personal Care and Service** | 2 | 239 | 244 | 258 | 233 | 232 | 240 | 247 | 252 |
| **41-Sales and Related** | 3 | 717 | 741 | 763 | 770 | 756 | 731 | 692 | 707 |
| **43-Office and Administrative Support** | 3 | 928 | 959 | 994 | 945 | 902 | 881 | 856 | 863 |
| **45-Farming, Fishing, and Forestry** | 4 | 254 | 262 | 269 | 266 | 276 | 280 | 272 | 266 |
| **47-Construction and Extraction** | 4 | 1,141 | 1,184 | 1,209 | 1,280 | 1,119 | 1,070 | 1,045 | 985 |
| **49-Installation, Maintenance, and Repair** | 4 | 778 | 804 | 838 | 864 | 811 | 815 | 753 | 762 |
| **51-Production** | 5 | 463 | 491 | 543 | 519 | 483 | 458 | 421 | 443 |
| **53-Transportation and Material Moving** | 5 | 698 | 735 | 823 | 797 | 757 | 780 | 713 | 744 |
| **55-Military** | 6 | 16 | 19 | 20 | 19 | 19 | 19 | 20 | 21 |
| **99-Unclassified** | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Totals:** | - | 8,447 | 8,706 | 9,111 | 9,118 | 8,734 | 8,583 | 8,243 | 8,281 |

*Source: Emsi 2018.2; QCEW, non-QCEW, Self-Employed. For those occupations where job data was suppressed, '<10' shows instead of a specific amount.*
**Type of occupation is broken into six categories: 1. Management, Business, Science, and Arts Occupations; 2. Service Occupations; 3. Sales and Office Occupations; 4. Natural Resources, Construction, and Maintenance Occupations; 5. Production, Transportation, and Material Moving Occupations; 6. Military Specific Occupations*

*Figure 18. Humboldt County Total Employment by Occupation 2010 to 2017; Index: 2010 = 100.*




*1. Management, Business, Science, and Arts Occupations includes SOC 11-29*
*2. Service Occupations includes SOC 31-39*
*3. Sales and Office Occupations includes SOC 41-43*
*4. Natural Resources, Construction, and Maintenance Occupations includes SOC 45-49*
*5. Production, Transportation, and Material Moving Occupations includes SOC 51-53*
*6. Military Specific Occupations includes SOC 55*

**General Occupation Trends**

- The following occupation groups have suffered *decreases* in recent years: Management, Business, Science, and Arts; Sales and Office; Natural Resources, Construction, and Maintenance; Production, Transportation, and Material Moving.

**Specific Occupation Changes**

- 2012 to 2013 saw the largest increase in jobs for the Construction and Extraction occupation. 2013, however, was the peak year for total jobs, and since then the amount of jobs in that category has dropped year by year.
- From 2010 to 2013 the amount of jobs in the Business and Financial Operations occupation steadily increased. Since then, the amount of jobs in that category has decreased. 2016 and 2017 were the occupation's lowest reporting years. This same trend is seen in the Architecture and Engineering occupation, and to some extent Office and Administrative Support.

## Personal Income and Components of Personal Income

The following page consists of Humboldt County's recorded total personal income, as well as the breakdown of the component parts of what makes up personal income. There are three major components in this makeup: *net earnings by place of residence*, *dividends*, *interest and rents*, and *transfer payments*.

***Net Earnings*** represents wages & salaries by place of work plus social insurance (employee and employer) minus adjustments for residence.

***Dividends, Interest and Rents*** represents investment income and may be closely tied to retirement incomes.

***Transfer Payments*** represents the redistribution of income and wealth made without goods or service being received in return (normally government payments).

***Key Trends:***

- For each year from 2013 to 2016, earnings by place of work dropped. In 2016 it was at its lowest for the reported trend line, at $585 million. The same pattern can be applied to net earnings by place of residence.

- Adjustment for residence fluctuated the most, percentage change wise. It has been in the positive and negative from 2010 to 2016.

- From 2013 to 2016 personal current transfer receipts have *increased*.

- The peak year for Wages and Salaries was 2013. Since then, the reported number has *decreased* by 9.71%.

- Proprietors' income shows the highest *decrease* from 2010 to 2016. The years 2011 to 2012 and 2014 to 2015 show the sharpest drop in farm proprietors' income, dropping into the negative each time. Nonfarm proprietors' income shows a more gradual drop.

- Employer contributions for government social insurance increased from 2010 to 2013. However, since then, that number has decreased annually

*Table 19. Humboldt County Total Personal Income, 2010 to 2016.*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Personal Income*** | $748,540 | $779,051 | $771,490 | $772,915 | $761,704 | $762,189 | $739,086 |
| **Earnings by place of work*** | $638,495 | $651,190 | $642,024 | $652,726 | $630,484 | $619,062 | $585,163 |
| **Contributions for gov't social insurance*** | $60,577 | $58,549 | $59,261 | $65,652 | $62,453 | $63,262 | $59,749 |
| **Employee/self-employed contributions*** | $31,473 | $26,409 | $26,061 | $32,879 | $32,333 | $32,911 | $31,301 |
| **Employer contributions*** | $29,104 | $32,140 | $33,200 | $32,774 | $30,121 | $30,351 | $28,448 |
| **Adjustment for residence*** | -$4,560 | -$1,726 | -$3,884 | -$1,753 | $378 | -$250 | $1,958 |
| **Net earnings by place of residence*** | $573,357 | $590,915 | $578,879 | $585,320 | $568,409 | $555,550 | $527,372 |
| **Dividends, interest, and rent*** | $79,375 | $91,594 | $96,499 | $95,609 | $92,350 | $98,962 | $100,219 |
| **Personal current transfer receipts*** | $95,808 | $96,542 | $96,112 | $91,986 | $100,945 | $107,677 | $111,495 |

*Source: U.S. Bureau of Economic Analysis, "Personal Income and Employment by Major Component (CA4)" (accessed March 2018)*
**All data is shown in thousands and is shown in 2016 dollars.*

*Table 20. Humboldt County Components of Personal Income, 2010 to 2016.*

| Year: | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| **Wages and salaries*** | $435,377 | $462,381 | $469,541 | $483,416 | $453,086 | $454,734 | $436,477 |
| **Supplements to wages and salaries*** | $119,501 | $115,034 | $121,694 | $117,849 | $120,114 | $124,264 | $117,037 |
| **Employer contributions for employee pension and insurance funds*** | $90,397 | $82,894 | $88,494 | $85,075 | $89,993 | $93,912 | $88,589 |
| **Employer contributions for government social insurance*** | $29,104 | $32,140 | $33,200 | $32,774 | $30,121 | $30,351 | $28,448 |
| **Proprietors' income*** | $83,617 | $73,775 | $50,789 | $51,461 | $57,285 | $40,064 | $31,649 |
| **Farm proprietors' income*** | $14,543 | $27,705 | $1,345 | -$4,256 | $13,642 | -$203 | -$5,496 |
| **Nonfarm proprietors' income*** | $69,075 | $46,069 | $49,444 | $55,717 | $43,642 | $40,266 | $37,145 |

*Source: U.S. Bureau of Economic Analysis, "Personal Income and Employment by Major Component (CA4)" (accessed March 2018)*
**All data is shown in thousands and is shown in 2016 dollars.*

*Figure 19. Humboldt County Total Personal Income, 2010 to 2016; Index: 2010 = 100.*

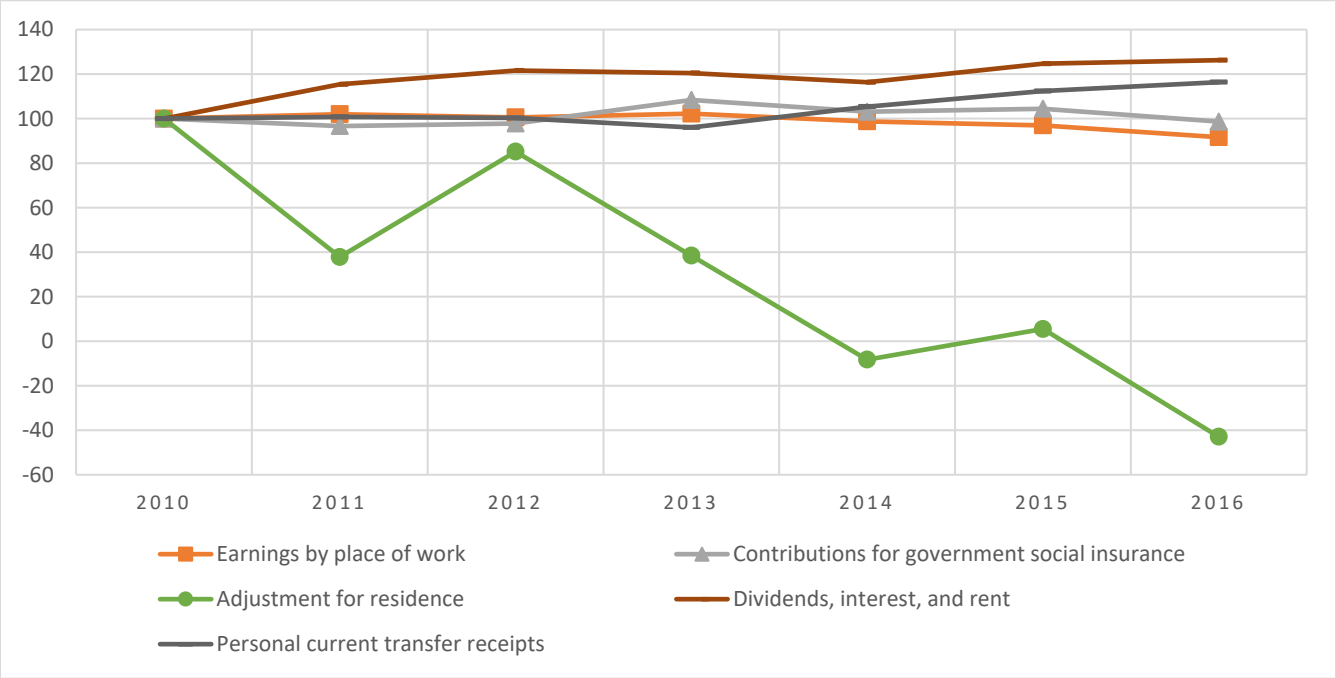
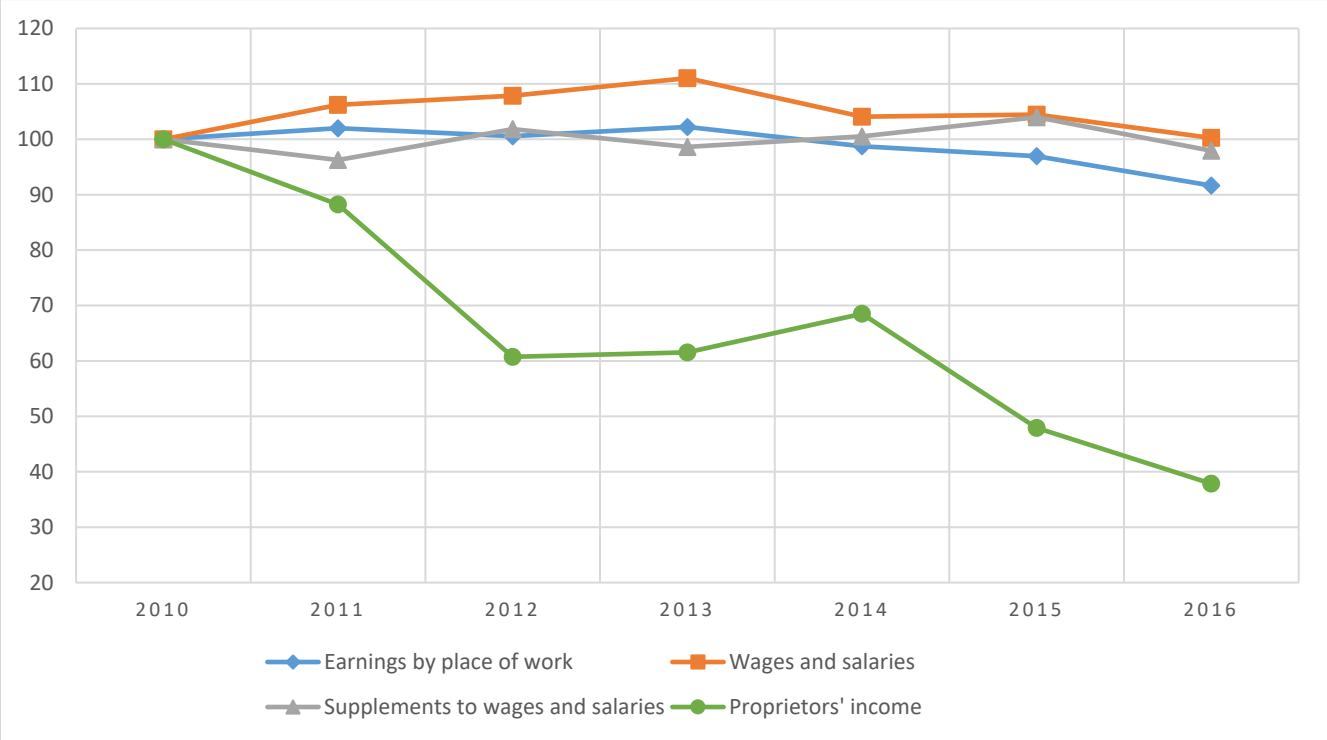



*Figure 20. Humboldt County Components of Total Personal Income, 2010 to 2016; Index: 2010 = 100.*



## Average Earnings by Individual Industry and Type of Industry

***Key Trends:***

- **Yearly High for all Industries**: 2015, at $68,234. Since then that number has slightly dropped.
- **Yearly Low for all Industries**: 2012, at $64,839. In either year before and after this low, the increase and decrease is relatively steep.
- 2015 to 2017 was the 3-year stretch with the least amount of fluctuation with regards to average total annual earnings per worker.
- Construction average earnings per worker noticeably dropped from 2011 to 2012, nearly halving.
- Management of Companies and Enterprises has shown a consistent increase in average earnings from 2010 to 2017.
- Services Related Industries suffered a sharp decrease in average earnings from 2013 to 2014, but rebounded in 2015 to pre-decline levels.

*Figure 21. Humboldt County Average Annual Earnings per Worker, 2010 to 2017.*

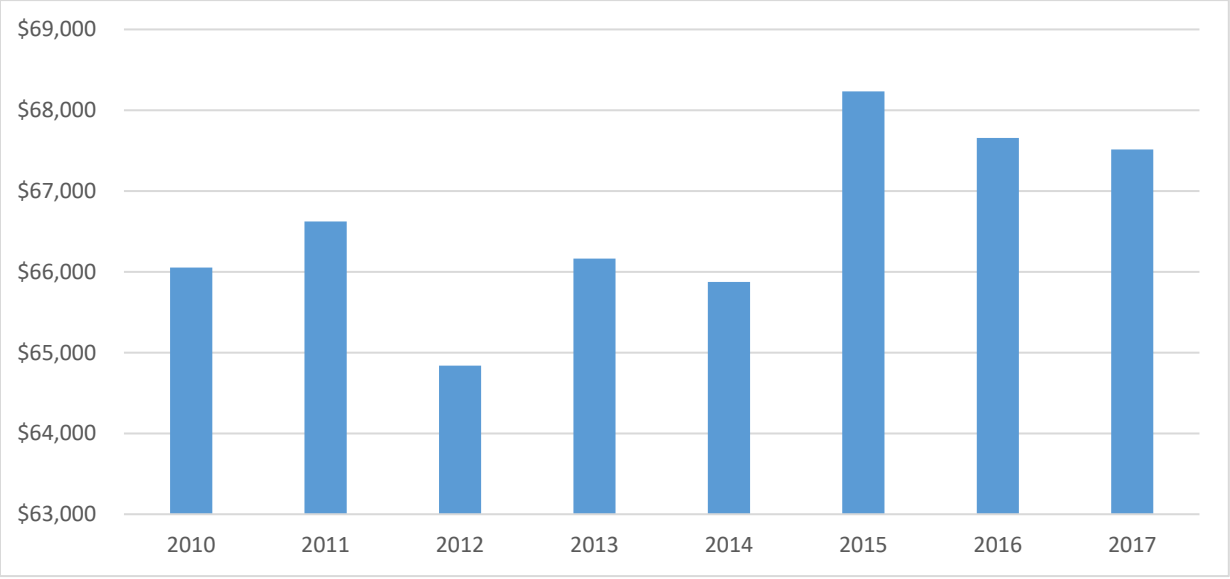
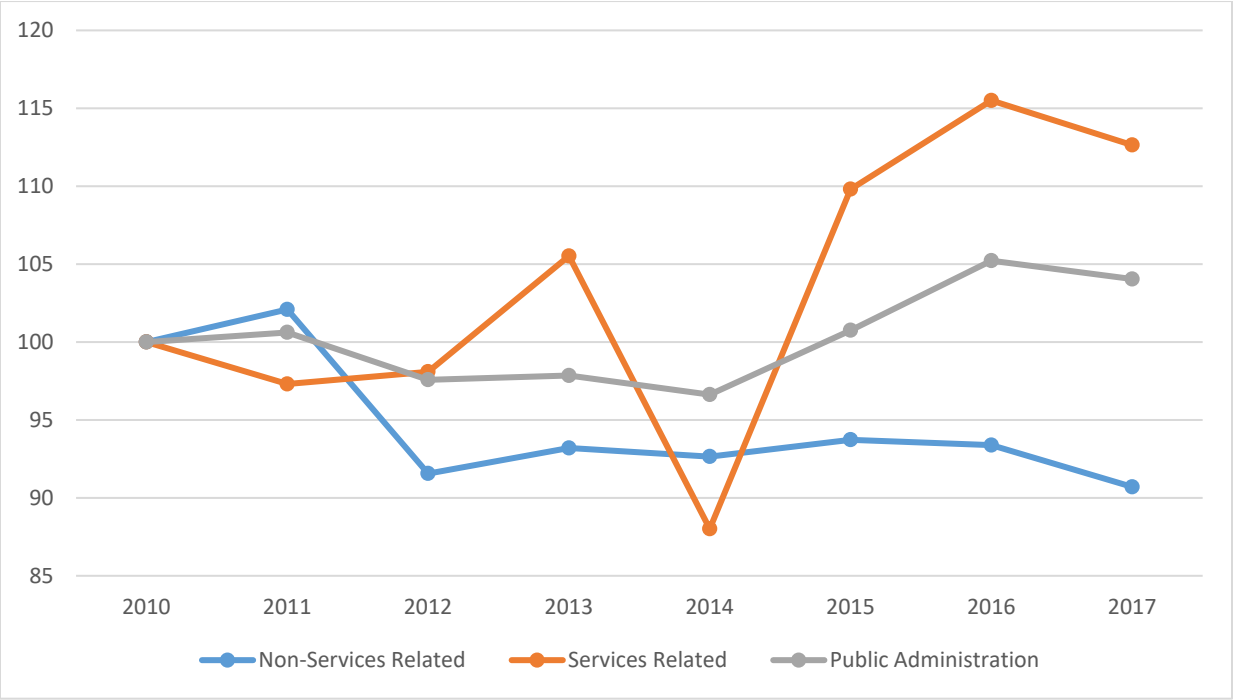


*Table 21. Humboldt County Average Annual Earning by Industry, 2010 to 2017.*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|
| **11: Ag, Forestry, Fishing and Hunting** | $30,548 | $31,400 | $34,114 | $34,613 | $37,342 | $36,334 | $35,466 | $35,389 |
| **21: Mining, Quarry, Oil/Gas Extraction** | $112,685 | $112,947 | $114,010 | $114,759 | $117,158 | $122,671 | $122,207 | $122,281 |
| **22: Utilities** | $154,814 | $152,548 | $142,845 | $147,863 | $148,803 | $156,550 | $153,909 | $151,032 |
| **23: Construction** | $98,960 | $102,342 | $66,139 | $69,511 | $62,645 | $63,805 | $64,206 | $58,094 |
| **31: Manufacturing** | $64,090 | $66,001 | $66,180 | $66,574 | $66,626 | $64,260 | $64,135 | $62,051 |
| **42: Wholesale Trade** | $76,390 | $70,197 | $78,675 | $78,808 | $77,214 | $85,057 | $81,195 | $81,527 |
| **44: Retail Trade** | $33,956 | $33,186 | $33,310 | $33,715 | $33,188 | $33,177 | $33,606 | $33,596 |
| **48: Transportation, Warehousing** | $71,437 | $72,235 | $70,044 | $66,646 | $67,649 | $66,561 | $65,444 | $62,180 |
| **51: Information** | $40,724 | $40,298 | $43,389 | $41,609 | $43,721 | $50,232 | $48,626 | $49,831 |
| **52: Finance and Insurance** | $45,434 | $40,524 | $40,298 | $39,353 | $41,616 | $44,409 | $41,095 | $42,410 |
| **53: Real Estate and Rental and Leasing** | $26,887 | $32,448 | $32,881 | $32,248 | $31,611 | $33,422 | $33,717 | $35,869 |
| **54: Professional, Scientific, Tech Services** | $58,737 | $55,131 | $51,194 | $51,456 | $54,810 | $57,664 | $57,134 | $50,605 |
| **55: Mgmt. of Companies/Enterprises** | $77,465 | $83,464 | $94,802 | $156,361 | - | $148,897 | $224,282 | $211,017 |
| **56: Administrative and Support** | $49,421 | $48,159 | $50,049 | $49,040 | $52,311 | $51,215 | $37,346 | $37,035 |
| **61: Educational Services** | $47,200 | $26,864 | $29,436 | $16,663 | $19,195 | $18,893 | $23,082 | $20,686 |
| **62: Health Care and Social Assistance** | $30,056 | $32,462 | $31,065 | $41,076 | $40,444 | $39,728 | $39,026 | $40,951 |
| **71: Arts, Entertainment, and Recreation** | $26,186 | $27,420 | $24,256 | $26,222 | $23,834 | $23,942 | $22,838 | $20,407 |
| **72: Accommodation, Food Services** | $21,296 | $21,374 | $22,017 | $21,444 | $21,149 | $21,590 | $21,269 | $21,497 |
| **81: Other Services (except Public Admin)** | $40,289 | $42,429 | $40,755 | $41,973 | $48,836 | $47,424 | $41,786 | $42,818 |
| **90: Government, Public Admin** | $74,279 | $74,737 | $72,479 | $72,681 | $71,773 | $74,836 | $78,157 | $77,281 |
| **99: Unclassified Industry** | - | - | - | - | - | $0 | $0 | - |
| **Totals:** | $66,054 | $66,623 | $64,839 | $66,163 | $65,874 | $68,234 | $67,657 | $67,514 |

*Source: Emsi 2018.2; QCEW, non-QCEW, Self-Employed*
*For those industries where data was suppressed, '-'shows instead of a dollar amount.*
*Data is shown in 2017 dollars.*

*Figure 22. Humboldt County Average Annual Earnings by Industry Type, 2010 to 2017; Index: 2010 = 100.*




*Non-Services Related include NAICS Sectors: 11, 21, 23, and 31-33.*
*Service Related include NAICS Sectors: 22, 42, 44-45, 48-49, 51, 52, 53, 54, 55, 56, 61, 62, 71, 72, and 81*
*Public Administration includes NAICS Sector: 90*

## Average Hourly Earnings by Occupation

***Key Trends:***

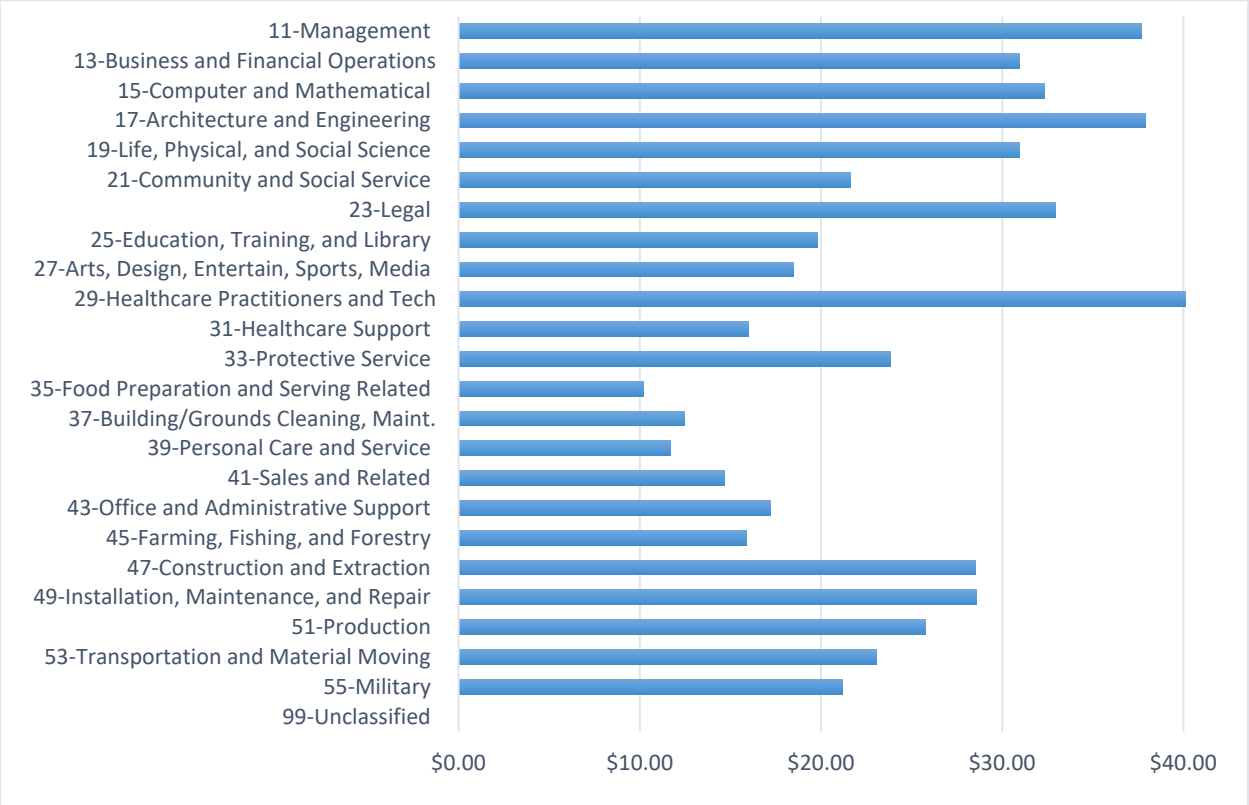
* In 2017, the three occupations with the highest average hourly earnings were Healthcare Practitioners and Tech ($47.17), Architecture and Engineering ($37.90), and Management ($37.68).

* In 2017, the three occupations with the *lowest* average hourly earnings were Food Preparation and Serving ($10.21), Personal Care & Service ($11.71), and Building/Grounds Cleaning ($12.44).

*Table 22. Humboldt County Average Hourly Earnings by Occupation, 2017.*

| 2017 | Average Hourly Earnings |
|---|---|
| **11-Management** | $37.68 |
| **13-Business and Financial Operations** | $30.97 |
| **15-Computer and Mathematical** | $32.34 |
| **17-Architecture and Engineering** | $37.90 |
| **19-Life, Physical, and Social Science** | $30.97 |
| **21-Community and Social Service** | $21.60 |
| **23-Legal** | $32.95 |
| **25-Education, Training, and Library** | $19.78 |
| **27-Arts, Design, Entertain, Sports, Media** | $18.47 |
| **29-Healthcare Practitioners and Tech** | $47.17 |
| **31-Healthcare Support** | $15.97 |
| **33-Protective Service** | $23.81 |
| **35-Food Preparation and Serving Related** | $10.21 |
| **37-Building/Grounds Cleaning, Maintenance** | $12.44 |
| **39-Personal Care and Service** | $11.71 |
| **41-Sales and Related** | $14.65 |
| **43-Office and Administrative Support** | $17.23 |
| **45-Farming, Fishing, and Forestry** | $15.89 |
| **47-Construction and Extraction** | $28.54 |
| **49-Installation, Maintenance, and Repair** | $28.60 |
| **51-Production** | $25.78 |
| **53-Transportation and Material Moving** | $23.08 |
| **55-Military** | $21.19 |
| **99-Unclassified** | $0.00 |
| **Average Through all Occupations** | $22.82 |

*Figure 23. Humboldt County Average Hourly Earnings by Occupation.*




The largest difference between two occupations is between Healthcare Practitioners/Tech ($47.17) and Food Preparation/Serving Related ($10.21), the difference being $36.96.

**Highest Average Hourly Earnings**

The five occupations with the highest average hourly earnings in 2017 were:

* 29: Healthcare Practitioners and Tech ($47.17)
* 17: Architecture/Engineering ($37.90)
* 11: Management ($37.68)
* 23: Legal ($32.95)
* 15: Computer, Mathematical ($32.34)

**Lowest Average Hourly Earnings**

The five occupations with the lowest average hourly earnings in 2017 were:

* 35: Food Prep & Serving ($10.21)
* 39: Personal Care & Service ($11.71)
* 37: Building/Grounds Cleaning ($12.44)
* 41: Sales and Related ($14.65)
* 45: Farming, Fishing, Forestry ($15.89)

## Per Capita Income

***Key Trends:***

- There were only three years in which Humboldt County's per capita income was higher than Nevada's. Those years were 2014, 2015, and 2016. In no year was Humboldt County's per capita income higher than the nation's. However, in 2010, Nevada had a higher per capita income than the nation's.

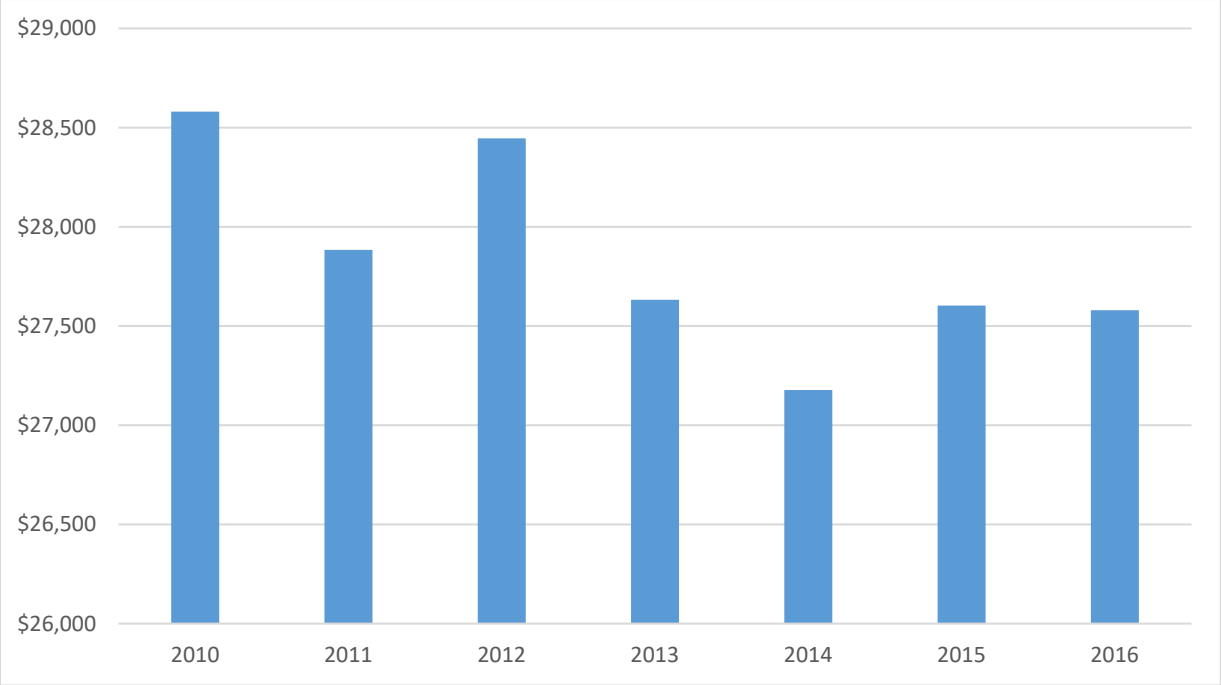
- From 2010 to 2016, Humboldt County's per capita income fluctuated slightly. 2012 and 2015 show increases from previous years, while 2011, 2013, and 2014 show decreases.

*Table 23. Humboldt County per Capita Income, 2010 to 2016.*

| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| **County** | $28,580 | $27,883 | $28,445 | $27,632 | $27,177 | $27,603 | $27,580 |
| **Nevada** | $30,368 | $29,792 | $28,595 | $27,709 | $27,145 | $26,880 | $27,253 |
| **Nation** | $30,087 | $30,105 | $29,705 | $29,341 | $29,233 | $29,299 | $29,829 |

*Source: US Census Bureau/American Fact Finder. "DP03: Selected Economic Characteristics" Multiple years: 2006-2010 through 2012-2016 American Community Surveys.*
*Per Capita Income is shown in 2016 dollars.*

*Figure 24. Humboldt County per Capita Income, 2010 to 2016.*



## Gross Regional Product

Gross Regional Product (GRP) is a monetary measure of the market value of all final goods and services in a defined region and a defined period of time, either quarterly or yearly. Humboldt County GRP is reported annually.

***Key Findings:***

The five industries with the highest GRP in 2017 are:

* 21: Mining, Quarrying, and Oil and Gas Extraction, $754,843,774
* 90: Government and Public Administration, $139,859,051
* 22: Utilities, $91,692,666
* 44: Retail Trade, $61,035,667
* 72: Accommodation and Food Services, $38,720,171

The five industries with the lowest GRP in 2017 are:

* 61: Educational Services, $521,346
* 52: Finance and Insurance, $6,247,145
* 55: Management of Companies and Enterprises, $7,136,173
* 71: Arts, Entertainment, and Recreation, $8,181,771
* 54: Professional, Scientific, and Technical Services, $10,233,933

*Figure 25. Humboldt County Gross Regional Product, Imports, Exports, 2017.*

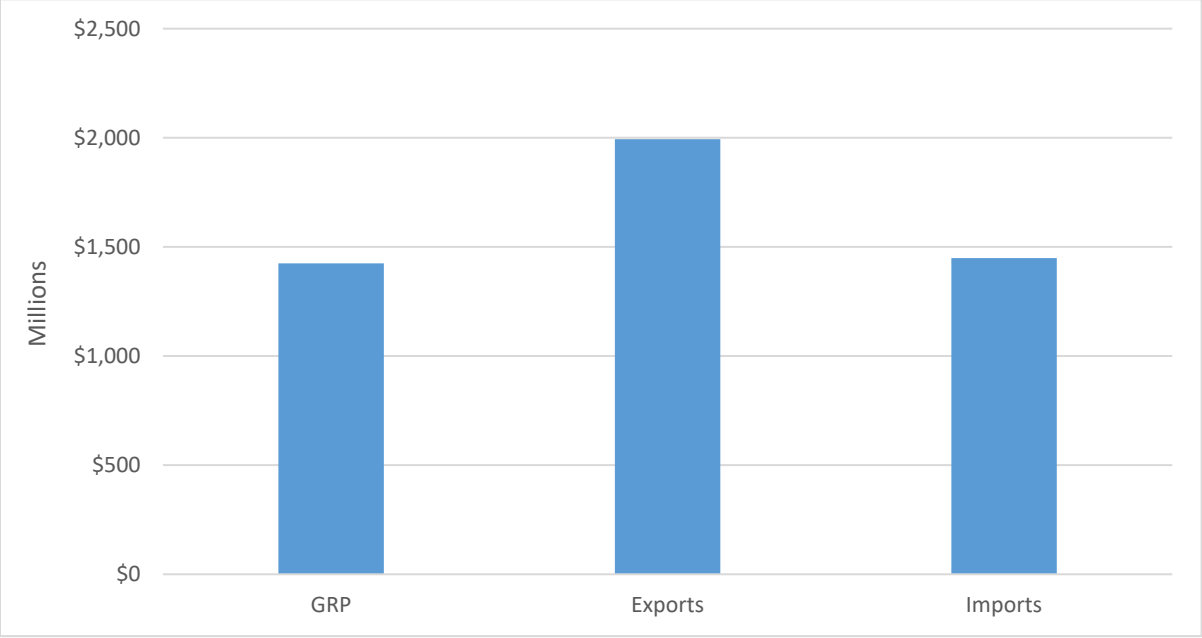


*Table 24. Humboldt County Gross Regional Product, Imports and Exports, 2017.*

| | 2017 |
|---|---|
| **11: Agriculture, Forestry, Fishing, Hunting** | $38,566,163 |
| **21: Mining, Quarrying, Oil/Gas Extraction** | $754,843,774 |
| **22: Utilities** | $91,692,666 |
| **23: Construction** | $28,128,878 |
| **31: Manufacturing** | $44,893,340 |
| **42: Wholesale Trade** | $22,953,325 |
| **44: Retail Trade** | $61,035,667 |
| **48: Transportation and Warehousing** | $23,648,145 |
| **51: Information** | $10,571,887 |
| **52: Finance and Insurance** | $6,247,145 |
| **53: Real Estate and Rental and Leasing** | $13,608,810 |
| **54: Professional, Scientific, Tech Services** | $10,233,933 |
| **55: Management of Companies/Enterprises** | $7,136,173 |
| **56: Administrative and Support** | $14,653,191 |
| **61: Educational Services** | $521,346 |
| **62: Health Care and Social Assistance** | $15,364,781 |
| **71: Arts, Entertainment, and Recreation** | $8,181,771 |
| **72: Accommodation and Food Services** | $38,720,171 |
| **81: Other Services** | $17,281,836 |
| **90: Government and Public Administration** | $139,859,051 |
| **99: Unclassified Industry** | - |
| **Total GRP** | $1,424,920,933 |
| | |
| **Exports** | $1,993,751,812 |
| **Imports** | $1,449,118,807 |

*Source: Emsi 2018.2;*
*For those industries where data was suppressed, '-'shows instead of a dollar amount.*

***Key Trends:***

- In 2017, Humboldt County showed more exports than imports, possibly indicating a healthy economy.
- Mining, Quarrying, Oil/Gas Extraction had the highest GRP by far, at $754,843,774, which is over half of the county's total GRP. The second largest GRP is Government and Public Administration, which reports a number $600,000,000 smaller.

# Section 4—Overview of Socioeconomic Impact Analysis

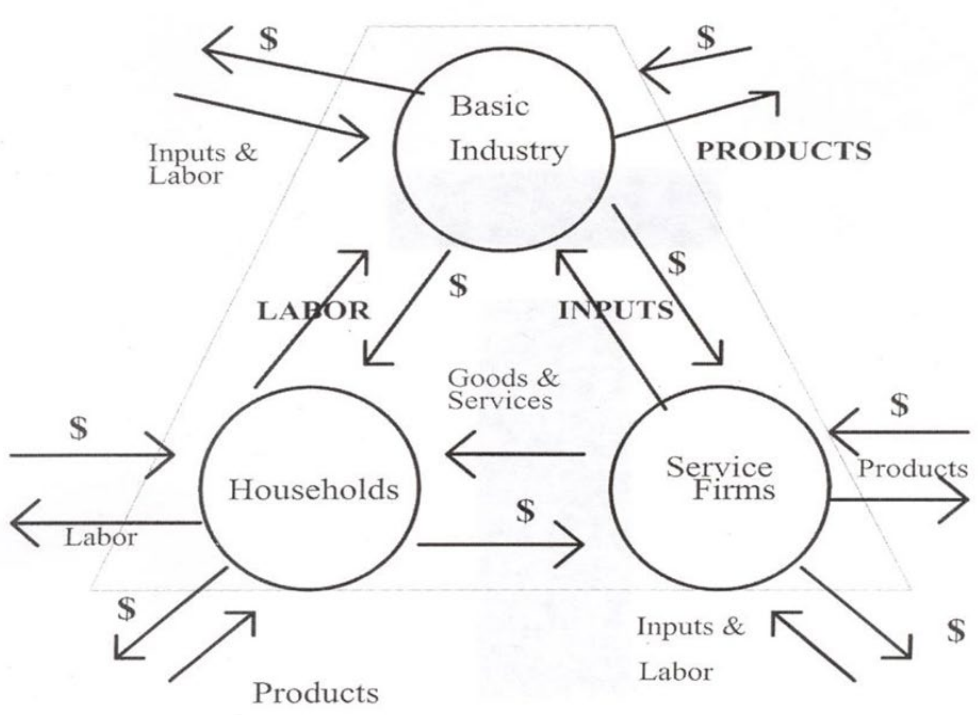
The most common methodology used for estimating the impacts of positive or negative economic shocks to an economy is Input-Output (I-O) analysis. I-O models offer a snapshot of an economy, detailing the sales and purchases of goods and services between all sectors in a defined economy (i.e. sub-county, county, state, or region). The transactions between sectors are measured in terms of dollars and are segmented into two broad categories: non-basic, which includes transactions between local industries, households and other institutions, and basic, which includes transactions between industries, households, and other institutions outside the economic being modeled (i.e. imports and exports).

Interindustry analysis was developed by Wassily Leontief in the late 1930's to represent the interdependencies between different economic sectors in a study area (1936). Interindustry analysis shows how economic sector are linked together by sales and purchases between other economic sectors. Since its inception, the framework of interindustry models has continued to be improved and is one of today's most applied analytical techniques in economics (Baumol, 2000). The advantage of interindustry analysis is its ability to provide an easy to understand, transparent, and detailed picture of economic structure of a study area economy at a point in time. Another advantage is that interindustry models do not incorporate any behavioral equations of individuals or businesses, so it is politically and ideologically neutral (Foran et al., 2005).

Figure 26 illustrates the major dollar flows of goods and services in any economy. The foundation of a state's economy is the businesses, which sell some or all of their goods and services to buyers outside the state. Such a business is a basic industry. The flow of products out of—and dollars into—a state is represented by the two arrows in the upper right portion of

Figure 26. To produce these goods and services for "export" outside the state, the basic industry purchases inputs from outside of the state (upper left portion of Figure 26), labor from the residents or "households" of the state (left side of Figure 26), and inputs from service industries located within the state (right side of Figure 26). The flow of labor, goods, and services in the state is completed by households using their earnings to purchase goods and services from the state's service industries (bottom of Figure 26). It is evident from the interrelationships illustrated in Figure 26 that a change in any one segment of a state's economy will have reverberations throughout the entire economic system of the state.

*Figure 26. Overview of an Economy.*



# Section 5—Humboldt County Economic Model

Economic impacts for the development of a new lithium mine, lithium processing plant and sulfuric acid plant in Humboldt County were estimated using a Humboldt County hybrid IMPLAN economic impact model (IMPLAN Group. LLC, 2016). IMPLAN stands for "Impact Analysis for Planning" and is a commonly used analytical software tool to estimate socioeconomic impacts originally developed by researchers at the U.S. Forest Service. The IMPLAN software is an input-output based model that describes the inter-industry relationships between industries and commodity purchases within a local economy. The model relies on county and state level data that is continually updated by the U.S. government and, when possible, improved with locally collected primary data; thus resulting in hybrid models consisting of primary and secondary data. Input-output models can be used to analyze the economic structure of a regional economy and to estimate the impacts of a new business or industry, loss of business or industry, or changes in government policies.

Out of the box input-output models developed by the IMPLAN software are initially good; however, the data needs to be verified and validated as stated by Holland et al. (1997). Also, some economic sectors are not delineated for analysis. For the lithium mining sector and the lithium processing sectors, these sectors were aggregated into an Other Metal Mining Sector and Other Chemical Products Manufacturing Sector. Therefore, the black box IMPLAN input-output model does not have the particular production functions of the lithium mine or the lithium processing sector required for this analysis. As Lahr (1993) notes, the variation in technologies of the resource-based sectors would be expected to be exceptionally high from region to region. Therefore, using out of the box input-output models primarily derived from national averages could cause errors and missed linkages that could occur in a regional industry such as lithium mining and lithium processing.

For this analysis, primary data was collected by industry operators to develop a separate input-output sector for the Lithium Mining Sector and the Lithium Processing Sector. The type of approach would then be: a lithium mine and lithium processing plant and the potential impact of such a construction on the economy of Humboldt County. The activities of the lithium mine and processing sectors could be considered as a basic industry as they draw dollars from outside the area. These dollars hire people from the Humboldt County household sector, such as administrative personnel, miners, and processing engineers employed at the lithium mine or lithium processing plant. Moreover, the lithium mine and processing plant will buy goods and services from the local service sector. This is characterized as business-to-business expenditures which for example could be expenditures for mining services, accountants, lawyers, etc. As earnings increase in the lithium mining and lithium processing sectors and locally linked sectors, they will hire additional local employees who will make additional purchases in the Humboldt County economy. Thus, the change in the economic base works its way throughout the entire Humboldt County economy and provides impetus for future economic development. All of this is relayed in the following pages by tables that show direct, indirect, induced, and total impacts.

Other basic inorganic chemical manufacturing sector in the base IMPLAN model was used to estimate sulfuric acid manufacturing impacts. Additional primary data collection specific to sulfuric acid manufacturing sector may be warranted to improve the overall Humboldt County economic model.

Economic and fiscal impacts for a new lithium mining and processing facilities in Humboldt County were estimated using a county hybrid IMPLAN economic impact model. Economic impacts are defined as total expenditures, personal income and employment. Total impacts are estimated using the following components:

***Direct Impact*s**

Represents the expenditure amounts from the project that directly impact the regional economy. The direct impact of operating expenses represents the current operating expenses necessary for the project to operate the separate business sections; and the direct impact of employment represents the employment level directly associated with the project.

***Indirect Effects***

Represents the impact from the project's direct purchases of goods and services from supplying vendors. Purchases made by supplying vendors to restock their inventory by purchasing goods and services from other vendors who in turn restock by purchasing from other vendors and so on is the indirect impact. These purchases are also commonly referred to as the "ripple effect."

***Induced Effects***

The direct activity and the resulting indirect activity generate some increases in the general level of employment and income in the study area, leading to a tertiary level of economic impact through the higher level of household expenditures on goods and services. These impacts reflect the increase in spending from the household sector as income increases or decreases due to changes in production of goods and services.

***Total Impact***

The increase in potential productivity in the regional economy based on the expenditures from the project. Each component of the project (operating expenditures and visitor expenditures) generates economic impacts that can be combined to show the total economic impact of the project.

***Multipliers***

Predicated upon a domino theory of economic change. They translate the consequences of change in one sub-sector upon others in other industries. Multipliers are estimators of the "ripple effect." Examples and interpretations include:

An ***Output*** multiplier of 1.5 indicates that for every $1 of output and additional $0.50 of additional output is produced in the local economy.

An ***Income Multiplier*** of 1.5 indicated that for every $1 of direct income generates an additional $0.50 of income in the local economy.

An ***Employment Multiplier*** of 1.5 indicates that for every direct job generates an additional 0.5 jobs in the local economy.

Table 25 summarizes the different state, local and federal taxes included in this study.

*Table 25. Components of Fiscal Impacts.*

| **State & Local Taxes** | | **Federal Taxes** |
|---|---|---|
| Dividends | | Social Insurance |
| *Social Insurance*: | | Employee Contribution |
| Employee Contribution | | Employer Contribution |
| Employer Contribution | | |
| *Tax on Production and Imports:* | | Tax on Production and Imports |
| Sales Tax | | Excise |
| Property Tax | | Custom Duty |
| Motor Vehicle License | | Fed Non Taxes |
| Severance/Net Proceeds | | |
| Other Taxes | | Corporate Profit |
| S/L Non Taxes | | |
| Corporate Profits | | Personal Income Tax |
| *Personal Tax* | | |
| Income Tax | | |
| Fine & Fees | | |
| Motor Vehicle | | |
| Other Tax | | |

Two levels of impacts are considered for this study. First construction impacts are considered short-term. Two construction phases will be initiated in years one and five, and each phase will last a total of two years. Phase 1, beginning in year one and concluding in year two, will build an open pit mine, lithium processing plant, sulfuric acid manufacturing plant that will have the capacity to produce up to 33,000 tonnes of Lithium Carbonate. Phase 2, beginning in year five and concluding in year six, will expand all facilities constructed in Phase 1, and double production capacity to 66,000 tonnes of Lithium Carbonate. Second, annual operating impacts will provide Humboldt County long-term sustainable economic impacts over the life of the production cycle, 41 years. Sustainable impacts will include consistent levels of direct, indirect, and induced purchases, income, employment and taxes.

# Section 6—Construction Impacts

Construction economic impacts are considered short-term and not sustainable beyond the scheduled construction timeline. For example, Lithium Nevada Corp. construction projections are estimated to include two phases and spread out over seven years, but the actual construction will only occur over four years, two nonconsecutive two year periods. Phase one, estimated over two years, will construct an open pit mine, lithium processing plant and sulfuric acid manufacturing plant that supports 33,000 tonnes of Lithium Carbonate. Phase two, estimated over an additional two years, will expand construction on each operation to increase the tonnes of Lithium Carbonate to 66,000.

Table 26 shows the total construction cost estimates for each phase by type of operation. Over four years, both phases, it is estimated that over $873.5 million will be invested into constructing a lithium mine, lithium processing plant and sulfuric acid manufacturing plant that will produce up to 60,000 Lithium Carbonate. On average, over $218.3 million will be invested annually giving Humboldt County a significant short term injection of labor, income and tax revenue. These impacts are not sustainable past the four-year period, but will provide the types of short-term employment opportunities that accompany construction projects. For the purpose of this analysis, the economic and fiscal impacts are estimated using the average annual expenditures of $218,394,336 and will occur annually for four years. This approach is taken so results reflect annual impacts and guard against double accounting.

Table 27 reports the construction impacts on Humboldt County from new business enterprises related to lithium mining, processing and manufacturing. Annually, the direct $218.3 million construction investment will generate an additional $47.0 million in indirect and induced activity for a total economic impact of over $264.4 million. This includes over $265.4 million in total personal income and supporting 1,340 total jobs at an overall average wage of $51,200. This level of economic activity will also generate over $8.2 million in state and local taxes.

Table 28 shows the top impacted sectors associated with new mine and plant related construction.

*Table 26. Construction Expenditure Estimates by Type of Operation.*

| | Phase One (2 Years) | Phase Two (2 Years) | Total Average (4 Years) |
|---|---|---|---|
| | | | |
| Volume Units | 33,000 tonnes LC | 66,000 tonnes LC | |
| | | | |
| Open Pit Mine | $67,011,312 | $880,213 | $67,891,525 |
| Lithium Processing Plant | $287,007,327 | $125,909,806 | $412,917,133 |
| Sulfuric Acid Plant | $182,595,569 | $210,173,120 | $392,768,689 |
| | | | |
| Total | $536,614,208 | $336,963,139 | $873,577,347 |
| Average Annual | $268,307,104 | $168,481,569 | $218,394,336 |

*Table 27. Estimated Mine and Plant Annual Construction Impacts on Humboldt County (4 Years Annual Average).*

| | Direct Impacts | Indirect Impacts | Induced Impacts | Total Impacts |
|---|---|---|---|---|
| | | | | |
| Open Pit Mine<br>Lithium Processing Plant<br>Sulfuric Acid Manf. Plant | | | | |
| | | | | |
| Economic Activity | $218,394,336 | $15,119,708 | $31,917,271 | $265,431,316 |
| Personal Income | $56,553,554 | $4,291,382 | $7,763,556 | $68,608,492 |
| Employment | 1,000 | 97 | 243 | 1,340 |
| Average Wage per Job | $56,553 | $44,241 | $31,948 | $51,200 |
| | | | | |
| State & Local Taxes | $4,016,272 | $1,126,478 | $3,071,061 | $8,213,811 |
| Federal Taxes | $17,437,041 | $1,088,259 | $2,457,810 | $20,983,109 |

*Table 28. Top Impacted Sectors and Humboldt County from Mining Related Construction Activity in Humboldt Count including, Lithium Mine, Lithium Processing and Sulfuric Acid Manufacturing.*

| IMPLAN Sector | Description |
|---|---|
| | |
| 57 | Construction of new commercial structures |
| 501 | Full-Service Restaurants |
| 395 | Wholesale Trade |
| 502 | Limited-Service Restaurants |
| 411 | Truck Transportation |
| 440 | Real Estate |
| 400 | Retail – Food and Beverage Stores |
| 405 | Retail – General Merchandise Stores |
| 407 | Retail – Nonstore Retailers |
| 504 | Automotive Repair and Maintenance |
| 475 | Office of Physicians |
| 49 | Electric Power Transmission |
| 464 | Employment Services |
| 441 | Owner-Occupied Dwellings |
| 482 | Hospitals |
| 436 | Other Financial Investment Activities |
| 449 | Architectural, Engineering, and Related Services |

## Section 7—Annual Operating Impacts

At the conclusion of the construction phase each development will transition to sustainable business enterprises that will annually contribute employment, income, and tax revenues to Humboldt County. Beginning year three, Lithium Nevada Corp. will transition from Phase 1 construction to Lithium Carbonate production at a maximum capacity rate of 33,000 tonnes per year. This level of production will continue through year six when Phase 2 construction is scheduled to be completed. Beginning year seven, Lithium Carbonate production capacity will expand to 66,000 tonnes per year. Unlike the construction phases discussed in the previous section, annual operations will provide Humboldt County with long-term sustainable economic impacts over the life of the projected, 41 years. Sustainable impacts will include consistent levels of direct, indirect and induced purchases, employment, incomes, and tax revenues.

Table 29 summarizes the estimated annual operating costs for each business enterprise for phase one, phase two, and 41-year annual average. Economic and fiscal impacts will occur annually as long as each enterprise keeps operating. In addition, new businesses may flourish as a response to the new primary mining and processing plant. General and Administrative expenditures were allocated between the individual business enterprises as a percent of total estimated expenditures.

*Table 29. Annual Operating Expenditure Estimates by Type of Operation.*

| | Phase 1 (Years 3-6) | Phase 2 (Years 7-41) | Average Annual (41 Years) |
|---|---|---|---|
| Annual Operating Costs | | | |
| | | | |
| Open Pit Mine | $16,103,982 | $28,678,740 | $27,594,463 |
| Lithium Processing Plant | $55,735,866 | $96,458,678 | $93,284,457 |
| Sulfuric Acid Plant | $67,065,707 | $103,401,317 | $100,702,898 |
| General & Administration | $7,174,972 | $8,995,963 | $8,858,938 |
| Total | $146,080,527 | $237,534,698 | $230,440,756 |
| | | | |
| Adjusted Operating Costs* | | | |
| | | | |
| Open Pit Mine | $16,939,782 | $29,814,945 | $28,704,849 |
| Lithium Processing Plant | $58,614,127 | $100,252,451 | $97,011,010 |
| Sulfuric Acid Plant | $70,526,618 | $107,467,302 | $104,724,897 |
| Total | $146,080,527 | $237,534,698 | $230,440,756 |

* G&A Operating was distributed across different operations based on percentage of operating costs.

Table 30 summarizes the 41-year average annual total economic and fiscal impacts for lithium mining, lithium processing and sulfuric acid manufacturing operations in Humboldt County. Each business enterprise is analyzed individually and then added to report the total impacts occurring in Humboldt County. Annually, total direct operations will spend over $277 million that generate additional economic activity of over $50 million for a total economic activity of over $332 million in Humboldt County. This level of economic activity includes over $33 million in total personal income and support 540 total jobs at an overall average wage of $62,675. This level of total economic activity is estimated to collect approximately $9.1 million in state and local taxes.

*Table 30. Estimated Lithium Average Annual Operation Impacts on Humboldt County. (41 Year Average)*

| | Direct Impacts | Indirect Impacts | Induced Impacts | Total Impacts | Multiplier |
|---|---|---|---|---|---|
| | | | | | |
| **Lithium Mining** | | | | | |
| | | | | | |
| Economic Activity | $34,550,200 | $6,215,443 | $4,166,609 | $44,932,252 | 1.30 |
| Personal Income | $8,177,036 | $2,051,903 | $864,448 | $11,093,387 | 1.35 |
| Employment | 147 | 40 | 27 | 213 | 1.45 |
| Average Wage per Job | $55,626 | $51,297 | $32,016 | $52,081 | |
| | | | | | |
| State & Local Taxes | $1,159,856 | $467,700 | $343,962 | $1,971,519 | |
| Federal Taxes | $3,991,007 | $528,253 | $270,769 | $4,790,029 | |
| | | | | | |
| **Lithium Processing Plant** | | | | | |
| | | | | | |
| Economic Activity | $116,765,979 | $20,736,736 | $5,936,781 | $143,439,497 | 1.23 |
| Personal Income | $8,588,798 | $2,543,406 | $1,322,412 | $12,454,617 | 1.45 |
| Employment | 106 | 55 | 29 | 190 | 1.79 |
| Average Wage per Job | $81,088 | $45,941 | $45,361 | $65,411 | |
| | | | | | |
| State & Local Taxes | $2,425,743 | $1,191,577 | $574,039 | $4,191,358 | |
| Federal Taxes | $3,683,264 | $1,315,644 | $451,920 | $5,450,828 | |
| | | | | | |
| **Sulfuric Acid Manuf.** | | | | | |
| | | | | | |
| Economic Activity | $126,050,694 | $14,202,318 | $4,078,730 | $144,331,741 | 1.14 |
| Personal Income | $7,574,582 | $2,167,699 | $546,960 | $10,289,241 | 1.36 |
| Employment | 78 | 41 | 17 | 136 | 1.73 |
| Average Wage per Job | $96,817 | $52,974 | $32,163 | $75,559 | |
| | | | | | |
| State & Local Taxes | $1,695,258 | $921,079 | $394,408 | $3,010,744 | |
| Federal Taxes | $2,011,553 | $982,211 | $306,834 | $3,300,598 | |
| | | | | | |
| **Total (All Enterprises)** | | | | | |
| | | | | | |
| Economic Activity | $277,366,874 | $41,154,497 | $14,182,120 | $332,703,490 | 1.20 |
| Personal Income | $24,340,416 | $6,763,008 | $2,733,821 | $33,837,245 | 1.39 |
| Employment | 331 | 136 | 73 | 540 | 1.63 |
| Average Wage per Job | $73,536 | $49,728 | $37,510 | $62,675 | |
| | | | | | |
| State & Local Taxes | $5,280,857 | $2,580,356 | $1,312,409 | $9,173,621 | |
| Federal Taxes | $9,685,824 | $2,826,108 | $1,029,522 | $13,541,454 | |

Finally, lithium operations will also generate an excess volume of sulfuric acid and electricity that will be sold on the open market. This activity is estimated to produce annually additional revenues of over $2.1 million for power and $1.8 million for sulfuric acid. If sold within Humboldt County, this will improve economic linkages and meet local demands of businesses that currently importing these goods from outside Humboldt County.

Table 31 shows the top impacted sectors associated with new mine and plant related annual operations.

*Table 31. Top Impacted Sectors from Lithium Operations Activity in Humboldt County*

| IMPLAN Sector | Description |
|---|---|
| | |
| 34 | Lithium Mining |
| 163 | Lithium Processing |
| 165 | Sulfuric Acid Manufacturing |
| 62 | Maintenance and Repair Construction - Nonresidential |
| 501 | Full-Service Restaurants |
| 502 | Limited-Service Restaurants |
| 448 | Accounting, Tax Prep, Bookkeeping & Payroll Tax |
| 440 | Real Estate |
| 395 | Wholesale Trade |
| 400 | Retail – Food and Beverage Stores |
| 468 | Services to Buildings |
| 405 | Retail – General Merchandise Stores |
| 49 | Electric Power Transmission |
| 50 | Natural Gas Distribution |
| 411 | Truck Transportation |
| 42 | Electric Power Generation – Fossil Fuel |
| 438 | Insurance Agencies, Brokerages, and Related Services |
| 441 | Owner-Occupied Dwellings |
| 461 | Management of Companies and Enterprises |
| 409 | Rail Transportation |
| 504 | Automotive Repair and Maintenance |
| 40 | Other Nonmetallic Minerals Services |
| 449 | Architectural, Engineering, and Related Services* |

# Section 8—Other Humboldt County Impacts

The previous section reported that the development of a new lithium mine, lithium processing plant and sulfuric acid manufacturing plant will have positive employment, income and fiscal impact on Humboldt County. It is assumed that the new jobs created by these new enterprises will result in the increased demand for specialized jobs, thus resulting in the importing of labor to meet employment needs. Using the results from the baseline demographic and economic analysis and the estimated impacts can help Humboldt County better understand future population changes and demands on public and private goods and services.

This section of the report uses the total job impacts estimated in the previous section and simulates various scenarios to estimate changes in total population and demands on housing. Further analysis considering the change in population and housing is being considered for this study because many counties, like Humboldt, are challenged with meeting housing demands associated with large scale economic development projects that attract new population. Although there are several additional segments in Humboldt County that will be impacted by an increase in employment and population, this is a good start and needs to be further studies and expanded by Humboldt County planners and leaders.

Four simulated scenarios are considered and based off estimated increased levels of new lithium mining, lithium processing, and sulfuric acid manufacturing employment reported in the results section. Given that some new employment opportunities may be filled by existing Humboldt County residents, these scenarios provide varying mixes of imported labor and local labor.

| | |
|---|---|
| Scenario One | 100% of total estimated employment impact on Humboldt County will come from outside the county |
| Scenario Two | 75% of the total estimated employment impact on Humboldt County will come from outside the county and 25% will come from within Humboldt County |
| Scenario Three | 50% of the total estimated employment impact on Humboldt County will come from outside the county and 50% will come from within Humboldt County |
| Scenario Four | 25% of the total estimated employment impact on Humboldt County will come from outside the county and 75% will come from within Humboldt County |

Table 32 summarizes the total direct employment impacts estimated for construction and annual operations of a new lithium mine, lithium processing plant, and sulfuric acid manufacturing plant. During the construction period it is estimated that 1,000 workers will be required over the four-years. Under the four scenarios, total imported employment will range from 1,000 to 250 jobs. What this means is that under the 100% scenario, all 1,000 new jobs created will be imported from outside Humboldt County, resulting in an addition to Humboldt County's current population. Conversely, under the 25% scenario translate to 250 jobs coming from outside Humboldt County and 750 jobs being filled by current Humboldt County residents. When considering annual operations, long-term sustainable jobs, the 100% scenario estimates all 313 new jobs coming from outside Humboldt County and no new employment filled from existing Humboldt County residents. When considering the 25% scenario only 83 new jobs will come from outside Humboldt County and 248 new jobs will be filled by Humboldt County residents. It is anticipated that there will be a mix of imported and local labor used for construction and annual operations.

*Table 32. Estimated Direct Construction & Annual Operations Employment Impact on Humboldt County.*

| New Job Scenarios | Construction – Total Jobs | Annual Operations – Total Jobs | | | |
|---|---|---|---|---|---|
| | Mine & Two Plants | Mine | Processing | Manufacturing | Total |
| | | | | | |
| 100% | 1,000 | 147 | 106 | 78 | 331 |
| | | | | | |
| 75% | 750 | 110 | 80 | 59 | 248 |
| | | | | | |
| 50% | 500 | 74 | 53 | 39 | 166 |
| | | | | | |
| 25% | 250 | 37 | 27 | 20 | 83 |

**Population Impacts**

Using the total job creation across scenarios presented in Tables 25 & 28, total population changes are estimated by multiplying total jobs by the current average household size in Humboldt County.

***Employment Impacts * Average Household Size = Estimated New Population***

Table 33 shows the estimated increases in new population for lithium construction and annual operations. Under the construction scenarios it is estimated that new Humboldt County population will range from 2,700 under the 100% scenario to 675 new residents under the 25% scenario. Considering annual operations Humboldt County might expect an increase of 742 new residents at the 100% scenario and an increase of 186 new residents under the 25% scenario.

*Table 33. Estimated New Population from New Lithium Construction and Operations in Humboldt County.*

| New Jobs Scenarios | Construction Phase - Population | | | Annual Operating Phase - Population | | |
|---|---|---|---|---|---|---|
| | Total Jobs | HH Size | New Population | Total | HH Size | New Population |
| | | | | | | |
| 100% | 1,000 | 2.7 | 2,700 | 331 | 2.7 | 894 |
| | | | | | | |
| 75% | 750 | 2.7 | 2,025 | 248 | 2.7 | 670 |
| | | | | | | |
| 50% | 500 | 2.7 | 1,350 | 166 | 2.7 | 448 |
| | | | | | | |
| 25% | 250 | 2.7 | 675 | 83 | 2.7 | 224 |

**Housing Unit Impacts**

Housing impacts are estimated using the total housing, total population and new population estimated in Table 33. The base formula used includes:

***Total Housing Units / Total Population = Current Housing Units Per Capita (HUPC)***
***7,223 / 17,091 = 0.422***
***HUPC X New Population = Housing Demand***
***0.422 X 1,000 = 422***

Table 34 reports the estimated housing demands for lithium construction and annual operations. Under each scenario for construction and annual operations, Humboldt County needs to also consider standing vacant housing to help fill the immediate needs. Also housing conditions and values of current inventory should be factored in determining if new housing needs to be built. Under the construction scenarios it is estimated that new Humboldt County population will demand 442 housing units under the 100% scenario to 106 housing units under the 25% scenario. Considering annual operations Humboldt County might expect an increase of 116 housing units at the 100% scenario and an increase of 29 units under the 25% scenario.

*Table 34. Estimated Housing Demand from New Lithium Construction and Operations in Humboldt County*

| | Construction Phase Jobs | | | Operating Phase Jobs | | |
|---|---|---|---|---|---|---|
| New Jobs Scenarios | Total Jobs | HUPC | Housing Units | Total | HUPC | Housing Units |
| | | | | | | |
| 100% | 1,000 | 0.422 | 442 | 331 | 0.422 | 140 |
| | | | | | | |
| 75% | 750 | 0.422 | 317 | 248 | 0.422 | 105 |
| | | | | | | |
| 50% | 500 | 0.422 | 211 | 166 | 0.422 | 70 |
| | | | | | | |
| 25% | 250 | 0.422 | 106 | 83 | 0.422 | 35 |

# Section 9—Conclusions & Discussion

This report provides a framework and analysis for estimating the social, economic and fiscal impacts on Humboldt County from the development and operations of a new lithium mine, lithium processing plan, and sulfuric acid manufacturing plant. In cooperation with the mining industry, a hybrid IMPLAN model was developed for Humboldt County. Two new sectors were developed, Lithium Mining and Lithium Processing, to best simulate and estimate the impacts of a newly proposed lithium operation in Humboldt County.

Study results show that proposed operations have a significant economic and fiscal impact on Humboldt County. Two levels of impacts were estimated, construction (short-term) and annual operations (long-term).

| **Annual Construction Impacts (4 Years)** | |
|---|---|
| Total Economic Activity | $265,431,316 |
| Total Personal Income | $68,608,492 |
| Total Employment | 1,340 |
| Total State & Local Taxes | $8,231,811 |
| Average Wage Per Job | $51,200 |
| | |
| **Annual Operating Impacts (41 Years)** | |
| Total Economic Activity | $332,703,490 |
| Total Personal Income | $33,837,245 |
| Total Employment | 540 |
| Total State & Local Taxes | $9,173,621 |
| Average Wage Per Job | $62,675 |

The proposed lithium operations will contribute to the diversification of an already strong mineral based industry in Humboldt County. The development is also improving the local linkages for electricity and sulfuric acid used in the mining process that is currently imported from outside the state. Also, the worldwide demand for Lithium Carbonate continues to outpace the supply. For example, advances in clean air technology through battery-powered cars will be a strong driver of Lithium Carbonate consumption in the near future. This provides more value added opportunities and greater impacts on the state of Nevada, especially with the new Tesla Gigafactory built in Sparks, Nevada. Finally, the opportunity for attracting other manufacturing industries exists and may be the beginning of a cluster of industries that use Lithium Carbonate as part of their production process.

With any new or expanding industry, rural counties in Nevada may be challenged to meet the increased demands of new populations, especially when it comes to housing. This study considered the employment impacts for changes in population and potential demands on housing.

Four scenarios were considered with varying mixes of new populations and existing populations meeting employment opportunities (direct, indirect, and induced) created through Lithium Nevada projected operations.

| | Construction | | Operations | |
|---|---|---|---|---|
| Import Labor | People | Housing | People | Housing |
| | | | | |
| 100% | 2,700 | 442 | 894 | 140 |
| 75% | 2,025 | 317 | 670 | 105 |
| 50% | 1,350 | 211 | 448 | 70 |
| 25% | 675 | 106 | 224 | 35 |

Under each of these scenarios, it is estimated that Humboldt County should be able to absorb new populations and potential housing demands as the result of new workers moving to the county. For example, through secondary published data, in 2016, it was reported that there were 1,049 vacant housing units in Humboldt County, which is well within the estimated levels of housing demand. However, this may need to be further verified with county departments to assess the location and conditions of these housing units through comprehensive community

development planning. Also, other factors that may be impacted by increases in population and need additional consideration include school sizes, protective services, and various infrastructure capacities.

Humboldt County economic and fiscal impact models will continue to be improved and developed as this lithium industry develops in Humboldt County. This will be accomplished in cooperation with lithium operators and supporting industries, associations, agencies and communities to best reflect economic linkages.

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Overview with Methods and Procedures of the U.S. Geological Survey Mineral-Resource Assessment of the Sagebrush Focal Areas of Idaho, Montana, Nevada, Oregon, Utah, and Wyoming. Chapter A of Mineral Resources of the Sagebrush Focal Areas of Idaho, Montana, Nevada, Oregon, Utah, and Wyoming.

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