

***Economic Impact***  
***Of***  
***Arizona's Principal Military***  
***Operations***

***May 2002***

**Prepared By**



**The Maguire Company**

***In Collaboration With***



**ESI Corporation**

*Economic Impact  
Of  
Arizona's Principal Military Operations*

**Executive Summary**

**May 2002**

*This Executive Summary highlights key points from the full report which was prepared to present the **Economic Impacts of Arizona's Principal Military Operations** and contains a more complete presentation of the study effort and findings.*

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## ***INTRODUCTION, BACKGROUND AND STUDY METHODOLOGY***

### **Introduction**

One of the largest and frequently overlooked industries in Arizona is the military industry. The presence of military personnel and their supporting activities pre-dates statehood, but is frequently ignored in economic development discussions. For years, the "Five C's" were used to describe the basic industries of Arizona – Copper, Cotton, Citrus, Cattle, and Climate. These industries were identified as the core of Arizona's economy. Nowhere in this list was there any recognition of the thousands of Arizona jobs tied directly and indirectly to the many military operations within the State.

The presence and economic contribution of the military operations in Arizona may have historically been under-recognized due to the general isolation of the operations from general commerce, the physical separation, for security reasons, of many of the facilities or simply as a unintended consequence of the methods typically used to collect and report economic and employment statistics. Whatever the reasons, the military operations within Arizona represent a substantial and valuable industry in the State that should be recognized and listed among the State's most important sources of economic activity.

This study was commissioned by several Arizona cities to document the economic importance of the military operations within Arizona and was initiated in the summer of 2001, prior to the events of last fall. To date, no such study had been completed on such a comprehensive and consistent basis. Recent tragic events and subsequent domestic and international military engagements have highlighted the presence and contribution of various military operations in Arizona.

Among the reasons for the study, cited by the sponsoring cities, are the increasing frequency of proposed state legislation involving issues related to the location and activities of various military operations in the State, the continuing development of land adjacent to and near military facilities, and the continuing possibility of base closings by the Department of Defense. For these and other reasons, this study was undertaken.

### **Background**

Reports continue to circulate in Washington of another round of military facility closures as an outcome of the Base Realignment and Closing Commission (BRAC). It is anticipated that the next series of BRAC activities will occur during 2005, just three years from now.

At the same time that federal actions may result in the reduction or closing of military facilities within Arizona, local action and activities also endanger the future of some military operations. In most cases, Arizona's principal military operations have occurred on facilities either in remote locations or at the periphery of development. This physical separation has permitted the operations to exist largely unaffected by the surrounding population growth and development. However, in the last few decades Arizona's sustained growth and development have, in some cases, brought new development closer to the formal boundaries of some bases and into the adjacent, off-base areas that are crucial to the safe and prudent execution of military activities operating from those bases.

Several pieces of state legislation have been introduced and debated in recent legislative sessions dealing with the issues of encroachment and the preservation of critical off-base properties in land uses compatible with military activities operating from the bases.

### **Study Methodology**

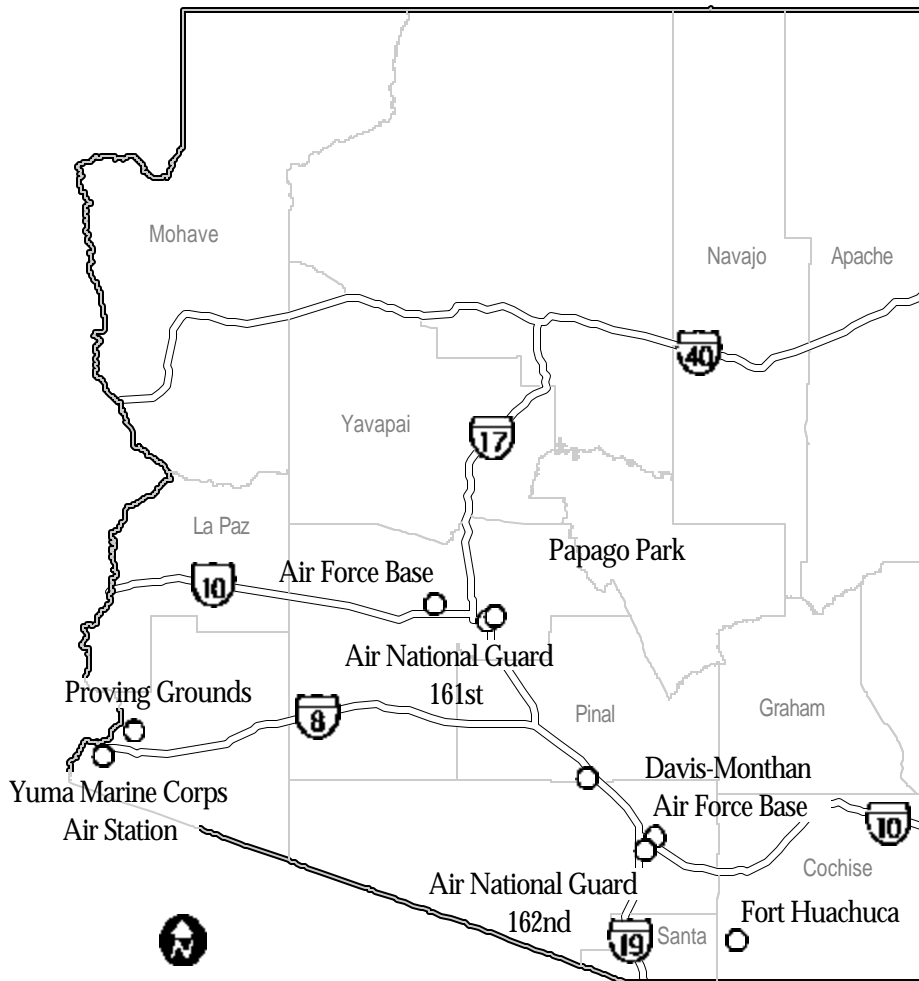
In order to fully measure the impact of the principal military operations within Arizona it was necessary for the Study Team to establish a study methodology. Since no previous study had examined the combined economic effect of all of Arizona's principal military operations on the State's economy, a new methodology had to be developed. It was critically important that the methodology used would insure a comprehensive, yet conservative, estimate of the operations' impact, based on information compiled using uniform and consistent techniques. In addition, the Study Team sought to develop a reproducible methodology assuring that subsequent studies could build upon the information and knowledge gained through this effort. A more complete discussion of the methodology used by the Study Team is included in the full report.

The Study Team determined that the use of the IMPLAN Pro, economic impact model software was most appropriate for this analysis. The IMPLAN econometric model operates by estimating the *direct* impact, *indirect* impacts, and *induced* impacts of specific economic activity. *Direct* economic impacts, are those attributable to the initial economic activity, for example, an operation with ten full time employees creates ten *direct* jobs. *Indirect* economic impacts are those economic activities undertaken by vendors and suppliers within the supply chain of the direct activity as a result of the initial economic activity. For example, suppliers of goods, materials, and services used in the direct activities produce *indirect* economic impacts. *Induced* economic impacts result from the spending of wages paid to employees in local industries involved in direct and indirect activities. The Study Team selected the IMPLAN model due to its frequent use in economic impact analyses within Arizona in addition to its development independent of local influences.

The Study Team collected financial information concerning the economic activity (personnel and spending) of the military operations themselves as well as the retirement benefits received by military retirees considered to be linked to the state's military installations. The primary focus of this study is the statewide impact of the various military facilities and operations within Arizona. Inputs from all of the military operations included within the study were aggregated and the econometric analysis was undertaken on a statewide basis. However, the economic impact analysis was completed for each of the individual military operations on a countywide basis. Detailed information concerning individual facilities and their countywide impacts are summarized in the appendices to the full report.

*It is important to note that while this is the first, comprehensive statewide study of the economic and fiscal impacts of the principal military operations in Arizona, several prior studies of individual operations have been completed. Those studies were typically undertaken for local purposes and typically utilized methodologies reasonable and appropriate for those specific purposes.*

## ARIZONA'S PRINCIPAL MILITARY OPERATIONS



Utilizing a two-test standard, the Study Team identified the principal military operations within the state to be included within the study. There are 5 major military installations in Arizona:

- Davis-Monthan Air Force Base
- Army Intelligence Center & Fort Huachuca
- Luke Air Force Base
- Yuma Army Proving Grounds
- Marine Corp Air Station - Yuma

Also included are 4 principal National Guard operations:

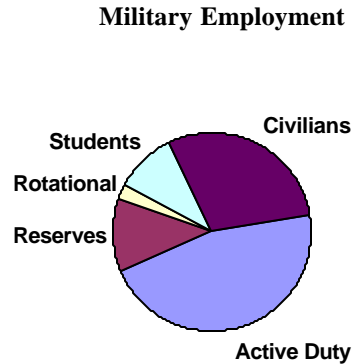
- Air National Guard's 161<sup>st</sup> Air Refueling Wing
- Air National Guard's 162<sup>nd</sup> Fighter Wing
- Army National Guard
- Western Army National Guard Aviation Training Site

The Study Team eliminated from consideration military contractors, such as, the Boeing helicopter facilities in Maricopa County, the Raytheon facilities in Pima County and a wide variety of other military-related contractors within the state of Arizona, that were not directly linked to the location of one of the principal military operations in the state. The businesses excluded from this study are important contributors to Arizona's economy, however, their location in Arizona is largely attributable to other factors including labor force characteristics, lower costs-of-doing-business in Arizona, quality of life considerations, and the other attractive characteristics of Arizona and its economy.

## ***EMPLOYMENT AND SPENDING BY PRINCIPAL MILITARY OPERATIONS***

### **Employment**

The starting point for the economic analysis of the principal military operations in Arizona was the number, type, and characteristics of employees at each operation. Personnel headcounts and payroll spending were collected, reviewed, and standardized for each operation. Personnel at the different operations were accumulated into several broad categories. These categories included active duty, permanent party military personnel; reserve personnel; rotational personnel, students (attending training, but normally based elsewhere); and civilian employees (both Department of Defense and other).



Not all operations had headcounts attributable to each general category. The standardized headcount for each of the principal military operations by category is displayed in the adjacent table.

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**SUMMARY OF BASIC PERSONNEL STATISTICS**  
***Arizona's Principal Military Operations***  
*(Personnel Headcounts)*

Active Duty	Reserves	Rotational	Students (Military)	Civilians	TOTAL
Permanent Party 21,390	5,430	1,162	4,436	13,544	45,961

Not all operations had headcounts attributable to each general category. The standardized headcount for each of the principal military operations by category is displayed in the adjacent table.

(Additional information concerning the input received from each operation is available in Appendix One.) These personnel figures have not been converted to full-time equivalent personnel.

In total, almost 46,000 individuals were routinely employed on a full-time or part-time basis in fiscal year 2000.

### **Military Retirees**

In addition to those individuals employed at the principal military operations throughout the State, a substantial number of military retirees receive regular payments for retirement benefits. These retirement benefit payments are closely equivalent to regular payroll in terms of their utilization by the recipients and their effect on the economy. The Study

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**SUMMARY OF MILITARY RETIREE STATISTICS**  
***Arizona's Principal Military Operations***

	Military Retirees Within 50-Miles <sup>1</sup>	Linked Retirees (25 percent)
<b>Statewide Total</b>	<b>39,963</b>	<b>9,991</b>

<sup>1</sup> - Data Source: Department of Defense, Office of the Actuary

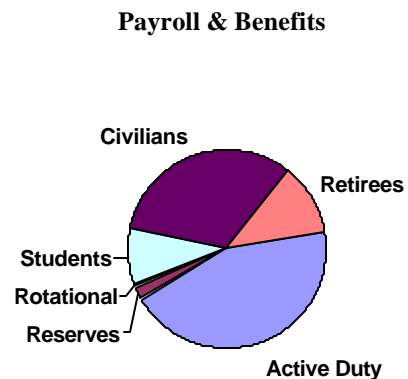
Team determined that some portion of the military retirement benefits paid to military retirees in Arizona should be included in the analysis. A prime methodological issue confronting the Study Team was which retirees to identify as inexorably *linked* to the military operations being analyzed. In summary, one quarter of the military retirees living within approximately a one hour travel radius of the key military facilities were included in the study as representing those individuals who were so strongly *linked* to a military installation and the services available there that they would not reside in Arizona if the facility was not located here and would relocate if it were closed. A more detailed discussion of the methodology and treatment of military retirees is presented in the full report. The preceding table displays the total number of military retirees, which generally are those within zip code areas that are, at least partially, within fifty miles of a major facility. It also illustrates those that are identified as *linked* to an installation, which are generally the one-quarter included in this analysis.

It should be noted that the Study Team considered other methods of allocating and incorporating the economic impact of military retirees. In fact, some previously completed analyses conducted by others have employed alternative approaches while others have simply estimated the total impacts excluding any military retiree benefits or they included all military retiree benefits. After significant consideration, the Study Team determined that it was most comfortable with the methodology selected. However, the Study Team recognized that other more complex techniques could be used.

In addition to the full-time resident military retirees, a substantial number of out-of-state military retirees travel to Arizona. This influx of visitors is reflected in higher utilization levels at the various service centers located on principal military installations. Where such information is available, medical, legal services and commissary operations reported significantly higher utilization rates in the winter months. However, due to the limited availability of such data and in recognition of a likely, at least partial, offset due to travel by Arizona military retirees during summer months, no specific amounts were included in the analysis. Consequently, the total economic and fiscal impact of military retirees may be understated in this study.

**Payroll & Retirement Benefit Information**

Payroll and retirement benefit payments were included in the analysis for the employees of the principal military operations and the linked retirees determined as described in the preceding section. These payroll and benefit payment amounts represent gross spendable income for the recipient household and directly contribute to the level of economic activity in their region and the State. The preceding table illustrates the payroll and retirement benefit payments information included in the analysis.



**SUMMARY OF PAYROLL AND RETIREMENT BENEFITS**  
*Arizona's Major Military Operations*  
(\$ millions)

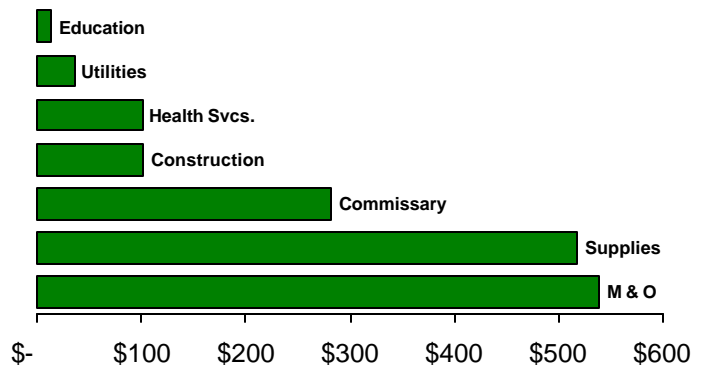
Active Duty Permanent Party	Reserves	Rotational	Students (Military)	Civilians	Linked Retirees	ARIZONA TOTAL
\$705.9	\$36.9	\$7.4	\$146.2	\$499.8	\$193.0	\$1,589.2

In total, almost \$1.6 billion in annual payroll and retirement benefits are directly added to the Arizona economy by the principal military operations in the State.

**Contract and Other Spending**

While payroll and retirement benefit payments represent an important source of economic input, other spending by the military operations in Arizona is an equally important source of economic stimulus to the State's economy. Furthermore, this spending

**Military Contract Spending**  
(\$ millions)



**SUMMARY OF SPENDING STATISTICS**  
*Arizona's Major Military Operations*  
(\$ millions)

<b>Contracts and direct spending: maintenance &amp; operations</b>	\$538.9
<b>Construction &amp; Buildings maintenance and repair</b>	\$100.9
<b>Spending for Supplies</b>	\$517.1
<b>Utilities</b>	\$35.0
<b>Education Payments</b>	\$13.4
<b>Health Services</b>	\$100.3
<b>Commissary &amp; Exchange</b>	\$281.2
<b>TOTAL</b>	<b>\$1,586.8</b>

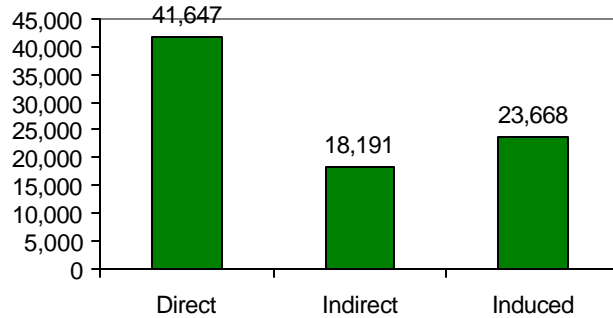
results in additional, subsequent activity in the economy as suppliers of goods and services to the military operations pay their employees and in turn purchase goods and services to meet their production needs. A substantial portion of the contract and other spending of the military operations occurs within the local region and the State, however not all goods and services are available regionally or statewide. As purchases occur outside the region or the state, the re-circulation of that spending is lost to the regional or statewide economy.



## ***ECONOMIC IMPACTS OF THE MILITARY INDUSTRY***

The following table summarizes the economic impact of the principal military operations within Arizona. In total, these operations provide 41,647 direct jobs and produce \$2.4 billion in direct economic output. Arizona's *military industry*, which includes the principal military operations as well as the businesses they support, is responsible for creating 83,506 jobs and \$5.7 billion in economic output.

**Military Industry Employment**




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**SUMMARY OF STATEWIDE ECONOMIC IMPACTS**  
*Arizona's Major Military Operations*

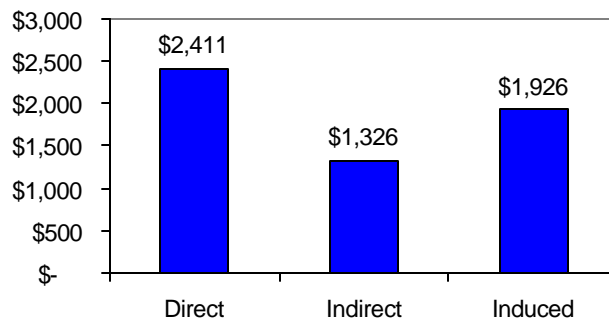
	<b>Employment</b>	<b>Output (\$000's)</b>
<b>Direct Impacts</b>	41,647	\$2,411,475
<b>Indirect Impacts</b>	18,191	\$1,326,190
<b>Induced Impacts</b>	23,668	\$1,926,193
<b>Total Non-Direct Impacts</b>	41,859	\$3,252,383
<b>TOTAL IMPACT</b>	<b>83,506</b>	<b>\$5,663,858</b>

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Arizona's *military industry*, (including the principal military operations as well as the businesses they support) is responsible for creating or supporting over 83,000 jobs that are dispersed through a wide variety of industries. The largest number of total jobs is within the government sector,

which is logical since the military operations are themselves, government entities. In addition to the government sector employment, over 14,000 jobs are supported in the service sector, over 11,000 jobs in the retail trade sector, over 5,000 in the construction sector, almost 1,500 in the manufacturing sector, and thousands more distributed throughout the economy.

**Military Industry Output  
(\$ millions)**



## ***GOVERNMENT REVENUES DERIVED FROM THE MILITARY INDUSTRY***

In addition to estimating the economic impact of Arizona's military industry, the Study Team estimated the amount of state and local government revenues paid by the employees at the state's principal military operations, linked military retirees, and the individuals and businesses in Arizona supported by those operations. Special care was taken to recognize the special and unique characteristics of military personnel and their households. A more complete discussion of the methodology used to estimate the fiscal impacts of the military industry is contained in the full report and its appendices.

### **Statewide Fiscal Contribution of Military Operations**

The Study Team estimated payments of state and local sales taxes (technically speaking the transaction privilege taxes), state and local property taxes, and state income taxes. Revenues derived from state-imposed sales and income taxes were allocated to the state and local governments consistent with the existing statutory distribution formulae, which basically is population proportionality.

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**SUMMARY OF STATEWIDE FISCAL IMPACTS**  
*Arizona's Military Industry*  
(\$ millions)

	<b>Annual Local</b>	<b>Annual State</b>	<b>Annual Total</b>
<b>Sales Tax</b>	\$43.125	\$50.871	\$93.996
<b>Property Tax</b>	\$61.948	\$0.248	\$62.197
<b>Income Tax</b>	\$7.194	\$70.260	\$77.453
<b>Total</b>	<b>\$112.267</b>	<b>\$121.379</b>	<b>\$233.646</b>

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**STATEWIDE FISCAL IMPACTS**  
*Arizona's Military Industry*  
(\$ millions)

	<b>Annual Total</b>
<b>Direct Impacts</b>	\$109.748
<b>Indirect &amp; Induced Impacts</b>	\$123.899
<b>Total</b>	<b>\$233.646</b>

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The preceding table summarizes the fiscal contributions of impact of the military industry within Arizona to state and local governments. In total, the industry provides over \$233 million to fund the operations of the state and local governments in the state. Of that amount, over \$121 million flows to state government and over \$112 million flows to local governments.

The adjacent table also illustrates the fiscal contributions of the military industry within Arizona. The principal military operations (and the individuals they employ) *directly* pay over \$109 million in taxes each year, while the *entire* military industry provides over \$233 million to support governments throughout the state.

## COMPARISONS TO THE MILITARY INDUSTRY IN ARIZONA

The principal military operations in Arizona and the businesses those operations support form a substantial and vibrant industry. Arizona's military industry creates thousands of jobs, billions of dollars of economic activity and hundreds of millions of dollars of state and local tax revenue.

### Characteristics of Arizona's Military Industry

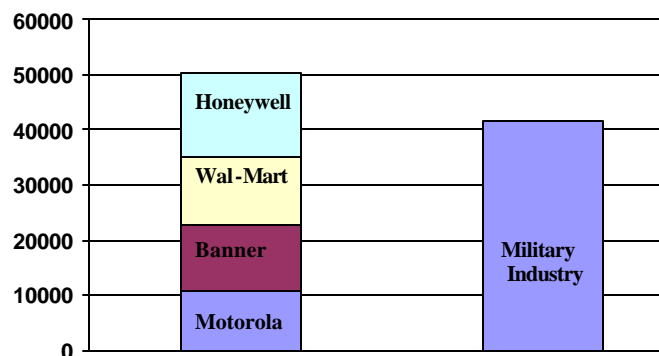
As important as the size and scope of the economic and fiscal impacts of the military industry in Arizona are some of the special characteristics of the economic activity supported by these military related activities. The jobs created and supported by Arizona's military industry are an especially valuable part of Arizona's economy because they are largely unaffected by routine economic cycles. Federal defense spending is not subject to substantial fluctuations as a result of normal economic cycles. Unlike many other Arizona industries and businesses, military operations in the state do not contract substantially during economic slowdowns or recessions nor do they increase dramatically during economic expansions. Similarly, the tax revenues generated in Arizona by the employees at the military operations and in the business supported by those operations remain relatively constant throughout all phases of the normal economic cycle. The stability of employment and tax revenues produced by the military industry adds substantially to their value as a component of Arizona's economy.

The State's military industry has provided a stable and reliable component of the economy as Arizona's economy has developed and diversified from the traditional "Five C's", with the development of more high tech employment, the expanded tourism industry and other industrial shifts. As Arizona's economy continues to grow and diversify, the military industry will continue to be an important and positive contributor to the State's economic vitality. However, shifts in Department of Defense priorities and technological advances in military operations can result in base closures within the State along with the resultant loss of this stabilizing force in local economies. Arizona would be well served to guard this economic asset and preserve its viability.

### Comparison of Statewide Employment

In order to provide a reasonable framework to evaluate the magnitude of the military industry in Arizona, the Study Team compiled from several sources, employment statistics for a variety of employers and industries within the State to illustrate the general, comparative magnitude of the military industry. Among the information reviewed were the findings of the *Cluster Mapping Project* of the Institute for Strategy and Competitiveness, at the Harvard Business School and the survey of top employers completed and published by *The Arizona Republic*. The Institute for Strategy and Competitiveness describes a

Major Employers & Direct Military Employment



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“cluster” as a “geographically proximate group of interconnected companies and associated institutions in a particular field, including product producers, service providers, suppliers, universities, and trade associations.” The *Arizona Republic* periodically conducts a survey of the largest employers throughout Arizona and publishes its findings. The most recent complete survey was conducted in 2001 and the largest employers were resurveyed in early 2002. The adjacent table illustrates the number of jobs created by Arizona’s military industry both *directly* as well as *in total* (including indirect and induced impacts) in comparison to other major employers and industries.

As illustrated in the adjacent table, the military industry in Arizona *directly* provides 41,647 jobs and supports a total of 83,506 jobs statewide. The total number of jobs dependent on Arizona’s military industry exceeds the number of jobs in the hospitality and tourism industry and the heavy construction industry as measured by the *Cluster Mapping Project* of the Institute for Strategy and Competitiveness, at the Harvard Business School.

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**COMPARISON OF MAJOR INDUSTRIES / EMPLOYERS  
IN ARIZONA**

	<b>Employment</b>
<b>Military Industry – TOTAL</b> <sup>1</sup>	<b>83,506</b>
<b>Hospitality and Tourism</b> <sup>2</sup>	62,960
<b>Heavy Construction</b> <sup>2</sup>	48,132
<b>Military Industry – DIRECT</b> <sup>3</sup>	<b>41,647</b>
<b>State of Arizona</b> <sup>4</sup>	40,000
<b>Information Technology</b> <sup>2</sup>	29,292
<b>Linked Military Retirees</b>	<b>9,991</b>
<i>Arizona’s Largest Private Employers</i>	
<b>Honeywell</b> <sup>5</sup>	15,000
<b>Wal-Mart</b> <sup>5</sup>	12,600
<b>Banner Health System</b> <sup>5</sup>	11,905
<b>Motorola, Inc.</b> <sup>5</sup>	10,650
<b>Raytheon</b> <sup>5</sup>	10,400
<b>Intel Corp.</b> <sup>5</sup>	10,000
<b>Kroger Co. (Fry’s)</b>	9,580

Sources and Notes:

- 1– Includes Direct, Indirect and Induced employment
  - 2 – Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School  
Copyright © 2002 President and Fellows of Harvard College
  - 3– Includes only Direct employment, based on full time equivalents
  - 4 – Approximate, excludes Universities
  - 5 – *Arizona Republic*, January 27, 2002 – Employer Survey
- 

The principal military operations in the State *directly* employ over 41,647 individuals, which exceeds the number of jobs at the top three private sector employers in the State – Honeywell, Wal-Mart, and Banner Health Systems, as measured by the *Arizona Republic* survey conducted by the in January 2002.

**Comparison of State and Local Fiscal Impacts of Arizona's Military Industry**

The military industry in Arizona produces a substantial amount of state and local tax revenues. The revenues that result from the economic activity of Arizona's principal military operations

**COMPARISON OF MAJOR TAX REVENUES AND TAX IMPACTS**  
*(\$ millions)*

	<b>Annual Amount</b>
<b>State Urban Revenue Sharing</b> <sup>1</sup>	\$396.0
<b>State Shared Sales Taxes to Cities and Towns</b> <sup>1</sup>	\$312.0
<b>\$1.00 Statewide Tax Rate</b>	\$325.3
<b>Az Dept. of Transportation Operating Budget</b>	\$272.9
<b>Az Dept. of Health Services General Fund Budget</b>	\$247.5
<b>Military Industry – TOTAL</b> <sup>2</sup>	\$233.6
<b>City of Tempe Operating Budget</b> <sup>3</sup>	\$234.0
<b>City of Glendale Operating Budget</b> <sup>3</sup>	\$224.0
<b>¼ cent State Sales Tax</b>	\$181.0
<b>Military Industry – DIRECT</b> <sup>4</sup>	\$109.7
<b>City of Yuma General Fund Budget</b> <sup>3</sup>	\$ 38.3

Sources and Notes:  
 1 – Fiscal Year 2001  
 2 – Includes Direct, Indirect and Induced employment  
 3 – Fiscal Year 2002  
 4 – Includes only Direct employment, based on full time equivalents

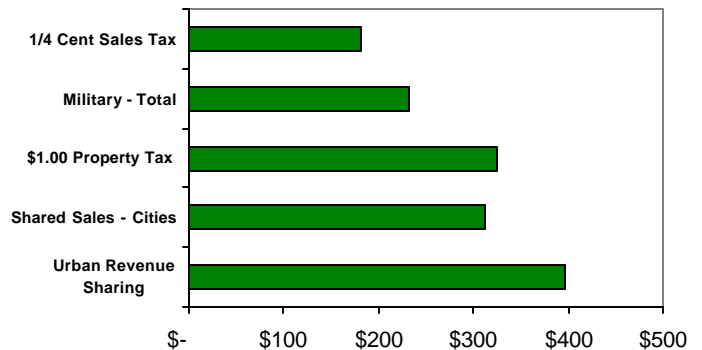
between \$70.00 and \$120.00 each year. Alternatively, it would take a 1/3-cent state sales tax to replace the total amount of state and local taxes paid by the military industry. Put another way, those taxes are enough to fund the state general fund's share of the Department of Health Services or the operating budget of the City of Glendale.

and the businesses those operations support provide significant support to the State of Arizona, local governments throughout the state and especially the local governments in their regions.

The adjacent table compares the estimated amount of major tax revenues paid by the individuals and businesses supported by the military industry in the state to a variety of sample fiscal indices. It compares the military industry's annual tax payments to several major revenue sources for key governmental entities; and to the size of selected state agency and city operating budgets.

The military industry in Arizona annually contributes \$233.6 million in tax revenues to state and local governments throughout the state. This amount is equivalent to a 72 cent statewide property tax, which would cost typical homeowners

**Tax & Revenue Comparisons**  
*(\$ millions)*



**Conclusions**

The several large military installations, operations examined in this study and the businesses they support comprise Arizona's military industry. It is an industry that provides substantial, stable employment, draws on the same private, non-governmental vendors and suppliers, as many private commercial enterprises in the state, and serves as an important building block in the State's overall economy.

Historically the impact of these operations has often been overlooked in discussions and analyses of Arizona's economy. The economic and fiscal impacts of the State's military industry calculated in this analysis and presented here are significant and represent a key component of the state's economy. Maintaining these operations, the jobs and economic output they support should be a priority of state and local government. In so doing, appropriate steps should be identified and undertaken to ensure the continued vitality and viability of this industry in Arizona and its strong, stable contribution to the State's economy.

\* \* \* \* \*

**Acknowledgements**

We wish to acknowledge and thank the personnel and leadership of the various military operations included within this analysis. Without the perseverance and diligence of these individuals, it would have been impossible to produce this Report.

In addition, we would like to thank the Arizona cities that sponsored this Report and the supporting analysis. These cities include **Glendale, Avondale, Goodyear, Litchfield Park, Peoria, Phoenix, Surprise, Tucson, Wickenburg, and Yuma**. Special gratitude is due to the Mayor, the City Manager's Office and the Intergovernmental Relations Office of Glendale for their relentless pursuit of information and support of this effort.

Finally, the econometric analysis that lies at the foundation of this Report could not have been accomplished without the tireless efforts of David Folch and Brian Moore of ESI Corporation, who assisted in the data collection and input for the IMPLAN model and in all other aspects of the analysis supporting this Report, under the guidance and leadership of Judie Scalise.

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*Acknowledgements*

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## CHAPTER ONE INTRODUCTION, BACKGROUND AND STUDY METHODOLOGY

### *Introduction*

One of the largest and frequently overlooked employers in Arizona is the United States Department of Defense. The presence of military personnel and their supporting activities predates statehood, but is frequently ignored in economic development discussions. For years, the “Five C’s” were used to describe the basic industries of Arizona – Copper, Cotton, Citrus, Cattle, and Climate. These industries were identified as the core of Arizona’s economy. Nowhere in this list was there any recognition of the thousands of Arizona jobs tied directly and indirectly to the many military operations within the State.

The presence and economic contribution of the military operations in Arizona may have historically been under-recognized due to the general isolation of the operations from general commerce, the physical separation, for security reasons, of many of the facilities or simply as a unintended consequence of the methods typically used to collect and report economic and employment statistics. Whatever the reasons, the military operations within Arizona represent a substantial and valuable industry in the State that should be recognized and listed among the State’s most important sources of economic activity.

This study was commissioned by several Arizona cities to document the economic importance of the military operations within Arizona and was initiated in the summer of 2001, prior to the events of last fall. To date no such study has been completed on such a comprehensive and consistent basis. Recent tragic events and subsequent domestic and international military engagements have highlighted the presence and contribution of various military operations in Arizona.

Among the reasons for the study, cited by the sponsoring cities, are the increasing frequency of proposed state legislation involving issues relating to the location and activities of various military operations in the State, the continuing development of land adjacent to and near military

facilities, and the continuing possibility of base closings by the Department of Defense. For these and other reasons, this study was undertaken.

### ***Background***

Reports continue to circulate in Washington of another round of military facility closures as an outcome of the Base Realignment and Closing Commission (BRAC). It is anticipated that the next series of BRAC activities will occur during 2005, just three years from now.

The consequences of the previous BRAC ordered closures have been the subject of substantial controversy and debate. Some have argued the economies and efficiencies that have resulted from the Commission prompted closings, while others have raised concerns regarding the loss of essential military capabilities, especially unique, irreplaceable locations and facilities.

At the same time that federal actions may result in the reduction or closing of military facilities within Arizona, local action and activities also endanger the future of some military operations. In most cases, Arizona's principal military operations have occurred on facilities either in remote locations or at the periphery of development. This physical separation has permitted the operations to exist largely unaffected by the surrounding population growth and development. However, in the last few decades Arizona's sustained growth and development have, in some cases, brought new development closer to the formal boundaries of some bases and into the adjacent, off-base areas that are crucial to the safe and prudent execution of military activities operating from those bases.

Several pieces of state legislation have been introduced and debated in recent legislative sessions dealing with the issues of encroachment and the preservation of critical, off-base properties in land uses compatible with military activities operating from the bases.

In addition, the closure and redevelopment of Williams Air Force Base in eastern Maricopa County has prompted discussions concerning the economic development opportunities that might be associated with the closing of other military facilities within the State.

### *Study Methodology*

In order to fully measure the impact of the principal military operations within Arizona it was necessary for the Study Team to establish a study methodology. Since no previous study had examined the combined economic effect of all of Arizona's principal military operations on the State's economy, a new methodology had to be developed. It was critically important that the methodology used would insure a comprehensive, yet conservative, estimate of the operations' impact, based on information compiled using uniform and consistent techniques. In addition, the Study Team sought to develop a reproducible methodology assuring that subsequent studies could build upon the information and knowledge gained through this effort.

In examining Arizona's principal military operations as an industry, it was essential that the information gathered and analyzed for each military operation be compiled using uniform and consistent techniques. In this way, both the inputs for the economic analysis as well as the outputs would be reasonably comparable among the various military operations. It must be recognized that there are substantial differences in the missions and activities of the various military operations within Arizona, even though there are numerous unifying similarities. Great care was taken to recognize and balance the differences among the military operations while maintaining the desired consistency. **It is important to note that prior studies, as well as future studies, undertaken with respect to a single facility or operation may employ equally valid, but different, methodologies for estimating the economic impact of those facilities or operations.** However, for the purposes of this effort, uniformity and consistency were paramount.

Another continuing concern of the Study Team was insuring that the economic inputs used in the analysis, while comprehensive, were non-duplicative. Many opportunities existed for double counting or the inclusion of redundant data. The inclusion of such information would overstate the actual economic impact of the principal military operations and as such would violate one of the study's guiding principals, that is, the production of a conservative, yet realistic estimate.

**Use of IMPLAN**

After examining several alternative approaches to estimate the economic impact of Arizona's principal military operations, the Study Team determined that the use of the IMPLAN Pro, economic impact model software, was most appropriate. IMPLAN Pro software was created and is distributed by the Minnesota IMPLAN Group (MIG) as a comprehensive econometric tool for analyzing economic impacts within specific regions. IMPLAN stands for Impact Analysis for Planning. The IMPLAN econometric model uses actual input and output information for each county within the United States to develop a tailor made model for each individual study region. Study regions typically include single counties, multi-county regions, one or more states, or the entire national economy. (Study regions can also be based on zip codes, which use a mixture of county and zip code level information.)

As a general rule, the larger the study area examined, the greater the impacts, because of the increased amount of economic activity occurring within the larger region. Occasionally, larger geographic areas can have reduced impacts as a result of unique characteristics within the geographic region such as average productivity of workers or the location/absence of certain important industries.

The IMPLAN econometric model operates by estimating the *direct* impact, *indirect* impacts, and *induced* impacts of specific economic activity. *Direct* economic impacts, are those attributable to the initial economic activity, for example, an operation with ten full-time employees creates ten *direct* jobs. *Indirect* economic impacts are those economic activities undertaken by vendors and suppliers within the supply chain of the direct activity as a result of the initial economic activity. For example, suppliers of goods, materials, and services used in the direct activities produce *indirect* economic impacts. *Induced* economic impacts result from the spending of wages paid to employees in local industries involved in direct and indirect activities. These wages, which are analogous to household spending, support additional local activities, such as the purchase of goods and services within the region. In turn, that portion of spending that accrues to local businesses and employees is once again re-circulated within the local economy producing additional activity in the economy. The econometric model measures the amount of economic activity in each round of spending until all of the spending within the local region has

been exhausted. In each iteration, a certain portion of spending is attributed to economic activities (purchases) outside of a local (study) region. Once money is spent outside the local region, it is not included in subsequent iterations. Thus, each iteration recycles an ever-declining amount of economic activity. The extent to which economic activity recycles within the local region is defined for each specific region (in this study, counties and the state) based upon the input and output relationships among industries and their suppliers in the region. This information is derived from Bureau of Economic Analysis data.

The Study Team selected the IMPLAN model due to its frequent use in economic impact analysis within Arizona in conjunction with its development independent of local influences. The Minnesota IMPLAN Group produces IMPLAN econometric models for regions throughout the United States and the IMPLAN Model is generally recognized as one of the leading economic multiplier models within the country. As mentioned above, it is frequently used for Arizona economic impact analysis, but it is also used widely in other regions throughout the nation. The Study Team felt it was important to rely upon the estimates produced by an independent model not subject to any influence from within the State.

### **Determination of Operations and Activities to be Included**

One of the first challenges the Study Team faced was determination of which military facilities and operations to include within the study. (Equally important, the Study Team faced the decision as to which activities to exclude, as discussed below.) The Study Team examined a wide range of activities for possible inclusion within the study. Ultimately, the Study Team developed a uniform series of standards to determine whether a particular activity, facility, or operation should be included. In short, a two-test standard was developed and utilized.

The first test concerned the mobility or susceptibility to potential closure or relocation of an activity, facility, or operation. If the continuation of an operation depends solely on a *federal government decision* it was included in the analysis. For example, an operation that could be reasonably relocated to some other geographic location by a decision of the Department of Defense would be included.

## Arizona's Principal Military Operations

The second test measured the degree to which the activity, facility, or operation was subject to *community influence* concerning its activities or operations. In other words, does the operation inherently impact its neighbors? Some of the frequently encountered examples of community influences or external pressures on various military activities, facilities and operations include geographic encroachment, zoning and regulatory constraints, or neighborhood noise and safety concerns.

Utilizing this two-test standard, the Study Team identified the principal military operations within the state to be included within the study. These operations include the principal military facilities within the state: Davis-Monthan Air Force Base, Fort Huachuca, Luke Air Force Base, the Yuma Marine Corps Air Station, and the Army Yuma Proving Ground. In addition, the activities of the Arizona Army National Guard and the Arizona Air National Guard were included.

As mentioned earlier, equally important and difficult was the determination of which activities to exclude. Using the two-test standard described above, the Study Team eliminated from consideration military contractors, such as, the Boeing helicopter facilities in Maricopa County, the Raytheon facilities in Pima County and a wide variety of other military-related contractors within the state of Arizona, that were not directly linked to the location of one of the principal military operations in the state. The businesses excluded from this study are important contributors of Arizona's economy, however, their location in Arizona is largely attributable to other factors including labor force characteristics, lower costs-of-doing-business in Arizona, quality of life considerations, and the other attractive characteristics of Arizona and its economy.

It is also important to note that a number of positive developments have occurred on the site of the former Williams Air Force Base in eastern Maricopa County. Many of these activities are related to military operations and the defense industry and provide important economic stimuli within the State's economy. However, it was the Study Team's determination that while valuable, these activities were not appropriate for inclusion within this study.



While all of these activities are important economic components of the State's overall economy, they were not within the subject of this study. A broader, more far reaching examination of the impact of military spending (e.g. all Department of Defense spending) both for military operations as well as for defense-related contracting could be undertaken and would yield overall impacts in excess of those estimated by this report. However, the purpose of this effort was to examine a more narrowly defined group of economic activities.

### **Linked Military Retirees**

Beyond the economic activity (personnel and spending) of the military operations themselves, Arizona's economy receives substantial stimulus from the spending of military retirees. Prior studies and analysis have recognized a relationship between the location and accessibility of full service military installations and the residential locational choices of military retirees. Access to facilities including health care and commissaries on military installations are among a number of factors influencing the geographic residential locational decisions of military retirees. However, care must be taken to not overestimate the impact of military installations on the locational decisions of otherwise mobile military retirees, especially in states like Arizona. Arizona is one of a number of states that benefits from the general in-migration of mobile retirees, both military retirees and non-military retirees. The State's climate, cost of living, and other quality of life considerations attract individuals.

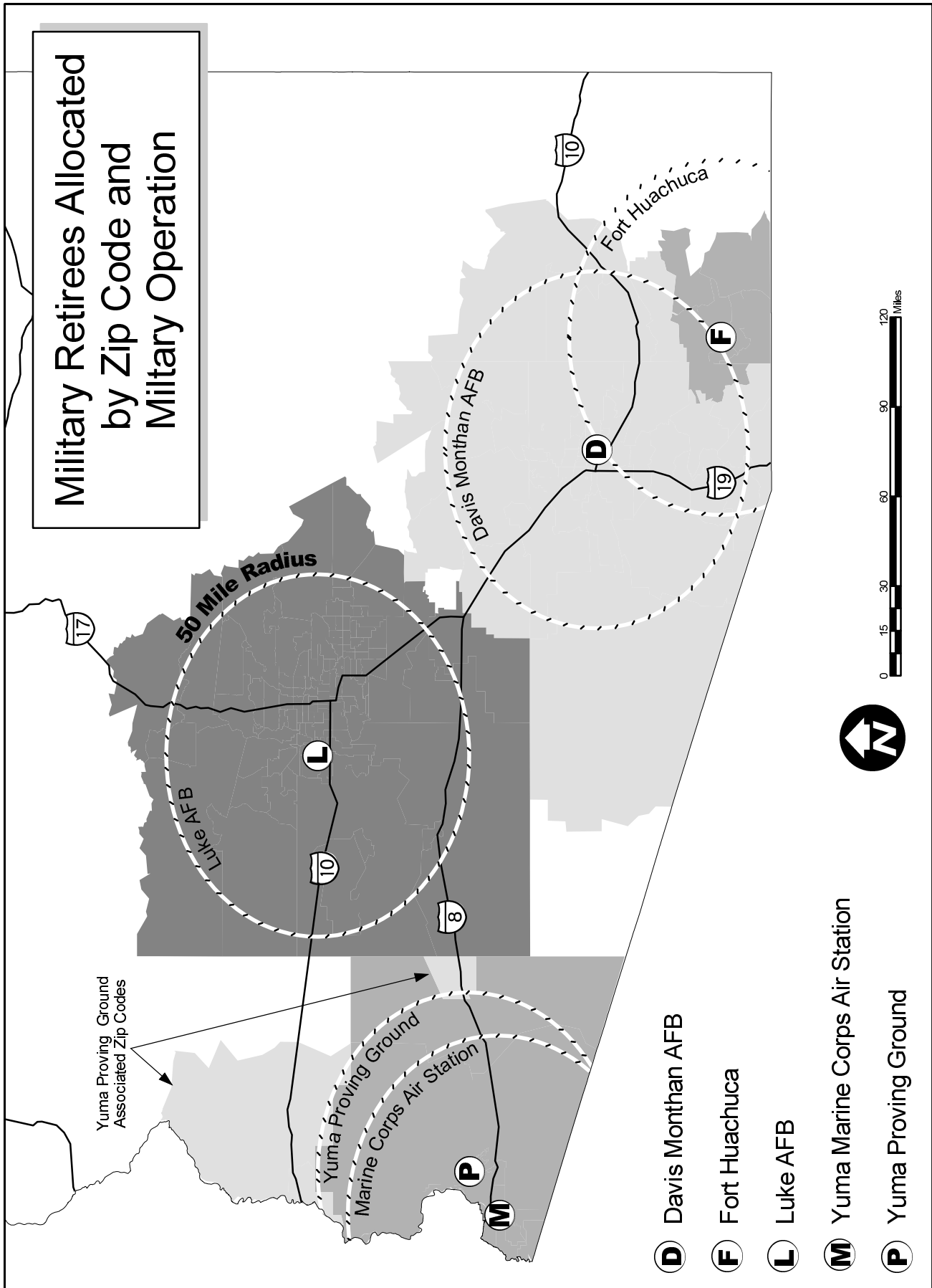
Balancing the effect of general attractiveness of Arizona to mobile retirees with the desirability of proximity to an established military installation for mobile military retirees was the subject of substantial consideration by the Study Team. Ultimately, a two criteria standard was established for estimating the portion of military retirees and their spending that were directly *linked* to the state's military installations and were therefore appropriate to include within the study. In general, the study assumed that *25 percent* of the military retirees living within a *50-mile radius* of one of the principal military installations would be included within the study. For these purposes, only the Davis-Monthan AFB, Fort Huachuca, Luke AFB, Yuma MCAS, and Yuma Army Proving Ground were considered to be principal military installations due to the availability of a wide range of services. In addition, certain identified military retirees linked to National Guard operations were also considered.

More specifically, 25 percent of retirement income received by military retirees residing within a postal zip code area, any portion of which was within a 50-mile radius of one of the principal military installations, was included in the study. This amount was an estimate of the retirement income spending attributable to military retirees that would not be residents of Arizona, if the military installations were not located within the state. In some instances this general standard was adjusted to reflect the geographic travel barriers as well as to avoid duplication for areas within 50 miles of more than one facility. The 50-mile standard was used to represent a one-hour travel time, which is a frequently used standard for proximity in economic and transportation studies. The map on the following page depicts the 50-mile standard.

### **Determination of Financial Inputs**

Having determined the scope of the study, the Study Team began the development of a uniform, standardized list of financial inputs. In general, the Study Team sought to collect *standardized* information from all of the principal military operations within the State concerning their compensation for personnel and other direct spending activities for fiscal year 2000. Specifically, payroll information for a variety of different categories of personnel were identified, solicited and collected from the principal military operations. Payroll information provides a general measure of disposable household income available for expenditure and use within the regional economy. However, a wide variety of adjustments must be and were made to the payroll information prior to its input into the IMPLAN econometric model. A more thorough discussion of the modifications made to the basic financial information is presented in Appendix Three.

In addition to payroll information, the Study Team sought and received consistent information from the various military operations on their contracts and purchasing expenditures. In assembling this information, extensive discussions were held among representatives of the various military operations within the State to insure general uniformity and consistency between facilities and operations. In addition, great care was taken by the Study Team to avoid double counting or duplication of information within the contracting and purchasing categories as well as in the personnel and payroll information.

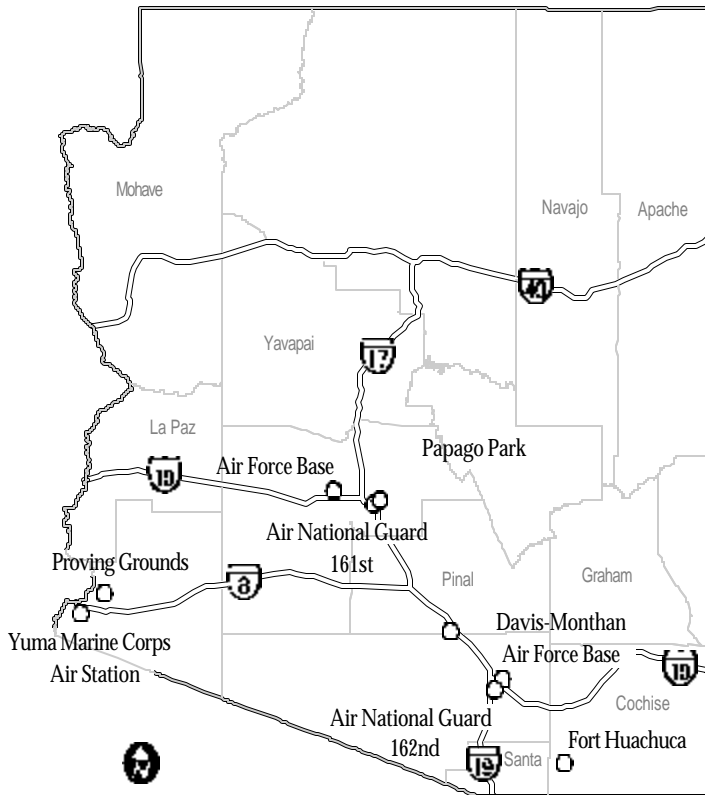


Having determined its study methodology, the Study Team contacted both the operational commanders as well as the financial officers of each of the identified principal military operations within the State. A series of procedural discussions were undertaken with representatives of each of the operations and standardized definitions were developed for the identification and collection of financial information. This financial information, which served as the initial source of inputs for the IMPLAN econometric model is summarized at the end of this section.

The IMPLAN econometric analysis was completed for each of the individual military operations on a countywide basis. In addition, inputs from all of the military operations included within the study were aggregated and the analysis was undertaken on a statewide basis. The principal focus of this study is the statewide impact of the various military facilities and operations within Arizona. Detailed information concerning individual facilities and their countywide impacts are summarized in the appendices to this study.

## CHAPTER TWO

### DESCRIPTION OF ARIZONA'S PRINCIPAL MILITARY OPERATIONS



There are five major military installations in Arizona, - *Davis-Monthan Air Force Base, Army Intelligence Center and Fort Huachuca, Luke Air Force Base, Yuma Army Proving Grounds* and *Marine Corp Air Station - Yuma* - and four principal National Guard operations - *Air National Guard's 161<sup>st</sup> Air Refueling Wing, Air National Guard's 162<sup>nd</sup> Fighter Wing, Army National Guard,* and the *Western Army National Guard Aviation Training Site.*

#### **Davis-Monthan Air Force Base – 355<sup>th</sup> Wing**

The mission of the 355<sup>th</sup> Wing is to provide combat ready A/OA-10 aircraft, EC-130H Compass Call aircraft, and EC-130E Airborne Battlefield Command and Control forces to theater commanders worldwide and initial qualification and recurrency training for all A/OA-10 pilots and EC-130 E/H aircrew.

Flying units at the base consist of three A/OA-10 squadrons, two Compass Call squadrons, and one Airborne Battlefield Command and Control squadron. The three A/OA-10 squadrons consist of two Flying Training Unit squadrons and one Operational Squadron. The EC-130 units represent unique capabilities as the US Air Force's entire Compass Call Fleet and only Airborne Battlefield Command and Control squadron.

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The 354<sup>th</sup> Fighter Squadron “Bulldogs” provides worldwide day and night combat capability in: Close Air Support, Air Strike Control, Combat Search and Rescue, Air Interdiction, and Battalion Air Liaison Officers.

The 357<sup>th</sup> Fighter Squadron “Dragons” and 358<sup>th</sup> Fighter Squadron “Lobos” train approximately 140 A/OA-10 fighter pilots under three separate syllabi per year. Training includes Initial Qualification Training, Requalification Training, Central Instructor School Training, and the Air Force’s first Night Vision Goggle Training at a Fighter Training Unit.

The 41<sup>st</sup> Electronic Combat Squadron “Scorpions” and 43<sup>rd</sup> Electronic Command Squadron “Bats” provide worldwide day and night offensive Information Warfare capability. These capabilities include: Acquiring, Directional Finding, Analyzing and targeting three Signals, preventing targeting of friendly signals, and linguists and analysts enabling real-time specific targeting.

The 42<sup>nd</sup> Airborne Command and Control Squadron “Raptors” provide the Air Force’s only worldwide day and night Airborne Battlefield Command and Control Center capability. These capabilities include on-scene command and control of tactical air operation, multiple and redundant communication and data links to Higher Headquarters and National Command Authority as integral components of the Theater Air Control System.

The 607<sup>th</sup> Air Control Squadron “Snakes” Field Training Unit provides both Weapons Director and Surveillance Technician Initial qualification training for 126 students per year. The unit is located at Luke Air Force Base and completes 16,000 sorties and 38,000 hours annually and is the Air Combat Command’s largest Flying Hour Program. The 78 A/OA-10, 13 EC-130 H Compass Call, and seven EC-130 E ABCCC aircraft are assigned to the 355<sup>th</sup> Wing.

Davis-Monthan AFB is located in the City of Tucson, Arizona.

## **US Army Intelligence Center and Fort Huachuca**

The primary mission of the US Army Intelligence Center and Fort Huachuca is to provide support to Military Intelligence (MI) Training; and provide support and quality of life to Headquarters, U.S. Army Intelligence Center and Fort Huachuca, 111<sup>th</sup> and 112<sup>th</sup> Military Intelligence Brigades, and numerous tenant/partner organizations, to include the U.S. Army Signal Command, U.S. Army Information Systems Engineering Command, the Joint Interoperability Test Command, U.S. Army Electronic Proving Ground, and the 11<sup>th</sup> Signal Brigade.

The Military Intelligence Training mission encompasses training, and organizing and equipping MI professionals to support the nation's war fighting requirements throughout the operational continuum.

The Intelligence Center and Fort Huachuca offers over 80 courses ranging from Noncommissioned Officer's Courses to the Officer's Advanced Course. During this year approximately 8,500 students will be trained and instructed at Fort Huachuca.

The Intelligence Center and Fort Huachuca have all functions of command and control including: operations, maintenance, and security of Fort Huachuca as well as responsibility for all mobilization stationing, power projection, quality of life (morale, welfare, recreation, child care and development), and casualty assistance support.

The Intelligence Center and Fort Huachuca is located in Cochise County in southeastern Arizona. The installation is situated on the western slope of the San Pedro River Valley.

Many of the active duty military and their family members live on post. Housing construction projects are currently on-going including the demolition and rebuilding of 80 senior non-commissioned officer units and the demolition of 30 field grade officer units which will be rebuilt as senior non-commissioned officer units as a result of a congressional mandate. A total of 110, three and four bedroom, units will be demolished and rebuilt. Cost of this housing

## Arizona's Principal Military Operations

construction project is over \$15 million. Demolition is scheduled to begin in April 2001 with a expected project completion date of October 2002.

Fort Huachuca has scheduling and operational control of Special Use Airspace including: Department of Defense Unmanned Aerial Vehicle Training with three restricted areas (R-2303A, R-2303B, and R-2303C); and a Controlling Firing Area which is used by range control for pistol and small arms training. Artillery tank and mortar-fire activities are not currently being conducted.

Three restricted areas are activated for approximately nine hours per weekday for Remotely Operated Aircraft testing, training and activities, which are monitored and deconflicted by Libby Air Traffic Control Radar.

Main airspace users currently include the Army for testing and training on the Hunter Remotely Operated Aircraft, future and periodic testing of the Shadow Tactical Unmanned Aerial Vehicle and Predator, and the Electronic Proving Ground. White Sands Missile Range is also a frequent user of the restricted areas for electronic research and development testing.

Other users of Special Use Airspace and Libby Airfield include: the U.S. Army Special Electronic Mission Aircraft Training School, the Advanced Airlift Tactics Training School operated for the Department of Defense by Missouri Air Guard, the Joint Task Force Six (JTF-6), the 162<sup>nd</sup> Fighter Wing for their F-16's, the 355<sup>th</sup> Air Wing for their A-10s, the Forest Service for their air tankers, and the U.S. Customs/Border Patrol.

There are nine live fire ranges and other training facilities including: Rappel Cliffs, Rappel Tower, Leadership Reaction Course, Rope Bridge facility, Air Craft loading mock-up, Obstacle Course, Confidence Course, Mask Confidence Chamber, Assault Landing Strip, three Airborne Drop Zones, two Land Navigation Courses, Grenade Assault Course (non-firing), and Expert Field Medical Badge Training Facility.



The mission related concerns about the Fort Huachuca's Special Use Airspace have been minimal over the years and are predominately noise-related. Flight profiles are occasionally modified to avoid noise sensitive areas and local airspace users are reminded to "fly friendly" by minimizing their time on target and maintaining altitude. Weekend and night training is minimized.

### **Luke Air Force Base – 56<sup>th</sup> Fighter Wing**

The mission of the 56<sup>th</sup> Fighter Wing is to train the world's finest F-16 pilots and crew chiefs while providing agile combat support for aerospace expeditionary forces.

The 56<sup>th</sup> Fighter Wing is the largest fighter wing in the world with eight fighter squadrons training all US Air Force F-16 pilots. More than 1,000 pilots are trained yearly in a variety of syllabus courses for the F-16.

The 56<sup>th</sup> Fighter Wing provides academic, simulator, and flying training and advanced F-16 training for Singapore and Taiwan Air Forces. More than 800 mission ready crew chiefs are trained annually to launch and maintain F-16's at bases around the world.

Approximately 38,000 sorties and 50,000 hours are flown in the F-16 annually with 196 F-16 aircraft currently assigned to the 56<sup>th</sup> Fighter Wing.

The 56<sup>th</sup> Fighter Wing is located at Luke Air Force Base, which is located in the City of Glendale, 20 miles west of Phoenix Sky Harbor International Airport.

The 56<sup>th</sup> Fighter Wing has scheduling and operational control of Special Use Airspace for four Military Operating Areas (MOAs) including: Gladden and Bagdad MOAs located northwest of Luke Air Force Base, Sells MOA located east of Tucson and contiguous to the Barry M. Goldwater Range (the Goldwater Range), and Sunny MOA located northeast of Flagstaff. Special Use Airspace scheduling and operation control also exists for eight low-level Military Training Routes, which start to the east, south, and north of Luke Air Force Base all terminating on the Goldwater Range; and three Air to Air Refueling Anchors.

The eastern portion of the Goldwater Range consists of Restricted Areas R-2301E, R-2304, and R-2305. The Goldwater Range consists of eight sub-ranges, four manned air to ground weapons delivery ranges, three tactical air to ground weapons delivery ranges, and one air to air training range. The 56<sup>th</sup> Fighter Wing flies approximately 50% of the missions scheduled on the Goldwater Range.

The 355<sup>th</sup> Wing at Davis-Monthan Air Force Base, 162<sup>nd</sup> Fighter Wing at Tucson International Airport, Air Force Air National Guard "Snowbird Operations" at Davis-Monthan Air Force Base, and the Western Army Aviation Training Site at Pinal Airport are designated "Regular Users".

The US Navy, US Marine Corps, and the Air Force Reserve units also utilize the Goldwater Range for training.

The Goldwater Range is absolutely essential for the effective combat training of this country's military air forces. Approximately 50,000 sorties are flown annually on the Goldwater Range.

### **Luke Air Force Base – Air Force Reserve – 944<sup>th</sup> Fighter Wing**

The mission of the 944<sup>th</sup> Fighter Wing is to train F-16 pilots and to provide combat ready warriors for the Expeditionary Air Force.

The F-16 pilots are trained in initial, recurrent and instructor pilot qualification and are provided formal courses in night vision goggle, forward air controller, and precision guided munitions.

The 944<sup>th</sup> trains all unit assigned reservists, providing combat ready warriors for worldwide deployment in support of Air Expeditionary Force and Expeditionary Combat Support requirements.

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The 944<sup>th</sup> Fighter Wing has 16 subordinate units to include three groups, nine squadrons, and four flights. Seventeen F-16 model C and D aircraft are assigned with 3,400 sorties and 4,000 hours flown annually.

The 944<sup>th</sup> Fighter Wing has participated in 19 major deployments and exercises since 1989.

944<sup>th</sup> Fighter Wing honors include: five Air Force Outstanding Unit Citations; five Air Combat Command Flight Safety Awards; 13 first place awards during Gunsmoke fighter competitions; three Maintenance Effectiveness Awards; Daedalian Award for Best Aircraft Maintenance; Air Force Chief of Safety Outstanding Achievement Award for Ground Safety; and several other command level awards.

The 944<sup>th</sup> is located at Luke Air Force Base in Glendale, Arizona, approximately 20 miles west of downtown Phoenix.

The 944<sup>th</sup> Fighter Wing was activated at Luke Air Force Base on July 1, 1987. The 302<sup>nd</sup> Fighter Squadron, which is assigned to the 944<sup>th</sup>, was first activated on October 13, 1942 under the 332<sup>nd</sup> Fighter Group, better known as "The Tuskegee Airmen". The 944<sup>th</sup> enjoys a rich heritage. It was the first Reserve F-16 Fighter unit to participate in Provide Comfort II and to carry the AIM 120A (AMRAAM) missile. The wing was also given the opportunity to participate in "Coronet Harbor," a NATO sponsored exercise involving units from stateside bases, plus a number of countries within the NATO alliance such as Belgium, France, Germany, Italy, Portugal and the United Kingdom. The exercise enabled the 944<sup>th</sup> to train in virtually every possible mission the F-16 can perform. It was also the first US Air Force Reserve or Air National Guard unit to conduct air combat training with the MiG 29.

The 944<sup>th</sup> Fighter Wing is currently undergoing considerable changes as it pertains to the flying operations. On March 3, 2000 the 301<sup>st</sup> Fighter Squadron was activated as a Reserve Associate Unit to the Luke's 56<sup>th</sup> Fighter Wing, and Air Education and Training Command Unit. Reserve instructor pilots from the reactivated 301<sup>st</sup> FS will fly 56<sup>th</sup> Fighter Wing F-16's to train active-duty student pilots for their multi-role mission.

On July 1, 2001 the Air Education Training Command became the gaining command of the 944<sup>th</sup> Fighter Wing. Along with this change came the added mission of training fighter pilots at the 302<sup>nd</sup> Fighter Squadron. Now both the 301<sup>st</sup> and 302<sup>nd</sup> Fighter Squadrons conduct F-16 fighter pilot training.

In addition to its newly acquired training mission the 944<sup>th</sup> Fighter Wing maintains readiness and deploys members both individually and as a unit in support of the Expeditionary Air Force.

### **Army Yuma Proving Ground**

The mission of the US Army Yuma Proving Ground (YPG) is engineering, testing, developing, and supporting developers in the development of military equipment. Our focus is on the planning, execution, and reporting of development and production testing of artillery, direct fire, automotive, aviation systems, mines and countermines, Unexploded Ordnance, air delivery, and soldier equipment. We do this in diverse world-wide operating environments (desert, tropic and cold regions) through application of our experience throughout a system's life-cycle.

The Yuma Proving Ground is a multi-purpose proving ground that performs engineering, test, and support services for material developers, the Army Center of Excellence for Natural Environment Testing the Department of Defense Major Range and the Test Facility Base.

YPG also supports developmental and operational test execution, joint test and training ranges, installation management, support, and services as well as production and acceptance tests.

YPG is located in Yuma County, Arizona, approximately 25 miles North of the City of Yuma. It is situated in Southwest Arizona's Sonoran Desert in one of the hottest and driest deserts in the United States. The YPG area closely matches the terrain and weather conditions of the Persian Gulf region.

## **Arizona's Principal Military Operations**

The YPG has priority use of ten special use Restricted Airspace areas including R-2306 A, B, C, D and E; R-2307; R-2308 A, B, and C; and R-2311. Airspace use is scheduled by YPG, with Air Traffic Control functions performed by the Marine Corps Air Station, Yuma.

The YPG is comprised of over 838,000 acres of withdrawn public land with almost unlimited airspace over the proving ground. The YPG Range complex is comprised of the Cibola Range, Laguna Area, Command Support Area, and KOFA Range. Cibola Range is designed and instrumented to test Army Aviation systems providing 360 degree firing capabilities, 11 separate drop zones, day and night HAHO and HALO, full air delivery rigging capabilities/DDESB certification, C-5/C-17 capable runways and C-17 capable assault landing strip.

The KOFA Range is the Army's premier long-range artillery range with direct and indirect fire-approximately 8 X 47 miles, over 300 firing positions, mine and countermine test facilities, ammunition loading plants, and maintenance facilities.

### **Marine Corp Air Station Yuma**

The mission of the Marine Corp Air Station (MCAS) Yuma is to provide aviation ranges, support facilities, and services that enable the US Marine Corps and other military forces to enhance their mission capability and combat readiness.

This premier aviation training facility has over 2.8 million acres of aerial training ranges supporting 80% of all Marine Corps aviation training.

Approximately 198,000 operations annually make MCAS Yuma the busiest airfield in the Marine Corps and the fifth busiest in the Navy. It also is the only Joint Use Facility in the Marine Corps.

Tenant Units include the Marine Aircraft Group – 13 AV-8B Aircraft Group (14 AV-8B aircraft per squadron) including VMA-211 (Marine Attack Squadron), VMA-214, VMA-311, VMA-513, MALS-13 (Aviation Logistics Squadron; provides intermediate maintenance support for the AV-8B squadrons).

## Arizona's Principal Military Operations

Additional Tenant Units also include the Marine Aviation Weapons and Tactics Squadron-1 (MAWTS-1); MAWTS-1 coordinates and supervises the development and presentation of formal courses, both academic and flight, for all aviation units in the Marine Corps. They conduct a semi-annual Weapons and Tactics Instructor course for U.S. and allied military forces; Marine Fighter Training Squadron (VMFT-401) (10 F-5 aircraft). The VMFT-401 is a reserve squadron flying the F-5 Tiger II. It is the only reserve aggressor squadron in the Marine Corps; Marine Wing Support Squadron-371. In addition, the Combat Service Support Detachment-16; Marine Air Control Squadron-1; Headquarters & Headquarters Squadron (2 UC-12 operational support aircraft, four UH/HH-1N Search and Rescue helicopters); and the Yuma International Airport (Marine Corps' only joint-use airfield) are provided.

MCAS Yuma is located in Yuma, Arizona and occupies approximately five square miles in southwest Yuma just about midway between San Diego, California and Phoenix, Arizona.

MCAS Yuma has scheduling and operational control of the special use airspace including five Military Operating Areas (MOAs) including Abel MOA, Turtle MOA, Dome MOA, Quail MOA, Kane East / West / South MOA; four Low Level Military Training Routes including VR 1266, VR 1267, VR 1267A, VR 1268, and one Air Traffic Control Assigned Airspace – Imperial.

The Western portion of the Goldwater Range R2301W, consists of the R2301W range and includes the Urban Target Complex (Yodaville), Cactus West Airspace (Inert Bombing target), and Tactical Aircrew Combat Training System/Electronic Warfare Range.

The Chocolate Mountain Aerial Gunnery Range (R2507 North and South) is used for live Air to Ground ordnance training.

Additional restricted and target areas, include R2306/07/08/09, Targets 101, 103 (R2510), Target 68, Inkey Barley (R2512), Target 95, Kitty Baggage (R2512).

There are three military Drop Zones including Bullhead drop zone (R2510), Camelot drop zone (R2510), and Superstition drop zone (R2510).

**Arizona Air National Guard 161st Air Refueling Wing –  
Phoenix Sky Harbor Airport**

The mission of the 161<sup>st</sup> Air Refueling Wing (ARW) is to work as a team to serve our community and state, to care for our people and to defend our nation.

The vision of the wing revolves around the key word FIRST, which stands for Flexibility, Integrity, Readiness, Strength, and TeamWork.

The 161<sup>st</sup> ARW provides the majority of air refueling support for Luke Air Force Base and Tucson Air National Guard.

Support air refueling requirements of other military flying units located in the southwest to include Davis-Monthan Air Force Base.

The 161<sup>st</sup> ARW provides aircrew, maintainers and support personnel for Air Force Air Expeditionary Force tasking, Northern Watch, Southern Watch and Allied Force.

The 161<sup>st</sup> ARW has 10 KC-135E aircraft equipped with Pacer Craig modification and 3,000 hours, 1,000 sorties, 2,000 receivers and 8,000,000 pounds of fuel offload annually.

The 161<sup>st</sup> ARW is at the Phoenix Air National Guard located on the Sky Harbor International Airport complex.

With the addition of a new third runway, the base occupies 275,000 square feet of new facilities, infrastructure, pavement, and aircraft ramp. The cost of construction is in excess of \$60 million.

The 161<sup>st</sup> ARW is a user of air refueling tracks and anchors including AR 3H, AR 310, AR 658, AR 613, AR 647, AR 639, and AR 649 air refueling tracks.

**Arizona Air National Guard – 162nd Fighter Wing —**

**Tucson International Airport**

The mission of the 162<sup>nd</sup> Fighter Wing (FW) of the Arizona Air National Guard is to serve the United States and its allies by providing the finest fighter training programs in the world.

The 162<sup>nd</sup> Fighter Wing is the largest Air National Guard wing in the United States with three fighter squadrons and the Air National Guard/Air Force Reserve Test Center.

The 162<sup>nd</sup> Fighter Wing provides F-16 training for pilots from the fourteen countries and the United States with approximately 150-200 pilots trained yearly in 25-30 syllabi for the F-16 through academic, simulator and flying training. The 162<sup>nd</sup> Fighter Wing also provides advanced F-16 training for the Israeli Air Force.

Approximately 13,200 sorties and 17,000 hours are flown in the F-16 annually with 80 F-16 aircraft currently assigned to the 162<sup>nd</sup> FW.

The 162<sup>nd</sup> FW of the Arizona Air National Guard is located at the Tucson International Airport in Tucson, Arizona.

The 162<sup>nd</sup> FW has scheduling and operational control of the Special Use Airspace for five Military Operating Areas (MOAs) including Outlaw and Jackal MOAs located north of Tucson, Morenci and Reserve MOAs located east of Tucson and Ruby/Fuzzy MOA located south of Tucson; as well as one low-level Military Training Route, and one Air-to-Air Refueling Anchor.

The 162<sup>nd</sup> Fighter Wing is also a “Regular User” of the Goldwater Range Complex and the Sells MOA located to the west of Tucson.



**Arizona Air National Guard Detachment 1, 162nd Fighter Wing — Operation Snowbird – Davis-Monthan Air Force Base**

The mission of the Detachment 1, 162<sup>nd</sup> Fighter Wing (Arizona Air National Guard) –Operation Snowbird is to provide an integrated, year-round, realistic training environment (airspace, facilities, and equipment) for units to enhance their combat capability and readiness by enabling users to accomplish training that cannot be effectively accomplished or is not available at their home station within the Goldwater Range Complex. The Detachment 1, 162<sup>nd</sup> Fighter Wing — Operation Snowbird also establishes a training Air Expeditionary Force arena that approximates a deployed combat Forward Operating Location, providing other site-specific, unique training missions as tasked by the National Guard Bureau, providing Airman Leadership School facilities and classrooms for the Air National Guard Western Region and providing facilities and services to the Department of Defense and Foreign Military Sales agencies on a non-interference, cost reimbursable basis.

Detachment 1, 162<sup>nd</sup> Fighter Wing (AZANG)— Operation Snowbird is located at Davis-Monthan Air Force Base in the City of Tucson, five miles east of Tucson International Airport.

**Arizona Army National Guard**

The mission of the Arizona Army National Guard is to recruit, train, retain, sustain, and deploy the AZ Army National Guard military forces. The mission of our forces is to remain capable of supporting the National and State's missions for the protection of life, property, preservation of peace, maintenance of order and public safety.

The AZ Army National Guard is an organization of soldiers who are all dedicated to serving, protecting and defending the Nation, the state of Arizona, and the diverse communities within our State.

Of our three major goals our first is that of providing available units, trained and ready to serve the nation and state for both defense and emergency missions. Second is to provide a good quality of life for our serving guardsmen; and third is to continue build on our existing force

structure so that the AZ Army National Guard is capable of providing additional forces when needed for both national and state missions.

The AZ Army National Guard has some of the finest helicopter gunnery ranges in the world.

The AZ Army National Guard has 14 individual communities located throughout Arizona with over 200 facilities and over 58,000 acres of both federal and state training areas.

**Western Army National Guard Aviation Training Site — Silver Bell Army Heliport Pinal Airpark**

The mission of the Western Army National Guard Aviation Training Site (WAATS) is to conduct aviation training courses, operate simulator devices, and to provide and maintain aviation support operations for the Army, the State of Arizona and international military customers.

The mission of providing training in the AH-1 Cobra helicopter, Aviator Qualification, Maintenance Test Pilot, Instructor Pilot, Night Vision Qualification is to end September 1, 2001. There were 27 students in 2000. There is a future mission of AH-64A AQC.

The Western Army National Guard Aviation Training Site provides training in the OH-58C helicopter including: Aviator Qualification, Maintenance Test Pilot, Instructor Pilot, Night Vision Qualification, Counterdrug Basic Mission Qualification, Counterdrug Instructor Pilot Course and Counterdrug Night Vision Qualification. There were 141 students in 2000.

The Western Army National Guard Aviation Training Site also provides Simulator support for the AH-1 Flight Weapons Simulator (1,988 hours) and the AH-64 Combat Mission Simulator (3,278 hours); Enlisted MOS training, 93P Flt. Ops. Spec., 67V OH-58 mech., 67Y AH-1 mech., with 135 students in 2000; NCO Training – BNCOC, ANCOC, with 161 students in 2000; specialty courses in Combat Lifesaver, Total Army Instructor Training with 42 students in 2000.

## **Arizona's Principal Military Operations**

The Western Army National Guard Aviation Training Site is located at the Silver Bell Army Heliport in the Pinal Airpark, Marana, Arizona. The WAATS is located near the City of Marana, Pinal County along I-10 about 30 miles north of Tucson.

The WAATS has a training area of over 3,600 square miles, with landing rights on three-fourths of the area designated as "Regular User" at the Goldwater Range.

**CHAPTER THREE  
EMPLOYMENT AND SPENDING BY  
ARIZONA'S PRINCIPAL MILITARY OPERATIONS**

**Employment**

The starting point for the economic analysis of the principal military operations in Arizona was the number, type, and characteristics of employees at each operation. Personnel headcounts and payroll spending were collected, reviewed and standardized for each operation. Personnel at the

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**Table 3-1  
SUMMARY OF BASIC PERSONNEL STATISTICS  
Arizona's Principal Military Operations  
(Personnel Headcounts)**

Active Duty Permanent Party	Reserves	Rotational	Students (Military)	Civilians	TOTAL
21,390	5,430	1,162	4,436	13,544	45,961

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different operations were accumulated into several broad categories. These categories included: active duty, permanent party military personnel; reserve personnel; rotational personnel, students (attending training, but normally based elsewhere); and civilian employees (both Department of Defense and other). Not all operations had headcounts attributable to each general category. The standardized headcount information for each of the principal military operations by category is displayed in the preceding table. (Additional information concerning the input received from each operation is available in Appendix Three.) These personnel figures have not been converted to full-time equivalent personnel.

In total, almost 46,000 individuals were routinely employed on a full-time or part-time basis in fiscal year 2000.

**Military Retirees**

In addition to those individuals employed at the principal military operations throughout the State, a substantial number of military retirees receive regular payments for retirement benefits. These retirement benefit payments are closely equivalent to regular payroll in terms of their utilization by the recipients and their effect on the economy. The Study Team determined that some portion of the military retirement benefits paid to military retirees in Arizona should be included in the analysis. The proper treatment of these benefit payments was carefully considered and an appropriately conservative methodology was developed. The prime methodological issue confronting the Study Team was which retirees to identify as inexorably *linked* to the military operations being analyzed. In summary, one quarter of the military retirees living within approximately a one hour travel radius of the key military facilities were included in the study as representing those individuals that were so strongly *linked* to a military installation (and the services

available there) that they would not reside in Arizona if the facility was not located here and would relocate if it were closed. The one-hour travel radius was measured by including those postal zip code areas that were at least partially within a fifty-mile radius of the facility. In some instances, the zip codes included were adjusted to reflect geographic and travel barriers. In other instances, allocations between facilities were required due to overlapping regions. A more detailed discussion of the methodology and treatment of military retirees is presented in Chapter One and Appendix Two. The table above displays the total number of military retirees, which

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**Table 3-2**  
**SUMMARY OF MILITARY RETIREE STATISTICS**  
*Arizona's Principal Military Operations*

	<b>Military Retirees Within 50-Miles</b>	<b>Linked Retirees (25 percent)</b>
<b>Davis-Monthan AFB</b>	11,120	2,789
<b>Fort Huachuca</b>	3,859	965
<b>Luke AFB</b>	22,018	5,505
<b>Yuma Marine Corp Air Station</b>	1,781	448
<b>Yuma Proving Ground</b>	102	26
<b>Air National Guard 161<sup>st</sup></b>	432	108
<b>Air National Guard 162<sup>nd</sup></b>	651	163
<b>TOTAL</b>	<b>39,963</b>	<b>9,991</b>

Data Source: Department of Defense, Office of the Actuary

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generally are those within zip code areas that are; at least partially, within fifty miles of a major facility. It also illustrates those that are *linked* to an installation, which are generally the one-quarter included in this analysis. Only military operations located at installations that offer services (medical and commissary services) to retirees were allocated military retirees.

*It should be noted that the Study Team considered other methods of allocating and incorporating the economic impact of military retirees. In fact, some previously completed analyses conducted by others have employed alternative approaches while others have simply estimated the total impacts excluding any military retiree benefits or they included all military retiree benefits. After significant consideration, the Study Team determined that it was most comfortable with the methodology selected. However, the Study Team recognized that other more complex techniques could be used.*

In total, just under 10,000 military retirees were included in the economic and fiscal impact analysis. Additionally one quarter of the military retiree benefits paid within the fifty-mile zip code radius were include, which totaled just under \$193 million.

### **Military Retiree Tourism**

In addition to the military retirees, who are full-time residents of Arizona, a substantial number of out-of-state military retirees travel to Arizona. This travel occurs particularly in the winter tourism season due to the location of the various full service military installations in the warm winter climates of central and southern Arizona. The influx of these winter visitors is reflected in higher utilization levels at the various service centers located on principal military installations. Where such information is available, medical, legal services and commissary operations reported significantly higher utilization rates in the winter months. However, due to the limited availability of such data and in recognition of a likely, at least partial, offset due to travel by Arizona military retirees during summer months, no specific amounts were included in the analysis. Consequently, the total economic and fiscal impact of military retirees may be understated in this study.

**Payroll & Retirement Benefit Information**

Payroll and retirement benefit payments were included in the analysis for the employees of the principal military operations and the linked retirees determined as described in the preceding

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**Table 3-3**  
**SUMMARY OF PAYROLL AND RETIREMENT BENEFITS**  
*Arizona's Major Military Operations*  
 (\$ millions)

Active Duty Permanent Party	Reserves	Rotational	Students (Military)	Civilians	Linked Retirees	ARIZONA TOTAL
\$705.9	\$36.9	\$7.4	\$146.2	\$499.8	\$193.0	\$1,589.2

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section. These payroll and benefit payment amounts represent gross spendable income for recipient households and directly contribute to the level of economic activity in their region and the State. The preceding table illustrates the payroll and retirement benefit payments information included in the analysis.

In total, almost \$1.6 billion in annual payroll and retirement benefits are directly added to the Arizona economy by the principal military operations in the State.

**Contract and Other Spending**

While payroll and retirement benefit payments represent an important source of economic input, other spending by the military operations in Arizona is an equally important source of economic stimulus to the State's economy. Furthermore, this spending results in additional, subsequent activity in the economy as suppliers of goods and services to the military operations pay their employees and in turn purchase goods and services to meet their production needs. A substantial portion of the contract and other spending of the military operations occurs within the local region and the State, however not all goods and services are available regionally or statewide. As purchases occur outside the region or the state, the re-circulation of that spending is lost to the regional or statewide economy. It is also important to note that a wider array of goods and services are available in the larger metropolitan regions of Maricopa and Pima counties and to a

## Arizona's Principal Military Operations

lesser extent Yuma County and therefore a greater proportion of spending is retained and re-circulated in these areas relative to the non-urbanized regions of the state. Similarly, a greater proportion of spending is often captured in the statewide economy than in any single region, or for that matter in the sum of the regional activities.

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**Table 3-4**  
**SUMMARY OF SPENDING STATISTICS**  
*Arizona's Major Military Operations*  
(\$ millions)

<b>Contracts and direct spending: maintenance and operations</b>	\$538.9
<b>Construction &amp; Buildings maintenance and repair</b>	\$100.9
<b>Spending for Supplies</b>	\$517.1
<b>Utilities</b>	\$35.0
<b>Education Payments</b>	\$13.4
<b>Health Services</b>	\$100.3
<b>Commissary &amp; Exchange Sales</b>	\$281.2
<b>TOTAL</b>	<b>\$1,586.8</b>

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## CHAPTER FOUR ECONOMIC IMPACTS OF ARIZONA'S PRINCIPAL MILITARY OPERATIONS

As described more completely in Chapter One and Appendix One, the Study Team used the IMPLAN Pro, economic impact model software, to estimate the economic impact of the principal military operations in Arizona. The IMPLAN econometric model uses actual input and output information in a tailor-made model designed for each individual study region, in this case the state of Arizona and the individual counties in Arizona that contain one or more of the military operations included within the analysis.

The IMPLAN econometric model operates by estimating the *direct* impact, *indirect* impacts, and *induced* impacts of specific economic activity. *Direct* economic impacts, are those attributable to the initial economic activity, for example, an operation with ten full-time employees creates ten *direct* jobs. *Indirect* economic impacts are those economic activities undertaken by vendors and suppliers within the supply chain of the direct activity as a result of the initial economic activity. For example, suppliers of goods, materials, and services used in the direct activities produce *indirect* economic impacts. *Induced* economic impacts result from the spending of wages paid to employees in local industries involved in direct and indirect activities. These wages, which are analogous to household spending, support additional local activities, such as the purchase of goods and services within the region. In turn, that portion of spending that accrues to local businesses and employees is once again re-circulated within the local economy producing additional activity in the economy. The econometric model measures the amount of economic activity in each round of spending until all of the spending within the local region has been exhausted. In each iteration, a certain portion of spending is attributed to economic activities (purchases) outside of a local (study) region. Once money is spent outside the local region, it is not included in subsequent iterations. Thus, each iteration recycles an ever-declining amount of economic activity. The extent to which economic activity recycles within the local region is defined for each specific region (in this study, counties and the state) based upon the input and output relationships among industries and their suppliers in the region, which are derived from Bureau of Economic Analysis data.

The Study Team selected the IMPLAN model due to its frequent use in economic impact analysis within Arizona in conjunction with its development independent of local influences.

The inputs to the IMPLAN software were derived from the basic payroll, retirement benefits, contract spending and other spending information collected from the military operations as described more completely in the preceding chapter. Modifications were made to the basic information received to facilitate the proper formatting of the information for the model specifications and to ensure completeness, while avoiding duplications or overstatement. A more complete discussion of the modifications undertaken to convert the basic financial information received from the military operations into IMPLAN model input is included in Appendix Three – Econometric Model Inputs.

In summary, payroll information was adjusted and categorized into household income levels to facilitate recognition of the variation in spending patterns of households with different income levels. Retirement benefits received by “linked” military retirees were also adjusted and categorized into household income levels. In addition, all wage and income data was adjusted to reflect taxes paid and savings amounts that are not available for spending within the local economy.

Non-payroll spending by the military operations was classified into the IMPLAN industrial classifications for input into the software model. As discussed in Chapter One, only the portion of spending that occurs in the study region creates additional, local economic effects.

Special care was taken by the Study Team to avoid double counting of inputs as well as including inputs that are estimated as a part of overall economic activity by the IMPLAN software. For example, a portion of commissary sales activity is attributable to spending by employees of the principal military operations and linked military retirees. The model generates an economic impact equivalent to this amount as a derived portion of economic activity based on the household income of those employees and linked military retirees and therefore to include both amounts would result in an overstatement of combined economic activity.

## Arizona's Principal Military Operations

In a similar fashion, output from the IMPLAN software was adjusted as appropriate. For example, employment figures produced by the model were converted to full time equivalent (FTE) employees.

The following table summarizes the economic impact of the principal military operations within Arizona. In total, these operations provide 41,647 direct jobs and produce \$2.4 billion in direct economic output. Arizona's *military industry*, which includes the principal military operations as well as the businesses they support, is responsible for creating 83,506 jobs and \$5.7 billion in economic output.

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**Table 4-1**  
**SUMMARY OF STATEWIDE ECONOMIC IMPACTS**  
*Arizona's Major Military Operations*

	<b>Employment</b>	<b>Output</b> (\$000's)
<b>Direct Impacts</b>	41,647	\$2,411,475
<b>Indirect Impacts</b>	18,191	\$1,326,190
<b>Induced Impacts</b>	23,668	\$1,926,193
<b>Total Non-Direct Impacts</b>	41,859	\$3,252,383
<b>TOTAL IMPACT</b>	<b>83,506</b>	<b>\$5,663,858</b>

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Arizona's *military industry*, including the principal military operations as well as the businesses they support, is responsible for creating or supporting over 83,000 jobs that are dispersed through a wide variety of industries. The largest number of total jobs is within the government sector, which is logical since the military operations are themselves, government entities. In addition to the government sector employment, over 14,000 jobs are supported in the service sector, over 11,000 jobs in the retail trade sector, over 5,000 in the construction sector, almost 1,500 in the manufacturing sector, and thousands more distributed throughout the economy.

### **Regional Economic Impact of Military Operations**

In addition to the statewide impacts described above, the countywide impact of each of the individual military operation was separately examined. The specific economic impacts for each military operation are included in Appendix Five. As described in Chapter One, the statewide

## Arizona's Principal Military Operations

economic impact of all the principal military operations generally exceeds the sum of the individual county impacts because the statewide economic impact calculation captures spending that occurs outside the county of each of the individual military operations, but still within the state of Arizona.

*It is important to note that while this is the first, comprehensive statewide study of the economic impact of the principal military operations in Arizona, several prior studies of individual operations have been completed. Those studies were typically undertaken for local purposes and frequently utilized methodologies reasonable and appropriate for those specific purposes.*

**CHAPTER FIVE**  
**STATE AND LOCAL TAX REVENUES**  
**DERIVED FROM ARIZONA'S PRINCIPAL MILITARY OPERATIONS**

In addition to estimating the economic impact of Arizona's military industry, the Study Team estimated the amount of state and local government revenues paid by the employees at the state's principal military operations, linked military retirees, and the individuals and businesses in Arizona supported by those operations. Special care was taken to recognize the special and unique characteristics of military personnel and their households.

In order to estimate the taxes paid by the military industry, individuals employed in the military industry (and their income) were allocated to five distinct categories. These categories were designed to separate these individuals according to their household and residential characteristics. In estimating income tax revenues, it was also critical for the Study Team to recognize and compensate for the ability of military personnel to select a state of residence, for tax purposes, other than their physical location. Not surprisingly, those eligible to make such discretionary choices tend to disproportionately select states with no state or local income taxes. A more complete discussion of the methodology used to estimate the fiscal impacts of the military industry, including the five categories of individuals, is contained in Appendix Three – Econometric Model Inputs.

**Statewide Fiscal Contribution of Military Operations**

The Study Team estimated payments of state and local sales taxes (technically they are transaction privilege taxes), state and local property taxes, and state income taxes. Revenues derived from state-imposed sales and income taxes were allocated to the state and local governments consistent with the existing statutory distribution formulae (basically, that is population proportionality).

Table 5-1  
**SUMMARY OF STATEWIDE FISCAL IMPACTS**  
*Arizona's Military Industry*  
 (\$ millions)

	<b>Annual Local</b>	<b>Annual State</b>	<b>Annual Total</b>
<b>Sales Tax</b>	\$43.125	\$50.871	\$93.996
<b>Property Tax</b>	\$61.948	\$0.248	\$62.197
<b>Income Tax</b>	\$7.194	\$70.260	\$77.453
<b>Total</b>	<b>\$112.267</b>	<b>\$121.379</b>	<b>\$233.646</b>

The preceding table summarizes the fiscal contributions of impact of the military industry within Arizona to state and local governments. In total, the industry provides over \$233 million to fund the operations of the state and local governments in the state. Of that amount, over \$121 million flows to state government and over \$112 million is received by local governments.

Table 5-2  
**STATEWIDE FISCAL IMPACTS**  
*Arizona's Military Industry*  
 (\$ millions)

	<b>Annual Total</b>
<b>Direct Impacts</b>	\$109.748
<b>Indirect &amp; Induced Impacts</b>	\$123.899
<b>Total</b>	<b>\$233.646</b>

The adjacent table also illustrates the fiscal contributions of impact from the military industry within Arizona. The principal military operations and the individuals they employ *directly* pay over \$109 million in taxes each year, while the entire

military industry provides over \$233 million to support governments throughout the state.

**Regional Fiscal Impacts**

In addition to the statewide fiscal impacts, the fiscal impact of each individual military operation within its county of location was calculated and is included in Appendix Five. Once again, the specific fiscal impacts for each separate military operation were also calculated. Generally, the statewide fiscal impact of all the principal military operations generally exceeds the sum of the individual county impacts because the statewide impact calculation captures spending that occurs

outside the county of each of the individual military operations, but still within the state of Arizona.

*Once again, it is important to note that while this is the first, comprehensive statewide study of the economic and fiscal impacts of the principal military operations in Arizona, several prior studies of individual operations have been completed. Those studies were typically undertaken for local purposes and frequently utilized methodologies reasonable and appropriate for those specific purposes.*

## CHAPTER SIX

### COMPARISONS TO THE MILITARY INDUSTRY IN ARIZONA

As the earlier chapters delineate, the principal military operations in Arizona and the businesses those operations support form a substantial and vibrant industry. Arizona's military industry creates thousands of jobs, billions of dollars of economic activity and hundreds of millions of dollars of state and local tax revenue.

#### **Characteristics of Arizona's Military Industry**

As important as the size and scope of the economic and fiscal impacts of the military industry in Arizona are some of the special characteristics of the economic activity supported by these military related activities.

It is important to reiterate the discussion of organizations and economic activities *excluded* from this analysis. As discussed in Chapter One, the Study Team applied specific standards when evaluating whether a particular economic activity should be included in this analysis. The Study Team sought to consistently, but narrowly, define Arizona's "military industry". A wide variety of military-related activities throughout Arizona were reviewed and ultimately many were excluded from this effort. These excluded businesses included many of the largest Department of Defense contractors in the state such as the Boeing Company and Raytheon Company, as well smaller endeavors located at the former Williams Air Force Base and elsewhere. The exclusion of these businesses and activities should not be interpreted as reflecting any diminishment of their importance or their positive contribution to the State's economy. Similarly, the Study Team utilized a conservative, but reasonable, methodology for determining which military retirees to consider to be "linked" to one of the principal military installations and the various services offered thereon.

Consequently, the impacts documented in this effort represent a conservative analysis of total military-related spending in Arizona. Even so, the economic and fiscal impacts determined through this study effort demonstrate the substantial and impressive impact that Arizona's military industry has on the State's economy. As the following sections illustrate, the size and



breadth of the employment and tax revenues produced by the military industry compare very favorably with a variety of other industries and major employers in the State.

The jobs created and supported by Arizona's military industry are an especially valuable part of Arizona's economy because they are largely unaffected by routine economic cycles. Federal defense spending is not subject to substantial fluctuations as a result of normal economic cycles. Unlike many other Arizona industries and businesses, military operations in the state do not contract substantially during economic slowdowns or recessions (nor do they increase dramatically during economic expansions). Similarly, the tax revenues generated in Arizona by the employees at the military operations and in the business supported by those operations remain relatively constant throughout all phases of the normal economic cycle. The stability of employment and tax revenues produced by the military industry adds substantially to their value as a component of Arizona's economy.

The State's military industry has provided a stable and reliable component of the economy as Arizona's economy has developed and diversified from the traditional "Five C's", with the development of more high tech employment, the expanded tourism industry and other industrial shifts. As Arizona's economy continues to grow and diversify, the military industry will continue to be an important and positive contributor to the State's economic vitality. However, shifts in Department of Defense priorities and technological advances in military operations can result in base closures within the State along with the resultant loss of this stabilizing force in local economies. Arizona would be well served to guard this economic asset and preserve its viability.

### **Comparison of Statewide Employment**

In order to provide a reasonable framework to evaluate the magnitude of the military industry in Arizona, the Study Team compiled from several sources, employment statistics for a variety of employers and industries within the State to illustrate the general, comparative magnitude of the military industry. Among the information reviewed were the findings of the *Cluster Mapping Project* of the Institute for Strategy and Competitiveness, at the Harvard Business School and the survey of top employers completed and published by *The Arizona Republic*. The Institute for

Strategy and Competitiveness describes a “cluster” as a “geographically proximate group of interconnected companies and associated institutions in a particular field, including product producers, service providers, suppliers, universities, and trade associations.” The *Arizona Republic* periodically conducts a survey of the largest employers throughout Arizona and publishes its findings. The most recent complete survey was conducted in 2001 and the largest employers were resurveyed in early 2002.

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**Table 6-1  
COMPARISON OF MAJOR INDUSTRIES / EMPLOYERS IN ARIZONA**

	<b>Employment</b>
<b>Military Industry – TOTAL</b> <sup>1</sup>	<b>83,506</b>
<b>Hospitality and Tourism</b> <sup>2</sup>	62,960
<b>Heavy Construction</b> <sup>2</sup>	48,132
<b>Military Industry – DIRECT</b> <sup>3</sup>	<b>41,647</b>
<b>State of Arizona</b> <sup>4</sup>	40,000
<b>Information Technology</b> <sup>2</sup>	29,292
<b>Linked Military Retirees</b>	<b>9,991</b>
<b>Arizona's Largest Private Employers</b>	
<b>Honeywell</b> <sup>5</sup>	15,000
<b>Wal-Mart</b> <sup>5</sup>	12,600
<b>Banner Health System</b> <sup>5</sup>	11,905
<b>Motorola, Inc.</b> <sup>5</sup>	10,650
<b>Raytheon</b> <sup>5</sup>	10,400
<b>Intel Corp.</b> <sup>5</sup>	10,000
<b>Kroger Co. (Fry's)</b>	9,580

Sources and Notes:

- 1– Includes Direct, Indirect and Induced employment
  - 2– Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School  
Copyright © 2002 President and Fellows of Harvard College
  - 3– Includes only Direct employment, based on full time equivalents
  - 4– Approximate, excludes Universities
  - 5– *Arizona Republic*, January 27, 2002 – Employer Survey
-

## Arizona's Principal Military Operations

The preceding table illustrates the number of jobs created by Arizona's military industry both *directly* as well as *in total* (including indirect and induced impacts) in comparison to other major employers and industries.

As illustrated above, the military industry in Arizona *directly* provides 41,647 jobs and supports a total of 83,506 jobs statewide. The total number of jobs dependent on Arizona's military industry exceed the number of jobs in the hospitality and tourism industry and the heavy construction industry as measured by the *Cluster Mapping Project* of the Institute for Strategy and Competitiveness, at the Harvard Business School.

The principal military operations in the State *directly* employ over 41,647 individuals, which exceeds the number of jobs at the top three private sector employers in the State – Honeywell, Wal-Mart, and Banner Health Systems, as measured by the *Arizona Republic* survey conducted by the in January 2002.

### **Comparison of State and Local Fiscal Impacts of Arizona's Military Industry**

As discussed in the preceding Chapter, the military industry in Arizona produces a substantial amount of state and local tax revenues. The revenues that result from the economic activity of Arizona's principal military operations and the businesses those operations support provide significant support to the State of Arizona, local governments throughout the state and especially the local governments in their regions.

The following table compares the estimated amount of major tax revenues paid by the individuals and businesses supported by the military industry in the state to a variety of sample fiscal indices. It compares the military industry's annual tax payments to several major revenue sources for key governmental entities; and to the size of selected state agency and city operating budgets.

The military industry in Arizona annually contributes \$233.6 million in tax revenues to state and local governments throughout the state. This amount is equivalent to a 72 cent statewide property tax, which would cost typical homeowners between \$70.00 and \$120.00 each year.

Alternatively, it would take a 1/3-cent state sales tax to replace the total amount of state and local taxes paid by the military industry. Put another way, those taxes are enough to fund the state general fund's share of the Department of Health Services or the operating budget of the City of Glendale.

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**Table 6-2**  
**COMPARISON OF MAJOR TAX REVENUES AND TAX IMPACTS**  
*(\$ millions)*

	<b>Annual Amount</b>
<b>State Urban Revenue Sharing</b> <sup>1</sup>	\$396.0
<b>State Shared Sales Taxes to Cities and Towns</b> <sup>1</sup>	\$312.0
<b>\$1.00 Statewide Tax Rate</b>	\$325.3
<b>Az Dept. of Transportation Operating Budget</b>	\$272.9
<b>Az Dept. of Health Services General Fund Budget</b>	\$247.5
<b>Military Industry – TOTAL</b> <sup>2</sup>	<b>\$233.6</b>
<b>City of Tempe Operating Budget</b> <sup>3</sup>	\$234.0
<b>City of Glendale Operating Budget</b> <sup>3</sup>	\$224.0
<b>¼cent State Sales Tax</b>	\$181.0
<b>Military Industry – DIRECT</b> <sup>4</sup>	<b>\$109.7</b>
<b>City of Yuma General Fund Budget</b> <sup>3</sup>	\$ 38.3

Sources and Notes:

1 – Fiscal Year 2001

2 – Includes Direct, Indirect and Induced employment

3 – Fiscal Year 2002

4 – Includes only Direct employment, based on full time equivalents

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**Conclusion**

The several large military installations, operations examined in this study and the businesses they support comprise Arizona's military industry. It is an industry that provides substantial, stable employment, draws on the same private, non-governmental vendors and suppliers, as many private commercial enterprises in the state, and serves as an important building block in the State's overall economy.

Historically the impact of these operations has often been overlooked in discussions and analyses of Arizona's economy. The economic and fiscal impacts of the State's military industry calculated in this analysis and presented here are significant and represent a key component of the state's economy. Maintaining these operations, the jobs and economic output they support should be a priority of state and local government. In so doing, appropriate steps should be identified and undertaken to ensure the continued vitality and viability of this industry in Arizona and its strong, stable contribution to the State's economy.

*Economic Impact*  
*Of*  
*Arizona's Principal Military Operations*

**Appendices**

## **APPENDICES**

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# APPENDIX ONE

## HOW IMPLAN WORKS

### *Model Background*

The Study Team utilized IMPLAN Pro software to conduct the economic impact analysis of Arizona's principal military operations. IMPLAN Pro software was created by the Minnesota Implan Group (MIG) as a tool for impact analysis (IMPLAN stands for Impact Analysis for PLANning). Analysis of economic impacts depends on inputs to the analyzed activities available in the analyzed region. The "multiplier" effect occurs as spending is recirculated throughout the economy within the study area. For example, when a factory creates 10 new jobs paying \$20,000 per year the resultant \$200,000 in income to those workers and the increased output of the factory manifests itself in new economic activity of three major types. The *direct* impact is the additional activity itself (i.e. 10 direct jobs). *Indirect* impacts consider the interactions among industries (backward buyer-supplier linkages) to quantify the additional activity in other industries caused by the increase in activity in the factory; such as raw materials and transportation and wholesaling of product inputs. Some of the new economic activity involved in direct and indirect impacts manifests itself as wages paid to employees in local industries; which are analogous with household<sup>1</sup> spending. This additional household spending represents the *induced* effect which supports local activity (both through services imparted directly, like a haircut at the local salon, as well as through the purchase of products which are manufactured and sold in the region). The portion of that spending which accrues to local businesses and employees is recirculated; again to an extent defined by the input-output relationships specific to the region (derived from Bureau of Economic Analysis data). The model reiterates until all of the spending is "leaked" outside of the regional economy.

The model uses actual input and output information for each county in the United States and is therefore tailor made for the study region. Study areas are generally single counties, multi-county regions, one or more states, or national.<sup>2</sup> Generally speaking impacts are greater the larger the study area chosen, since they are based on the amount of recirculation of spending which is done before the impact of each dollar is fully "leaked" out of the study area. Impacts *can* be equal or smaller for larger areas in special cases, since the average productivity of workers in each industry and other industries in its supply chain will vary by geographic region. This is also determined through the use of input-output data at the county level.

### *Study Areas*

Military operations analyzed are listed in Chapter Two. For each military operation, the study area was defined as the county where the operation is located; except for the Silver Bell Army Heliport, which is located on the border of Pinal and Pima Counties and is more accurately economically linked with the communities of Pima County. Total impacts for the state of Arizona were arrived at by summing adjusted model *inputs* from the military operations and

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<sup>1</sup> This analysis understates the actual economic impacts of the military activities studied since only military income is considered; as opposed to attempting to estimate the household income of non-military spouses and children.

<sup>2</sup> Regions can also be based on zip code, which use a mixture of county and zip code level data.



running the model with the state as the geographic definition of the study area rather than the individual counties where the operations are located.

### ***Input Adjustments and Calculations***

The original data provided by analyzed military operations appears in Appendix Three. A number of adjustments to this data were necessary for its use in the model.

#### Payroll and Household Income Adjustments

One classification of inputs used in this analysis is the payrolls of the military operations and the household incomes of the associated retirees (discussed further below). Payrolls were converted into average household income per classification of employee (i.e. DOD Civilians, Reserves, etc.). Average household incomes are important because households at different income levels spend differently; with (for example) households in the lowest income bracket spending a higher percentage of their income on food.<sup>3</sup> The model applies these different spending patterns to household spending.

Military retirees are themselves important to consider in understanding the economic impact of a military operation on the community in which it resides. *Some* retirees have chosen their residential location based on the desirability of being located in proximity to a military operation and the facilities it provides; ranging from the availability of commissary and/or an exchange to make retail purchases to on site medical facilities. Appendix Two details the methodology used to estimate the number of retired military households present in the sphere of influence of each military operation analyzed in this study.

#### Aggregate Income Adjustment

All wage and income data (for employees and retirees respectively) was adjusted downward by 20 percent to reflect funds dedicated to savings and taxes which are not available to be spent and recirculated in the local economy.

### ***Industry and Commodity Impacts***

The non-payroll activities of military operations were classified into the 528 IMPLAN industries and entered into the model.<sup>4</sup> The model applies regional accounts data to each industry impacted in order to determine the percentage of inputs purchased that are local. Only the local portion of expenditures creates additional economic impacts.

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<sup>3</sup> Using the salary of the military employee as a proxy for household income necessarily understates actual household income to the extent that spouses and / or children are employed.

<sup>4</sup> Fuel is one specific expenditure that was dealt with uniquely. There are two major IMPLAN industries associated with fuel (gasoline); “Automobile Dealers and Service Stations” and “Petroleum Refining.” The latter is more appropriate with modifications. Under the assumption that actual petroleum refining does not take place in the study area, it was necessary to enter the data as a commodity purchased at a federal government margin.

## ***Double Counting***

Double counting is a substantive issue in economic impact analysis; which this study goes to great lengths to avoid. Since the model estimates all *backward* relationships inherent in spending and/or output (by households and in a particular industry respectively); the most accurate and reasonable estimation of impacts come from the economic impact model when household spending and final products are used as inputs and intermediary products<sup>5</sup> are excluded. This concept is relaxed somewhat in the case of the military “industry,” due to the lack of a market price for its output (discussed further in the output adjustments section).

### Utilities

Data concerning utilities expenditures was collected from the military operations; and makes up a significant proportion of all expenditures (typically 4 to 7 percent of all expenditures). Utilities are (in this case and generally speaking) an intermediate good. To count the utilities expenditures of the military operations separately and in other activities as well (such as the utilities commodities purchases of on site households and contract activities) would be double counting. The Study Team calculated average industry utilities expenses using Bureau of Economic Analysis Input Output accounts data. The model output of direct expenditures by on site households was also subtracted from reported totals. These were subtracted from the utility expenditures provided by the military operations and the remainder was used as an input to the model.

### Commissary

Similarly, analyzing commissary *total* sales would overstate the economic impacts of the activity since we have accounted for the spending (on and off site) of the base employees through the household impacts. The Study Team used the ratio of the total retirees which it was assumed would not relocate if their nearest military operation closed to the total number of persons (retirees and full time active duty personnel) shopping at the commissary. Thus commissary sales associated with the 75 percent of retirees that would not relocate are the only ones run separately through the IMPLAN model.

## ***Output Adjustments***

### Full Time Equivalent Employment

Model employment outputs are not produced initially in terms of full time equivalent (FTE) employment. This conversion is made using national data<sup>6</sup> for major industries (two digit SIC Codes) concerning average hours worked compared to *the* average work week of 40 hours per week; 52 weeks per year (2,080 hours). Model employment output in each of the 528 IMPLAN industries was multiplied by the conversion factor of the associated SIC Code (activities without an associated SIC Code, such as governmental, were not adjusted).

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<sup>5</sup> For example, the economic impact of a factory includes the value of intermediate products used to make its output, including the electricity purchased to run needed machinery and light the factory. Running the output or employment level of the factory **and** its expenditures on utilities would overstate the economic impacts.

<sup>6</sup> The State of Arizona’s Department of Economic Security does not maintain data for all economic sectors; but for the sectors where data was available it is highly similar to national averages.

## Conversion to Full Time Equivalent (FTE) Employment, 2000

SIC Code	SIC Description	FTE Conversion Factor <sup>1</sup>
07--	Agricultural Services, Forestry, and Fishing	0.87
10--	Mining	1.08
15--	Construction	0.98
20--	Manufacturing	1.04
40--	Transportation, Communication and Public Utilities	0.97
50--	Wholesale Trade	0.96
52--	Retail Trade	0.72
60--	Finance, Insurance and Real Estate	0.91
70--	Services	0.82

Note: 1. Average annual hours as a percentage of the average work year as defined by the Bureau of Labor Statistics (52 weeks times 40 hours per week; 2,080 hours annually)

Source: Bureau of Labor Statistics, Study Team

### Household Impacts

When household expenditures (payrolls and retiree spending) are used as inputs to the IMPLAN economic model; they result in the three types of outputs associated with any impact (direct, indirect, and induced). Technically though, all of the impacts of this household spending are induced (by definition).

To account for this discrepancy, all household impacts were run through the model separately and aggregated together to be one component of the induced impacts shown in this report.

### Direct Impacts

Procedurally, the model is most typically used by entering a level of employment in a certain industry as an input. That industry's production function (essentially the ratio of employment to output associated with the industry in the study region) is used to calculate the output of the industry. In order to generate that output, a variety of inputs are needed. Thus the model "spends" in the associated categories that would be needed to create that output. Military activities are generally somewhat unique as applied to this modeling process, as they do not technically have a production function due to the difficulty in placing a market price on such things as national security.

The approach used to compensate for this issue was to obtain detailed spending information from the military activities and classify it in the appropriate IMPLAN industries to run through the model. The result of this process is "direct" outputs that are by the standard definition indirect (i.e. in support of the core industry studied). Thus in our process direct employment at the base was the sole direct effect, and other effects which were run through the model as direct were reclassified more appropriately as indirect effects.

## **APPENDIX TWO**

### **“LINKED” RETIREE METHODOLOGY**

Military retirees are themselves important to consider in understanding the economic impact of military operations on the communities in which they reside. *Some* retirees have chosen their residential location based on the desirability of being located in proximity to a military installation and the facilities and services it provides; ranging from the availability of commissary and/or an exchange to on site medical facilities.

A statewide database was obtained from the Department of Defense Office of the Actuary detailing the number of retirees and payments to them by zip code. In order to ensure that retirees were allocated to only one military operation, the Study Team distributed the population using mapping software. Only military operations which provide services to retirees were included in the analysis, which included all except the Papago Park Military Reservation and Silver Bell Heliport. A fifty mile radius was drawn around each operation and all the retirees located in the zip codes in the ring were included. See the figure at the end of this appendix for details.

The 50 mile radii of Davis-Monthan and Fort Huachuca overlap. The overlapping zip codes were allocated to each installation based on assumed driving patterns based on transportation routes and geographic barriers. The YMCAS and YPG radii also overlapped. The allocation of retirees between these two military operations was more difficult due to their proximity. It was assumed that the YMCAS was drawing more retirees than YPG due to its proximity to the freeway and larger commissary. Therefore, all retirees in zip codes shared by the two military operations were attributed to YMCAS. YPG was allocated those zip codes which fell within its 50 mile radius, and not in the YMCAS radius.

The national guard activities maintain their own retiree data. Their retiree counts were subtracted from the calculated total for the operation in the same market area (ANG 161's total was subtracted from Luke AFB and ANG 162's total was subtracted from Davis Monthan AFB.)

## **APPENDIX THREE**

### **ECONOMETRIC MODEL INPUTS**

In order to measure the economic and tax impacts of the military operations, some rather detailed information about their operations was necessary. This included payroll, spending on construction and various contracts and the like. Data was obtained through a fax / email questionnaire and face to face meetings with representatives of the military operations with numerous phone and email follow up conversations for clarification purposes. Each military operation provided a different level of detail concerning its contracts and spending patterns; which are detailed in the following tables. The basic information provided by each operation is summarized at the end of this appendix.

Necessary adjustments to the inputs for their use in the economic and fiscal impact models are discussed in the following sections.

#### ***Economic Model Inputs***

The following adjustments were made to the basic information provided by each operation for use in the IMPLAN Pro Software. More information about the IMPLAN Pro software is contained in Appendix One.

- Percent of year reserves actively employed: 20.5%
  - Based on 75 days of service out of 365 in the year
- Percent of retirees moving upon closure: 25%
  - Figure used by University of Arizona study for Davis Monthan, January 1994
- Household income factor: 80%
  - Discounted to remove dollars not recirculating through the economy (e.g. taxes and savings)
- Commissary
  - Total sales multiplied by the ratio of 75% of retirees to the sum of active duty, plus retirees to avoid double counting sales to households accounted for in the model
  - Commissary sales were allocated across IMPLAN retail categories using the ratios from the Consumer Expenditure Survey
- Utilities
  - Total was discounted by the average percentage of intermediate purchases by all industries from each of the utilities categories.
  - Model derived utilities expenditures for households living on site were also subtracted from submitted totals.
- Percent of travel expenditures made in local county: 10%
  - Based on estimates from military operations

- Percent of IMPAC spending made in local county
  - Based on estimates provided by each military operation (varied by operation)
- Percent of IMPAC spending which went to taxes
  - Total spending discounted to not count taxes. This figure varied based on the sum of the state, county and average municipal rate in the county where the operation is located.
- Percent of Fort Huachuca student income spent locally: 14%
  - Based on data provided by Fort Huachuca
  - The majority of Fort Huachuca students do not have the opportunity to spend their income locally\

### ***Fiscal Model Inputs***

The model utilized here was developed by the Study Team to measure the tax implications of the presence of the analyzed military operations in the state. Tax impacts were calculated for each military operation on the county in which it resides<sup>1</sup> and the aggregate impact of the analyzed military operations was calculated on the state as a whole. The results of the county analysis and statewide analysis are not intended to be added, they are simply two different presentations of the same data, with only minor differences. For each member of the military operation, five populations were analyzed across three tax areas. In all cases special consideration was taken into account for the unique factors involved with military related households and activities.

### **Population Scenarios**

Tax impacts were calculated based on five population scenarios. Taken into consideration for each scenario were total persons and their total income. The five scenarios analyzed were:

1. Persons employed at the military operation who live on site: All of these persons are full time military personnel. Students and rotational personnel assigned to Davis-Monthan AFB, Fort Huachuca, Luke AFB and Yuma Marine Corp Air Station were included in this category, for the other military operations they were included in the off site category. The majority of the data was provided by the military operation. On site military personnel payroll for Fort Huachuca and YMCAS were derived by the Study Team based on total payroll for all military personnel.
2. Persons employed at the military operation who live off site: This is a mixture of military and civilian personnel. Students and rotational personnel assigned to Yuma Proving Grounds and the National Guard were included in this category, for the other military operations they were included in the on site category. The majority of the data was provided by the military operation. Off site military personnel payroll for Fort Huachuca and YMCAS were derived by the Study Team based on total payroll for all military personnel.

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<sup>1</sup> Although Silver Bell is physically located in Pinal County, this analysis uses Pima County to generate impacts due to the installation's proximity to the Pima County border.

3. Military retirees in the surrounding community: This data represents those military retirees which live in proximity of the respective military operations, and are likely to use the services offered there. This model only measured the impact of 25 percent of these persons, assuming that this would be the percent which would move if the related military operation ended. This data was provided by the Department of Defense and the National Guard operations.
4. Indirect employment generated by direct activities of the military operation: This data represents the indirect employment generated in the supply chain caused by the direct activities of the military operation. This data is the output of the IMPLAN model. Appendix One contains more information on how the IMPLAN model generates employment and earnings data.
5. Induced employment generated by direct activities of the military operation: This data represents the induced employment generated by the spending of households directly related to the military operation as well as the household spending of jobs created in the supply chain. This data is the output of the IMPLAN model. Appendix One contains more information on how the IMPLAN model generates employment and earnings data.

### **County Tax Impacts**

Three categories of tax impacts were measured: sales tax, property tax and state income tax. The county level impacts measured include the impact of the individual military operation on its county and local taxing jurisdictions as well as the state. The methodology and inputs are discussed here.

#### Sales Tax

The sales tax analysis is based on the off installation household spending of the five population scenarios discussed previously. While the commissary and exchange are retail activities, their sales are excluded from state and local sales taxes.

Income was used as the basis for calculating sales tax revenues, however not all income is spent for taxable activities. According to an analysis of household spending data from the 1999 Consumer Expenditure Survey for the West Region, 50 percent of the average household's budget is spent on generally taxable items (e.g. retail spending). Food purchased in stores for consumption at home accounts for seven percent of a household's budget and is taxed in only some municipalities.

In addition to these adjustments for the level of taxable expenditures, the amount spent on taxable items was reduced further to reflect spending at the commissary and exchange. Different factors were used for employees living on an installation, employees living off an installation, and retirees. The indirect and induced populations were assumed to conduct all of their retail spending at non-military stores. Since there are more shopping alternatives available in metropolitan areas, Fort Huachuca, located in rural Cochise County, was assigned a lower rate for local purchases.

The sales tax rates for the various jurisdictions being analyzed were then applied to the adjusted incomes. The state tax rate of 5.6 percent was subdivided into three components: 1) amount

retained by the state, 2) amount shared with counties, and 3) the amount shared with municipalities. Of the amount shared by counties, only that amount allocated to the county in which the military operation resides was analyzed<sup>2</sup>. Of the amount shared by cities, the total amount allocated to all of the municipalities in the respective county was used. Allocations are based on population.

In addition to state sales taxes, most counties and municipalities also collect sales taxes. The model applies the county tax rate to the adjusted income to derive the county impact. In order to account for the diverse set of tax rates of the municipalities in one county, two weighted average rates were calculated (weighted by population). One rate was for general purchases, which was applied to 50 percent of total income (retail purchases), and the other rate was for food purchased for home consumption which was applied to seven percent of the total income.

### Property Tax

The property tax analysis is based on the off installation home value of four of the five scenarios discussed previously. Those persons employed at an installation, and who live on an installation are not included in this analysis. While there is real property on site of the military operations, including residences, it is excluded from local property taxes.

The analysis begins by calculating the value of the homes for the four population groups. The total number of worker-households was calculated by reducing the total workers by a factor of 1.19, which represents the state average workers per household. In contrast to the worker-households, each retiree-household was assumed to contain only one retiree. The number of households was then reduced by the county average home ownership rate to account for only those people who own their home. These owner-occupied households were then multiplied by the median market value in the applicable county, as identified in the Census 2000 Supplemental Survey<sup>3</sup>. Home values were then reduced by 17.5 percent to reflect the inherent under valuation of property by county assessors.

Six average rates<sup>4</sup> were calculated based on Arizona Department of Revenue data from department's *2001 Annual Report*. These rates were then applied to the assessed property values. Impacts shown are for both the primary and secondary tax assessments.

### Income Tax

The income tax analysis is based on the household income of the five populations scenarios discussed previously.

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<sup>2</sup> Although Silver Bell is physically located in Pinal County, this analysis uses Pima County to generate impacts due to the installation's proximity to the Pima County border.

<sup>3</sup> Due to the timing of this report actual Census 2000 data was not available for median home value. The Census 2000 Supplemental Survey was conducted on a sampling of households in all states and large counties (in Arizona only Maricopa and Pima were surveyed) during 2000. The Study Team calculated the home values in Cochise and Yuma Counties by applying the increase in the state median value from 1990 to 2000, to the 1990 value.

<sup>4</sup> Although the State of Arizona does not have a statewide property tax, certain high valuation school districts pay a supplemental tax into the State's general fund to pay for school related costs. Since the Arizona Department of Revenue lists this as "state" taxes, this report is consistent with their nomenclature. See Arizona Revised Statute 15-992 for details on this tax.



Military personnel are able to claim a state of legal residence for tax purposes that is different from the state in which they reside. Based on Department of Defense data, the ratio of the number of military personnel who claim Arizona as their state of legal residence to the number of military personnel stationed in Arizona is 0.815. This means that for every five persons stationed in the state four persons pay income taxes in the state. However, it is important to note that this ratio is based on aggregate data for the state; it therefore includes those persons paying taxes in Arizona who are stationed in the state as well as persons paying taxes in Arizona who are not stationed in the state. It was assumed that all rotational and student military personnel pay taxes out of state and all reserves pay taxes in state.

This analysis begins by calculating the average income tax payment per household in Arizona. Based on total tax collections by the Arizona Department of Revenue, the average annual tax collection per household is \$1,142.

The average income tax payment of \$1,142 was then multiplied by the number of households. The total number of worker-households was calculated by reducing the total workers by a factor of 1.19, which represents the state average of workers per household. In contrast to the worker-households, each retiree-household was assumed to contain only one retiree.

### **State Tax Impacts**

Similar to the County Tax Impacts section, three categories of tax impacts were measured: sales tax, property tax and state income tax. This analysis measures the aggregate impact of the all military operations analyzed on the state. The methodology used is nearly identical to that discussed previously in the County Tax Impacts section. Differences between the two methodologies are discussed here.

### Population Scenarios

- In the statewide analysis all of the population and income inputs are identical to the countywide analysis except for the Indirect and Induced inputs. The Indirect and Induced inputs in the statewide analysis are the result of running the aggregate direct inputs from all analyzed military operations through the IMPLAN model for Arizona.

### Sales Tax

- State revenue sharing to counties and municipalities in the statewide analysis includes 100 percent of the shared revenues. In the individual military operation analysis presented previously, only the amount of revenues shared with the communities in the respective counties was presented in order to present the impacts to that county alone.
- Locally imposed county and municipal sales taxes were calculated for the aggregate of all analyzed military operations based on a weighted average county and municipal tax rate for all jurisdictions in the state (weighted by population) in order to simulate the average county and municipality in Arizona.

### Summary of Basic Personnel Statistics

Personnel Category	Davis- Monthan AFB	Fort Huachuca	Luke AFB	YMCAS	Yuma Proving Ground
Active Duty Permanent Party	6,628	4,219	5,585	4,124	185
Living On-Base	1,971	3,333	1,578	2,304	183
Living Off-Base	4,657	886	4,007	1,820	2
Reserves	0	0	1,066	32	6
Living On-Base	0	0	0	7	6
Living Off-Base	0	0	1,066	25	0
Rotational	250	0	212	700	0
Students (Military)	101	2,864	956	191	150
Civilians	2,580	4,292	2,251	1,212	1,513
DOD Civilians	1,295	2,367	1,061	601	601
Non-Military Employees	1,285	1,925	1,190	611	912
Military Retirees	11,120	3,859	22,018	1,781	102

Personnel Category	Silver Bell Army Heliport	AZ ANG 161st (Sky Harbor)	AZ ANG 162nd (Tucson)	Papago Military Res.	Arizona Total
Active Duty Permanent Party	111	73	259	206	21,390
Living On-Base	0	0	18	0	9,387
Living Off-Base	111	73	241	206	12,002
Reserves	192	1,027	813	2,294	5,430
Living On-Base	0	0	0	0	13
Living Off-Base	192	1,027	813	2,294	5,417
Rotational	0	0	0	0	1,162
Students (Military)	0	24	150	0	4,436
Civilians	222	300	830	344	13,544
DOD Civilians	166	265	748	251	7,355
Non-Military Employees	56	35	82	93	6,189
Military Retirees	0	432	651	0	39,963

**Summary of Basic Payroll Statistics**

<b>Personnel Category</b>	<b>Davis-Monthan AFB</b>	<b>Fort Huachuca</b>	<b>Luke AFB</b>	<b>YMCAS</b>	<b>Yuma Proving Ground</b>
Active Duty Permanent Party	\$238,240,600	\$133,500,000	\$201,437,463	\$86,882,829	\$7,663,120
Living On-Base	\$55,281,600	\$96,756,881	\$36,017,101	\$40,819,339	\$7,580,275
Living Off-Base	\$182,959,000	\$36,743,119	\$165,420,362	\$46,063,490	\$82,845
Reserves	\$0	\$0	\$8,045,180	\$782,783	\$54,000
Living On-Base	\$0	\$0	\$0	\$170,904	\$54,000
Living Off-Base	\$0	\$0	\$8,045,180	\$611,879	\$0
Rotational	\$1,755,600	\$0	\$3,675,272	\$1,925,998	\$0
Students (Military)	\$7,281,024	\$62,047,987	\$70,264,564	\$2,543,750	\$1,909,180
Civilians	\$77,743,700	\$146,600,000	\$75,152,957	\$33,106,286	\$77,221,791
DOD Civilians	\$58,829,100	\$111,491,978	\$56,837,519	\$22,014,809	\$41,113,034
Non-Military Employees	\$18,914,600	\$35,108,022	\$18,315,438	\$11,091,477	\$36,108,757
Military Retirees	\$220,539,000	\$75,588,000	\$418,685,000	\$32,268,000	\$1,560,000

<b>Personnel Category</b>	<b>Silver Bell Army Heliport</b>	<b>AZ ANG 161st (Sky Harbor)</b>	<b>AZ ANG 162nd (Tucson)</b>	<b>Papago Military Res.</b>	<b>Arizona Total</b>
Active Duty Permanent Party	\$6,430,069	\$3,756,600	\$17,627,342	\$10,328,969	\$705,866,992
Living On-Base	\$0	\$0	\$875,806	\$0	\$237,331,002
Living Off-Base	\$6,430,069	\$3,756,600	\$16,751,536	\$10,328,969	\$468,535,990
Reserves	\$6,435,430	\$2,866,500	\$7,017,386	\$11,748,166	\$36,949,445
Living On-Base	\$0	\$0	\$0	\$0	\$224,904
Living Off-Base	\$6,435,430	\$2,866,500	\$7,017,386	\$11,748,166	\$36,724,541
Rotational	\$0	\$0	\$0	\$0	\$7,356,870
Students (Military)	\$0	\$367,920	\$1,800,000	\$0	\$146,214,425
Civilians	\$10,984,788	\$15,740,000	\$45,376,116	\$17,855,785	\$499,781,423
DOD Civilians	\$8,959,788	\$14,500,000	\$42,869,376	\$15,424,758	\$372,040,362
Non-Military Employees	\$2,025,000	\$1,240,000	\$2,506,740	\$2,431,027	\$127,741,061
Military Retirees	\$0	\$9,307,000	\$14,025,000	\$0	\$771,972,000

**Summary of Basic Direct Spending Statistics**

<b>Expenditure Category</b>	<b>Davis- Monthan AFB</b>	<b>Fort Huachuca</b>	<b>Luke AFB</b>	<b>YMCAS</b>	<b>Yuma Proving Ground</b>
Contracts and direct spending: maintenance and operations	\$4,556,002	\$402,965,670	\$16,377,313	\$7,338,332	\$103,257,391
Contracts: construction, and building	\$21,872,400	\$4,016,711	\$25,693,556	\$28,337,513	\$14,361,985
Spending for supplies	\$72,939,099	\$101,380,335	\$195,448,684	\$34,728,146	\$55,847,889
Utilities	\$5,791,200	\$10,696,712	\$7,694,911	\$5,056,613	\$1,362,800
Education Payments	\$1,661,400	\$7,149,370	\$3,034,641	\$306,581	\$69,353
Health Services	\$26,367,515	\$8,793,500	\$57,361,058	\$6,902,117	\$676,250
Commissary and Exchange Sales	\$82,054,406	\$66,307,160	\$110,725,075	\$19,221,248	\$2,873,484

<b>Expenditure Category</b>	<b>Silver Bell Army Heliport</b>	<b>AZ ANG 161st (Sky Harbor)</b>	<b>AZ ANG 162nd (Tucson)</b>	<b>Papago Military Res.</b>	<b>Arizona Total</b>
Contracts and direct spending: maintenance and operations	\$620	\$0	\$4,060,212	\$377,933	\$538,933,473
Contracts: construction, and building	\$45,682	\$893,000	\$919,788	\$4,766,725	\$100,907,359
Spending for supplies	\$0	\$7,954,000	\$21,357,635	\$27,443,908	\$517,099,696
Utilities	\$563,607	\$688,000	\$1,186,899	\$1,941,937	\$34,982,679
Education Payments	\$0	\$200,000	\$104,585	\$832,781	\$13,358,711
Health Services	\$0	\$0	\$0	\$246,049	\$100,346,489
Commissary and Exchange Sales	\$0	\$0	\$0	\$0	\$281,181,373

PERSONNEL, PAYROLL AND EXPENDITURE DATA

	Davis-Monthan AFB	Fort Huachuca	Luke AFB	Yuma Marine Corp Air Station	Yuma Proving Ground	Silver Bell Army Heliport	AZ Air Nat'l Guard 161st (Sky Harbor)	AZ Air Nat'l Guard 162nd (Tucson)	Papago Park Military Res. /1	Arizona Total
<b>SUMMARY OF PERSONNEL (Annual Daily Average)</b>										
Active Duty Permanent Party	6,628	4,219	5,585	4,124	185	111	73	259	206	21,390
Living On-Base	1,971	3,333	1,578	2,304	183	-	-	18	-	9,387
Living Off-Base	4,657	886	4,007	1,820	2	111	73	241	206	12,002
Reserves	-	-	1,066	-	6	192	1,027	813	2,294	5,430
Living On-Base	-	-	-	7	6	-	-	-	-	13
Living Off-Base	-	-	1,066	25	-	192	1,027	813	2,294	5,417
Rotational	250	-	212	700	-	-	-	-	-	1,162
Students (Military)	101	2,864	956	191	150	-	24	150	-	4,436
Civilians	2,580	4,292	2,251	1,212	1,513	222	300	830	344	13,544
DOD Civilians	1,295	2,367	1,061	601	601	166	265	748	251	7,355
Non-Military Employees	1,285	1,925	1,190	611	912	56	35	82	93	6,189
<b>Subtotal - Employees</b>	<b>9,559</b>	<b>11,375</b>	<b>10,070</b>	<b>6,259</b>	<b>1,854</b>	<b>525</b>	<b>1,424</b>	<b>2,052</b>	<b>2,843</b>	<b>45,961</b>
Military Retirees	11,120	3,859	22,018	1,781	102	-	432	651	-	39,963
"Linked" Military Retirees	<b>2,780</b>	<b>965</b>	<b>5,505</b>	<b>445</b>	<b>26</b>	<b>-</b>	<b>108</b>	<b>163</b>	<b>-</b>	<b>9,991</b>
<b>ANNUAL PAYROLL</b>										
Active Duty Permanent Party/2	\$238,240,600	\$133,500,000	\$201,457,463	\$86,882,829	\$7,663,120	\$6,430,069	\$3,756,600	\$17,627,342	\$10,328,969	\$705,866,992
Living On-Base	\$55,281,600	\$96,756,881	\$36,017,101	\$40,819,339	\$7,580,275	\$0	\$0	\$875,806	\$0	\$237,331,002
Living Off-Base	\$182,959,000	\$36,743,119	\$165,420,362	\$46,063,490	\$82,845	\$6,430,069	\$3,756,600	\$16,751,536	\$10,328,969	\$468,535,990
Reserves	\$0	\$0	\$8,045,180	\$782,783	\$54,000	\$6,435,430	\$2,866,500	\$7,017,386	\$11,748,166	\$36,949,445
Living On-Base	\$0	\$0	\$0	\$170,904	\$54,000	\$0	\$0	\$0	\$0	\$224,904
Living Off-Base	\$0	\$0	\$8,045,180	\$611,879	\$0	\$6,435,430	\$2,866,500	\$7,017,386	\$11,748,166	\$36,724,541
Rotational	\$1,755,600	\$0	\$3,675,272	\$1,925,998	\$0	\$0	\$0	\$0	\$0	\$7,356,870
Students (Military)	\$7,281,024	\$62,047,987	\$70,264,564	\$2,543,750	\$1,909,180	\$0	\$367,920	\$1,800,000	\$0	\$146,214,425
Civilians	\$77,743,700	\$146,600,000	\$75,152,957	\$33,106,286	\$77,221,791	\$10,984,788	\$15,740,000	\$45,376,116	\$17,855,785	\$499,781,423
DOD Civilians	\$58,829,100	\$111,491,978	\$56,857,519	\$22,014,809	\$41,113,034	\$8,959,788	\$14,500,000	\$42,869,376	\$15,424,758	\$372,040,362
Non-Military Employees	\$18,914,600	\$35,108,022	\$18,315,438	\$11,091,477	\$36,108,757	\$2,025,000	\$1,240,000	\$2,506,740	\$2,431,027	\$127,741,061
<b>Subtotal - Employees</b>	<b>\$325,020,924</b>	<b>\$442,147,987</b>	<b>\$558,575,436</b>	<b>\$125,241,646</b>	<b>\$86,848,091</b>	<b>\$23,850,288</b>	<b>\$22,731,020</b>	<b>\$71,820,844</b>	<b>\$39,932,920</b>	<b>\$1,396,169,156</b>
Military Retirees	\$220,539,000	\$75,588,000	\$418,685,000	\$32,268,000	\$1,560,000	\$0	\$0	\$14,025,000	\$0	\$771,972,000
"Linked" Military Retirees	<b>\$55,154,750</b>	<b>\$18,897,000</b>	<b>\$104,671,250</b>	<b>\$8,067,000</b>	<b>\$390,000</b>	<b>\$0</b>	<b>\$2,326,750</b>	<b>\$3,506,250</b>	<b>\$0</b>	<b>\$192,993,000</b>

	Davis-Monthan AFB	Fort Huachuca	Luke AFB	Yuma Marine Corp Air Station	Yuma Proving Ground	Silver Bell Army Helipport	AZ Air Nat'l Guard 161st (Sky Harbor)	AZ Air Nat'l Guard 162nd (Tucson)	Papago Park Military Res./1	Arizona Total
<b>CONTRACTS (BUILDINGS, CONSTRUCTION, ETC.)</b>										
Construction	\$13,916,300		\$12,338,678		\$340,000	\$36,043	\$290,000	\$17,904	\$4,766,725	\$31,705,650
Building Maintenance and Repair	\$5,848,300		\$8,192,740		\$3,536,591	\$9,639	\$603,000	\$901,884		\$19,092,154
Pyramid (Private Maintenance and Repair Contract)					\$10,200,000					\$10,200,000
Fiber-optics/Rewiring				\$850,300						\$850,300
Public Works/ROICC	\$2,107,800		\$2,666,317	\$27,487,213	\$285,394					\$27,487,213
Military Family Housing		\$4,016,711	\$2,495,820							\$6,512,531
Other		\$4,016,711	\$25,693,556	\$28,337,513	\$14,361,985	\$45,682	\$893,000	\$919,788	\$4,766,725	\$100,907,359
Total	\$21,872,400		\$402,965,670	\$7,338,332	\$103,257,391	\$620	\$0	\$4,060,212	\$377,933	\$538,933,473
<b>CONTRACTS (MILITARY OPERATIONS, TENANTS, ETC.)</b>										
Custodial	\$720,876	\$375,930	\$2,790,000							\$3,886,806
Land and Building Rental	\$533,552	\$30,344	\$3,908,629		\$4,420,700	\$620			\$188,665	\$753,181
Environmental	\$3,191,988			\$6,000,000						\$11,521,317
Boeing Aerospace				\$743,052						\$6,000,000
Blackstone				\$155,280						\$743,052
General Dynamics				\$440,000					\$189,268	\$155,280
British Royal Navy (Operation Hammer Fist)					\$22,318					\$629,268
Yuma Airport										\$22,318
Range Support Safety					\$214,610					\$214,610
GSA Vehicle Rental Contract	\$109,586		\$55,600		\$3,000,000					\$3,165,186
Sea-Air Contract - Aviation Support					\$1,713,396					\$1,713,396
Range Support Contract			\$8,192,740		\$91,837,840					\$100,030,580
Telemedicine					\$433,380					\$433,380
Other		\$402,589,740	\$1,400,000		\$1,615,147			\$4,060,212		\$409,665,099
Total	\$4,556,002	\$402,965,670	\$16,377,313	\$7,338,332	\$103,257,391	\$620	\$0	\$4,060,212	\$377,933	\$538,933,473
<b>PURCHASES</b>										
Government Credit Card (IMPAC)	\$22,371,800	\$30,070,000	\$15,203,098	\$3,180,451	\$14,971,261	\$0	\$924,000	\$1,611,573	\$0	\$88,332,183
Ground Fuel	\$370,704		\$318,156	\$477,756	\$3,491,347		\$30,000			\$4,687,963
Aviation Fuel (AVPOL)	\$26,136,180		\$141,896,028	\$16,489,157	\$430,000		\$4,000,000	\$14,659,033		\$205,610,398
Food			\$725,500		\$326,000		\$100,000			\$1,151,500
Computers/IT Equipment	\$979,657		\$1,341,774							\$2,571,431
Travel	\$5,467,694		\$3,806,404	\$1,071,420	\$18,637,553	\$0	\$500,000	\$1,230,243		\$30,713,314
Equipment	\$1,024,929		\$1,402,484		\$7,779,607		\$250,000	\$5,087,029		\$15,544,049
Contract Services	\$6,934,600		\$10,600,255		\$965,000		\$200,000		\$10,599,026	\$29,298,881
General Supplies	\$8,426,240		\$8,303,011	\$3,643,639	\$2,300,000		\$1,700,000			\$24,372,890
Commissary	\$30,000		\$647,899		\$6,392,431					\$677,899
Local Vendor Supplies			\$3,000,000						\$3,596,099	\$12,988,520
Purchase Branch			\$1,121,000	\$70,130						\$1,191,130
American Red Cross				\$19,623						\$19,623
Billing Fund			\$200,000	\$115,555					\$946,342	\$1,261,897
British Aerospace Operations				\$12,909					\$8,895,612	\$8,908,521
Boeing Aerospace				\$102,500						\$102,500
Link Simulation and Training				\$4,500						\$4,500
Marine Air Federal Credit Union				\$74,992						\$74,992
MAYTAG				\$31,899						\$31,899
MCCS				\$9,006,013						\$9,006,013
MCCS Concessionaires				\$159,300					\$567,805	\$727,105
Navy Relief				\$265,902						\$265,902
Raytheon Aerospace				\$2,400					\$804,391	\$806,791
Other	\$1,197,295	\$71,310,335	\$6,883,075	\$2,400	\$554,690				\$804,391	\$807,497,86
Total	\$72,939,099	\$101,380,335	\$195,448,684	\$34,728,146	\$55,847,889	\$0	\$7,954,000	\$21,357,635	\$27,443,908	\$517,099,696

	Davis-Monthan AFB	Fort Huachuca	Luke AFB	Yuma Marine Corp Air Station	Yuma Proving Ground	Silver Bell Army Heliport	AZ Air Nat'l Guard 161st (Sky Harbor)	AZ Air Nat'l Guard 162nd (Tucson)	Papago Park Military Res. /1	Arizona Total
<b>UTILITIES</b>										
Electricity	\$3,225,600	\$6,649,722	\$6,043,014	\$3,305,085	\$480,000	\$494,800	\$467,000	\$870,871	\$871,868	\$22,408,020
Natural Gas	\$1,290,000	\$1,346,281	\$152,984	\$451,455		\$57,514	\$77,000	\$117,941	\$152,774	\$3,645,949
Water	\$1,121,001	\$169,354	\$169,354	\$44,338	\$412,000	\$2,468	\$59,000	\$32,310	\$92,233	\$1,932,704
Sewage	\$254,800	\$412,217	\$161,911	\$381,894	\$175,000	\$7,391	\$85,000	\$13,287	\$87,444	\$1,493,944
Telephone	\$763,200	\$628,062	\$882,000	\$532,400	\$109,315		\$85,000	\$144,640	\$708,434	\$3,853,051
Trash	\$180,000	\$539,429	\$285,648		\$136,000	\$1,374		\$7,850	\$29,184	\$1,179,485
Cable Television	\$64,700		inc. in IMPAC	\$341,441	\$4,485					\$410,626
Mobile Telephone	\$12,900		inc. in IMPAC		\$46,000					\$58,900
Total	\$5,791,200	\$10,696,712	\$7,694,911	\$5,056,613	\$1,362,800	\$563,607	\$688,000	\$1,186,899	\$1,941,937	\$34,982,679
<b>EDUCATION ASSISTANCE</b>										
State Tuition	\$1,100,400		\$1,452,660	\$171,956	\$32,400		\$150,000	\$104,585	\$690,830	\$3,702,831
Loan Re-payment							\$50,000			\$50,000
Elementary (Impact Funds)	\$561,000	\$7,149,370	\$554,941	\$134,625	\$22,395				\$141,951	\$8,422,331
University					\$14,558					\$156,509
Other			\$1,027,040							\$1,027,040
Total	\$1,661,400	\$7,149,370	\$3,034,641	\$306,581	\$69,353	\$0	\$200,000	\$104,585	\$832,781	\$13,358,711
<b>MEDICAL</b>										
CHAMPUS/TRICARE	\$12,867,015		\$35,590,769	\$5,291,922						\$53,749,706
Dental (Spent in Local Community)			inc. in Health	\$1,610,195	\$56,000					\$1,666,195
Health (Spent in Local Community)			inc. in Health		\$620,250					\$620,250
Health	\$13,500,500	\$8,793,500	\$21,770,289						\$246,049	\$44,310,338
Total	\$26,367,515	\$8,793,500	\$57,361,058	\$6,902,117	\$676,250	\$0	\$0	\$0	\$246,049	\$100,346,489
<b>COMMISSARY</b>										
Exchange Sales	\$7,923,193	\$23,052,425	\$56,000,000	\$10,998,211	\$448,000					\$128,421,829
Commissary Sales	\$44,131,213	\$40,600,000	\$48,094,000	\$8,223,037	\$1,534,680					\$142,582,930
Other		\$2,654,735	\$6,631,075	\$890,804						\$10,176,614
Total	\$82,054,406	\$66,307,160	\$110,725,075	\$19,221,248	\$2,873,484	\$0	\$0	\$0	\$0	\$281,181,373
<b>SUMMARY BY CATEGORY, OTHER THAN PERSONNEL</b>										
Contracts and direct spending: maintenance and operations	\$4,556,002	\$402,965,670	\$16,377,313	\$7,338,332	\$103,257,391	\$620	\$0	\$4,060,212	\$377,933	\$538,933,473
Contracts: construction, and building maintenance/repair	\$21,872,400	\$4,016,711	\$25,693,556	\$28,337,513	\$14,361,985	\$45,682	\$893,000	\$919,788	\$4,766,725	\$100,907,359
Spending for supplies	\$72,939,099	\$101,380,335	\$195,448,684	\$34,728,146	\$55,847,889	\$0	\$7,954,000	\$21,357,635	\$27,443,908	\$517,099,696
Utilities	\$5,791,200	\$10,696,712	\$7,694,911	\$5,056,613	\$1,362,800	\$563,607	\$688,000	\$1,186,899	\$1,941,937	\$34,982,679
Education Payments	\$1,661,400	\$7,149,370	\$3,034,641	\$306,581	\$69,353	\$0	\$200,000	\$104,585	\$832,781	\$13,358,711
Health Services	\$26,367,515	\$8,793,500	\$57,361,058	\$6,902,117	\$676,250	\$0	\$0	\$0	\$246,049	\$100,346,489
Commissary and Exchange Sales	\$82,054,406	\$66,307,160	\$110,725,075	\$19,221,248	\$2,873,484	\$0	\$0	\$0	\$0	\$281,181,373

Note: 1. The Army National Guard maintains a single dataset for the total employment and payroll of the Papago Park Military Reservation and the various armories around the state. In order to estimate Papago impact alone, this table presents 75 percent of the total figures provided by the Army National Guard.

2. On base versus off base wages were calculated for Fort Huachuca and YMCAS based on employment in each category and total wages, accounting for the wage differential for persons in each category.

## **APPENDIX FOUR**

### **DETAILED STATEWIDE MODEL OUTPUT**

The following tables illustrate the detailed output of the IMPLAN Pro software economic impact information for the statewide analysis. The tables summarize the employment by industry information by major industry category. Additional detailed information is available upon request.



**STATEWIDE FISCAL IMPACTS**

	Direct			Indirect and Induced	Total
	Live on Base	Live off Base	Military Retirees		
Employment / Retirees /1	14,674	31,286	39,963	41,859	127,782
Adjusted households /2	12,368	26,370	9,991	34,468	83,198
Earnings / Payments	\$333,688,832	\$1,009,119,054	\$192,993,000	\$1,363,210,667	\$2,899,011,554
Sales tax					
Rates					
State	n/a	n/a	n/a	5.60%	
County Average	n/a	n/a	n/a	0.59%	
Municipal average for state (general)	n/a	n/a	n/a	1.78%	
Municipal average for state (food at home) /3	n/a	n/a	n/a	0.71%	
Sales taxes, worker households					
State sales taxes					
State share	\$3,999,084	\$17,139,745	\$1,564,240	\$28,167,858	\$50,870,927
County share	\$212,201	\$891,572	\$226,263	\$6,185,050	\$7,515,087
Municipal share	\$14,552	\$59,242	\$157,647	\$3,816,990	\$4,048,431
County sales taxes	\$607,066	\$2,309,941	\$320,693	\$4,021,471	\$7,259,172
Municipal sales taxes	\$1,950,058	\$8,322,902	\$1,219,286	\$12,810,091	\$24,302,337
Total sales taxes	\$6,782,961	\$28,723,402	\$3,488,130	\$55,001,461	\$93,995,954
Property tax					
Owner occupancy rate	0.0%	n/a	n/a	68.0%	
Home valuation					
Median home value	\$0	n/a	n/a	\$121,688	
Households					
Total home value	\$0	\$2,041,240,123	\$815,631,060	\$2,852,193,732	\$5,709,064,914
Total assessed valuation	\$0	\$168,402,310	\$67,289,562	\$235,305,983	\$470,997,855
Rates (Per \$100 of assessed valuation)					
State /4	0.0000	n/a	n/a	0.0550	
Counties	0.0000	n/a	n/a	2.5326	
Cities and Towns	0.0000	n/a	n/a	0.9218	
Community Colleges	0.0000	n/a	n/a	1.2108	
School Districts	0.0000	n/a	n/a	7.1802	
All Others	0.0000	n/a	n/a	0.6545	
Total	0.0000	n/a	n/a	12.5550	
Property taxes, households					
State /4	\$0	\$80,621	\$38,686	\$129,524	\$248,832
Counties	\$0	\$5,805,291	\$2,062,393	\$5,959,461	\$13,827,145
Cities & Towns	\$0	\$1,403,054	\$624,423	\$2,169,161	\$4,196,638
School Districts	\$0	\$2,460,038	\$884,104	\$2,849,031	\$6,193,172
Special Districts	\$0	\$12,676,573	\$5,075,330	\$16,895,549	\$34,647,452
Community Colleges	\$0	\$1,121,529	\$422,270	\$1,539,977	\$3,083,776
Total	\$0	\$23,547,106	\$9,107,205	\$29,542,703	\$62,197,015
State income tax					
Households paying state tax /5	6,447	20,594	9,991	34,468	71,500
Income taxes					
State share	\$6,335,173	\$20,236,537	\$9,817,401	\$33,870,436	\$70,259,546
Municipal share	\$163,944	\$854,702	\$691,184	\$5,483,940	\$7,193,769

- Notes: 1. Students and rotational included for DM, FH, Luke, YMCAS in "Live on Base" category  
2. Emp. categories adjusted for workers per household; retirees reduced to reflect those who would move if the base closed  
3. Weighted average sales tax rate for food at home only (weighted by population)  
4. Additional school rate paid into the state general fund (per ARS 15-992)  
5. Reduced for military personnel reporting in another state

**FISCAL MODEL INPUTS**

Percent of retirees moving upon closure	25%	Figure used by UA study for Davis Monthan, Jan. 1994
Workers per household	1.19	Arizona average, 2000
Persons per household	2.64	Arizona average, 2000; Census 2000
Annual state income tax per household	\$1,142	Arizona Department of Revenue, Census 2000
Ratio of mil. personnel claiming AZ as state of legal residence to mil. personnel stationed in AZ	0.815	Department of Defense, 2001
Percent of year reserves actively employed	20.5%	Based on 75 days of service out of 365 in the year
Percent of state inc. taxes shared with municipalities	13.9%	Arizona Department of Revenue, 2001
Taxable component of income (excluding food)	50%	From Consumer Expenditure Survey 1999 West Region published by the Bureau of Labor Statistics
Taxable component of income (food at home only)	7%	From Consumer Expenditure Survey 1999 West Region published by the Bureau of Labor Statistics
Percent of FH student income spent locally	14%	Based on data provided by Fort Huachuca (the majority of FH students do not have the opportunity to spend their income locally)
Discount factors to account for on-base spending		
On-base staff	58%	Rural
Off-base direct employed	67%	50%
Davis-Monthan	78.8%	58%
Fort Huachuca		92.8%
Lake		
MCAS Yuma	77.1%	Factors applied to calculations for retail spending subject to sales tax
Yuma Proving Grounds	80.1%	Basic reduction factors, adjusted on a per-facility basis to reflect differences in civilian/military personnel mix
Silver Bell Heliport	97.0%	Civilians = 35.7%
AZ ANG 161st (Sky Harbor)	81.0%	Civilians = 82.9%
AZ ANG 162nd (Tucson)	74.0%	Civilians = 30.7%
Papago Park Military Reservation	80.5%	Civilians = 39.6%
Military Retirees	71.0%	Civilians = 90.9%
Percent of indirect and induced household retail spending spent locally	67%	Civilians = 42.3%
		Civilians = 21.1%
		Civilians = 40.8%
		Civilians = 12.1%
		This factor is applied to the retiree group assumed to move if their closest base goes away.
	100%	

## **APPENDIX FIVE**

### **REGIONAL IMPACT INFORMATION**

The following tables illustrate the detailed output of the IMPLAN Pro software economic impact information for the individual military operations with their individual county, as more fully described in Appendix Three. The tables summarize the employment by industry information by major industry category. Additional detailed information is available upon request.

**Local Economic Impacts of Individual Deployments**

	Davis-Monthan AFB	Fort Huachuca	Luke AFB	YMCAS	Yuma Proving Ground	Army Heliport	Silver Bell AZ ANG 161st (Sky Harbor)	AZ ANG 162nd (Tucson)	Papago Military Res.
<b>Direct</b>									
Employment <sup>1</sup>	9,559	11,375	9,223	6,234	1,849	372	608	1,406	1,020
Output (\$000's)	561,694	591,292	619,682	215,087	150,089	41,218	39,283	124,119	69,011
<b>Indirect</b>									
Employment <sup>1</sup>	2,181	8,376	3,308	1,089	4,013	0	84	193	539
Output (\$000's)	138,047	574,582	235,048	75,605	203,184	58	5,416	11,167	36,341
<b>Induced</b>									
Employment <sup>1</sup>	5,252	4,665	6,026	1,562	1,620	264	279	898	548
Output (\$000's)	389,683	305,075	514,744	106,917	107,912	20,790	25,206	69,689	48,013
<b>Total Non-Direct<sup>2</sup></b>									
Employment <sup>1</sup>	7,433	13,040	9,333	2,651	5,633	264	363	1,091	1,086
Output (\$000's)	527,730	879,657	749,792	182,522	311,096	20,848	30,622	80,857	84,354
<b>Grand Total<sup>2</sup></b>									
Employment <sup>1</sup>	<b>16,992</b>	<b>24,415</b>	<b>18,556</b>	<b>8,885</b>	<b>7,483</b>	<b>637</b>	<b>971</b>	<b>2,497</b>	<b>2,106</b>
Output (\$000's)	<b>1,089,424</b>	<b>1,470,949</b>	<b>1,369,474</b>	<b>397,609</b>	<b>461,184</b>	<b>62,065</b>	<b>69,905</b>	<b>204,976</b>	<b>153,365</b>

Note: 1. Employment adjusted to reflect full time equivalent (FTE) employment

2. Totals may not sum due to rounding

**Economic Impacts by Major Industry**  
**Davis-Monthan AFB**

	<b>Total</b>	<b>AGFF<sup>2</sup></b>	<b>Mining</b>	<b>Construc- tion</b>	<b>Manufac- turing</b>	<b>TCPU<sup>2</sup></b>	<b>Wholesale Trade</b>	<b>Retail Trade</b>	<b>FIRE<sup>2</sup></b>	<b>Services</b>	<b>Other<sup>3</sup></b>
<b>Direct</b>											
Employment <sup>1</sup>	<b>9,559</b>										
Output (\$000's)	<b>\$561,694</b>										
<b>Indirect</b>											
Employment <sup>1</sup>	<b>2,181</b>	4	0	223	21	28	49	1,111	28	714	4
Output (\$000's)	<b>\$138,047</b>	\$138	\$10	\$21,145	\$2,931	\$3,543	\$3,096	\$58,191	\$4,328	\$44,150	\$516
<b>Induced</b>											
Employment <sup>1</sup>	<b>5,252</b>	44	0	80	275	244	294	1,210	353	1,887	864
Output (\$000's)	<b>\$389,683</b>	\$1,950	\$49	\$5,050	\$44,423	\$34,890	\$23,474	\$61,165	\$48,440	\$116,723	\$53,519
<b>Total Non-direct<sup>4</sup></b>											
Employment <sup>1</sup>	<b>7,433</b>	48	0	303	296	273	343	2,321	381	2,600	868
Output (\$000's)	<b>\$527,730</b>	\$2,087	\$59	\$26,196	\$47,354	\$38,433	\$26,570	\$119,356	\$52,768	\$160,873	\$54,035
<b>Grand Total<sup>4</sup></b>											
Employment <sup>1</sup>	<b>16,992</b>	48	0	303	296	273	343	2,321	381	2,600	868
Output (\$000's)	<b>\$1,089,424</b>	\$2,087	\$59	\$26,196	\$47,354	\$38,433	\$26,570	\$119,356	\$52,768	\$160,873	\$54,035

Note: 1. Employment adjusted to reflect full time equivalent (FTE) employment

Note: 2. Abbreviations for major industries: AGFF-Ag., Forestry and Fishing; TCPU-Transportation, Communications, and Public Utilities; FIRE-Finance, Insurance, and Real Estate

Note: 3. Other includes "industries" which are part of the IMPLAN model and not associated with SIC Codes, such as owner occupied dwellings, inventory adjustments, and non-comparable imports.

Note: 4. Totals may not sum due to rounding

Source: IMPLAN, Bureau of Labor Statistics, ESI Corporation

Direct impacts are the activities themselves. The direct impact of \$1M of output in a given industry is \$1M. Direct impacts cause indirect and induced impacts.

Indirect impacts are the activities of other businesses in the direct industry's supply chain.

Induced impacts reflect the spending of households employed in the direct and indirect industries.

**Economic Impacts by Major Industry  
Fort Huachuca**

	<b>Total</b>	<b>AGFF<sup>2</sup></b>	<b>Mining</b>	<b>Construc- tion</b>	<b>Manufac- turing</b>	<b>TCPU<sup>2</sup></b>	<b>Wholesale Trade</b>	<b>Retail Trade</b>	<b>FIRE<sup>2</sup></b>	<b>Services</b>	<b>Other<sup>3</sup></b>
<b>Direct</b>											
Employment <sup>1</sup>	<b>11,375</b>										
Output (\$000's)	<b>\$591,292</b>										
<b>Indirect</b>											
Employment <sup>1</sup>	<b>8,376</b>	8	1	2,846	56	120	113	2,048	95	3,048	41
Output (\$000's)	<b>\$574,582</b>	\$259	\$18	\$256,418	\$4,800	\$13,200	\$6,404	\$84,818	\$11,035	\$193,200	\$4,429
<b>Induced</b>											
Employment <sup>1</sup>	<b>4,665</b>	59	127	101	246	196	255	1,289	329	1,294	769
Output (\$000's)	<b>\$305,075</b>	\$4,059	\$2,189	\$6,098	\$32,403	\$29,930	\$15,256	\$55,424	\$36,784	\$72,766	\$50,166
<b>Total Non-direct<sup>4</sup></b>											
Employment <sup>1</sup>	<b>13,040</b>	68	128	2,947	301	316	368	3,337	423	4,342	810
Output (\$000's)	<b>\$879,657</b>	\$4,318	\$2,207	\$262,516	\$37,203	\$43,130	\$21,660	\$140,242	\$47,819	\$265,967	\$54,595
<b>Grand Total<sup>4</sup></b>											
Employment <sup>1</sup>	<b>24,415</b>	68	128	2,947	301	316	368	3,337	423	4,342	810
Output (\$000's)	<b>\$1,470,949</b>	\$4,318	\$2,207	\$262,516	\$37,203	\$43,130	\$21,660	\$140,242	\$47,819	\$265,967	\$54,595

Note: 1. Employment adjusted to reflect full-time equivalent (FTE) employment

Note: 2. Abbreviations for major industries: AGFF-Ag., Forestry and Fishing; TCPU-Transportation, Communications, and Public Utilities; FIRE-Finance, Insurance, and Real Estate

Note: 3. Other includes "industries" which are part of the IMPLAN model and not associated with SIC Codes, such as owner occupied dwellings, inventory adjustments, and non-comparable imports.

Note: 4. Totals may not sum due to rounding

Source: IMPLAN, Bureau of Labor Statistics, ESI Corporation

Direct impacts are the activities themselves. The direct impact of \$1M of output in a given industry is \$1M. Direct impacts cause indirect and induced impacts.

Indirect impacts are the activities of other businesses in the direct industry's supply chain.

Induced impacts reflect the spending of households employed in the direct and indirect industries.

**Economic Impacts by Major Industry**  
**Luke AFB**

	<b>Total</b>	<b>AGFF<sup>2</sup></b>	<b>Mining</b>	<b>Construc- tion</b>	<b>Manufac- turing</b>	<b>TCPU<sup>2</sup></b>	<b>Wholesale Trade</b>	<b>Retail Trade</b>	<b>FIRE<sup>2</sup></b>	<b>Services</b>	<b>Other<sup>3</sup></b>
<b>Direct</b>											
Employment <sup>1</sup>	<b>9,223</b>		11	397	34	85	125	1,442	46	1,154	9
Output (\$000's)	<b>\$619,682</b>	\$243	\$227	\$34,798	\$5,431	\$15,945	\$11,982	\$84,040	\$6,791	\$74,028	\$1,561
<b>Indirect</b>											
Employment <sup>1</sup>	<b>3,308</b>	5	32	118	315	273	316	1,450	490	2,181	798
Output (\$000's)	<b>\$235,048</b>	\$3,338	\$657	\$8,339	\$56,702	\$42,681	\$34,356	\$79,256	\$68,527	\$149,245	\$71,645
<b>Induced</b>											
Employment <sup>1</sup>	<b>6,026</b>	57	43	515	348	358	441	2,893	536	3,335	806
Output (\$000's)	<b>\$514,744</b>	\$3,581	\$884	\$43,137	\$62,133	\$58,626	\$46,338	\$163,296	\$75,318	\$223,273	\$73,206
<b>Total Non-direct<sup>4</sup></b>											
<b>Grand Total<sup>4</sup></b>											
Employment <sup>1</sup>	<b>18,556</b>	57	43	515	348	358	441	2,893	536	3,335	806
Output (\$000's)	<b>\$1,369,474</b>	\$3,581	\$884	\$43,137	\$62,133	\$58,626	\$46,338	\$163,296	\$75,318	\$223,273	\$73,206

Note: 1. Employment adjusted to reflect full-time equivalent (FTE) employment

Note: 2. Abbreviations for major industries: AGFF-Ag., Forestry and Fishing; TCPU-Transportation, Communications, and Public Utilities; FIRE-Finance, Insurance, and Real Estate

Note: 3. Other includes "industries" which are part of the IMPLAN model and not associated with SIC Codes, such as owner occupied dwellings, inventory adjustments, and non-comparable imports.

Note: 4. Totals may not sum due to rounding

Source: IMPLAN, Bureau of Labor Statistics, ESI Corporation

Direct impacts are the activities themselves. The direct impact of \$1M of output in a given industry is \$1M. Direct impacts cause indirect and induced impacts.

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Induced impacts reflect the spending of households employed in the direct and indirect industries.

**Economic Impacts by Major Industry**  
**Yuma Marine Corp Air Station**

	Total	AGFF <sup>2</sup>	Mining	Construc- tion	Manufac- turing	TCPU <sup>2</sup>	Wholesale Trade	Retail Trade	FIRE <sup>2</sup>	Services	Other <sup>3</sup>
<b>Direct</b>											
Employment <sup>1</sup>	6,234										
Output (\$000's)	\$215,087										
<b>Indirect</b>											
Employment <sup>1</sup>	1,089	2	2	320	7	21	31	304	16	383	3
Output (\$000's)	\$75,605	\$75	\$34	\$28,679	\$931	\$2,963	\$2,032	\$13,541	\$1,758	\$25,231	\$361
<b>Induced</b>											
Employment <sup>1</sup>	1,562	28	56	31	72	71	133	431	121	469	151
Output (\$000's)	\$106,917	\$1,843	\$966	\$1,917	\$11,614	\$10,220	\$8,955	\$19,167	\$12,548	\$26,268	\$13,418
<b>Total Non-direct<sup>4</sup></b>											
Employment <sup>1</sup>	2,651	29	58	351	79	91	164	735	137	853	154
Output (\$000's)	\$182,522	\$1,918	\$1,000	\$30,596	\$12,546	\$13,183	\$10,987	\$32,708	\$14,306	\$51,499	\$13,779
<b>Grand Total<sup>4</sup></b>											
Employment <sup>1</sup>	8,885	29	58	351	79	91	164	735	137	853	154
Output (\$000's)	\$397,609	\$1,918	\$1,000	\$30,596	\$12,546	\$13,183	\$10,987	\$32,708	\$14,306	\$51,499	\$13,779

Note: 1. Employment adjusted to reflect full-time equivalent (FTE) employment

Note: 2. Abbreviations for major industries: AGFF-Ag., Forestry and Fishing; TCPU-Transportation, Communications, and Public Utilities; FIRE-Finance, Insurance, and Real Estate

Note: 3. Other includes "industries" which are part of the IMPLAN model and not associated with SIC Codes, such as owner occupied dwellings, inventory adjustments, and non-comparable imports.

Note: 4. Totals may not sum due to rounding

Source: IMPLAN, Bureau of Labor Statistics, ESI Corporation

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Induced impacts reflect the spending of households employed in the direct and indirect industries.



**Economic Impacts by Major Industry**  
**Yuma Proving Ground**

	<b>Total</b>	<b>AGFF<sup>2</sup></b>	<b>Mining</b>	<b>Construc- tion</b>	<b>Manufac- turing</b>	<b>TCPU<sup>2</sup></b>	<b>Wholesale Trade</b>	<b>Retail Trade</b>	<b>FIRE<sup>2</sup></b>	<b>Services</b>	<b>Other<sup>3</sup></b>
<b>Direct</b>											
Employment <sup>1</sup>	<b>1,849</b>										
Output (\$000's)	<b>\$150,089</b>										
<b>Indirect</b>											
Employment <sup>1</sup>	<b>4,013</b>	6	231	1,997	19	91	70	937	53	607	3
Output (\$000's)	<b>\$203,184</b>	\$221	\$3,961	\$107,522	\$2,366	\$6,927	\$4,755	\$37,710	\$3,554	\$35,783	\$385
<b>Induced</b>											
Employment <sup>1</sup>	<b>1,620</b>	21	36	33	54	67	124	454	121	478	232
Output (\$000's)	<b>\$107,912</b>	\$1,413	\$625	\$2,003	\$8,249	\$9,471	\$8,270	\$20,464	\$10,921	\$26,807	\$19,689
<b>Total Non-direct<sup>4</sup></b>											
Employment <sup>1</sup>	<b>5,633</b>	28	267	2,029	74	157	194	1,391	174	1,085	235
Output (\$000's)	<b>\$311,096</b>	\$1,635	\$4,586	\$109,525	\$10,615	\$16,398	\$13,024	\$58,174	\$14,474	\$62,590	\$20,074
<b>Grand Total<sup>4</sup></b>											
Employment <sup>1</sup>	<b>7,483</b>	28	267	2,029	74	157	194	1,391	174	1,085	235
Output (\$000's)	<b>\$461,184</b>	\$1,635	\$4,586	\$109,525	\$10,615	\$16,398	\$13,024	\$58,174	\$14,474	\$62,590	\$20,074

Note: 1. Employment adjusted to reflect full-time equivalent (FTE) employment

Note: 2. Abbreviations for major industries: AGFF-Ag., Forestry and Fishing; TCPU-Transportation, Communications, and Public Utilities; FIRE-Finance, Insurance, and Real Estate

Note: 3. Other includes "industries" which are part of the IMPLAN model and not associated with SIC Codes, such as owner occupied dwellings, inventory adjustments, and non-comparable imports.

Note: 4. Totals may not sum due to rounding

Source: IMPLAN, Bureau of Labor Statistics, ESI Corporation

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Induced impacts reflect the spending of households employed in the direct and indirect industries.

**Economic Impacts by Major Industry**  
**Silver Bell Army Heliport**

	<b>Total</b>	<b>AGFF<sup>2</sup></b>	<b>Mining</b>	<b>Construc- tion</b>	<b>Manufac- turing</b>	<b>TCPU<sup>2</sup></b>	<b>Wholesale Trade</b>	<b>Retail Trade</b>	<b>FIRE<sup>2</sup></b>	<b>Services</b>	<b>Other<sup>3</sup></b>
<b>Direct</b>											
Employment <sup>1</sup>	<b>372</b>										
Output (\$000's)	<b>\$41,218</b>										
<b>Indirect</b>											
Employment <sup>1</sup>	<b>0</b>	-	-	0	-	-	-	-	-	-	-
Output (\$000's)	<b>\$58</b>	\$0	\$0	\$43	\$2	\$1	\$2	\$1	\$1	\$7	\$0
<b>Induced</b>											
Employment <sup>1</sup>	<b>264</b>	3	-	4	14	12	16	62	18	99	35
Output (\$000's)	<b>\$20,790</b>	\$109	\$3	\$285	\$2,508	\$1,712	\$1,270	\$3,166	\$2,346	\$6,147	\$3,245
<b>Total Non-direct<sup>4</sup></b>											
Employment <sup>1</sup>	<b>264</b>	3	-	5	14	12	16	62	18	99	35
Output (\$000's)	<b>\$20,848</b>	\$109	\$3	\$329	\$2,510	\$1,713	\$1,272	\$3,167	\$2,347	\$6,154	\$3,245
<b>Grand Total<sup>4</sup></b>											
Employment <sup>1</sup>	<b>637</b>	3	-	5	14	12	16	62	18	99	35
Output (\$000's)	<b>\$62,065</b>	\$109	\$3	\$329	\$2,510	\$1,713	\$1,272	\$3,167	\$2,347	\$6,154	\$3,245

Note: 1. Employment adjusted to reflect full-time equivalent (FTE) employment

Note: 2. Abbreviations for major industries: AGFF-Ag., Forestry and Fishing; TCPU-Transportation, Communications, and Public Utilities; FIRE-Finance, Insurance, and Real Estate

Note: 3. Other includes "industries" which are part of the IMPLAN model and not associated with SIC Codes, such as owner occupied dwellings, inventory adjustments, and non-comparable imports.

Note: 4. Totals may not sum due to rounding

Source: IMPLAN, Bureau of Labor Statistics, ESI Corporation

Direct impacts are the activities themselves. The direct impact of \$1M of output in a given industry is \$1M. Direct impacts cause indirect and induced impacts.

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Induced impacts reflect the spending of households employed in the direct and indirect industries.

**Economic Impacts by Major Industry**  
**AZ Air Nat'l Guard 161st (Sky Harbor)**

	<b>Total</b>	<b>AGFF<sup>2</sup></b>	<b>Mining</b>	<b>Construc- tion</b>	<b>Manufac- turing</b>	<b>TCPU<sup>2</sup></b>	<b>Wholesale Trade</b>	<b>Retail Trade</b>	<b>FIRE<sup>2</sup></b>	<b>Services</b>	<b>Other<sup>3</sup></b>
<b>Direct</b>											
Employment <sup>1</sup>	<b>608</b>										
Output (\$000's)	<b>\$39,283</b>										
<b>Indirect</b>											
Employment <sup>1</sup>	<b>84</b>	0	0	12	1	1	1	52	1	15	-
Output (\$000's)	<b>\$5,416</b>	\$5	\$5	\$918	\$161	\$453	\$153	\$2,621	\$167	\$922	\$11
<b>Induced</b>											
Employment <sup>1</sup>	<b>279</b>	2	2	6	14	13	16	68	23	102	34
Output (\$000's)	<b>\$25,206</b>	\$172	\$42	\$416	\$3,121	\$2,018	\$1,779	\$3,689	\$3,188	\$7,088	\$3,693
<b>Total Non-direct<sup>4</sup></b>											
Employment <sup>1</sup>	<b>363</b>	2	2	17	14	14	18	120	24	117	34
Output (\$000's)	<b>\$30,622</b>	\$177	\$47	\$1,335	\$3,283	\$2,471	\$1,931	\$6,310	\$3,354	\$8,010	\$3,704
<b>Grand Total<sup>4</sup></b>											
Employment <sup>1</sup>	<b>971</b>	2	2	17	14	14	18	120	24	117	34
Output (\$000's)	<b>\$69,905</b>	\$177	\$47	\$1,335	\$3,283	\$2,471	\$1,931	\$6,310	\$3,354	\$8,010	\$3,704

Note: 1. Employment adjusted to reflect full-time equivalent (FTE) employment

Note: 2. Abbreviations for major industries: AGFF-Ag., Forestry and Fishing; TCPU-Transportation, Communications, and Public Utilities; FIRE-Finance, Insurance, and Real Estate

Note: 3. Other includes "industries" which are part of the IMPLAN model and not associated with SIC Codes, such as owner occupied dwellings, inventory adjustments, and non-comparable imports.

Note: 4. Totals may not sum due to rounding

Source: IMPLAN, Bureau of Labor Statistics, ESI Corporation

Direct impacts are the activities themselves. The direct impact of \$1M of output in a given industry is \$1M. Direct impacts cause indirect and induced impacts.

Indirect impacts are the activities of other businesses in the direct industry's supply chain.

Induced impacts reflect the spending of households employed in the direct and indirect industries.

**Economic Impacts by Major Industry**  
**AZ Air Nat'l Guard 162nd (Tucson)**

	<b>Total</b>	<b>AGFF<sup>2</sup></b>	<b>Mining</b>	<b>Construc- tion</b>	<b>Manufac- turing</b>	<b>TCPU<sup>2</sup></b>	<b>Wholesale Trade</b>	<b>Retail Trade</b>	<b>FIRE<sup>2</sup></b>	<b>Services</b>	<b>Other<sup>3</sup></b>
<b>Direct</b>											
Employment <sup>1</sup>	<b>1,406</b>										
Output (\$000's)	<b>\$124,119</b>										
<b>Indirect</b>											
Employment <sup>1</sup>	<b>193</b>	0	-	13	1	4	1	117	2	54	0
Output (\$000's)	<b>\$11,167</b>	\$7	\$0	\$766	\$217	\$777	\$84	\$5,344	\$345	\$3,612	\$15
<b>Induced</b>											
Employment <sup>1</sup>	<b>898</b>	8	-	15	48	41	54	211	61	323	137
Output (\$000's)	<b>\$69,689</b>	\$357	\$8	\$962	\$8,263	\$5,828	\$4,264	\$10,711	\$7,836	\$19,972	\$11,489
<b>Total Non-direct<sup>4</sup></b>											
Employment <sup>1</sup>	<b>1,091</b>	8	-	28	49	45	55	328	63	378	137
Output (\$000's)	<b>\$80,857</b>	\$364	\$8	\$1,728	\$8,481	\$6,605	\$4,348	\$16,055	\$8,181	\$23,585	\$11,503
<b>Grand Total<sup>4</sup></b>											
Employment <sup>1</sup>	<b>2,497</b>	8	-	28	49	45	55	328	63	378	137
Output (\$000's)	<b>\$204,976</b>	\$364	\$8	\$1,728	\$8,481	\$6,605	\$4,348	\$16,055	\$8,181	\$23,585	\$11,503

Note: 1. Employment adjusted to reflect full-time equivalent (FTE) employment

Note: 2. Abbreviations for major industries: AGFF-Ag., Forestry and Fishing; TCPU-Transportation, Communications, and Public Utilities; FIRE-Finance, Insurance, and Real Estate

Note: 3. Other includes "industries" which are part of the IMPLAN model and not associated with SIC Codes, such as owner occupied dwellings, inventory adjustments, and non-comparable imports.

Note: 4. Totals may not sum due to rounding

Source: IMPLAN, Bureau of Labor Statistics, ESI Corporation

Direct impacts are the activities themselves. The direct impact of \$1M of output in a given industry is \$1M. Direct impacts cause indirect and induced impacts.

Indirect impacts are the activities of other businesses in the direct industry's supply chain.

Induced impacts reflect the spending of households employed in the direct and indirect industries.

**Economic Impacts by Major Industry**  
**Papago Park Military Res.**

	<b>Total</b>	<b>AGFF<sup>2</sup></b>	<b>Mining</b>	<b>Construc- tion</b>	<b>Manufac- turing</b>	<b>TCPU<sup>2</sup></b>	<b>Wholesale Trade</b>	<b>Retail Trade</b>	<b>FIRE<sup>2</sup></b>	<b>Services</b>	<b>Other<sup>3</sup></b>
<b>Direct</b>											
Employment <sup>1</sup>	<b>1,020</b>										
Output (\$000's)	<b>\$69,011</b>										
<b>Indirect</b>											
Employment <sup>1</sup>	<b>539</b>	1	-	42	9	9	10	81	9	378	0
Output (\$000's)	<b>\$36,341</b>	\$27	\$1	\$5,026	\$1,737	\$1,211	\$1,127	\$4,132	\$1,250	\$21,783	\$46
<b>Induced</b>											
Employment <sup>1</sup>	<b>548</b>	5	3	11	27	25	30	130	44	196	76
Output (\$000's)	<b>\$48,013</b>	\$321	\$70	\$804	\$5,492	\$3,905	\$3,275	\$7,090	\$6,209	\$13,404	\$7,445
<b>Total Non-direct<sup>4</sup></b>											
Employment <sup>1</sup>	<b>1,086</b>	6	3	53	36	34	40	211	53	574	76
Output (\$000's)	<b>\$84,354</b>	\$348	\$71	\$5,830	\$7,229	\$5,116	\$4,402	\$11,222	\$7,459	\$35,188	\$7,491
<b>Grand Total<sup>4</sup></b>											
Employment <sup>1</sup>	<b>2,106</b>	6	3	53	36	34	40	211	53	574	76
Output (\$000's)	<b>\$153,365</b>	\$348	\$71	\$5,830	\$7,229	\$5,116	\$4,402	\$11,222	\$7,459	\$35,188	\$7,491

Note: 1. Employment adjusted to reflect full-time equivalent (FTE) employment

Note: 2. Abbreviations for major industries: AGFF-Ag., Forestry and Fishing; TCPU-Transportation, Communications, and Public Utilities; FIRE-Finance, Insurance, and Real Estate

Note: 3. Other includes "industries" which are part of the IMPLAN model and not associated with SIC Codes, such as owner occupied dwellings, inventory adjustments, and non-comparable imports.

Note: 4. Totals may not sum due to rounding

Source: IMPLAN, Bureau of Labor Statistics, ESI Corporation

Direct impacts are the activities themselves. The direct impact of \$1M of output in a given industry is \$1M. Direct impacts cause indirect and induced impacts.

Indirect impacts are the activities of other businesses in the direct industry's supply chain.

Induced impacts reflect the spending of households employed in the direct and indirect industries.

**FISCAL IMPACT SUMMARY**

	Davis-Monthan AFB	Fort Huachuca	Luke AFB	Yuma Marine Corp Air Station	Yuma Proving Ground	Silver Bell Army Heliport	AZ Air Nat'l Guard 161st (Sky Harbor)	AZ Air Nat'l Guard 162nd (Tucson)	Papago Park Military Res.	Statewide
<b>DIRECT</b>										
<b>Sales tax</b>										
Local	\$3,031,206	\$3,155,694	\$5,137,693	\$1,768,069	\$1,506,327	\$208,475	\$285,847	\$648,028	\$436,291	\$16,291,424
State	\$5,466,757	\$4,737,809	\$6,140,708	\$1,931,284	\$1,682,173	\$398,955	\$366,462	\$1,218,879	\$585,742	\$22,703,069
Total	\$8,497,963	\$7,893,503	\$11,278,401	\$3,699,352	\$3,188,499	\$607,430	\$652,309	\$1,866,907	\$1,022,032	\$38,994,493
<b>Property Tax</b>										
Local	\$9,418,386	\$3,539,411	\$10,243,381	\$2,460,797	\$1,163,563	\$469,342	\$1,147,558	\$1,990,986	\$2,101,579	\$32,535,003
State	\$0	\$26,364	\$70,562	\$0	\$0	\$0	\$7,905	\$0	\$14,477	\$119,308
Total	\$9,418,386	\$3,565,775	\$10,313,943	\$2,460,797	\$1,163,563	\$469,342	\$1,155,463	\$1,990,986	\$2,116,056	\$32,654,311
<b>Income Tax</b>										
Local	\$211,779	\$24,466	\$1,263,170	\$15,622	\$5,186	\$6,608	\$65,127	\$26,312	\$91,559	\$1,709,830
State	\$9,340,206	\$7,349,159	\$11,222,700	\$4,229,056	\$1,404,012	\$291,431	\$578,627	\$1,160,459	\$813,461	\$36,389,111
Total	\$9,551,985	\$7,373,625	\$12,485,870	\$4,244,678	\$1,409,198	\$298,038	\$643,755	\$1,186,771	\$905,020	\$38,098,940
<b>Total</b>										
Local	\$12,661,372	\$6,719,571	\$16,644,243	\$4,244,488	\$2,675,076	\$684,425	\$1,498,533	\$2,665,326	\$2,629,429	\$50,536,257
State	\$14,806,963	\$12,113,331	\$17,433,970	\$6,160,340	\$3,086,184	\$690,386	\$952,994	\$2,379,338	\$1,413,680	\$59,211,487
Total	\$27,468,334	\$18,832,902	\$34,078,213	\$10,404,828	\$5,761,260	\$1,374,811	\$2,451,527	\$5,044,664	\$4,043,109	\$109,747,744
<b>INDIRECT &amp; INDUCED</b>										
<b>Sales tax</b>										
Local	\$2,413,144	\$4,030,335	\$4,882,438	\$1,306,389	\$2,591,966	\$86,700	\$189,568	\$343,998	\$517,147	\$26,833,602
State	\$4,617,999	\$6,173,352	\$6,554,910	\$1,460,814	\$2,898,356	\$165,917	\$251,791	\$658,304	\$694,296	\$28,167,858
Total	\$7,031,143	\$10,203,686	\$11,437,348	\$2,767,202	\$5,490,322	\$252,617	\$441,359	\$1,002,301	\$1,211,443	\$55,001,461
<b>Property Tax</b>										
Local	\$6,644,682	\$7,299,925	\$6,900,560	\$1,819,495	\$3,866,615	\$236,128	\$268,388	\$975,179	\$802,968	\$29,413,179
State	\$0	\$54,374	\$47,535	\$0	\$0	\$0	\$1,849	\$0	\$5,531	\$129,524
Total	\$6,644,682	\$7,354,300	\$6,948,095	\$1,819,495	\$3,866,615	\$236,128	\$270,237	\$975,179	\$808,499	\$29,542,703
<b>Income Tax</b>										
Local	\$139,581	\$35,955	\$870,078	\$8,110	\$17,235	\$4,960	\$33,841	\$20,485	\$101,245	\$5,483,940
State	\$6,156,002	\$10,800,354	\$7,730,253	\$2,195,586	\$4,663,846	\$218,762	\$300,658	\$903,460	\$899,513	\$33,870,436
Total	\$6,295,583	\$10,836,310	\$8,600,331	\$2,203,696	\$4,683,081	\$223,722	\$334,498	\$923,945	\$1,000,758	\$39,354,376
<b>Total</b>										
Local	\$9,197,407	\$11,366,216	\$12,653,077	\$3,133,994	\$6,475,816	\$327,788	\$491,797	\$1,339,662	\$1,421,360	\$61,730,722
State	\$10,774,002	\$17,028,080	\$14,332,698	\$3,656,400	\$7,564,203	\$384,679	\$554,298	\$1,561,764	\$1,599,340	\$62,167,819
Total	\$19,971,408	\$28,394,296	\$26,985,775	\$6,790,394	\$14,040,019	\$712,467	\$1,046,095	\$2,901,426	\$3,020,700	\$123,898,540
<b>TOTAL</b>										
<b>Sales tax</b>										
Local	\$5,444,350	\$7,186,029	\$10,020,131	\$3,074,457	\$4,098,292	\$295,175	\$475,415	\$992,025	\$953,438	\$43,125,026
State	\$10,084,756	\$10,911,160	\$12,695,618	\$3,392,097	\$4,580,529	\$564,872	\$618,253	\$1,877,183	\$1,280,037	\$50,870,927
Total	\$15,529,106	\$18,097,189	\$22,715,749	\$6,466,555	\$8,678,822	\$860,047	\$1,093,668	\$2,869,208	\$2,233,475	\$93,995,954
<b>Property Tax</b>										
Local	\$16,063,068	\$10,839,336	\$17,143,941	\$4,280,292	\$5,030,178	\$705,470	\$1,415,946	\$2,966,166	\$2,904,547	\$61,948,183
State	\$0	\$80,738	\$118,097	\$0	\$0	\$0	\$9,754	\$0	\$20,008	\$248,832
Total	\$16,063,068	\$10,920,075	\$17,262,038	\$4,280,292	\$5,030,178	\$705,470	\$1,425,700	\$2,966,166	\$2,924,555	\$62,197,015
<b>Income Tax</b>										
Local	\$351,360	\$60,422	\$2,133,248	\$23,732	\$22,421	\$11,568	\$98,968	\$46,797	\$192,804	\$7,193,769
State	\$15,496,208	\$18,149,513	\$18,952,953	\$6,424,642	\$6,069,858	\$510,193	\$879,285	\$2,063,919	\$1,712,974	\$70,259,547
Total	\$15,847,568	\$18,209,934	\$21,086,201	\$6,448,374	\$6,092,280	\$521,761	\$978,253	\$2,110,716	\$1,905,778	\$77,453,316
<b>Total</b>										
Local	\$21,858,778	\$18,085,787	\$29,297,320	\$7,378,482	\$9,150,892	\$1,012,213	\$1,990,329	\$4,004,988	\$4,050,789	\$112,266,978
State	\$25,580,964	\$29,141,411	\$31,766,668	\$9,816,740	\$10,650,387	\$1,075,065	\$1,507,293	\$3,941,102	\$3,013,020	\$121,379,306
Total	\$47,439,742	\$47,227,198	\$61,063,988	\$17,195,222	\$19,801,279	\$2,087,278	\$3,497,622	\$7,946,090	\$7,063,809	\$233,646,285

LOCAL AND COUNTY FISCAL IMPACTS

	Davis-Monthan AFB	Fort Huachuca	Luke AFB	Yuma Marine Corp Air Station	Yuma Proving Ground	Silver-Bell Army Heliport	AZ Air Nat'l Guard 161st (Sky Harbor)	AZ Air Nat'l Guard 162nd (Tucson)	Papago Park Military Res.
<b>DIRECT</b>									
Employed on base /1									
Employment	2,322	6,197	2,746	3,202	189	0	0	18	0
Number of households /2	1,957	5,223	2,314	2,699	159	0	0	15	0
Earnings	\$64,318,224	\$105,443,599	\$109,956,937	\$45,459,991	\$7,634,275	\$0	\$0	\$875,806	\$0
Employed in Communities									
Employment	7,237	5,178	7,324	3,057	1,665	525	1,424	2,034	2,843
Number of households /2	6,100	4,364	6,173	2,577	1,403	443	1,200	1,714	2,396
Earnings (gross)	\$260,702,700	\$183,343,119	\$248,618,499	\$79,781,655	\$79,213,816	\$23,850,288	\$22,731,020	\$70,945,038	\$39,932,920
Military Retirees									
Total	11,120	3,859	22,018	1,781	102	0	432	651	0
Affected by closure	2,780	965	5,505	445	26	0	108	163	0
Payments	\$220,539,000	\$75,588,000	\$418,685,000	\$32,268,000	\$1,560,000	\$0	\$9,307,000	\$14,025,000	\$0
Affected by closure	\$55,134,750	\$18,897,000	\$104,671,250	\$8,067,000	\$390,000	\$0	\$2,326,750	\$3,506,250	\$0
Sales tax									
Rates									
State	5.60%	5.60%	5.60%	5.60%	5.60%	5.60%	5.60%	5.60%	5.60%
County	0.00%	0.50%	0.70%	1.50%	1.50%	0.00%	0.70%	0.00%	0.70%
Municipal average for county (general)	2.00%	1.92%	1.70%	1.90%	1.90%	2.00%	1.70%	2.00%	1.70%
Municipal average for county (food at home)/3	0.02%	1.83%	0.68%	1.90%	1.90%	0.02%	0.68%	0.02%	0.68%
Sales taxes, worker households									
State sales taxes	\$5,013,762	\$4,603,964	\$5,280,716	\$1,865,004	\$1,678,968	\$398,955	\$347,345	\$1,190,071	\$585,742
State share	\$181,048	\$23,202	\$694,310	\$12,773	\$11,499	\$14,406	\$45,669	\$42,974	\$77,013
County share	\$9,047	\$1,078	\$50,609	\$637	\$573	\$720	\$3,329	\$2,147	\$5,614
Municipal share	\$0	\$557,033	\$894,479	\$676,940	\$609,415	\$0	\$58,835	\$0	\$99,216
County sales taxes	\$2,429,856	\$2,424,431	\$2,293,954	\$977,501	\$879,995	\$193,349	\$150,887	\$576,753	\$254,447
Sales taxes, retirees									
State sales taxes	\$452,994	\$133,845	\$859,993	\$66,280	\$3,204	\$0	\$19,117	\$28,808	\$0
State share	\$27,563	\$1,137	\$190,526	\$765	\$37	\$0	\$4,483	\$1,753	\$0
County share	\$13,773	\$528	\$138,876	\$381	\$18	\$0	\$3,194	\$876	\$0
Municipal share	\$0	\$27,287	\$245,454	\$40,537	\$1,960	\$0	\$5,456	\$0	\$0
County sales taxes	\$369,920	\$120,999	\$629,485	\$58,535	\$2,830	\$0	\$13,993	\$23,525	\$0
Municipal sales taxes	\$8,497,963	\$7,893,503	\$11,278,401	\$3,699,352	\$3,188,499	\$607,430	\$652,309	\$1,866,907	\$1,022,032
Total sales taxes									

	Davis-Monthan AFB	Fort Huachuca	Luke AFB	Yuma Marine Corp. Air Station	Yuma Proving Ground	Silver Bell Army Heliport	AZ Air Nat'l Guard 161st (Sky Harbor)	AZ Air Nat'l Guard 162nd (Tucson)	Papago Park Military Res.
Property tax									
Owner occupancy rate	64.3%	67.3%	67.5%	72.3%	72.3%	64.3%	67.5%	64.3%	67.5%
Home valuation	\$115,605	\$92,064	\$133,041	\$97,229	\$97,229	\$115,605	\$133,041	\$115,605	\$133,041
Median home value	\$453,421,790	\$270,409,743	\$554,362,484	\$181,128,078	\$98,651,701	\$32,892,972	\$107,784,295	\$127,436,772	\$215,152,289
Worker households	\$37,407,298	\$22,308,804	\$45,734,905	\$14,943,066	\$8,138,765	\$2,713,670	\$8,892,204	\$10,513,534	\$17,750,064
Total assessed valuation	\$206,648,562	\$59,775,015	\$494,318,825	\$31,299,546	\$1,792,562	\$0	\$9,698,689	\$12,097,861	\$0
Retirees	\$17,048,506	\$4,931,439	\$40,781,303	\$2,582,213	\$147,886	\$0	\$800,142	\$998,074	\$0
Total home value									
Total assessed valuation									
Rates (Per \$100 of assessed valuation)									
State /4	-	0.0968	0.0816	-	-	-	0.0816	-	0.0816
County	5.7256	3.6898	1.8194	3.3194	3.3194	5.7256	1.8194	5.7256	1.8194
Cities and Towns	0.5347	0.2709	1.1744	0.9613	0.9613	0.5347	1.1744	0.5347	1.1744
Community Colleges	1.5470	1.7368	1.1107	2.1026	2.1026	1.5470	1.1107	1.5470	1.1107
School Districts	8.5611	6.2079	7.2723	7.3362	7.3362	8.5611	7.2723	8.5611	7.2723
All Others	0.9270	1.0879	0.4630	0.3220	0.3220	0.9270	0.4630	0.9270	0.4630
Total	17.2955	13.0901	11.9214	14.0414	14.0414	17.2955	11.9214	17.2955	11.9214
Property taxes, worker households									
State /4	\$0	\$21,591	\$37,301	\$0	\$0	\$0	\$7,252	\$0	\$14,477
County	\$2,141,792	\$823,150	\$832,103	\$496,020	\$270,158	\$155,374	\$161,785	\$601,963	\$322,945
Cities and Towns	\$200,033	\$60,439	\$537,092	\$143,645	\$78,237	\$14,511	\$104,426	\$56,220	\$208,450
Community Colleges	\$578,703	\$387,459	\$314,193	\$314,193	\$171,126	\$41,981	\$98,770	\$162,648	\$197,158
School Districts	\$3,202,468	\$1,384,917	\$3,325,974	\$1,096,247	\$597,073	\$232,319	\$646,667	\$900,072	\$1,290,836
All Others	\$346,771	\$242,687	\$211,771	\$48,113	\$26,205	\$25,156	\$41,175	\$97,462	\$82,190
Total	\$6,469,767	\$2,920,244	\$5,452,241	\$2,098,218	\$1,142,798	\$469,342	\$1,060,075	\$1,818,365	\$2,116,056
Property taxes, retirees									
State	\$0	\$4,773	\$33,261	\$0	\$0	\$0	\$653	\$0	\$0
County	\$976,129	\$181,960	\$741,977	\$85,714	\$4,909	\$0	\$14,558	\$57,146	\$322,945
Cities and Towns	\$91,166	\$13,360	\$478,919	\$24,822	\$1,422	\$0	\$9,397	\$5,337	\$0
Community Colleges	\$263,746	\$85,649	\$452,977	\$54,294	\$3,109	\$0	\$8,888	\$15,441	\$0
School Districts	\$1,459,536	\$306,141	\$2,965,734	\$189,435	\$10,849	\$0	\$58,189	\$85,446	\$0
All Others	\$158,042	\$53,647	\$188,834	\$8,314	\$476	\$0	\$3,705	\$9,252	\$0
Total	\$2,948,619	\$645,530	\$4,861,702	\$362,579	\$20,765	\$0	\$95,388	\$172,621	\$0
State income tax									
Worker households paying state tax /5									
Income taxes, worker households	6,725	6,514	5,916	3,858	1,403	297	481	1,018	828
State share	\$6,608,442	\$6,401,148	\$5,813,708	\$3,791,532	\$1,378,954	\$291,431	\$472,501	\$1,000,532	\$813,461
Municipal share	\$149,839	\$21,310	\$654,361	\$14,006	\$5,094	\$6,608	\$53,182	\$22,686	\$91,559
Income taxes, retirees									
State share	\$2,731,764	\$948,011	\$5,408,992	\$437,524	\$25,058	\$0	\$106,126	\$159,926	\$0
Municipal share	\$61,940	\$3,156	\$608,809	\$1,616	\$93	\$0	\$11,945	\$3,626	\$0



	Davis-Monthan AFB	Fort Huachuca	Luke AFB	Yuma Marine Corp Air Station	Yuma Proving Ground	Silver Bell Army Heliport	AZ Air Nat'l Guard 161st (Sky Harbor)	AZ Air Nat'l Guard 162nd (Tucson)	Papago Park Military Res.
<b>INDIRECT AND INDUCED</b>									
Indirect									
Employment	2,181	8,376	3,308	1,089	4,013	0	84	193	539
Number of households /2	1,838	7,059	2,788	917	3,383	0	71	162	454
Earnings	\$63,843,948	\$230,823,490	\$109,863,114	\$30,654,457	\$98,396,028	\$20,434	\$2,373,782	\$4,722,344	\$14,632,403
Induced									
Employment	5,252	4,665	6,026	1,562	1,620	264	279	898	548
Number of households /2	4,426	3,932	5,079	1,317	1,365	222	235	757	461
Earnings	\$159,648,576	\$115,744,259	\$207,368,059	\$40,043,035	\$41,872,729	\$8,009,265	\$9,811,906	\$27,136,890	\$18,968,698
Sales tax									
Rates									
State	5.60%	5.60%	5.60%	5.60%	5.60%	5.60%	5.60%	5.60%	5.60%
County	0.00%	0.50%	0.70%	1.50%	1.50%	0.00%	0.70%	0.00%	0.70%
Municipal average for county (general)	2.00%	1.92%	1.70%	1.90%	1.90%	2.00%	1.70%	2.00%	1.70%
Municipal average for county (food at home)/3	0.02%	1.83%	0.68%	1.90%	1.90%	0.02%	0.68%	0.02%	0.68%
Sales Taxes, worker households									
State sales taxes									
State share	\$4,617,999	\$6,173,352	\$6,554,910	\$1,460,814	\$2,898,356	\$165,917	\$251,791	\$658,304	\$694,296
County share	\$166,757	\$31,111	\$861,842	\$10,005	\$19,850	\$5,991	\$35,042	\$23,771	\$91,286
Municipal share	\$8,333	\$1,445	\$62,821	\$499	\$990	\$299	\$2,497	\$1,188	\$6,654
County sales taxes	\$0	\$746,913	\$1,110,309	\$530,231	\$1,052,016	\$0	\$42,650	\$0	\$117,604
Municipal sales taxes	\$2,238,054	\$3,250,865	\$2,847,467	\$765,654	\$1,519,111	\$80,409	\$109,379	\$319,038	\$301,603
Total sales taxes	\$7,031,143	\$10,203,686	\$11,437,348	\$2,767,202	\$5,490,322	\$252,617	\$441,359	\$1,002,301	\$1,211,443

	Davis-Monthan AFB	Fort Huachuca	Luke AFB	Yuma Marine Corp Air Station	Yuma Proving Ground	Silver Bell Army Helipoint	AZ Air Nat'l Guard 161st (Sky Harbor)	AZ Air Nat'l Guard 162nd (Tucson)	Papago Park Military Res.
Property tax									
Owner occupancy rate	64.3%	67.3%	67.5%	72.3%	72.3%	64.3%	67.5%	64.3%	67.5%
Home valuation	\$115,605	\$92,064	\$133,041	\$97,229	\$97,229	\$115,605	\$133,041	\$115,605	\$133,041
Median home value	\$465,680,374	\$680,995,861	\$706,455,113	\$157,067,432	\$333,784,460	\$16,548,611	\$27,476,631	\$68,343,655	\$82,205,034
Worker households	\$38,418,631	\$56,182,159	\$58,282,547	\$12,958,063	\$27,537,218	\$1,365,260	\$2,266,822	\$5,638,352	\$6,781,915
Total assessed valuation									
Rates (Per \$100 of assessed valuation)									
State /4		0.0968	0.0816				0.0816		0.0816
County	5.7256	3.6898	1.8194	3.3194	3.3194	5.7256	1.8194	5.7256	1.8194
Cities and Towns	0.5347	0.2709	1.1744	0.9613	0.9613	0.5347	1.1744	0.5347	1.1744
Community Colleges	1.5470	1.7368	1.1107	2.1026	2.1026	1.5470	1.1107	1.5470	1.1107
School Districts	8.5611	6.2079	7.2723	7.3362	7.3362	8.5611	7.2723	8.5611	7.2723
All Others	0.9270	1.0879	0.4630	0.3220	0.3220	0.9270	0.4630	0.9270	0.4630
Total	17.2955	13.0901	11.9214	14.0414	14.0414	17.2955	11.9214	17.2955	11.9214
Property taxes, worker households									
State /4	\$0	\$54,374	\$47,535	\$0	\$0	\$0	\$1,849	\$0	\$5,531
County	\$2,199,697	\$2,073,009	\$1,060,395	\$430,130	\$914,070	\$78,169	\$41,243	\$322,829	\$123,390
Cities and Towns	\$205,441	\$152,209	\$684,447	\$124,564	\$264,711	\$7,301	\$26,621	\$30,151	\$79,644
Community Colleges	\$594,349	\$975,772	\$647,372	\$272,456	\$578,998	\$21,121	\$25,179	\$87,227	\$75,330
School Districts	\$3,289,049	\$3,487,755	\$4,238,475	\$950,624	\$2,020,173	\$116,881	\$164,850	\$482,704	\$493,200
All Others	\$356,146	\$611,180	\$269,872	\$41,722	\$88,663	\$12,656	\$10,496	\$52,268	\$31,403
Total	\$6,644,682	\$7,354,300	\$6,948,095	\$1,819,495	\$3,866,615	\$236,128	\$270,237	\$975,179	\$808,499
State income Tax									
Income taxes, worker households									
State share	\$6,156,002	\$10,800,354	\$7,730,253	\$2,195,586	\$4,665,846	\$218,762	\$300,658	\$903,460	\$899,513
Municipal share	\$139,581	\$35,955	\$870,078	\$8,110	\$17,235	\$4,960	\$33,841	\$20,485	\$101,245

- Notes: 1. Students and rotational included for DM, FH, Luke, YMCAS  
2. Adjusted for workers per household  
3. Weighted average sales tax rate for food at home only (weighted by population)  
4. Additional school rate paid into the state general fund (per ARS 15-992)  
5. Reduced for military personnel reporting in another state