

# MARCH AIR RESERVE BASE ECONOMIC IMPACT ANALYSIS

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The Rose Institute of State and Local Government at Claremont McKenna College was commissioned by Riverside County Economic Development Agency to conduct a study that provides estimates of the impact of March Air Reserve Base (March ARB) on Riverside and San Bernardino counties along with selected cities within Riverside County using data from Fiscal Year 2014. March ARB is located in Riverside County between the cities of Riverside and Moreno Valley. Several military units co-exist onsite and in the adjacent area. This study aggregates the impact of all units on or adjacent to March ARB that would likely leave the area if the base were to close.

March ARB was one of only 32 Air Service training camps established after the United States' entry into World War I. It was originally established as Alessandro Flying Training Field in February 1918, making it one of the oldest airfields operated by the United States military. It was renamed March Field for 2<sup>nd</sup> Lieutenant Peyton C. March, Jr., who was killed in an air crash in Texas only fifteen days after being commissioned. In World War II, the attack on Pearl Harbor meant that March had to quickly become more active and train more aircrews. Throughout World War II, many bombardment groups performed their final training at March before heading out to the Pacific Theater. The base was also very active throughout the Cold War era, including the Korean War and the Vietnam War. March was redesignated an Air Reserve Base in 1996. It is the largest U.S. Air Reserve Base and, according to a June 15, 2015 report by Governor Edmund G. Brown, Jr.'s Military Council, is "indispensable for Marine troop movement."

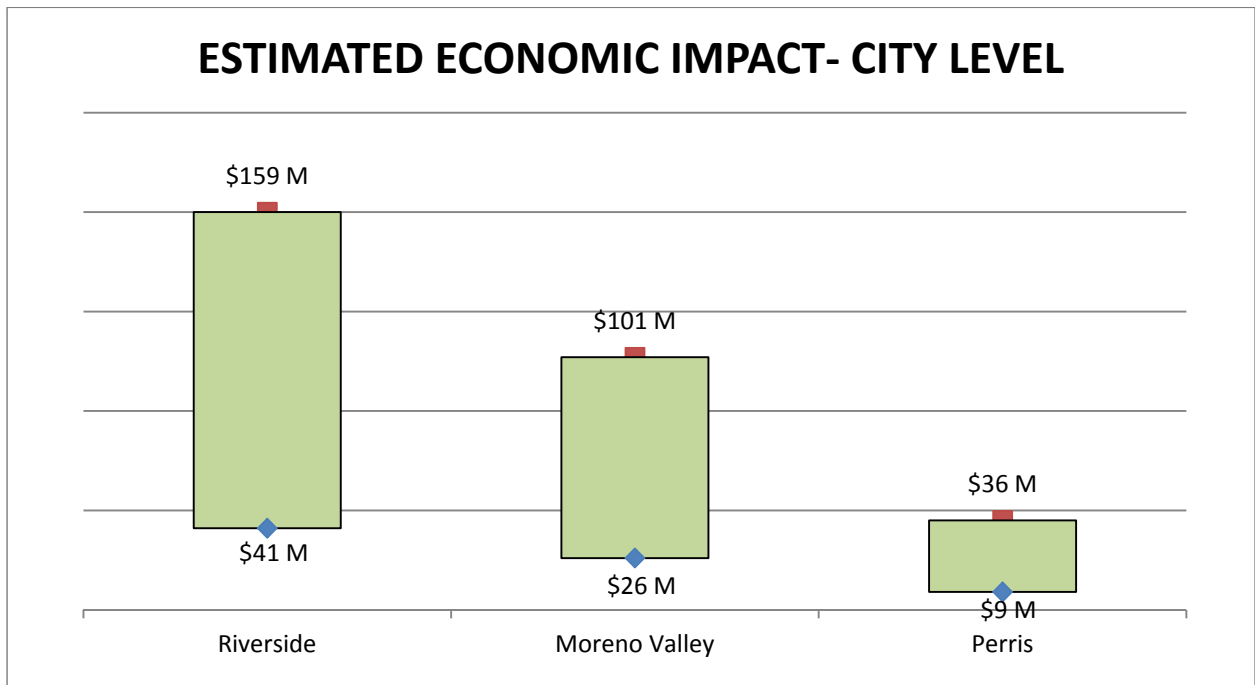
**ESTIMATED TOTAL ANNUAL IMPACT: \$579 Million**



The total annual economic impact on the Inland Southern California region (Riverside and San Bernardino counties) is estimated to be \$579M. This impact is composed of \$267M in annual payroll by the units examined (of which \$142M is paid to 2,436 civilians and \$125M is paid to 7,089 military personnel), \$183M in annual expenditures on goods and services by the units examined, and \$129M in annual payroll associated with 3,113 jobs created outside March ARB within the two counties. The

\$183M in goods and services purchased directly by units at March ARB can be disaggregated into \$27M spent on construction and \$28M spent on services, with the remainder spent on other goods and services. Travel-related expenses (transport, food and lodging) are also important but we lack a precise estimate of these expenses.

It is possible to disaggregate the overall regional impact of \$579M into county-level impacts by assuming that the impact on each county is in proportion to that county’s share of GDP in the two counties. This is a standard method for apportioning impacts across jurisdictions, but it also cannot account for the probable effects of the closer proximity of Riverside County to the base and thus undoubtedly understates the Riverside County impacts by some unquantifiable but potentially-significant amount. Using this method, the impact on Riverside County is estimated to be a minimum of \$296M. In terms of jobs created outside March ARB, we estimate that a minimum of 1,591 jobs are created in Riverside County.



We provide lower bounds on the impact of March ARB on the three cities nearest the base by assuming that the impact is proportional to the city’s share of the county’s population. Using this approach, the impacts on the cities of Riverside, Moreno Valley and Perris are estimated to be \$41M, \$26M and \$9M respectively, and non-March ARB jobs created in the three cities are estimated to be 220, 140 and 50. This is a conservative approach because it does not adjust for either the proximity of the county or these cities to the base. To provide an upper bound on city-level impacts, we assume that the entire county-level impact is contained within these three nearby cities. Using this approach, the impacts on the three cities are \$159M, \$101M and \$36M, and non-March jobs created in the three cities are estimated to be 853, 542 and 195. We lack a data-guided way to provide more precise estimates of city-level impacts, though it is likely that actual impacts are located somewhere between the upper and lower bounds.

## Data and Methodology

A list of tenants and units adjacent to the base was provided by Brigadier General Russell A. Muncy, Commander of the 452<sup>nd</sup> Air Mobility Wing (the host at March ARB). The list is provided in Appendix A. Each unit filled out a data template designed by Janice M. McLaughlin, Cost Analyst at March ARB, which had been used effectively in a prior economic impact analysis of units at March ARB. The template is provided in Appendix B with the aggregated data from the units included and the calculations applied to the data. The template was designed to be relatively straightforward for units to fill out while providing sufficient information for conducting an economic impact analysis using the Air Force's methodology for evaluating Air Reserve units.

The Air Force's methodology for conducting economic impact analyses is designed specifically to minimize the amount of disaggregated data on purchasing required to conduct the analysis. This proved to be a key factor in permitting units to access and provide their data. The Air Force's methodology also overcomes several of the challenges involved in assessing the economic impacts of active duty military and reserves. Active duty military typically have a smaller impact on the surrounding economy than civilians because several of the goods and services they consume are provided for them directly and their interactions with the surrounding communities are somewhat limited as a result. Reserves pose an even greater challenge because they are comparable to part-time temporary workers but with substantial heterogeneity in terms of their time spent in the area. The multipliers provided by the Air Force take the different types of personnel into account.

The multipliers provided by the Air Force (and used in the Air Force's own internal analysis of the 452<sup>nd</sup>) are employment multipliers that apply at the level of Riverside and San Bernardino counties. Each active duty military personnel is estimated to create .5 jobs in Riverside and San Bernardino counties. Each civilian employee creates .63 jobs, and each reservist creates .21 jobs. Thus, the multipliers take the unusual nature of reserves vs. full-time active duty military vs. civilians into account. The number of each type of personnel is multiplied by the corresponding multiplier to estimate the total number of jobs created in the two counties. To estimate the dollar value of this impact, we compute the GDP-weighted average annual wage in Riverside and San Bernardino counties based on the 4<sup>th</sup> quarter of 2013 (\$41,493; computed in Appendix C) and multiply the average annual wage by the number of jobs created.

We do not have multipliers for the two counties separately or for particular cities. To estimate the impacts on each county we use the county's share of GDP in the area, and to estimate the impacts on specific cities within Riverside County we use the city's share of the county's population (to obtain a lower bound on the impact) or the city's share of the population of nearby cities (to obtain an upper bound on the impact). Calculations are provided in Appendix C.

As noted in the report, using GDP to allocate the two-county impact into impacts on each county separately ignores the fact that March ARB is located within Riverside County. While businesses used and homes of personnel are distributed over a wide area, proximity likely favors nearby impacts. Thus, it is likely that our disaggregation underestimates the impact on Riverside County, and our estimated

impacts there should be treated as a minimum. However, we lack a data-guided approach for quantifying how much we have underestimated the impacts on Riverside County.

There are also shortcomings associated with using population weights to disaggregate the impact on Riverside County into impacts on particular cities within Riverside County. It seems likely that using the city's contribution to the county's GDP would result in a better estimate, but we have not been able to obtain city-level GDP estimates. However, it is worth noting that if we use the city's share of household income in the county or the city's share of the number of companies in the county instead of the city's share of the county's population, we obtain similar estimates. Thus, it appears unlikely that substantial errors are introduced by relying on population.

**Appendix A. Units Included in the Study**

452<sup>nd</sup> Air Mobility Wing

4<sup>th</sup> Air Force

163<sup>rd</sup> Attack Wing

701<sup>st</sup> Combat Operations Squadron

922<sup>nd</sup> Civil Engineering Staff

144<sup>th</sup> Fighter Wing Detachment 1

362<sup>nd</sup> Recruiting Squadron

912<sup>th</sup> Air Refueling Squadron

Air Force Reserve Western Recruiting Squadron

Navy Operational Support Center

304<sup>th</sup> Sustainment Brigade

358<sup>th</sup> Civil Affairs Brigade

250<sup>th</sup> Military Intelligence Battalion, Company A

1498<sup>th</sup> Transportation Co

315<sup>th</sup> Engineers, Vertical Construction Company

1<sup>st</sup> Marine Expeditionary Force

Office of Special Investigations

Air and Marine Operations Center

Commissary

Exchange

Veteran's Health Administration

American Forces Network Broadcast Center

100<sup>th</sup> Troop Command

Appendix B. The Data Template and Calculations

Number of Personnel		Payroll
<b>Appropriated Fund Military</b>		<b>#</b>
Active Duty	305	\$ 19,093,768
Active Guard/Reserve (AGR)	346	30,363,018
Traditional Reservists/Air Reserve Technicians (not activated)	6378	74,084,581
Individual Mobilization Augmentees (IMAs)	60	1,620,074
<b>Appropriated Fund Civilians</b>		<b>#</b>
General Schedule	1048	\$ 92,513,542
Federal Wage Board	389	34,187,124
Other Appropriated Fund Civilians	42	4,564,185
<b>Non-Appropriated Fund Contract Civilians</b>		<b>#</b>
Civilian Non-Appropriated Fund	173	\$ 4,536,062
Contract Civilians	778	4,582,349
Other Civilians	6	1,696,165

	Totals	Multipliers	Jobs Created
Active Duty	305	0.50	153
Other APF Military	6784	0.21	1425
All Civilians	2436	0.63	1535

The number of jobs created in the local economy outside the base is obtained by multiplying the totals by the multipliers and then rounding.

The total number of jobs created is 153 + 1,425 + 1,535 = 3,113

The average wage is \$41,493 (Computed below in Appendix C)

**The estimated annual value of jobs created:** \$41,493 (3,113) = \$129,167,709

Military payroll is \$125,161,440

Federal civilian payroll is \$131,264,851

Other civilian payroll is \$10,814,576

**Total payroll:** \$267,240,867

<b>Construction, Services, Equipment/Supply</b>	
<b>Construction</b>	
	<b>\$</b>
Military Construction (MILCON)	14,051,075
O&M Minor Construction	11,991,956
Military Family Housing	882,576
<b>Services</b>	
	<b>\$</b>
Services Contracts*	25,178,376
Other Services	2,895,520
*Locally supplied goods and services	
<b>Other</b>	
	<b>\$</b>
Health (CHAMPUS government cost)	1,247,326
Education (Impact Aid/Tuition Assist)	904,794
Military Temporary Duty (TDY)	6,671,967
Civilian Temporary Duty (TDY)	10,800
Other Materials, Equipment & Supplies	118,747,528

**Total expenditures on goods and services: \$182,581,918**

**Total economic impact** = the estimated annual value of jobs created

+ total payroll

+ total expenditures on goods and services

= \$578,990,494



### Appendix C. GDP, Population, GDP-weighted Average Wage, and Decompositions into Impacts at the County and City Levels

Entity	Population	GDP
Riverside County	2,292,507	\$70.1 billion
San Bernardino County	2,088,371	\$67.1 billion
Moreno Valley	201,175	
Perris	72,326	
Riverside City	316,619	

Population figures are from the 2013 U.S. Census

County GDP figures are from the County economic development agencies and reflect economic activity in 2013

Average wages in the 4<sup>th</sup> quarter of 2013 in the Counties of Riverside and San Bernardino were \$40,196 and \$42,848 respectively. To estimate the average wage in the two counties taken together, we weight the average wage by the GDP of the counties (a measure of output of the economy). The GDP-weighted average wage is  $(40,196 (70.1) + 42,848 (67.1)) / (70.1 + 67.1) = \$41,493$

We use relative GDP to disaggregate the overall impact into impacts on the two counties. The impact on the County of Riverside is:  $\$578,990,494 (70.1)/(70.1 + 67.1) = \$295,825,318$

The impact on the County of San Bernardino is:  $\$578,990,494 (67.1)/(70.1 + 67.1) = \$283,165,176$

Within the County of Riverside, we use relative population to disaggregate the county-level impact into city-level impacts. The lower bounds of the impacts on Perris, Moreno Valley and Riverside City are estimated to be:

$$\$295,825,318 (72,326)/2,292,507 = \$9,332,954$$

$$\$295,825,318 (201,175)/2,292,507 = \$25,959,641$$

$$\$295,825,318 (316,619)/2,292,507 = \$40,856,545$$

The upper bounds on the impacts on the three cities are estimated to be:

$$\$295,825,318 (72,326)/(72,326 + 201,175 + 316,619) = \$36,256,799$$

$$\$295,825,318 (201,175)/(72,326 + 201,175 + 316,619) = \$100,848,401$$

$$\$295,825,318 (316,619)/(72,326 + 201,175 + 316,619) = \$158,720,118$$

The number of non-March jobs created are computed a similar way by allocating 3,113 non-March ARB jobs to the counties and then to the cities within Riverside county.