

ECONOMIC IMPACT REACTIVATION NAS CECIL FIELD

REGIONAL ANALYSIS



CECIL FIELD, JACKSONVILLE, FL

**Haas Center for Business Research and Economic Development
The University of West Florida
11000 University Parkway
Pensacola, FL 32514**

October 2005

Economic Impact of Reactivation
NAS Cecil Field

Final Report

Commissioned by: Enterprise Florida, Inc.

Primary Authors: Woodrow W. Cushing, Ph.D.
Rick Harper, Ph.D.

Haas Center for Business Research and Economic Development
University of West Florida
11000 University Parkway
Pensacola, Florida 32514

Contact: Woodrow W. Cushing
850-474-3083
wcushing@uwf.edu

Rick Harper
850-474-2659
rharper@uwf.edu

Submitted: Final Report submitted October 7, 2005

ACKNOWLEDGEMENTS

The authors wish to thank Enterprise Florida, Inc., The Office of Transportation, Tourism and Economic Development, Office of The Governor, State of Florida for their counsel and financial support, without which, this study would not be possible.

In addition, we thank Michael Schiebe for his willing and able technical and research assistance. Considerable information on the organization and operational structure of naval aviation units and installations was provided by Captain Wayne Nelms, USN (Retired), Office of the Governor and Captain Ferd Salomon, USN (Retired).

Project coordination services were provided by Ms. Marty Wilson, Project Manager, Enterprise Florida, Inc. We are appreciative of her responsive support, always cheerfully provided, that were essential for the timely completion of this study.

CONTENTS

INTRODUCTION	7
BACKGROUND	8
Naval Air Station Oceana, Virginia	8
Naval Air Station Cecil Field	9
BASE REALIGNMENT AND CLOSURE COMMISSION	10
CECIL FIELD INPUTS	11
REGIONAL ECONOMIC IMPACT ANALYSIS	12
The Transition Period	12
Post Transition Period	13
Population	13
Employment and Wages	14
Revenue and Gross Regional Product	15
Consumption Spending	16
Residential Construction Expenditures	16
Non-Residential Construction Expenditures	17
Capital Equipment Expenditures	17
State and Local Government Revenues	18
Export and Import	18
CONCLUSIONS	18
BIBLIOGRAPHY	20
APPENDIX 1: METHODS USED IN THE ANALYSIS	21
Economic Model	22
Reporting	24
APPENDIX 2: GLOSSARY	26

List of Tables

Table 1, Cecil Field Reactivation Expenditures.....	11
Table 2, Regional Economic Impact Estimates.....	12
Table 3, Regional Economic Impact Estimates For FY 2011 and FY 2017	13
Table 4, Population Counts.....	14
Table 5, Percentage Change in Population By County	14
Table 6, Regional Distribution of Jobs By Major Sector	15
Table 7, Consumption Expenditures By County	16
Table 8, Residential Construction Expenditures By County.....	16
Table 9, Non-Residential Construction Expenditures By County	17
Table 10, Business Capital Expenditures By County	17
Table 11, State and Local Government Revenues By County	18

EXECUTIVE SUMMARY

The University of West Florida's Haas Center for Business Research and Economic Development (Haas Center) is pleased to submit the following report, in fulfillment of the terms of the contract entitled "Economic Impact of Re-opening NAS Cecil Field."

Military activity in Florida has long been a major source of employment for state residents, sales revenue for companies, and tax revenues for state and local government. The principal finding of this study is that at full build-out (fiscal year 2011) expected spending at Cecil Field will generate **\$2.6 billion** (all values in this report are given in 2005 dollars) in output, or gross regional product, for Northeast Florida.

In the following report, we summarize the results of our investigation into the economic significance of the re-opening of Cecil Field to the northeast region of Florida. Among the key findings of the study are:

- ▶ Fiscal year 2011 Cecil Field spending will directly or indirectly be responsible for **\$2.6 billion** in gross regional product. .
- ▶ Fiscal year 2011 Cecil Field spending will account for a total of **31,460** jobs. This total consists of 11,794 jobs supported by direct spending and 19,666 supported by indirect and induced spending.
- ▶ The cumulative impact to the region's gross product over the 11-year forecast window of Cecil Field spending is **\$21.6 billion** (in 2005 dollars).
- ▶ Investment spending on new construction and capital equipment is expected to reach **\$401.3 million** in fiscal year 2011. The cumulative value over the period FY 2007 – FY 2017 is expected to total **\$4.03 billion**.
- ▶ State and local tax revenue (from labor and proprietors' income) generated by Cecil Field-driven activities is estimated to be **\$90.8 million** in fiscal year 2011 and accumulates to a value of **\$918.8 million** over the eleven-year forecast period.
- ▶ Household, business, and government consumption spending over the eleven-year period is expected to total **\$12.4 billion**.

INTRODUCTION

In 1993, the Base Realignment and Closure Commission (BRAC) recommended the de-commissioning and closure of NAS Cecil Field, Jacksonville, FL. Subsequent to that recommendation, naval aviation units assigned to Cecil were transferred, the base de-commissioned and in September, 1999 closed. Approximately 17,200 acres of the 30,000 acre facility were transferred to the City of Jacksonville and the balance to NAS Jacksonville. The city of Jacksonville converted the facility to industrial and commercial uses via Cecil Commerce Center and transferred the airport facilities to the Jacksonville International Airport Authority¹.

The 2005 round of BRAC proceedings has resulted in a recommendation that NAS Oceana, Virginia Beach, Virginia be closed unless a defined set of conditions are met by March 31, 2006. The purpose of this study is to chronicle the expected regional economic impact of re-activating and commissioning NAS Cecil Field for the purpose of receiving and housing naval aviation and related units from NAS Oceana. For this purpose, the Haas Center for Business Research and Economic Development at The University of West Florida has been engaged by Enterprise Florida, Inc.

How much economic activity in northeast Florida would be attributable to this transfer? An accurate calculation of these economic impacts requires an accurate accounting of the magnitude of spending flowing into Florida and an accurate mapping (both geographically and by industry sector) of this spending as it flows through affected local economies. Consistent and appropriate data concepts, analytical methods and reporting formats are necessary to ensure accurate calculations, and credible results. A brief description is provided below.

The scope of this study is limited to measures of economic activity. The value of defense personnel to Florida extends well beyond this singular dimension. Military men and women make positive intangible contributions to the communities who host them. Unfortunately, as yet, there is no developed method of valuing the social and financial dimensions of their contribution.

Aggregated financial data for NAS Oceana for fiscal year 2004 have been compiled. These spending flows include procurement expenditures, personnel expense (both appropriated and non-appropriated fund personnel), and other base operating expenditures. The total economic impact of defense-related spending includes both a direct impact component (e.g., dollars spent in building a new facility on base), and an indirect component (e.g., spending done locally by the architectural firm that designed the new facility) as well as an induced component (e.g. spending locally by households with members employed by the

¹ Office of the Mayor, City of Jacksonville, Cecil Field Fact Book, September 28, 2005. (Available at <http://www.coj.net>)

architectural firm). While the direct impact can be measured by collecting the expenditure data described above, the indirect and induced impacts must be calculated using an economic model that makes use of spending patterns specific to different geographic locations and different sectors of the economy.

The REMI economic simulation model (from Regional Economic Models, Inc.) was used to evaluate the economic impact of these direct and indirect spending flows. A regional baseline forecast extending through the year 2017 for each of 8 Florida counties was constructed. The differences between the baseline forecast and a forecast where military spending has been removed comprise the results. The resulting change in gross regional product (GRP) resulting from the absence of defense-related spending flows is the measure of economic impact reported.

The measure of economic impact used throughout the report is change in Gross Regional Product (GRP). While results could be reported in terms of total sales, or as personal income, or other measures, GRP is the local analogue to the widely understood national level concept of Gross Domestic Product (GDP). GRP reporting follows the structure of the National Income and Product Accounts (NIPA), which are used to construct the primary measures used for tracking economic growth. This conceptual framework for organizing economic activity recognizes that the dollar value of all final goods and services produced (the GDP) can be measured as the sum of the following items:

- consumption spending by individuals on goods and services,
- gross private domestic investment spending by individuals and businesses (on newly produced capital goods, including spending on new residences plus non-residential real estate plus capital equipment),
- spending by government,
- spending on exports,
- minus spending on imports.

The results reported, which is the change in GRP attributable to Cecil Field-related spending, are composed of the same elements as would be found in the national-level GDP.

BACKGROUND

Naval Air Station Oceana, Virginia

NAS Oceana is the busiest master jet base in the nation with approximately 9,247 active-duty military and 2,547 civilian personnel operating and maintaining 254 jets. The gross annual payroll totals \$773 million, additionally, purchases of

goods and services exceeds \$450 million annually². The facility has four runways and is situated on approximately 6,000 acres. Oceana is home to the Navy's entire fleet of F-14 Tomcats and its east coast-based F/A 18 Hornets. NAS Oceana is currently host to the following units/commands:



Aircraft Intermediate Maintenance (AIMD)
Commander, Carrier Air Wing 1
Commander, Carrier Air Wing 3
Commander, Carrier Air Wing 7
Commander, Carrier Air Wing 8
Commander, Carrier Air Wing 17
Strike Fighter Wing, Atlantic
Fleet Area Control & Surveillance (VCAPES)
Fleet Aviation Specialized Operational Training Group
Fleet Imaging Center

Marine Aviation Training Support Group 33
Navy Landing Signal Officer School
Naval Aviation Engineering Support Unit
Naval Atlantic Meteorology & Oceanography Detachment
Center for Naval Aviation Technical Training
Personnel Support Detachment
Strike Weapons & Tactics School, Atlantic

Naval Air Station Cecil Field

Originally established in 1941, Cecil Field is named in honor of Commander Henry Barton Cecil who was killed while aboard the US Navy blimp, *Akron*, in 1933. Cecil is located approximately 15 miles southwest of the City of Jacksonville and is in close proximity to Interstate Highways, I-10, I-75 and I-95. A small portion of the southern boundary (approximately 800 acres) is located in Clay County. Base infrastructure includes four runways, a control tower and aviation fueling



² Fanny S. Chirinos, *Conditions Hinder Virginia Base* (Corpus Christi: Caller-Times, August 3, 2005) citing Troy Snead, Public Affairs Officer, NAS Oceana; Hamptons Road Joint Land Use Study, 2004. Available at <http://www.caller.com>. p. 1.

systems. The two sets of parallel runways have one North/South runway 12,500 ft. in length and the other 8,000 in length. The East/West runways are each 8,000 ft. in length. Each runway has high intensity runway lighting. Each set has a full length parallel taxiway with medium intensity taxiway lighting. Since acquiring this 17,000+ property, the City of Jacksonville has expended in excess of \$130 million for improvements to the infrastructure, buildings, and runways³.

BASE REALIGNMENT AND CLOSURE COMMISSION

At its meeting August 22, 2005 the BRAC Commission adopted a resolution recommending that the Master Jet Base at NAS Oceana be closed and activities located on the base be transferred to NAS Cecil Field, Jacksonville, FL. This resolution is conditioned on the governments of Virginia Beach and the State of Virginia failing to accomplish several actions to halt future development activities that would encroach on NAS Oceana as well as reversing considerable development that has already occurred. It is further conditioned on the State of Florida performing certain actions.

To retain NAS Oceana, Virginia Beach and the State of Virginia must, by the end of March 2006, accomplish the following⁴:

1. Enact State-mandated zoning controls requiring the cities of Virginia Beach and Chesapeake, Virginia to adopt zoning ordinances that require the governing body to follow Air Installation Compatibility Use Zone guidelines in deciding discretionary development applications for property located in specified noise zones.
2. Enact state and local legislation and ordinances to establish a program to condemn and purchase all the property located within all the Accident Potential Zone One areas for Naval Air Station Oceana as depicted for 1999 AICUZ Pamphlet published by the U.S. Navy.
3. Codify the 2005 Final Hampton Roads Joint Land Use Study (JLUS) recommendations.
4. Legislate requirements for the cities of Virginia Beach and Chesapeake to evaluate undeveloped properties in Noise Zones for rezoning classifications that would not allow uses incompatible under AICUZ guidelines.
5. Establish programs for purchase of development rights of the Inter-facility Traffic Area between NAS Oceana and NALF Fentress; enact legislation creating the Oceana/Fentress Advisory Council.

To receive the aviation and related assets presently at NAS Oceana, Florida must⁵:

³ Office of the Mayor, Cecil Field Fact Book. p. 14-15.

⁴ Defense Base Closure and Realignment Commission, Final Report to the President. "Chapter 1, Navy/Marine Findings and Recommendations." p. 107. (Available www.brac.gov).

⁵ *Ibid.* p. 108.

1. Appropriate sufficient funds to relocate commercial tenants presently located at Cecil Field, Florida.
2. Appropriate sufficient funds to secure Public-Private Ventures for all the personnel housing required by the Navy at Cecil Field.
3. Transfer fee simple title to the property comprising the former Naval Air Station Cecil Field, including all infrastructure improvements that presently exist, to the Department of Defense on or before December 31, 2006.

If the Commonwealth of Virginia and the municipal governments of Virginia Beach and Chesapeake, Virginia fail to take all of the prescribed actions and the State of Florida meets the conditions established by this recommendation, the units and functions that shall relocate to Cecil Field will include, but are not limited to, all of the Navy F/A-18 Strike Fighter Wings, aviation operations and support schools, maintenance support, training and any other additional support activities the Navy deems necessary and appropriate to support the operations of the Master Jet Base.

CECIL FIELD INPUTS

It is anticipated that the conversion and re-opening of Cecil Field would start in fiscal year 2007 and fully mature in fiscal year 2011. The process will involve the relocation of several businesses, currently operating in Cecil Commerce Park, to alternative suitable sites. New construction to accommodate the needs of the Navy will be undertaken and completed before units are transferred to the facility. While these are one-time expenditures they contribute to the economic prosperity of the region. The expenditure schedule of inputs assumes this ramping up process will occur over a five year period. Distribution of personnel, construction, and relocation expenditures are allocated as: FY07, 5%; FY08, 25%; FY09, 25%, FY10, 35%, and FY11, 10%. Base expenditures for goods and services are expected to reach \$450 million by FY 2011. These expenditures are allocated over the start-up period proportional to the number of full-time military and civilian personnel.

Table 1, Cecil Field Reactivation Expenditures					
For Fiscal Years 2007-2011 (\$ millions)					
	FY-07	FY-08	FY-09	FY-10	FY-11
Active-Duty Military*	462	1387	3236	6935	9247
Civilian*	127	382	891	1910	2547
Goods/Services	\$22.5	\$67.5	\$180.0	\$292.5	\$450.0
Construction/Relocation	\$16.5	\$82.5	\$82.5	\$115.4	\$33.1

*Expected headcount.

Table 1 describes the appropriation of both human and financial resources over the start-up period. At full operation Cecil would be expected to have 9,247 active-duty military assigned and 2,547 full-time civilian employees. Salary and wage expenditures are expected to exceed \$773 million when Cecil is fully

operational and continue indefinitely into the future, increasing at a forecast rate of 2 percent per annum. Procurement of goods and services, reported at \$450 million in FY 2004, are also expected to continue indefinitely into the future and increase at the rate of 2 percent per annum measured in inflation adjusted dollars. Over the five-year period, development/construction expenditures are expected to total \$331 million.

REGIONAL ECONOMIC IMPACT ANALYSIS

While the primary focus of this study is estimating the economic impact of Cecil Field as a Master Jet Base at full build-out, the economic impact is also substantial over the start-up period expected to extend from FY 2007 through FY 2010.

The Transition Period

Table 2, Regional Economic Impact Estimates				
Over the Transition Period FY 2007-FY 2010				
(2005 \$ in millions)				
Description	Estimated Economic Impact			
	FY 2007	FY 2008	FY 2009	FY 2010
Total Sales (local area)	\$154.8	\$547.2	\$1,137.0	\$2,206.0
Population (count)	1,042	3,491	8,164	17,060
Employment (count)	1,875	6,321	12,860	24,610
Consumption	\$76.9	\$260.4	\$554.3	\$1,112.4
Residential Construction	8.5	33.1	77.1	159.0
Non-Residential Construction	3.1	11.6	26.9	52.0
Capital Equipment	1.8	8.5	23.9	53.7
Government	3.7	12.8	30.3	64.0
Exports	50.9	191.9	348.4	560.9
Imports (subtract)	7.7	55.0	71.6	70.5
Gross Regional Product	\$137.2	\$463.3	\$989.3	\$1,931.5

Table 2 presents the economic impacts expected to occur each year from FY 2007 through FY 2010 on an 8-county combined basis. As the spending process commences in FY 2007, albeit at a slow start rate, the impact on the regional population is an increase of 1,042 persons. This increase will consist of 589 direct (Table 1) and 453 indirect/induced additions to the regional population. By FY 2010, the regional population is expected to increase to 17,060. This increase is attributable to 8,845 direct (Table 1) and 8,215 indirect/induced.

The number of new jobs created in FY 2007 is an even stronger 1,875 which consists of 589 direct and 1,286 indirect jobs. By 2010, the number of jobs will reach 24,610. The dollar value of the final goods and services produced during each period rises from \$137.2 million in FY 2007 to \$1.9 billion in FY 2010.

Post Transition Period

By FY 2011, Cecil Field is expected to be fully functional with its complete complement of aircraft and personnel. Wages, salaries, operating expenses and local procurement of other goods and services are expected to total \$1.3 billion annually. This spending will generate more spending as it circulates through the region's economy. The gross regional product for the region represents the final value of spending staying in the local economy for all goods and services arising from the original military spending. It is divided into and described by the following expenditure categories: consumption expenditures; residential construction; non-residential construction; capital equipment; state and local government spending; and exports from and imports into the region's economy.

Description	Estimated Economic Impact		
	FY 2011	FY 2017	Cumulative
Total Sales (local area)	\$2,916.8	\$3,094.2	\$25,361.6
Population (count)	23,940	34,110	N.A.
Employment (count)	31,460	29,610	N.A.
Consumption	\$1,460.6	\$1,504.1	\$12,435.7
Residential Construction	232.6	222.0	2,009.7
Non-Residential Construction	74.6	66.1	625.1
Capital Equipment	94.1	265.0	1,394.4
Government	90.8	134.1	918.8
Exports	871.9	858.5	6,802.2
Imports (subtract)	(272.7)	(429.9)	(2,579.0)
Gross Regional Product	\$2,551.9	\$2,619.9	\$21,606.9

Population

The population of the eight county region totaled 1,394,111 at the end of 2004⁶. The re-opening of Cecil Field will via direct, indirect and induced channels increase the region's population by 23,940 or 1.72 percent of its 2004 population base.

From Table 4, the population of the region is expected to increase in FY 2011 by 23,940 and continue increasing each year after that. In FY 2017 the expected increase will total 34,110. A rapid increase in the population of a county can, under certain circumstances, create stress on existing infrastructure, school systems, transportation systems, public safety systems, etc.

⁶ U.S. Department of Commerce, Bureau of Economic Analysis, "Interactive Data File." Online at www.bea.doc.gov, September 15, 2005.

County	FY 2011	FY 2012	FY2013	FY 2014	FY 2015	FY 2016	FY 2017
Baker	148	197	241	280	315	346	374
Bradford	54	72	89	103	116	127	137
Clay	1,753	2,308	2,787	3,199	3,551	3,856	4,119
Duval	19,919	21,072	22,033	22,839	23,520	24,043	24,495
Flagler	77	106	134	159	183	204	224
Nassau	490	644	776	888	963	1,065	1,134
Putnam	90	121	149	174	195	215	232
St. John's	1,409	1,870	2,271	2,618	2,917	3,174	3,395
Total	23,940	26,390	28,480	30,260	31,760	33,030	34,110

To check for a high loading of the expected increase in population on a single county the percentage increase was calculated for each county and is presented in Table 5.

County	FY 2004 Population	Population Increase	Percent Change
Baker	23,769	148	.6
Bradford	27,211	54	.2
Clay	162,779	1,753	1.0
Duval	830,101	19,919	2.4
Flagler	66,083	77	.1
Nassau	62,849	490	.8
Putnam	72,313	90	.1
St. John's	149,006	1,409	.9
Total	1,394,111	23,940	1.72

In Table 5, the estimated population at FY 2004 is used as a base to compute the percentage change in population expected in FY 2011, the first full year for operations at Cecil Field. The overall gain for the region is 1.72 percent. The largest gain is in Duval County at 2.4 percent. This is a relatively small change and should be well within the capability of Duval to absorb without disturbance to housing and other markets or stress on public infrastructure and/or service systems.

Employment and Wages

From Table 3, spending at NAS Cecil Field in FY 2011 is expected to produce (via direct, indirect and induced spending) an estimated 31,460 jobs. This total is composed of 11,794 direct and 19,666 indirect and induced jobs. These employees are expected to earn gross wages of \$1.576 billion in FY 2011, an

average of \$50,095 per employee. Total employment is projected to decrease by FY 2017 to 29,610 when wages are expected to total \$1.777 billion resulting in an average wage of \$60,013.

Table 6 details the distribution of jobs over the eight counties in the region and further separates them into six major employment sectors for FY 2011. As expected, Duval County has the largest number of jobs at 29,122 or slightly over 92 percent of the jobs created. Nonetheless, each of the other seven counties receives an increase in jobs ranging from Clay county's 1,118 to Bradford county's 34 jobs.

County	Construction	Manufacture	Trade	Finance	Services	Public	Total
Baker	6	0	14	3	19	16	58
Bradford	4	1	7	3	14	5	34
Clay	200	8	267	84	496	63	1,118
Duval	2,625	440	2,927	3,119	7,332	12,679	29,122
Flagler	6	2	6	7	15	3	39
Nassau	37	4	51	19	121	23	255
Putnam	11	4	10	4	18	5	52
St. John's	93	13	177	70	357	64	774
Total*	2,982	476	3,463	3,307	8,376	12,860	31,460

*Column totals may not foot due to rounding error.

As expected, the major employment sector is the public sector with 12,860 jobs followed by the services sector with 8,376 jobs. It should be noted that because data are available only at the county level, the specific location of facilities within Duval County (e.g., in the Southwest area of the county) may lead to greater or lesser employment in some of the eight counties; however, the totals will remain unchanged. For example, it is likely that Clay County will receive somewhat more impact than is noted above.

Revenue and Gross Regional Product

The combined spending inputs of \$1.3 billion will circulate through the regional economy and generate gross sales revenue of \$2.9 billion in FY 2011 rising to an expected \$3.1 billion by FY 2017. These amounts include direct Cecil Field spending on salaries and wages plus procurement expenditures in the region, plus spending associated with the multiplier effect as initial recipients re-spend their earnings and receipts. Gross sales revenue includes both sales to final users as well as business-to-business (intermediate) sales. It incorporates the value of goods and services produced and sold in the region, imported into the region, and those exported from the region. When both imports and exports are considered and the value of intermediate transactions subtracted, the **contribution of Cecil Field's spending to the gross regional product reaches \$2.5 billion and is expected to rise to \$2.6 billion by FY 2017. The cumulative impact of expenditures on gross regional product over the eleven year period (FY 2007 to FY 2017) is projected to total \$21.6 billion.**

Consumption Spending

Consumption expenditures are expected to reach \$1,460.6 million in FY 2011. This consumption is forecast to consist of purchases of food (\$221.5 million); housing (\$140.0 million); transportation (\$65.7 million); medical care (\$58.8 million); furniture and furnishings (\$191.0 million); vehicles (\$106.2 million); clothing (\$79.3 million); fuel (\$43.7 million); household operating (\$95.6 million); other durables (\$48.8 million); non-durables (\$89.5 million); and, other expenditures (\$320.5 million).

County	FY 2011	FY 2012	FY2013	FY 2014	FY 2015	FY 2016	FY 2017
Baker	\$10.1	\$10.6	\$11.2	\$11.6	\$11.9	\$12.1	\$12.4
Bradford	4.0	4.2	4.4	4.5	4.6	4.6	4.7
Clay	150.5	153.1	153.9	154.4	154.8	154.8	155.1
Duval	1,137.9	1,132.6	1,134.8	1,137.0	1,135.9	1,133.7	1,148.6
Flagler	4.0	4.3	4.4	4.6	4.7	4.9	4.9
Nassau	39.9	41.3	42.2	42.9	43.5	43.8	44.2
Putnam	5.3	5.6	5.9	6.1	6.2	6.3	6.3
St. John's	108.9	114.5	118.1	121.2	123.7	125.8	127.9
Total	\$1,460.6	\$1,466.2	\$1,474.9	\$1,482.3	\$1,485.3	\$1,486.0	\$1,504.1

By the year 2017, consumption is forecast to reach \$1,504.1 million per year and the cumulative value of consumption over the eleven-year forecast period (FY 2007-2017) is \$12,435.7 million.

Residential Construction Expenditures

The influx of nearly 12,000 personnel assigned to Cecil Field will create spending on new residential construction in the amount of \$232.6 million in the region in FY 2011 alone.

County	FY 2011	FY 2012	FY2013	FY 2014	FY 2015	FY 2016	FY 2017
Baker	\$1.0	\$1.2	\$1.3	\$1.3	\$1.3	\$1.3	\$1.2
Bradford	.44	.52	.55	.56	.55	.54	.52
Clay	18.2	20.6	21.3	20.9	20.0	19.0	17.9
Duval	199.4	222.0	226.3	220.7	210.3	197.9	186.9
Flagler	.40	.47	.50	.52	.52	.52	.51
Nassau	3.6	4.1	4.3	4.4	4.3	4.1	3.9
Putnam	.87	1.0	1.1	1.1	1.1	1.1	1.0
St. John's	8.7	10.2	10.8	10.9	10.8	10.5	10.1
Total	\$232.6	\$260.1	\$266.1	\$260.4	\$248.8	\$234.9	\$222.0

As shown in Table 8 above, by FY 2017 the annual spending will decline slightly to \$222.0 million. Over the eleven-year period (FY 2007 to FY 2017) new residential construction is expected to total \$2,009.7 million.

Non-Residential Construction Expenditures

To service the increased demand for goods and services, businesses in the effected region will invest \$74.6 million in new commercial and industrial buildings during FY 2011. This level of investment spending will decline slightly to \$66.1 million by FY 2017. The cumulative value of this non-residential construction over the eleven year period is estimated to total \$625.1 million.

County	FY 2011	FY 2012	FY2013	FY 2014	FY 2015	FY 2016	FY 2017
Baker	\$.23	\$.26	\$.27	\$.26	\$.24	\$.22	\$.19
Bradford	.14	.16	.17	.17	.16	.15	.14
Clay	5.7	6.4	6.4	6.1	5.7	5.1	4.6
Duval	63.4	68.9	69.7	67.7	64.3	60.5	57.2
Flagler	.23	.27	.28	.28	.27	.26	.24
Nassau	1.2	1.4	1.4	1.3	1.2	1.1	.9
Putnam	.50	.5	.5	.5	.5	.5	.5
St. John's	2.8	3.2	3.2	3.1	2.9	2.7	2.4
Total	\$74.6	\$81.1	\$81.9	\$79.4	\$75.2	\$70.5	\$66.1

Capital Equipment Expenditures

The regional business community will also need to invest in equipment, machinery, and technology to service the increased demand for its goods and services. This investment is forecast at \$94.1 million in FY 2011 and \$265.0 in FY 2017. The cumulative investment expected over the eleven year horizon is \$1,394.4 million.

County	FY 2011	FY 2012	FY2013	FY 2014	FY 2015	FY 2016	FY 2017
Baker	\$.30	\$.44	\$.55	\$.64	\$.73	\$.80	\$.87
Bradford	.18	.26	.33	.39	.45	.50	.55
Clay	7.8	10.9	13.4	15.7	17.7	19.4	20.9
Duval	79.4	110.2	136.3	160.3	182.6	203.3	223.9
Flagler	.30	.43	.54	.65	.75	.84	.93
Nassau	1.7	2.4	2.9	3.4	3.8	4.1	4.4
Putnam	.53	.77	.98	1.2	1.4	1.5	1.7
St. John's	4.1	5.8	7.2	8.4	9.5	10.4	11.3
Total	\$94.1	\$131.2	\$162.2	\$190.6	\$216.9	\$240.8	\$265.0

State and Local Government Revenues

State and local government taxes on income resulting from Cecil Field spending are estimated at \$90.8 million for FY 2011 and projected to reach \$134.1 million by FY 2017. The cumulative total of projected state and local government spending over the eleven-year period is \$918.8 million.

County	FY 2011	FY 2012	FY2013	FY 2014	FY 2015	FY 2016	FY 2017
Baker	\$.54	\$.72	\$.89	\$1.0	\$1.2	\$1.3	\$1.4
Bradford	.22	.29	.36	.42	.48	.52	.56
Clay	6.4	8.5	10.3	11.9	13.3	14.4	15.5
Duval	75.4	80.7	84.9	88.5	91.5	94.0	95.9
Flagler	.31	.43	.54	.65	.75	.84	.92
Nassau	2.2	2.9	3.5	4.0	4.5	4.9	5.2
Putnam	.47	.64	.79	.93	1.0	1.1	1.3
St. John's	5.3	7.1	8.7	10.1	11.3	12.4	13.3
Total	\$90.8	\$92.8	\$109.9	\$117.5	\$124.3	\$129.4	\$134.1

Export and Import

At the regional level, exports are the dollar value of goods and services sold by an entity located in one of the 8 counties to an entity outside the 8 county region. Imports represent the purchase by an entity in the region of a good or service from outside the region. In order to generate the FY 2011 \$2.5 billion in GRP associated with Cecil Field spending, regional businesses and consumers will import \$272.7 million in goods and services, while exporting \$871.9 million. The level of export sales is projected to reach \$858.9 million in FY 2017. The cumulative value of exports over the forecast window is \$6.8 billion, while imports over the same period are \$2.6 billion.

CONCLUSIONS

The reactivation of Cecil Field will have substantial economic impact on the Northeast Florida area. Direct spending, at full build-out, will exceed \$1.3 billion per annum on personnel expenses and procurement of goods and services and result in a robust \$2.5 billion increase in the region's real gross domestic product. The expected cumulative impact on the region's gross domestic product, over the eleven-year forecast horizon (FY 2007-FY 2017), will be an increase of \$21.6 billion.

The 31,460 jobs that will be created directly, indirectly and by inducement will increase and strengthen the naval presence in the region. The average wage for these jobs is slightly over \$50,000 per year which is well above the prevailing average wage in the region and higher than Florida's average wage.

Each of the eight counties in the defined region will experience population growth from a low of 54 persons in Bradford County to a high of 19,919 in Duval County. The public sector will gain 12,860 jobs, with services, finance, and trade gaining 8,376, 3,307 and 3,463, respectively.

Consumption spending will reach \$1.46 billion by FY 2011 and its cumulative value over the eleven-year planning horizon totals \$12.4 billion. Each county in the region will experience increased consumption spending ranging from a low of \$4.0 million in Bradford and Flagler counties to a high of \$1.14 billion in Duval County.

Spending on new construction for both residential and non-residential uses is estimated at \$2.63 billion over the same eleven-year forecast period. Paralleling non-residential construction, business investment spending for new equipment, machinery, fixtures, furniture, etc. will reach \$99.3 million in FY 2011. The capital investment total over the eleven-year planning horizon is \$1.4 billion.

State and local government revenues will be positively impacted with an expected \$90.8 million increase in FY 2011 and an eleven-year cumulative increase totaling \$918.8 million.

By every measure estimated, the impact of the reactivation of Cecil Field will positively affect the Northeast Florida region and consequently the State of Florida. It will induce regional economic growth at attractive rates but at rates below which regional market disruptions would likely occur.

BIBLIOGRAPHY

- Complete Economic and Demographic Data Source 2003. Woods and Poole Economics, Inc. Washington, DC: 2003.
- Fishkind and Associates. *The Economic Impacts of Military Base Activity in Florida: 1997*. Orlando, FL: Fishkind and Associates, 1998.
- Chirinos, Fanny S., *Conditions Hinder Virginia Base* (Corpus Christi: Caller-Times, August 3, 2005) citing Troy Snead, Public Affairs Officer, NAS Oceana; Hamptons Road Joint Land Use Study, 2004.
- Cushing, Woodrow W. and Rick Harper. *Florida Defense Industry Economic Impact Analysis, "State of Florida and Regional Analyses."* Pensacola, FL: Haas Center for Business Research and Economic Development. Volume 1, December, 2003.
- Hosek, James, et al. *Married to the Military: The Employment and Earnings of Military Wives Compared with Those of Civilian Wives*. Santa Monica, CA: Rand Corporation, 2002.
- IMPLAN Professional Social Accounting and Impact Analysis Software, Minnesota. IMPLAN Group, Inc., Second Edition, Minneapolis, MN, June 2000.
- Office of the Mayor, City of Jacksonville, Florida, *Cecil Field Fact Book*, 2005.
- REMI PolicyInsight*[®] version 7.0. Regional Economic Models, Inc., Amherst, MA. 2003.
- U.S. Department of Commerce, Bureau of Economic Analysis, Regional Input Output Modeling System (RIMS II): *Estimation, Evaluation, and Application of a Disaggregated Regional Impact Model* (Washington, DC: GPO, 1981).
- U.S. Department of Commerce, Bureau of Economic Analysis, *Interactive Data File*, 2005.

APPENDIX 1: METHODS USED IN THE ANALYSIS

This analysis captures the impact of defense-related expenditures expected to occur with the reopening of Cecil Field, Jacksonville, FL that flow into the state of Florida. Spending impacts are derived from a number of sources. They may arise via spending done directly for Florida goods and services (e.g., procurement expenditures with Florida firms and wages paid to Florida households with active duty servicemen and women. They may also arise from spending not specifically targeted at Florida firms or Navy employees that directly generate other Florida economic activity (e.g., exports of Florida-produced goods driven by defense procurement in other states, presence of military spouses in the Florida economy).

These spending flows generate income for businesses and workers in the defense industry supply chain. These effects are characterized as either indirect (spending by businesses flowing to other businesses in the supply chain), or induced (spending done by households using their income generated by these direct and indirect spending flows). The analysis presented here is intended to capture the total regional output, or gross regional product, driven by direct, indirect, and induced spending flows. As these spending flows move through the economy, some is spent in other states (e.g., a Florida serviceman or woman buys a new car produced in Tennessee), generating economic impact in those areas. The value of these imports must be subtracted from calculations of the impact of spending flows. Generally, the larger is the local area over which impact is measured (e.g., a state as opposed to a county within the state), the smaller will be the leakage to imports.

There are several types of direct expenditure components. One such category is procurement expenditures. These are dollar flows representing contracts or purchases throughout the state by installations and other defense entities for goods and services. Procurement dollar flows have risen over time as the military has outsourced more and more goods and services from private sector providers, rather than producing them through use of military personnel and other resources. Examples of procurement expenditures include prime contract awards to a university to conduct weapons development research, or to a firm to provide architectural services, or to a business to build on-base housing.

Personnel expense is a major direct spending category; it includes both active duty officers and enlisted personnel. Additionally, appropriated fund civil service personnel salary expenses were counted, as was spending to support non-appropriated personnel such as non-appropriated fund employees, private business employees (e.g., on-base bank), exchange personnel, and the like.

In this study, the question is posed: "What would the economy of the eight county region look like in the absence of Cecil Field spending?" A typical economic impact study instead asks: "what is the economic impact in local area

x of spending y new dollars on project z?" In the latter situation, it would be correct to measure the value of procurement contracts to firms located in Florida counties as a spending input. However, a substantial fraction of this funding is spent out of the state. This effect is correctly accounted for through the use of regional purchase coefficients.

The regional purchasing patterns, and thus economic impact, associated with salary expenditures is substantially different from that associated with the types of spending conducted under procurement programs. This is true because household income flows to such uses as taxes, mortgage payments, and car payments, all of which support either past spending (the house was presumably built several years ago) or out of region purchases (the car that was built in Tennessee). Furthermore, households purchase a different basket of goods and services than does the base procurement officer.

Economic Model

There are several types of models typically used to calculate economic impacts. Input-output models use financial flow data generated from businesses' accounting data, and spending patterns for households of particular income levels, to describe the economic linkages that exist within a regional economy. These models begin with U.S. government-generated county level data on business purchases and receipts in order to model the inputs that are used from across the many sectors of the economy in the production of particular goods and services. The level of geographic and commodity detail can vary from production of printing ink, to storage batteries, to banking services in a geographic area as small as a zip code or as large as the national economy. The most commonly reported and useful level of detail has historically been county-level geography at either the 1, 2, or 3 Standard Industrial Classification (SIC) code level of commodity detail. More recently, software developers have adopted the North American Industrial Classification System currently used by the Federal government to describe the structure of the economy. The NAICS nomenclature provides a more modern and appropriate set of classifications to describe a more modern, service-oriented economy. Examples of these input-output models include the RIMSII modeling system from the US Department of Commerce and the IMPLAN modeling system from MIG, Inc. of St. Paul, MN.

Econometric simulation models combine the sector detail and geography detail of input/output models but provide for functioning economic linkages between sectors and regions over time. The current study uses REMI Policy Insight, Version 7.0 (Regional Economic Models Inc.), in an 8 region (one for each county) analysis. REMI incorporates parameters estimated from a structural econometric model of each of the 67 counties in the state of Florida along with the input-output linkages described above. Thus, it incorporates the basic input/output linkages but also uses econometrically estimated county-specific parameters, for example, interregional migration over a period of years in

response to changes in economic opportunities, in generating impact results. The model is then solved iteratively, so as to permit the incorporation of adjustments over time, with results provided for each year of the implementation and adjustment period.

Because of these between-sector linkages, the model incorporates general equilibrium tendencies as the economy responds to shocks over time. That is, changes in spending in a region affect not just conditions in that market, but also in other markets within the region (economists term this a “general equilibrium”) and outside the region (via trade and also via migration in response to changes in economic opportunities). This is in contrast to traditional input-output models that are both static (all effects are assumed to occur simultaneously, so there is no adjustment path over time) and partial equilibrium (e.g. changes in employment do not change wage rates) in nature. This describes the phenomenon whereby, for example, a new financial services back office call center opens in a county, and bank managers throughout the county find they have to give staff a raise in order to keep them from leaving to take a job at the new call center. A traditional input-output model description of the economic impact would have held everything else fixed (including bank wages across the county) and simply documented the employment and job creation effects resulting directly at the new call center and indirectly via businesses in its supply chain, as well as household spending induced by the new income flows.

A simulation model such as REMI captures not only the spending effects flowing from the call center and its local suppliers and employees and owners, but also the spillover effects into other markets as wages and prices change due to competition for the same employees and other resources. These are the general equilibrium (equilibrium across all markets simultaneously) tendencies of the model. It also simulates the adjustment path over time of these market responses, using historical parameters estimated specifically for that county (the dynamic component). A rule of thumb is that the smaller the spending change being considered, the more appropriate it is to use the traditional input/output model. However, the general equilibrium and dynamic characteristics of an economic simulation model are particularly important when considering “large” changes. The presence or absence of a billion dollar per year direct payroll resulting from military spending in northeast Florida is a “large” change, because spending of this magnitude is likely to have spillover impacts in other markets not directly in the defense-related supply chain.

The approach used in this simulation study was to construct a regional baseline forecast extending through 2017 for each of the 8 regions (the 8 Florida counties). This forecast was developed based on US 2002 macroeconomic data, which is the last full year of data adequate to run the REMI simulation. REMI model policy variables were then selected and an intervention constructed based on data previously collected. The model was then run with the military spending interventions in place, in order to simulate the regional economy with additional

military spending occurring over a period of several years in Northeast Florida. The differences between the baseline forecast and the forecast with the interventions comprise the results or the economic effects that would flow from the assumed changes in spending.

One other benefit of using an economic simulation model is particularly important when considering large spending flows. In an input-output model, impacts are usually measured as gross impacts, or additions to the area's economy without consideration of the extent to which, for example, a project's use of labor force may make labor more expensive to other businesses, or require additional infrastructure investment. The use of REMI attenuates this problem and so comes closer to an estimate of net, rather than gross, economic impacts because of the feedback effects present in this simulation model.

Reporting

Economic impacts can be reported in different ways. Defense spending creates jobs, directly in the military and civilian ranks as well as in defense-related industries in the supply chain and in the broader economy where households spend their income. Thus, a job count is an appropriate way to measure impact; it is an intuitive concept and provides a broad measure of economic opportunities created for workers. It has the shortcoming that not all jobs are equal, differences in industry structure between regions and differences in pay for similar jobs due to other factors (e.g., quality of life) may mean that jobs in one region are different from jobs in another region.

Defense spending creates sales, both final (to consumers) and intermediate (to businesses). Thus, the magnitude of total spending is often provided in economic impact calculations. However, calculation and reporting of the dollar value of all sales associated with new defense spending creates a risk of double counting, since the cost of inputs is included in the value of the final product. For example, the delivered price of a new car includes the cost of the tires, the battery and other components purchased from suppliers, and even though we can measure the dollar value of all those transactions, they are implicitly included in the final sale price of the car.

Defense spending creates personal income, both to workers (wages, salaries, fringe benefits and other compensation) and to business owners (proprietors' income). To the extent that these workers and owners spend their income in the local economy, there will be spin-off benefits and local economic impact associated with the flow. To the extent that the workers and owners are from other regions and spend their income elsewhere, personal income may not be an accurate indicator of local impact. Projects may also create wealth, because part of the income flowing from this economic activity may be saved and invested in order to provide future income and consumption. The type of wealth creation due to increased flows of saving is already accounted for when we calculate

personal income because saving and subsequent investment flows are financed out of personal income. On the other hand, we may observe appreciation of existing assets due to new economic activity, e.g., values of existing properties may increase due to the presence of new regional spending.

Perhaps the most widely accepted measure of economic impact is the increase in gross regional product (GRP) resulting from the presence of new spending flows. The increase in GRP is measured as the addition to the money value of all final goods and services produced within the region during a given time period. Because it measures final goods and services, it avoids the double counting inherent in the “total spending” measure. Because it incorporates leakages from regional income flows and from regional spending flows, it measures regional, as opposed to total (which would include national and international effects). This concept can be viewed as the value that is added within the region as part of the production process. Regional value-added, or addition to GRP, is the concept that we report most frequently in this report.

Any of these effects may imply the presence of fiscal impacts, such as additional tax revenue or additional government expenditure required by the economic activity. It should be noted that we do not consider the payment of federal and/or state and local taxes (which finance military spending) by Florida residents and businesses in this report.

APPENDIX 2: GLOSSARY

Aggregate demand. Aggregate demand is the total amount that all consumers, business firms, and government agencies are willing to spend on final goods and services.

Analysis of economic impact. An assessment of change in overall economic activity as a result of some corresponding change in one or several activities.

Backward linkage. Links an industry to its suppliers or a household (an institution) and the producers of household goods and services. The figures in this report are measures of backward linkages.

Disposable income. Disposable income is the sum of the incomes of all the individuals in the economy after all taxes have been deducted and all transfer payments have been added.

Economic model. An economic model is a simplified, small-scale version of some aspect of the economy. Economic models are often expressed in equations, by graphs or in words.

Equilibrium. Equilibrium is a situation in which there are no inherent forces that produce change. Changes away from an equilibrium position will occur only as a result of “outside events” that disturb the status quo.

Exports. Goods and services sold outside the boundaries of the economic entity being measured,

Final goods and services. Final goods and services are those that are purchased by their ultimate users.

Gross domestic product (GDP). Gross domestic product is the sum of the money values of all final goods and services produced in the domestic economy and sold on organized markets during a specified period of time.

Gross regional product (GRP). Gross regional product is analogous to gross domestic product but is for a sub-set of the entire domestic economy. It can be any size market and is usually defined along geographical boundaries.

Imports. Goods and services purchased from outside the economic unit being measured.

Intermediate good. An intermediate good is a good purchased for resale or for use in producing another good.

Multiplier. The multiplier is the ratio of the change in equilibrium divided by the original change in spending that causes the change. Each industry that produces goods and services generates demands for other goods and services. These demands ripple through the economy, multiplying the original economic impact.

Outputs. Outputs are the goods and services that consumers want to acquire.

Transfer payment. Payment to individuals arising from an entitlement created by law. Usually funded from current period budgetary appropriations. Examples include retirement pay to military retirees, as well as the costs of other retirement benefits.

Value added. The value added by a firm is its revenue from selling a product minus the amount paid for goods and services purchased from other firms.

