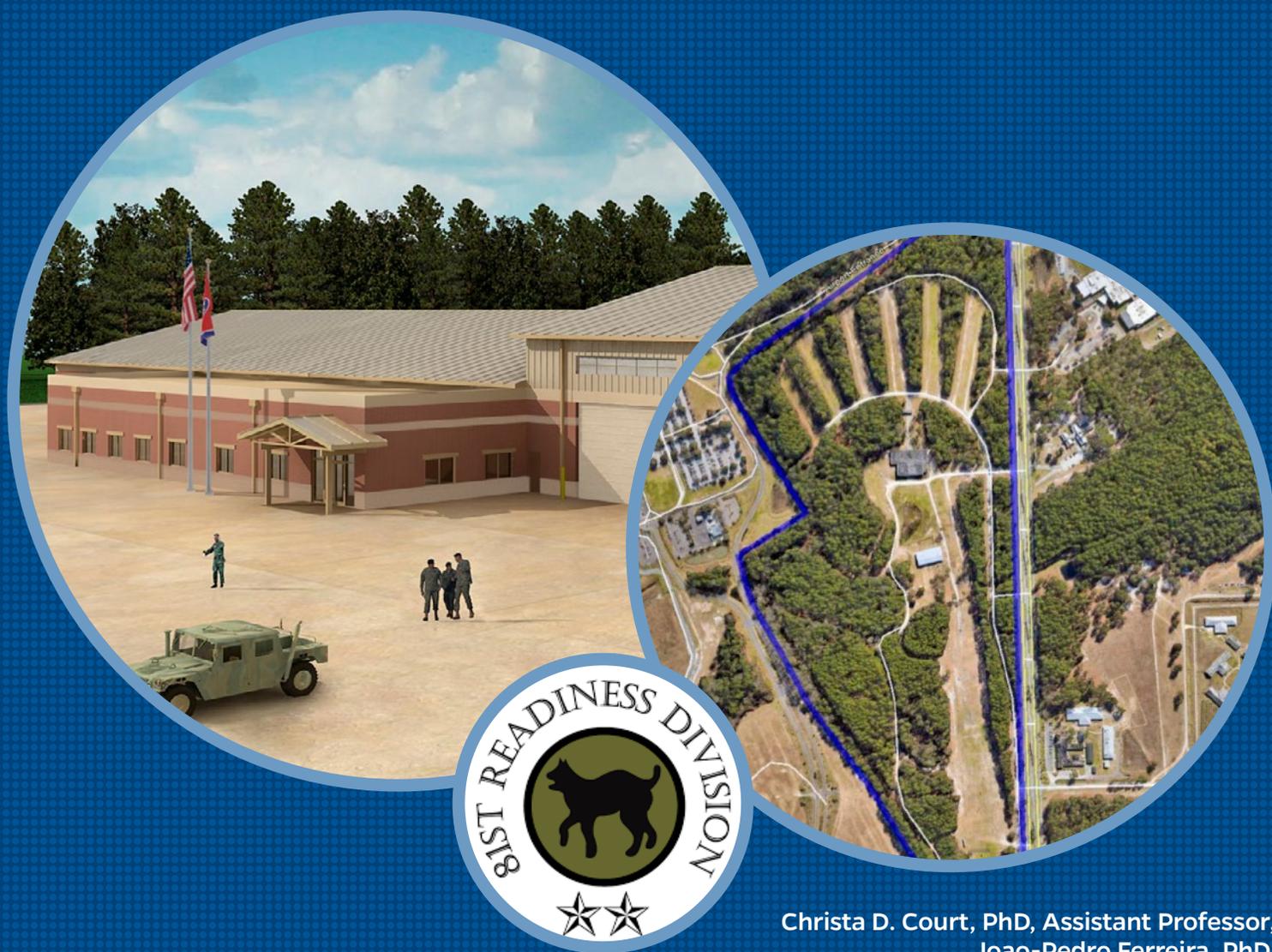


# POTENTIAL ECONOMIC IMPACTS *of the* PROPOSED ALACHUA COUNTY U.S. ARMY RESERVE EQUIPMENT CONCENTRATION SITE (ECS)

Sponsored project report to Alachua County, Florida



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May 30, 2020



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# INTRODUCTION

In August of 2019, the Alachua County Commission announced that the County Fairgrounds and the Alachua County Cooperative Extension Offices would permanently relocate to the Alachua County Agricultural and Equestrian Center (23100 W. Newberry Road, Newberry) – formerly known as the Canterbury Equestrian Showplace. The county government of Alachua County, Florida (“the County”) is now exploring potential uses of the existing Fairgrounds Redevelopment Area, an approximately 112 acre property located in the northeast part of the County, near the Gainesville Regional Airport. The site is located near the intersection of NE 39<sup>th</sup> Avenue and State Road 24/Waldo Road, with access from NE 39<sup>th</sup> Avenue (Figure 1). The County plans for the current users of facilities within the Fairgrounds Redevelopment Area to move to the new County Fairgrounds facility or other locations throughout Alachua County.

In collaboration with the United States (U.S.) Army Reserve’s 81<sup>st</sup> Readiness Division, the County seeks to convert the Fairgrounds Redevelopment Area into an Equipment Concentration Site (ECS). The 81<sup>st</sup> Readiness Division is one of four Readiness Divisions throughout the U.S., each responsible for providing support and services to Army Reserve units throughout a specific geographic footprint. The 81<sup>st</sup> Readiness Division, headquartered in Columbia, South

Carolina, provides support to over 200 Army Reserve units throughout the entire Southeast and Puerto Rico.

One type of support that a Readiness Division regularly provides is the storage and maintenance of equipment for Army Reserve units. Often, Army Reserve locations, such as the one on NE 8<sup>th</sup> Avenue, do not have enough space on-site to park all of their equipment nor do they have enough hours on-site to perform all of the necessary preventative maintenance on that equipment. The purpose of an ECS is to provide storage and maintenance for Army Reserve equipment that cannot be stored and properly maintained on-site with Army Reserve units. The 81<sup>st</sup> Readiness Division provides large storage lots for vehicles and trailers, warehouse space for other support equipment, as well as a state-of-the-art maintenance facilities staffed with full-time civilian mechanics and support technicians at several ECS locations throughout their territory.

Unfortunately, for Army Reserve units in Gainesville and throughout the State of Florida, the closest ECS is currently at Ft. Benning, Georgia, well over 600 miles from units in South Florida. As early as 2012, units throughout the State of Florida began requesting a more convenient ECS location. In 2016, the construction of a North-Central Florida ECS was added to the Army Reserve’s development plan for fiscal year



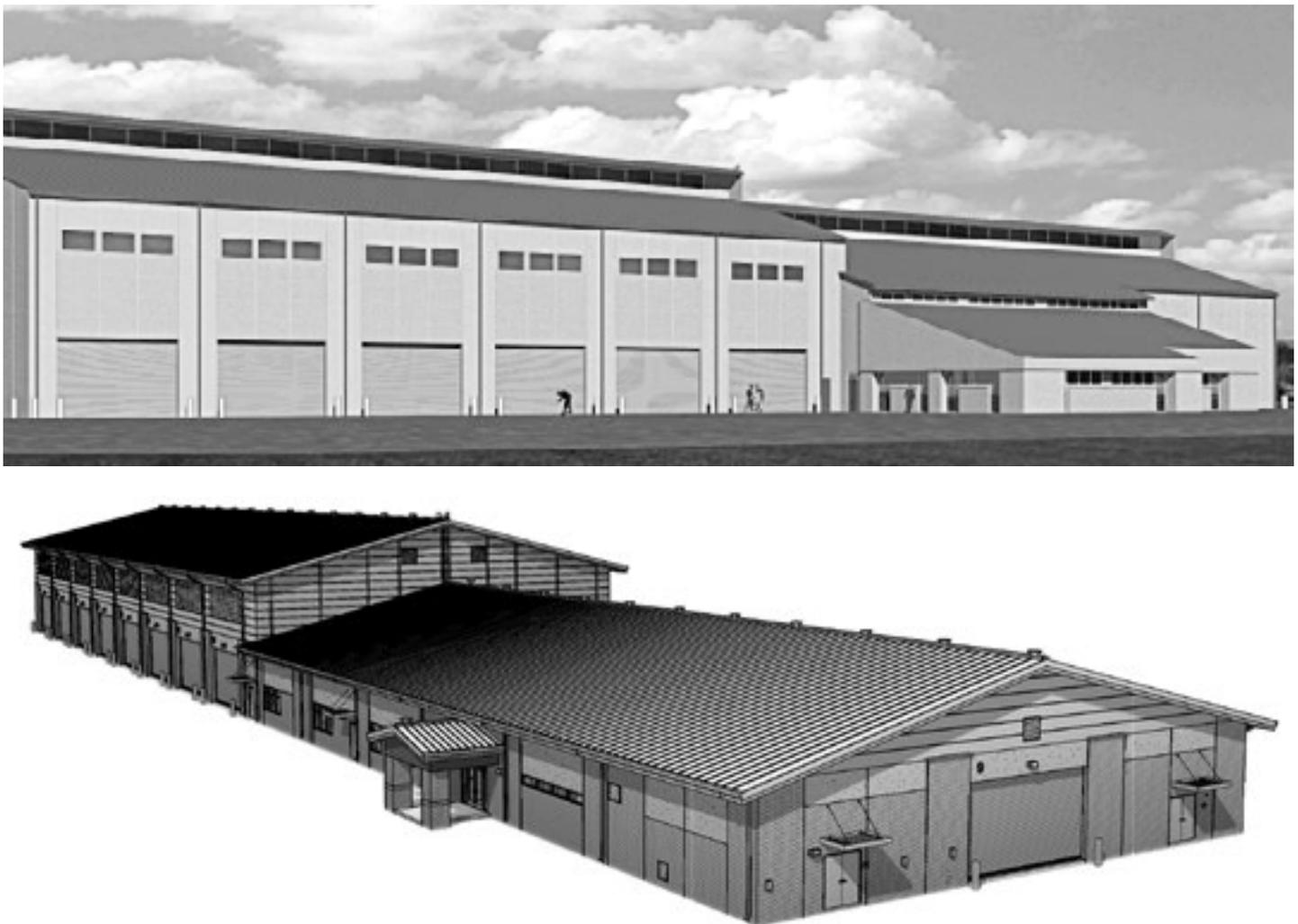
**Figure 1.** Location of the proposed ECS area and its surroundings. Source: Google Earth.

2022, and was later moved from the fiscal year 2022 plan into the fiscal year 2021 plan. As a result, the 81<sup>st</sup> Readiness Division is working with the County to potentially locate the North-Central Florida ECS in Gainesville and, if approved by the County and Congress, begin construction by late 2020.

The proposed ECS will feature roughly 94 thousand square feet of building space divided between a high-bay equipment repair shop, warehouses and storage buildings, and administrative offices (Figure 2). It is expected that the administrative offices will occupy a 40,000 square foot building, which includes a supervisor's office, two administrative offices, one classroom, one vault, one break room, and one special purpose room. Additionally, the 30,000 square foot high-bay equipment repair shop is comprised of maintenance bays, special purpose rooms, a tool room, a supply room, a small arms repair room with vault, an electronics repair room, a production control room, a break room, and supervisor offices. The remaining areas will serve as warehouse and storage space. The budget for construction and development of this new facility is \$36 million and, if approved by Congress, will be funded by the U.S. Army.

The ECS is an entirely civilian operation. It is expected that this new facility will employ around 60 individuals, a majority of which are federal government employees. For obvious reasons, a majority of the personnel are expected to be mechanics, but the site will also employ motor vehicle operators, logistics and administrative personnel, tools and parts specialists, and supervisors. Expected compensation rates will range from a minimum of \$21-22 per hour plus full federal benefits to salaries of close to \$60,000 per year. The benefits package for federal employees typically includes paid vacation, earned sick leave, health care, and military leave. Expected total payroll for the site is estimated at \$2.8 million to \$3.0 million per year.

This analysis was commissioned by the Alachua County Office of Resilience, Climate Change, and Sustainability to evaluate the potential economic impacts of the proposed Alachua County U.S. Army Reserve ECS to both the county and the state, in support of informed decision-making.



**Figure 2.** Draft designs of the Alachua County U.S. Army Reserve ECS. Source: U.S. Army Reserve 81<sup>st</sup> Readiness Division.

# METHODS

Potential economic impacts of the Alachua County U.S. Army Reserve ECS were estimated using data from the 81<sup>st</sup> Readiness Division on site development and construction expenditures as well as operation and maintenance expenditures, and regional economic models for Alachua County and the State of Florida. Short-term economic impacts of the final design and construction phases were estimated separately from the ongoing economic impacts resulting from the longer-term operation and maintenance activities of the ECS. Although the estimation of the impacts of the short-term construction phase is straightforward, estimation of the impacts associated with the operation of the ECS are more difficult, due to the aggregated nature of the vehicle and equipment maintenance industries within economic models. To accurately model these impacts, a customized model was developed to identify the inputs that will be used by this sector and to estimate the proportion of these input goods and services that can be sourced within Alachua County or the State of Florida (Parai et al., 1996; Droff and Paloyo, 2015). Appendix A contains a glossary of economic terms used throughout this report.

**Construction Expenditures.** Although some basic infrastructure is already in place at the Fairgrounds Redevelopment Area, the 81<sup>st</sup> Readiness Division plans to perform additional site planning, site preparation, and the construction of the new facilities, a high-bay equipment repair shop, warehouses and storage buildings, and administrative offices. The 81<sup>st</sup> Readiness Division estimates that expenditures associated with site planning, site preparation, and construction will be \$36 million. Costs associated with land acquisition were not included in the analysis as they represent an asset transfer rather than new final demand.

**Operations and Maintenance Expenditures.** Data on the ongoing costs of operations and maintenance at a typical ECS facility were provided by the 81<sup>st</sup> Readiness Division. The midpoint of the estimated range of total payroll, \$2.9 million, corresponds to total industry output (or sales revenues) of \$7.4 million, total value added of \$5.1 million, and 62 jobs (fulltime and part-time). As a civilian operation, it is likely that the ECS (and its employees) will purchase materials, tools, pieces, and spare parts locally, benefitting local retailers. In addition to payroll, utility expenditures for the facilities (electricity and water supply) are assumed to cost

\$20 thousand per year. Finally, the 81<sup>st</sup> Readiness Division estimates that the North-Central Florida ECS will have a total of 25 visitors per month to either drop-off or draw equipment, with only 3 of these individuals staying overnight.

**Regional Economic Impact Analysis.** The potential economic impacts of construction expenditures and operation and maintenance expenditures associated with the Alachua County U.S. Army Reserve ECS were estimated with two regional economic models, one for Alachua County and another for the State of Florida, constructed with the IMPLAN<sup>®</sup> software and data representing the corresponding regional economic structure for 2018 (Implan Group, LLC). This is a class of economic models known as input-output models, which are a standard tool in regional economic analysis. The IMPLAN<sup>®</sup> model enables the estimation of regional economic impacts for a given change in final demand or direct employment in specific industry sectors, and accounts for economic multiplier effects arising from industry supply chain activity, known as indirect effects, and household re-spending of income, or induced effects (Miller and Blair, 2009).

Relevant expenditures were entered into the IMPLAN<sup>®</sup> model as summarized in Tables 1 and 2, with each expenditure item assigned to the appropriate industry sector. Expenditures were entered in the model as 2020 dollars to be consistent with the project schedule. The model automatically imputes direct employment for expenditure entries, or imputes industry sales for direct labor income entries based on the average labor income to output ratio, along with employee and proprietor earnings for each industry sector based on regional averages.

Construction expenditures were entered into the IMPLAN<sup>®</sup> model as final demand for sector 57 – *Construction of new commercial structures, including farm structures* (Table 1). For simplicity, it was assumed that all construction takes place within 2020. The IMPLAN<sup>®</sup> software applied output deflators to express input values in model year dollars (2018), then re-inflated the resulting impacts using industry-specific Gross Domestic Product (GDP) deflators to express results in current year (2020) dollars. The model automatically imputed direct employment and employee and proprietor earnings for each industry sector based on the average employee to output ratio. The model also applies retail trade margins to express values in producer price terms.

**Table 1.** IMPLAN<sup>®</sup> events for economic impact analysis of ECS construction in Alachua County, Florida

IMPLAN <sup>®</sup> Industry Sector	Industry Sales	Employment (jobs, imputed)	Event Year	Output Deflator	GDP Deflator
57 – Construction of New Commercial Structures, Including Farm Structures	\$36,000,000	316	2020	1.041	1.027

Economic impacts of the operation and maintenance phase were estimated as final demand for the output of a new hypothetical sector, since IMPLAN® does not have a specific sector that entirely characterizes the mix of activities that will be conducted in this new facility. We assume that this sector can be effectively modeled as an equally distributed mix between sector 504 - *Automotive repair and maintenance, except car washes* and sector 507 - *Commercial and*

*industrial machinery and equipment repair and maintenance*. Accordingly, the resulting average sector retains the labor income, employment, and average expenditure relationships that were provided by the 81<sup>st</sup> Readiness Division and described above (Table 2). All of the locally purchased input goods and services (e.g. materials, utilities and other services), margins, and taxes paid are accounted for within the modeling framework.

**Table 2.** IMPLAN® events for economic impact analysis of ECS operation and maintenance phase in Alachua County, Florida

IMPLAN Industry Sector	Industry Sales	Employment (jobs, imputed)	Labor income	Value-added
504 - Automotive repair and maintenance, except car washes				
507 - Commercial and industrial machinery and equipment repair and maintenance	\$7,400,000	62	\$2,900,000	\$5,100,000

## RESULTS

Results of the economic impact analysis for the Alachua County U.S. Army Reserve ECS are presented in Tables 3 and 4. Short-term construction impacts are 469 job-years<sup>1</sup>, \$63.40 million in industry output (sales revenues), \$36.15 million in total value added (GDP), and \$24.02 million in labor income. Total economic impacts of the operation and maintenance phase were estimated at 110 fulltime and

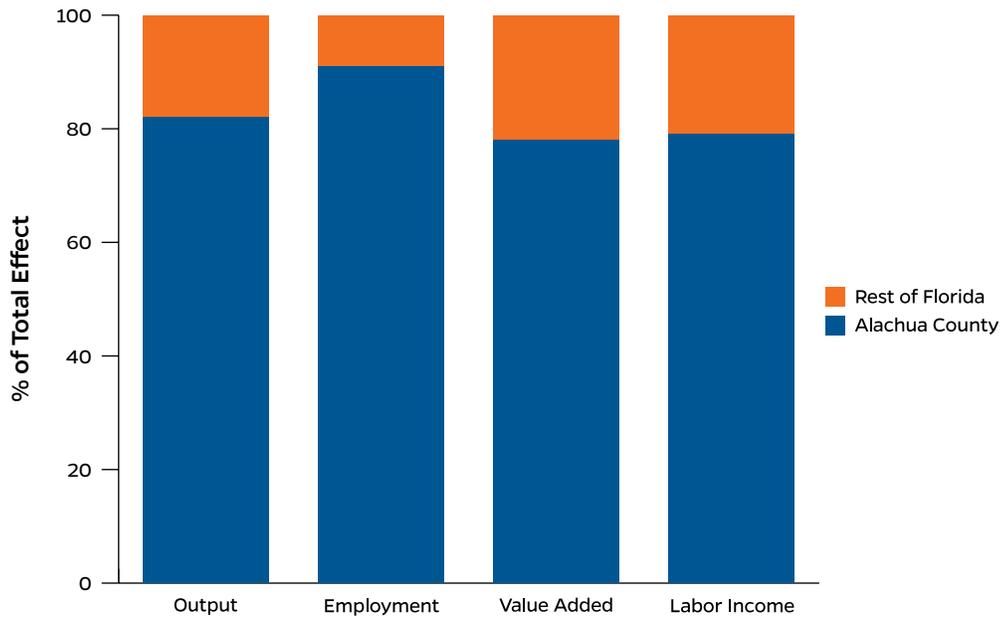
part-time job-years, \$6.29 million in labor income or earnings, \$8.46 million in total value added or GDP, and \$13.42 million in industry output or revenues (Table 3). Table 4 and Figures 3 and 4 present the distribution of the total economic impacts between Alachua County and the Rest of Florida.

**Table 3.** Summary of economic impacts of construction operation and maintenance phases of Alachua County U.S. Army Reserve ECS in Alachua County, Florida

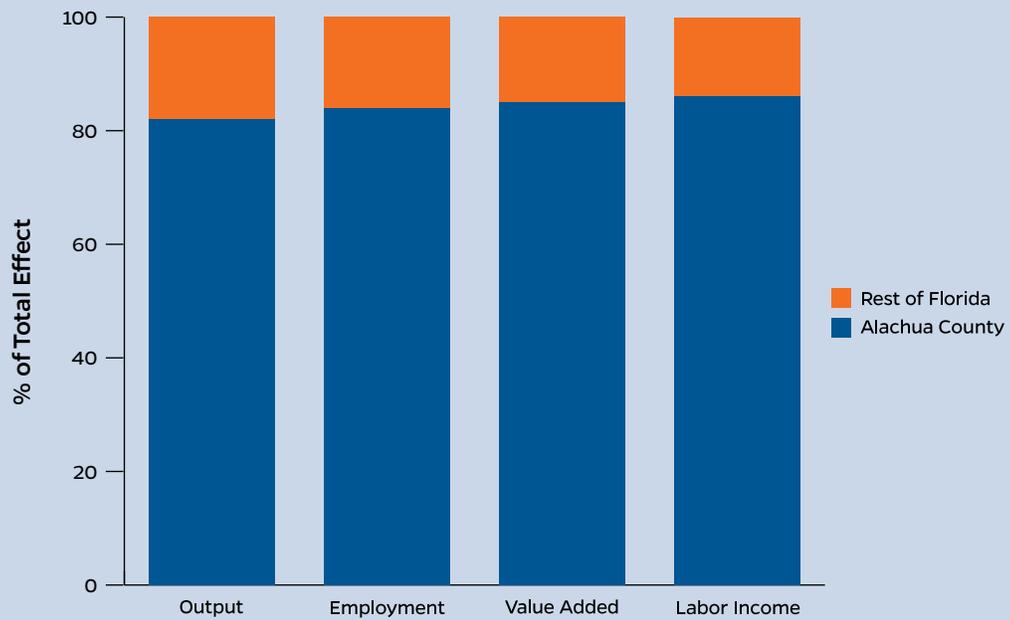
Activity	Impact Type (Multiplier)	Employment (Fulltime, Part-time Job-Years)	Labor Income (Earnings)	Value Added (GDP)	Industry Output (Revenue)
Construction phase	Direct Effect	292	\$15,359,452	\$20,670,098	\$36,000,000
	Indirect Effect	49	\$2,928,395	\$4,888,255	\$8,970,223
	Induced Effect	128	\$5,732,998	\$10,593,719	\$18,428,787
	Total Effect	469	\$24,020,845	\$36,152,072	\$63,399,011
Operation and maintenance phase	Direct Effect	62	\$2,900,000	\$5,115,066	\$7,472,094
	Indirect Effect	15	\$1,890,631	\$991,685	\$1,719,247
	Induced Effect	33	\$1,494,581	\$2,350,023	\$4,233,251
	Total Effect	110	\$6,285,306	\$8,456,774	\$13,424,592

Values in 2020 dollars. Labor income includes employee wages, salaries and benefits, and proprietor income.

<sup>1</sup>A job-year represents one job for the duration of one year.



**Figure 3.** Distribution of total economic impacts associated with the construction phase between Alachua County and Rest of Florida



**Figure 4.** Distribution of total economic impacts associated with the operation and maintenance phase between Alachua County and Rest of Florida

**Table 4.** Distribution of total economic impacts between Alachua County and Rest of Florida

Activity	Impact Type (Multiplier)	Employment (Fulltime, Part-time Job-Years)	Labor Income (Earnings)	Value Added (GDP)	Industry Output (Revenue)
Construction phase	Alachua County	428	\$18,846,025	\$28,323,874	\$51,923,671
	Rest of Florida	41	\$5,714,820	\$7,828,198	\$11,475,340
	Total Effect	469	\$24,020,845	\$36,152,072	\$63,399,011
Operation phase	Alachua County	93	\$5,406,823	\$7,211,692	\$11,094,891
	Rest of Florida	17	\$878,483	\$1,245,082	\$2,329,701
	Total Effect	110	\$6,285,306	\$8,456,774	\$13,424,592

Values in 2020 dollars.

## CONCLUSIONS

This analysis provides estimates of the potential economic impacts of the proposed Alachua County U.S. Army Reserve ECS to both the county and the state, in support of informed decision-making. The accuracy of the results will depend on how closely the actual construction and operation and maintenance activity levels come to those estimated by the 81<sup>st</sup> Readiness Division. It is also worth noting that these

estimates are based on interindustry relationships within Alachua County and the State of Florida as they existed in 2018. The extent to which the novel coronavirus disease (COVID-19) associated with SARS-CoV2 and the economic impacts of measures enacted to mitigate its spread changes these relationships is currently unknown.

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# APPENDIX A: GLOSSARY OF TERMS

**Employee compensation** is comprised of wages, salaries, commissions, and benefits such as health and life insurance, retirement and other forms of cash or non-cash compensation.

**Employment** is a measure of the number of jobs involved, including fulltime, part-time and seasonal positions. It is not a measure of fulltime equivalents (FTEs).

**Final Demand** represents sales to final consumers, including households, governments, and exports from the region.

**Gross State Product (GSP)** is a measure of total economic activity in a region, or total income generated by all goods and services. It represents the sum of total value added by all industries in that region, and is equivalent to Gross Domestic Product (GDP) for the nation.

**IMPLAN** is a computer-based input-output modeling system that enables users to create regional economic models and multipliers for any region consisting of one or more counties or states in the United States. The current version of the IMPLAN software, IMPLANPro, accounts for commodity production and consumption for 534 industry sectors, 10 household income levels, taxes to local/state and federal governments, capital investment, imports and exports, transfer payments, and business inventories. Regional datasets for individual counties or states are purchased separately.

**Impact or total impact** is the change in total regional economic activity (e.g. output or employment) resulting from a change in final demand, direct industry output, or direct employment, estimated based on regional economic multipliers.

**Income** is the money earned within the region from production and sales. Total income includes labor income such as wages, salaries, employee benefits and business proprietor income, plus other property income.

**Input-Output (I-O) model** and **Social Accounting Matrix (SAM)** is a representation of the transactions between industry sectors within a regional economy that captures what each sector purchases from every other sector to produce its output of goods or services. Using such a model, flows of economic activity associated with any change in spending may be traced backwards through the supply chain.

**Local** refers to goods and services that are sourced from within the region, which may be defined as a county, multi-county cluster, or state. Non-local refers to economic activity originating outside the region.

**Multipliers** capture the total effects, both direct and secondary, in a given region, generally as a ratio of the total change in economic activity in the region relative to the direct change. Multipliers are derived from an input-output model of the regional economy. Multipliers may be expressed as ratios of sales, income, or employment, or as ratios of total income or employment changes relative to direct sales.

Multipliers express the degree of interdependency between sectors in a region's economy and therefore vary considerably across regions and sectors. A **sector-specific multiplier** gives the total changes to the economy associated with a unit change in output or employment in a given sector (i.e. the **direct economic effect**) being evaluated. **Indirect effects** represent the changes in sales, income, or employment within the region in backward-linked industries supplying goods and services to businesses (e.g., increased sales in input supply firms resulting from more sales). **Induced effects multipliers** represent the increased sales within the region from household spending of the income earned in the direct and supporting industries for housing, utilities, food, etc. An **imputed multiplier** is calculated as the ratio of the total impact divided by direct effect for any given measure (e.g. output, employment).

**Other property income** represents income received from investments, such as corporate dividends, royalties, property rentals, or interest on loans.

**Output** is the dollar value of a good or service produced or sold, and is equivalent to sales revenues plus changes in business inventories.

**Producer prices** are the prices paid for goods at the factory or point of production. For manufactured goods the purchaser price equals the producer price plus a retail margin, a wholesale margin, and a transportation margin. For services, the producer and purchaser prices are equivalent.

**Proprietor income** is income received by non-incorporated private business owners or self-employed individuals.

**Purchaser prices** are the prices paid by the final consumer of a good or service.

**Region or Regional Economy** is the geographic area and the economic activity it contains for which impacts are estimated. It may consist of an individual county, an aggregation of several counties, a state, or an aggregation of states. These aggregations are sometimes defined on the basis of worker commuting patterns.

**Sector** is an individual industry or group of industries that produce similar products or services, or have similar production processes. Sectors are classified according to the North American Industrial Classification System (NAICS).

**Tax on Production and Imports** are taxes paid to governments by individuals or businesses for property, excise and sales taxes, but do not include income taxes.

**Value Added** is a broad measure of income, representing the sum of employee compensation, proprietor income, other property income, indirect business taxes, and capital consumption (depreciation), that is comparable to Gross Domestic Product. Value added is a commonly used measure of the impact to a regional economy because it avoids double counting of intermediate sales.



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