

Economic Impact Analysis



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Executive Summary

Hill Air Force Base is one of the largest employers in the State of Utah, with total employment of almost 22,000 military personnel and Department of Defense civilian workers. The Hill AFB Cost and Economics Division's 2021 Economic Impact Statement estimates that the Base's economic impact was more than \$7.1 billion, including more than \$5.4 billion in direct, indirect, and induced payroll.

It is estimated that Davis County represents more than 54% of the employees in the three Host counties, with Weber County representing 41% and Tooele County accounting for less than 1%, based on analysis of place-of-residence data provided by the Hill AFB Housing Office. All other counties combined represent just under 5%. Using these percentages to allocate Hill AFB's 2021 economic impact of \$7.1 billion across the region, the total economic impact on Davis County would be \$3.9 billion, with an additional \$2.9 billion in Weber County and \$15 million in Tooele County.

The upcoming expansion of the Ogden Air Logistics Center and the upgrades to the Ground Based Strategic Deterrent program will result in a significant number of new jobs in Weber, Davis and Tooele counties. The IMPLAN model was used to evaluate the potential impacts of increased employment to support these programs. As the projects are implemented, it is estimated that at least 3,400 direct jobs will be created, as well as almost 2,700 indirect and induced jobs. The expansion of these operations is projected to result in more than \$470 million in annual labor income. Almost \$363 million of this labor income (77%) is associated with the direct jobs.

Value added from the expansion of the Ogden Air Logistics Center and the Ground Based Strategic Deterrent program is projected to be almost \$700 million annually, with almost \$500 million of that amount associated with the direct jobs, and the remaining \$195 million associated with the indirect and induced jobs. These projects are expected to have total output of nearly \$1.1 billion annually, with \$675 million of this amount is associated with the direct jobs, and the remaining \$400 million associated with the indirect and induced jobs.

The proposed projects are expected to generate more than \$122 million annually in total tax revenues. Federal tax revenues represent the largest category of tax revenues at more than \$90 million annually. The State is projected to see \$22.7 million in annual tax revenues and the Counties are expected to receive more than \$2.1 million annually. Other tax entities (sub-county general and special taxing districts) are projected to receive more than \$7.1 million annually.

The IMPLAN model was also used to evaluate two "hypothetical" growth scenarios – a 100,000 square foot manufacturing facility and a 100,000 square foot office facility. Employment at the manufacturing facility was estimated to be 100 direct employees, or one employee for every 1,000 square feet. Indirect and induced impacts are projected to result in another 103 jobs. Total labor income is estimated to be \$15.8 million annually, with \$11 million attributable to the direct jobs and the remaining \$4.8 million in labor income attributable to the indirect and induced jobs.

A 100,000 square foot office facility has a significantly higher employment density than a manufacturing facility. Using an average of 200 square feet per employee, the facility would support 500 direct jobs. The ratio of indirect and induced jobs is lower than in the manufacturing scenario. The office scenario has 0.77 indirect and



induced jobs for every direct job, while the manufacturing scenario has 1.03 indirect and induced jobs for every direct job. Total labor income is estimated to be \$44.8 million annually for the office scenario, with \$29.3 million attributable to the direct jobs and the remaining \$15.5 million in labor income attributable to the indirect and induced jobs.

The construction of a 100,000 square foot manufacturing or office facility will also have some short-term economic impacts. Construction projects, by their nature, have a limited economic impact, which ends when the construction is completed.

The construction of a new 100,000 square foot manufacturing facility as compared to a 100,000 square foot office facility has different projected impacts, since the construction cost for the office facility is more than \$10 million higher than the construction cost for the manufacturing facility. Total job creation for the office construction project is 471 versus 296 for the manufacturing construction project.

The office construction project is anticipated to generate more than \$26 million in labor income, with almost \$20 million associated with the direct construction jobs. The manufacturing construction project is anticipated to generate more than \$16.8 million in labor income, with almost \$12.9 million associated with the direct construction jobs.

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1.1. Introduction

Hill Air Force Base (AFB) is one of the largest employers in the State of Utah, according to the Utah Department of Workforce Services (DWS), based strictly on civilian employment. Hill AFB ranks as the sixth largest employer in Utah, with more than 16,000 civilian employees. In addition, Hill AFB has almost 5,900 active-duty military members on-site, bringing total employment at the Base to almost 22,000.

The economic impact of Hill AFB on the Utah economy is substantial. Hill AFB's personnel, payroll and contracting activities contribute billions of dollars to the Utah economy every year. As discussed later in this report, Hill AFB estimates its economic impact was more than \$7 billion in 2021.

This report provides an overview of the economic impacts of Hill AFB and provides an estimate of the economic impacts on Davis, Weber and Tooele counties. In addition, it provides projections of the impacts associated with known expansions of the military's activities on the regional economy, specifically the three host counties. As a planning tool, this analysis also provides estimates of the impacts of two expansion scenarios – a new manufacturing facility and a new office facility. For each scenario, multipliers are included for both operational impacts and construction impacts.

1.2. Economic Impact Basics

Economic impact analysis generally provides an evaluation of the jobs and wages associated with a new economic activity. In general, there are three categories of impacts – direct impacts, indirect impacts and induced impacts.

Direct Impacts – Direct impacts are the impacts from the new economic activity (Company X for this discussion), focused on the new jobs and new labor income provided by Company X.

Indirect Impacts – Indirect impacts are created when the Company X spends money in the economy for goods and services. For example, Company X may retain a lawyer or accountant, could buy raw materials for a product, or hire a landscaper to maintain the grounds of their facility. The economic activity from these expenditures by Company X is considered to be indirect impacts.

Induced Impacts – Induced impacts are created when Company X's employees spend their labor income (paychecks) in the regional economy. Paying rent, buying food, going out to dinner and purchasing a new appliance or vehicle are all examples of induced economic impacts.

It is important to recognize the difference in economic impacts between construction impacts and ongoing operational impacts. By their nature, construction projects have a fixed life. Most construction projects are completed over a one- to two-year period, though some larger projects have a longer completion period. In comparison, operational impacts accrue on an annual basis. Though operational impacts may fluctuate from year-to-year based on spending and personnel levels, the economic impacts of ongoing operations are expected to continue into the future. This is important both for indirect/induced impacts and for those impacts associated with tax payments to County, State and Federal entities.



1.3. Hill Air Force Base 2021 Economic Impacts

The Hill AFB Cost and Economics Division prepares an annual Economic Impact Statement for the Base which summarizes a variety of personnel, payroll and spending factors. Overall, Hill AFB estimates its direct, indirect and induced economic impact in 2021 was more than \$7.1 billion. This is more than double the \$3.4 billion economic impact estimated by the Base in 2017. This growth represents a compound annual growth rate of more than 20%. Between 2020 and 2021, the Base's estimated total economic impact increased by more than 56%.

Hill Air Force Base					
Economic Impact Estimates					
	2017	2018	2019	2020	2021
Direct Jobs					
Military	5,785	5,788	5,705	5,843	5,874
Appropriated Fund Civilians	12,745	12,723	13,718	14,074	14,263
Non-Appropriated Fund Civilians	3,608	3,577	2,935	2,649	1,801
Total	22,138	22,088	22,358	22,566	21,938
Direct Payroll					
Military	\$285,567,377	\$295,809,337	\$314,989,578	\$347,770,834	\$355,373,916
Appropriated Fund Civilians	\$1,088,082,941	\$1,125,990,894	\$1,096,482,650	\$1,076,517,258	\$1,178,829,415
Non-Appropriated Fund Civilians	\$11,278,433	\$11,674,172	\$13,877,197	\$18,201,107	\$16,559,528
Total	\$1,384,928,751	\$1,433,474,403	\$1,425,349,425	\$1,442,489,199	\$1,550,762,859
Indirect and Induced Jobs	29,675	29,596	30,167	22,824	56,682
Indirect and Induced Payroll	\$1,349,915,750	\$1,375,030,160	\$1,471,485,926	\$2,521,454,178	\$3,866,024,319
Total Jobs	51,813	51,684	52,525	45,390	78,620
Total Payroll	\$2,734,844,501	\$2,808,504,563	\$2,896,835,351	\$3,963,943,377	\$5,416,787,178
Other Expenditures					
Construction	\$40,974,000	\$73,869,000	\$69,239,677	\$76,210,008	\$147,075,000
Other	\$624,601,224	\$686,052,925	\$742,060,631	\$512,659,469	\$1,547,020,166
Total Other Expenditures	\$665,575,224	\$759,921,925	\$811,300,308	\$588,869,477	\$1,694,095,166
Total Economic Impact	\$3,400,419,725	\$3,568,426,488	\$3,708,135,659	\$4,552,812,854	\$7,110,882,344

Source: Hill Air Force Base, Cost and Economics Division

Between 2017 and 2021, the total number of direct jobs fell by 200. A 50% reduction in Non-Appropriated Fund Civilian employees (-1,800) was mostly offset by a slight increase (1.5%) in military personnel and a significant increase (1,518 personnel, or 11.9%) in the number of Appropriated Fund civilian personnel.

Despite an increase of just 1.5% in military personnel between 2017 and 2021, military payroll increased by almost 25% over the period. Although the number of Non-Appropriated Fund Civilian personnel declined by 50% between 2017 and 2021, payroll for this group increased by 47%.

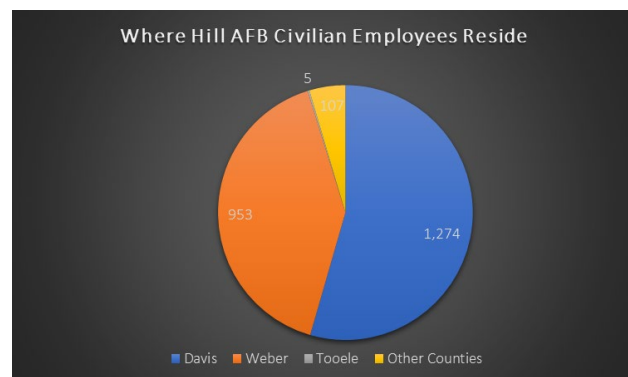
In terms of indirect and induced impacts, Hill AFB estimates that the number of indirect and induced jobs was 56,682 in 2021, while the indirect and induced payroll was estimated to be \$3.87 billion in 2021. These figures represent multipliers of 2.58 and 2.49 of the direct jobs and payroll at the Base in 2021.

In terms of other expenditures by the Base for construction, operations, travel and locally purchased goods and services, Hill AFB indicates that almost \$1.7 billion was expended in 2021, almost triple the \$589 million expended for construction by the Base in 2020.

Allocation of Impacts Across Counties

In order to gain a better understanding of how the impacts are spread across the State of Utah, the residence of employees is used to evaluate the economic impacts on Davis, Weber and Tooele counties. As part of the development of the Compatible Use Plan, the Hill AFB Housing Office provided information on the location of where a sample of Hill AFB personnel reside. The communities with the largest number of personnel are: Layton (482); Ogden (316); Roy (305); Clearfield (252); Syracuse (168) and Clinton (166). These communities also have the largest numbers of military personnel living off-base.

In order to estimate the impacts of Hill AFB's economic activities on each of the Host counties, the Hill AFB Housing Office data for civilian employees was summarized for each County. As shown in the chart to the right, more than half of the civilian employee residences provided by the Hill AFB Housing Office are in Davis County. Weber County accounts for more than 950 of the 2,339 employee locations, while Tooele County accounts for just five employees. In total, counties other than the three Host counties represent 107 of the 2,339 employees. In percentage terms, Davis County accounts for 54.5% of these employees, Weber County accounts for 40.7%, Tooele County accounts for 0.2% and all other counties account for 4.6%. This means that the three Host counties represent more than 95% of the employee residences provided.



These County percentages are used to allocate the 2021 economic impacts estimates developed by the Hill Air Force Base's Cost and Economics Division. In total, Hill AFB accounted for almost 22,000 direct jobs and more than 56,000 indirect and induced jobs in 2021. Direct payroll was reported to be in excess of \$1.5 billion, while indirect and induced payroll was reported to be almost \$3.9 billion. Other expenditures for construction, goods and services were reported to be almost \$1.7 billion in 2021.

Allocating Hill AFB's estimated 2021 economic impacts indicates that the total number of direct, indirect and induced jobs in Davis County was almost 43,000. These jobs had an estimated combined payroll of \$2.95 billion in 2021 according to Hill's Cost and Economics Division. Other expenditures in Davis County for construction, goods and services were estimated to total more than \$922 million in 2021.



Weber County is substantially smaller than Davis County, with a population of 260,000 versus a population of 355,000 for Davis County. Allocating Hill AFB's estimated economic impacts across the counties indicates a total more than 32,000 direct, indirect and induced jobs in Weber County in 2021. Total payrolls for these just were estimated to exceed \$2.2 billion in 2021. Additional expenditures for construction, goods and services were estimated to be more than \$690 million in 2021.

Hill Air Force Base					
Allocation of 2021 Economic Impact Estimates by County					
	Davis County	Weber County	Tooele County	Other Counties	Total
Direct Jobs	11,949	8,938	47	1,004	21,938
Direct Payroll	\$844,665,191	\$631,841,387	\$3,315,013	\$70,941,268	\$1,550,762,859
Indirect and Induced Jobs	30,873	23,094	121	2,593	56,682
Indirect and Induced Payroll	\$2,105,735,349	\$1,575,169,378	\$8,264,267	\$176,855,324	\$3,866,024,319
Total Jobs	42,823	32,033	168	3,597	78,620
Total Payroll	\$2,950,400,541	\$2,207,010,766	\$11,579,280	\$247,796,592	\$5,416,787,178
Total Other Expenditures	\$922,735,033	\$690,240,570	\$3,621,409	\$77,498,154	\$1,694,095,166
Total Economic Impact	\$3,873,135,573	\$2,897,251,336	\$15,200,689	\$325,294,746	\$7,110,882,344
<i>Source: Hill Air Force Base, Cost and Economics Division and Matrix Design Group</i>					

Due to a very small number of employees residing in Tooele County, the economic impact of Hill AFB's activities was relatively small. Allocating Hill AFB's estimated economic impacts based on the residence of employees, there were 168 direct, indirect and induced jobs in Tooele County, with an estimated total payroll of \$11.6 million in 2021. The expenditures for construction, goods and services were \$3.6 million in 2021.

1.4. Evaluating Future Economic Impacts

There is a significant amount of growth anticipated at Hill AFB in the coming years. As detailed in Chapter 5 (Compatibility Assessment) of the Compatible Use Plan, many existing operations at Hill AFB will see significant growth. Among the activities expected to see increased activity in the next five years are:

- The Ogden Air Logistics Center is anticipating major growth in software and industrial programs, supported by an estimated 1,000 new software professionals over the next five years
- The Air Force will add 1,200 employees to support the Ground Based Strategic Deterrent program
- Northrop Grumman is expected to add as many as 1,200 new employees to support the Ground Based Strategic Deterrent program

Collectively, these projects could increase the Hill AFB workforce by 3,400 over the next five years.

Understanding the economic impacts of these activities, as well as additional (generic) economic development will help the Host counties and the larger region understand the opportunities in terms of indirect and induced economic activity.

In order to gain a better understanding of the economic opportunities associated with growth and expansion, the IMPLAN model, an economic input-output model, is used.

The IMPLAN Model

Use of an economic input-output model for growth and expansion projects helps provide an understanding of expected indirect and induced jobs and wages associated with specific projects. As an example, manufacturing activities typically create more substantial indirect and induced impacts than service activities. This is generally due to the purchase and use of materials used in manufacturing, while service activities typically require very limited “materials”.

The IMPLAN model utilizes a broad array of data sources to provide localized analysis in jurisdictions across the United States. As described on the Company’s website, IMPLAN data contains 546 sectors representing all private industries in the United States (anything from grain farming to surgical appliance manufacturing) as defined by the North American Industry Classification System (NAICS) codes. Employment, employee compensation, industry expenditures, commodity demands, relationships between industries, and more are collected to form IMPLAN’s ever-growing database.

For this analysis, individual economic events, such as the hiring of 1,200 new personnel for the GBSD program, are input into IMPLAN. This new economic activity evaluates the anticipated direct, indirect and induced impacts, and allocates portions of the activity to specific industries and economic sectors to provide an understanding of the magnitude of the impacts as well as what economic sectors will be most affected.

The IMPLAN model provides estimates of tax revenues for Federal, State, County(ies) and sub-county regions. General sub-county regional taxes are typically local communities, while sub-county special district taxes are for uses such as park districts, library districts, fire districts and economic development districts, among others. Tax revenues are estimated by IMPLAN from Social Security contributions, Taxes on Production and Imports (TOPI), corporate profits taxes and personal income taxes. IMPLAN projects tax revenues from income taxes based on a variety of income brackets for each tax category, as well as for things like motor vehicle licensing and hunting/fishing licenses. TOPI tax estimates are projected based sales taxes, property taxes, motor vehicle taxes, and other taxes/special assessments.

From the perspective of the region of impacts, the analysis using the IMPLAN model focuses on a user-defined region which includes Davis, Weber and Tooele counties. The impacts of all model simulations reflect all of the economic impacts for each scenario occurring within the three-county region. The three-county region is used to evaluate new economic activities since the specific location of these economic activities is not available and limiting any of these economic activities to one of the counties would not fairly represent the larger economic region.



1.5.Economic Activity in the Three County Region

The IMPLAN model provides baseline information regarding the study area – in this case the combined Weber, Davis and Tooele counties. The data provided in this section is 2019 data, before the COVID-19 pandemic had substantial impacts on the US economy.

IMPLAN indicates that the total land area for the region is just over 7,800 square miles, with Tooele County accounting for almost 90% of the total land area. The three-county region is home to almost 688,000 people, with Davis County accounting for more than 355,000 residents, or more than half of all residents in the region.

The region has just over 220,000 households, and an average household size of 3.12. Davis County has the largest household size (3.26) and Weber County has the smallest household size at 2.92.

Total personal income for the three-county region was estimated to be almost \$32 billion in 2019. Davis County accounted for more than half of all personal income (\$17.5 billion), while Tooele County accounted for less than 10% (\$2.8 billion). Per capita personal income averaged \$46,500 in 2019, though Tooele County's personal income was much lower than the overall region at just under \$39,000.

Weber, Davis and Tooele Counties				
Baseline Economic Data				
	Weber County	Davis County	Tooele County	Total
Population	260,213	355,481	72,259	687,953
Land Area (Square Miles)	575.6	304.5	6,945.9	7,826.0
Total Households	89,042	108,877	22,269	220,188
Average Household Size	2.92	3.26	3.24	3.12
Total Personal Income	\$11,652,059,314	\$17,524,330,752	\$2,809,629,500	\$31,986,019,566
Per Capita Personal Income	\$44,779	\$49,298	\$38,883	\$46,494
Number of Industries	327	327	214	868
Total Employment	143,433	190,410	24,641	358,484
Value Added - Employee Compensation	\$6,508,044,070	\$8,975,151,312	\$1,027,908,976	\$16,511,104,358
Value Added - Proprietor Income	\$592,428,580	\$900,351,353	\$68,231,611	\$1,561,011,544
Value Added - Other Property Income	\$4,257,928,615	\$6,527,892,203	\$798,396,281	\$11,584,217,099
Value Added - Taxes on Production and Imports	\$700,932,375	\$953,551,519	\$132,749,156	\$1,787,233,050
Total Value Added / Gross Domestic Product	\$12,059,333,639	\$17,356,946,386	\$2,027,286,024	\$31,443,566,049
Source: IMPLAN 2019				

The region had 868 industries in 2019, with Tooele County representing 25% and the remaining 75% split evenly between Weber and Davis counties. Total employment for the region was just over 358,000, though Tooele County represented less than 7% of these jobs (24,641).

Total Gross Domestic Product for the region was estimated to be \$31.4 billion, including employee compensation of \$16.5 billion, proprietor income of \$1.6 billion, taxes on production and imports of \$1.8 billion and other property income of \$11.6 billion.

1.6. GBSD Impacts – Northrop Grumman

Northrop Grumman is leading the Ground Based Strategic Deterrent project on behalf of the US Air Force. According to the Northrop Grumman website, “The U.S. Air Force’s Ground Based Strategic Deterrent (GBSD) weapon system is a critical modernization of the land-based leg of the U.S. nuclear triad, the backbone of America’s national security. GBSD replaces the aging Minuteman III intercontinental ballistic missile (ICBM) system, which has been in service for more than 50 years.”¹

In 2020, the Air Force awarded the Northrop Grumman team a contract for engineering and manufacturing development to support modernization and upgrade of the GBSD. It is anticipated that the GBSD will be an integrated weapons system to meet the needs of combatant commanders with flexibility to address changing technologies and emerging threats.

The IMPLAN model is used to evaluate the direct, indirect and induced impacts associated with hiring 1,200 new engineering personnel in 2023. Discussions with Northrop Grumman indicate that the company will hire a net of 100 new engineering positions per month to meet the needs of the GBSD program. Although a portion of the employees are likely to be hired in 2022, the analysis assumes that all 1,200 will be hired in 2023. This approach is considered to be more conservative in terms of the economic impacts of the hiring, since all are pushed out to 2023.

The IMPLAN model was used to estimate the economic impacts associated with hiring for the GBSD program. Based on discussions with Northrop Grumman, IMPLAN was used to evaluate the impacts associated with 1,200 new engineering positions in 2023, with an average wage of \$100,000 per year. No other economic activities were included in the simulation. In particular, this analysis did not include any construction-related activity to support the new personnel.

Weber, Davis and Tooele Counties				
Estimated Impacts - 1,200 Engineers, GBSD				
	Employment	Labor Income	Value Added	Total Output
Direct Jobs	1,200.0	\$122,421,508	\$166,082,580	\$346,566,003
Indirect Jobs	1,066.1	\$45,178,736	\$69,574,350	\$162,686,705
Induced Jobs	659.4	\$26,340,023	\$51,257,456	\$96,757,404
Total Jobs	2,925.5	\$193,940,268	\$286,914,386	\$606,010,113
Source: IMPLAN 2022				

IMPLAN estimates that total employment from the expansion of the GBSD program will result in the creation of 2,925 jobs. This includes the 1,200 direct jobs, as well as 1,066 indirect jobs and 659 induced jobs. Labor income is projected to be almost \$194 million, including \$122.4 million in labor income associated with the direct jobs, \$45.2 million associated with the indirect jobs and \$26.3 million associated with the induced jobs. Value added is estimated to be almost \$287 million in total annually, and total output is projected to exceed \$600 million annually.

¹ <https://www.northropgrumman.com/gbsd/about-gbsd/>



The IMPLAN analysis also offers insight into which industries will see the largest number of total jobs created as a result of the GBSD program. Northrop's addition of 1,200 engineering professionals is expected to create an additional 77 indirect jobs in the Scientific Research and Development sector, and a total of 1,277 direct, indirect and induced jobs within the sector.

No other sector will add direct jobs as a result of the GBSD program, only indirect and induced jobs are expected in other sectors. The Other Real Estate sector is expected to see an additional 311 jobs as a result of the GBSD project, including 280 indirect jobs and 31 induced jobs. The Employment Services sector is expected to see an increase of 127 total jobs, including 116 indirect jobs and 11 induced jobs. The Management Consulting sector is expected to see an increase of 111 total jobs, including 105 indirect jobs and 6 induced jobs.

The Table below provides a summary of the ten sectors that will see the largest number of jobs as a result of Northrop's hiring to support the GBSD project. These ten sectors account for more than 2,100 of the 2,925 total jobs expected to be created as a result of Northrop's hiring to support the GBSD project, or 72% of the total.

Weber, Davis and Tooele Counties				
Estimated Job Creation Impacts - 1,200 Engineers, GBSD				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
Total Jobs	1,200.0	1,066.1	659.4	2,925.5
464 - Scientific research and development services	1,200.0	76.6	0.8	1,277.4
447 - Other real estate	-	280.3	30.9	311.2
472 - Employment services	-	115.8	10.9	126.7
462 - Management consulting services	-	105.3	6.3	111.5
457 - Architectural, engineering, and related services	-	57.2	2.3	59.5
455 - Legal services	-	48.7	4.6	53.2
510 - Limited-service restaurants	-	7.7	40.5	48.3
469 - Management of companies and enterprises	-	38.3	4.7	42.9
468 - Marketing research and all other miscellaneous professional, scientific, and technical services	-	39.5	1.5	41.1
509 - Full-service restaurants	-	14.7	21.9	36.6

Source: IMPLAN 2022

IMPLAN provides an estimate of the impact of the new economic activity – in this case the hiring of 1,200 new engineers for the GBSD program – on the existing industry. For example, the Scientific Research and Development Services sector is currently estimated at just over \$1 billion. The new economic activity is expected to add more than \$363 million to the sector, or an increase of more than 35%.

While no other industry is expected to see an increase of more than 2.8%, the addition of 1,200 jobs to support the GBSD program will have significant impacts. Several sectors are expected to see increases of more than \$5 million annually, including the Legal Services sector (\$6.2 million); the Management Consulting sector (\$13.5 million), the Marketing Research sector (\$7.8 million), the Employment Services sector (\$9.8 million), the Other Real Estate sector (\$51.5 million) and the Management of Companies and Enterprises sector (\$6.3 million).

Economic Impact Analysis

The Table below provides a summary of the ten sectors that will see the largest percentage growth in terms of industry activity as a result of the GBSD project. These ten sectors account for more than \$462.2 million of the \$606 million in total output generated as a result of the GBSD project, or more than 76% of the total.

Weber, Davis and Tooele Counties			
Estimated Industry Growth Impacts - 1,200 Engineers, GBSD			
Industry	Industry Output	Activity Output	Estimated Growth
Scientific research and development services	\$1,022,691,134	\$363,552,316	35.5%
Legal services	\$221,336,636	\$6,230,166	2.8%
Management consulting services	\$487,327,177	\$13,453,575	2.8%
Marketing research and all other miscellaneous professional, scientific, and technical services	\$297,622,890	\$7,857,744	2.6%
Employment services	\$438,526,685	\$9,849,999	2.2%
Other real estate	\$2,622,089,538	\$51,539,689	2.0%
Environmental and other technical consulting services	\$25,386,282	\$429,969	1.7%
Management of companies and enterprises	\$404,539,967	\$6,329,140	1.6%
Scenic and sightseeing transportation and support activities for transportation	\$181,915,913	\$2,802,173	1.5%
Support activities for agriculture and forestry	\$14,749,828	\$199,160	1.4%
Source: IMPLAN 2022			

IMPLAN also provides estimates of the tax impacts associated with new economic activity. IMPLAN provides estimates of new tax revenues for five separate tax categories – Federal, State, County, Sub County Special Districts and Sub County General tax revenues. IMPLAN also projects the revenues associated with direct, indirect and induced jobs for each tax category. Overall, the new positions associated with Northrop’s hiring to support the GBSD project are expected to generate more than \$53 million in annual tax revenues. State tax revenues are estimated to be \$10.6 million annually, while all County-related taxes are projected to total almost \$5.4 million annually in the three host communities, as shown in the Table below.

Weber, Davis and Tooele Counties						
Estimated Tax Impacts - 1,200 Engineers, GBSD						
	Sub County General	Sub County Special Districts	County	State	Federal	Total
Direct Jobs	\$486,926	\$695,936	\$350,246	\$5,100,529	\$23,081,025	\$29,714,661
Indirect Jobs	\$371,078	\$527,003	\$266,293	\$2,444,052	\$8,468,814	\$12,077,241
Induced Jobs	\$852,179	\$1,204,591	\$610,491	\$3,033,389	\$5,523,513	\$11,224,163
Total Jobs	\$1,710,184	\$2,427,530	\$1,227,031	\$10,577,969	\$37,073,352	\$53,016,066
Source: IMPLAN 2022						



1.7. GBSD Impacts – Increased Federal Employment

The Air Force will need to expand employment in the Ground Based Strategic Deterrent (GBSD) Program Office and supporting functions, as part of their responsibility to manage Northrop Grumman’s GBSD contract. While the Air Force was not able to provide specific timing as to when these positions would be required, the fact that Northrop Grumman anticipates hiring 1,200 engineers for the GBSD project not later than year-end 2023 indicates that the Federal government is likely to require additional employees by that time as well.

The IMPLAN model is used to evaluate the direct, indirect and induced impacts associated with hiring 1,200 new Federal employees as part of the GBSD Program Office. This analysis assumes that all 1,200 new Federal employees will be hired in 2023. It should be noted that this analysis did not include any construction-related activity to support the new personnel.

Weber, Davis and Tooele Counties				
Estimated Impacts - Federal Employees, GBSD				
	Employment	Labor Income	Value Added	Total Output
Direct Jobs	1,200.0	\$130,257,685	\$178,617,266	\$178,617,266
Indirect Jobs	-	\$0	\$0	\$0
Induced Jobs	517.4	\$20,395,045	\$39,685,632	\$74,925,087
Total Jobs	1,717.4	\$150,652,731	\$218,302,898	\$253,542,353
Source: IMPLAN 2022				

IMPLAN estimates that total employment from the expansion of Federal employment as a result of the GBSD program will result in the creation of 1,717 total jobs. This includes the 1,200 direct jobs, as well as 517 induced jobs. IMPLAN does not calculate indirect jobs from Federal hiring, since many purchases that would create induced jobs come from other Federal agencies, such as the Defense Logistics Agency, rather than items such as office supplies coming from individual local suppliers.

Labor income is projected to be more than \$150 million, including \$130.3 million in labor income associated with the direct jobs and \$74.9 million associated with the induced jobs. Value added is estimated to be more than \$218 million in total annually, and total output is projected to exceed \$253 million annually.

No other sectors will add direct or indirect jobs as a result of the increased Federal employment in support of the GBSD program, only induced jobs are expected in other sectors. Limited-service restaurants are expected to see 32 additional jobs, and the other real estate sector is expected to see an additional 24 induced jobs. The hospital sector is expected to see an increase of 22 induced jobs.

The Table below provides a summary of the ten sectors that will see the largest number of jobs as a result of the increased Federal hiring in support of the GBSD project. These ten sectors account for almost 1,400 of the 1,717 total jobs expected to be created as a result of the GBSD project, or 80% of the total.

Economic Impact Analysis

Weber, Davis and Tooele Counties				
Estimated Job Creation Impacts - 1,200 Federal Employees				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
Total Jobs	1,200	-	517.4	1,717.4
546 - * Employment and payroll of federal govt, non-military	1,200	-	-	1,200.0
510 - Limited-service restaurants	-	-	31.9	31.9
447 - Other real estate	-	-	24.3	24.3
490 - Hospitals	-	-	22.3	22.3
411 - Retail - General merchandise stores	-	-	19.3	19.3
483 - Offices of physicians	-	-	18.0	18.0
509 - Full-service restaurants	-	-	17.2	17.2
413 - Retail - Nonstore retailers	-	-	15.6	15.6
442 - Other financial investment activities	-	-	14.1	14.1
406 - Retail - Food and beverage stores	-	-	13.7	13.7
Source: IMPLAN 2022				

IMPLAN provides an estimate of the impact of the new economic activity – in this case the hiring of 1,200 new Federal employees to support the GBSD program – on the existing industry. For example, the addition of 1,200 new Federal employees would represent an increase of 6.3% in the employment and payroll of (non-military) Federal government sector in the three-county region, currently estimated at more than \$2.8 billion in the region.

The Table below provides a summary of the ten sectors that will see the largest percentage growth in terms of industry activity as a result of the GBSD project. These ten sectors account for almost \$191.7 million of the \$253.5 million in total output generated as a result of the Federal support of the GBSD project, or more than 75% of the total.

Weber, Davis and Tooele Counties			
Estimated Industry Growth Impacts - 1,200 Federal Employees			
Industry	Industry Output	Activity Output	Estimated Growth
Employment and payroll of federal govt, non-military	\$2,851,184,317	\$178,617,266	6.3%
Child day care services	\$85,660,764	\$320,292	0.4%
Labor and civic organizations	\$31,836,422	\$116,490	0.4%
Owner-occupied dwellings	\$3,041,301,102	\$11,056,524	0.4%
Home health care services	\$102,170,011	\$370,324	0.4%
Individual and family services	\$82,766,374	\$296,677	0.4%
Other ambulatory health care services	\$50,795,058	\$181,541	0.4%
Outpatient care centers	\$143,261,284	\$510,180	0.4%
Museums, historical sites, zoos, and parks	\$8,822,335	\$31,408	0.4%
Veterinary services	\$50,118,868	\$178,275	0.4%
Source: IMPLAN 2022			

IMPLAN also provides estimates of the tax impact associated with new economic activity. IMPLAN provides estimates of new tax revenues for five separate tax categories – Federal, State, County, Sub County Special Districts and Sub County General tax revenues. IMPLAN also projects the revenues associated with direct,



indirect and induced jobs for each tax category. Overall, the new Federal positions associated with the GBSD project are expected to generate more than \$37 million in annual tax revenues. State tax revenues are estimated to be \$6.6 million annually, while all County-related taxes are projected to total almost \$2.1 million annually in the three host communities, as shown in the Table below.

Weber, Davis and Tooele Counties						
Estimated Tax Impacts - Federal Employees, GBSD						
	Sub County General	Sub County Special Districts	County	State	Federal	Total
Direct Jobs	\$4,942	\$16,300	\$5,267	\$4,223,477	\$24,766,430	\$29,016,416
Indirect Jobs	\$0	\$0	\$0	\$0	\$0	\$0
Induced Jobs	\$660,756	\$934,006	\$473,358	\$2,351,638	\$4,280,751	\$8,700,508
Total Jobs	\$665,698	\$950,306	\$478,625	\$6,575,115	\$29,047,182	\$37,716,924
Source: IMPLAN 2022						

1.8. Ogden Air Logistics Center Expansion

The Air Force was not able to provide specific information regarding the anticipated expansion of the Ogden Air Logistics Center (OO-ALC). However, as discussed in the Compatible Use Plan, "The OO-ALC is anticipating major growth in software and industrial programs. In the software program alone, it is anticipated that there will be an influx of 200 software professionals annually for the next five years, and possibly beyond five years."²

The IMPLAN model was used to evaluate the impacts of 1,000 new Federal employees on the regional economy. As discussed previously, the IMPLAN model assumes that there are no indirect impacts associated with Federal employees. As shown in the Table below, the addition of 1,000 direct Federal employees is projected to add almost \$110 million in direct labor income. The project is also expected to result in 431 induced jobs with labor income or more than \$17 million. Total output is projected to be \$214 million, including more than \$150 million from the direct jobs and \$63 million from the indirect jobs.

Weber, Davis and Tooele Counties				
Estimated Impacts - Air Logistics Expansion				
	Employment	Labor Income	Value Added	Total Output
Direct Jobs	1,000	\$109,925,943	\$150,737,143	\$150,737,143
Indirect Jobs	-	\$0	\$0	\$0
Induced Jobs	431	\$17,226,996	\$33,524,166	\$63,276,272
Total Jobs	1,431	\$127,152,939	\$184,261,309	\$214,013,415
Source: IMPLAN 2022				

A number of employment categories will be affected as a result of the hiring of 1,000 Federal workers at OO-ALC as employees spend their wages in the regional economy. These include limited-service restaurants; other real estate; hospitals; retail general merchandise stores; and physicians offices, all of which are projected to see an increase of between 15 and 27 jobs.

² Compatible Use Plan, Page 5-10

Economic Impact Analysis

Weber, Davis and Tooele Counties				
Estimated Job Creation Impacts - Air Logistics Expansion				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
Total Jobs	1,000.00	0	431.1	1431.1
546 - Employment and payroll of federal govt, non-military	1,000.0	0.0	0.0	1,000.0
510 - Limited-service restaurants	0.0	0.0	26.6	26.6
447 - Other real estate	0.0	0.0	20.2	20.2
490 - Hospitals	0.0	0.0	18.6	18.6
411 - Retail - General merchandise stores	0.0	0.0	16.1	16.1
483 - Offices of physicians	0.0	0.0	15.0	15.0
509 - Full-service restaurants	0.0	0.0	14.3	14.3
413 - Retail - Nonstore retailers	0.0	0.0	13.0	13.0
442 - Other financial investment activities	0.0	0.0	11.8	11.8
406 - Retail - Food and beverage stores	0.0	0.0	11.4	11.4
Source: IMPLAN 2022				

In terms of increased output, IMPLAN estimates the addition of 1,000 new Federal employees to be an increase of just over 5.3% in the region. Growth associated with the induced spending and jobs is highest in child daycare services; labor and civic organizations; owner-occupied dwellings; home health care services; and other ambulatory healthcare services.

Weber, Davis and Tooele Counties			
Estimated Industry Growth Impacts - Air Logistics Expansion			
Industry	Industry Output	Activity Output	Estimated Growth
Employment and payroll of federal govt, non-military	\$2,851,184,317	\$150,737,143	5.3%
Child day care services	\$85,660,764	\$273,270	0.3%
Labor and civic organizations	\$31,836,422	\$98,967	0.3%
Owner-occupied dwellings	\$3,041,301,102	\$9,370,981	0.3%
Home health care services	\$102,170,011	\$312,666	0.3%
Other ambulatory health care services	\$50,795,058	\$154,492	0.3%
Individual and family services	\$82,766,374	\$251,416	0.3%
Outpatient care centers	\$143,261,284	\$433,585	0.3%
Veterinary services	\$50,118,868	\$151,244	0.3%
Museums, historical sites, zoos, and parks	\$8,822,335	\$26,528	0.3%
Source: IMPLAN 2022			

The addition of 1,000 Federal employees at OO-ALC is projected to generate more than \$31.8 million in new tax revenues. More than \$24.5 million of this amount is Federal taxes. IMPLAN projects that the State will see more than \$5.5 million in increased tax revenues as a result of the expansion of OO-ALC, while County taxes are projected to increase by just over \$400,000. Sub-County general taxes and special districts are projected to see increased tax revenues of more than \$1.3 million annually.



Weber, Davis and Tooele Counties						
Estimated Tax Impacts - Air Logistics Expansion						
	Sub County General	Special Districts	County	State	Federal	Total
Direct Jobs	\$4,171	\$13,755	\$4,445	\$3,564,240	\$20,900,672	\$24,487,284
Indirect Jobs	\$0	\$0	\$0	\$0	\$0	\$0
Induced Jobs	\$557,619	\$788,218	\$399,472	\$1,984,574	\$3,612,575	\$7,342,458
Total Jobs	\$561,790	\$801,973	\$403,917	\$5,548,814	\$24,513,247	\$31,829,741
Source: IMPLAN 2022						

1.9. Economic Impacts of a New Manufacturing Facility

To provide the Host Communities with an understanding of how new economic activity affects the regional economy, a notional profile of a new manufacturing facility was evaluated using the IMPLAN model. The first step in creating the notional profile was to define the facility and the number and types of jobs that would be housed in the facility.

Manufacturing facilities typically require anywhere from 750 to 1,250 square feet per employee. For purposes of this evaluation, an average of 1,000 square feet per employee is used. Therefore, a new manufacturing facility of 100,000 square feet could house 100 new employees. A notional profile for a manufacturing facility that includes guided missiles, similar the to GBSD program, was assumed. Fifty percent of jobs are assumed to be in manufacturing guided missiles, while the remaining fifty percent are focused on manufacturing propulsion systems for guided missiles.

These job creation estimates were used as the primary inputs into the IMPLAN model to evaluate the impacts of the new economic activity.

Operational Impacts

The results of the IMPLAN analysis for a new manufacturing facility supporting 100 jobs indicates that the project will support an additional 103 indirect and induced jobs, or a multiplier of 1.03 indirect and induced jobs for each direct job. Direct labor income is projected to approach \$11 million annually, while indirect and induced labor income is projected to exceed \$4.8 million annually. Total labor income is almost \$15.8 million annually.

Weber, Davis and Tooele Counties				
Estimated Impacts - 100,000 SF Manufacturing Facility				
	Employment	Labor Income	Value Added	Total Output
Direct Jobs	100	\$10,995,925	\$17,391,280	\$46,583,988
Indirect Jobs	50	\$2,695,145	\$3,870,102	\$8,895,346
Induced Jobs	53	\$2,107,072	\$4,100,009	\$7,741,017
Total Jobs	203	\$15,798,142	\$25,361,391	\$63,220,350
Source: IMPLAN 2022				

Total value added is projected to exceed \$25.3 million annually, with the direct jobs creating almost 70% of the value added, while indirect and induced jobs support the remaining 31%. IMPLAN estimates that total output /

gross regional product will exceed \$63.2 million, including \$46.6 million associated with the direct jobs and \$16.6 million associated with the indirect and induced jobs.

In terms of total jobs (direct, indirect and induced) within specific industries, the two sectors supporting the direct jobs have the most significant number of total jobs. The propulsion unit sector accounts for 53.3 total jobs, and the manufacturing of guided missiles sector accounts for 51 total jobs. The employment services sector is expected to see 6.7 new indirect and induced jobs, while the other real estate sector is expected to see 5 indirect and induced jobs.

In total, these ten sectors account for more than 50% of all indirect jobs, and 21% of all induced jobs. The Table below summarizes those sectors which are expected to see the largest number of new jobs as a result of the new manufacturing facility's operation.

Weber, Davis and Tooele Counties				
Estimated Job Creation Impacts - 100,000 SF Manufacturing Facility				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
Total Jobs	100.0	49.9	53.5	203.3
358 - Propulsion units and parts for space vehicles and guided missiles manufacturing	50.0	3.3	-	53.3
357 - Guided missile and space vehicle manufacturing	50.0	1.0	-	51.0
472 - Employment services	-	5.8	0.9	6.7
447 - Other real estate	-	2.5	2.5	5.0
469 - Management of companies and enterprises	-	4.5	0.4	4.9
473 - Business support services	-	4.4	0.3	4.8
510 - Limited-service restaurants	-	0.2	3.3	3.5
237 - Plate work manufacturing	-	2.9	-	2.9
509 - Full-service restaurants	-	0.6	1.8	2.4
490 - Hospitals	-	-	2.3	2.3
Source: IMPLAN 2022				

In this hypothetical scenario, the addition of a major manufacturing facility focused on guided missiles and propulsion systems represents an economic activity which currently has a presence in the Weber, Davis and Tooele counties region. The additional of this hypothetical manufacturing facility would increase the manufacture of propulsion systems by more than 5% in the region and increase the manufacturing of guided missiles in the region by almost 4%.

Plate work manufacturing and iron and steel forging would see increases in industry output of 0.5% and 0.4% respectively. These ten sectors represent more than \$50 million in total output, or almost 80% of the \$63.2 million in total output from this scenario.



Weber, Davis and Tooele Counties			
Estimated Industry Growth Impacts - 100,000 SF Manufacturing Facility			
Industry	Industry Output	Activity Output	Estimated Growth
Propulsion units and parts for space vehicles and guided missiles manufacturing	\$375,050,006	\$19,231,581	5.1%
Guided missile and space vehicle manufacturing	\$742,587,039	\$29,109,782	3.9%
Plate work manufacturing	\$135,511,234	\$721,837	0.5%
Iron and steel forging	\$17,034,659	\$61,613	0.4%
Wholesale - Household appliances and electrical and electronic goods	\$133,376,543	\$363,769	0.3%
Wholesale - Machinery, equipment, and supplies	\$94,885,835	\$256,121	0.3%
Other support services	\$63,991,949	\$168,529	0.3%
Metal coating and nonprecious engraving	\$45,583,121	\$106,967	0.2%
Investigation and security services	\$60,206,753	\$137,191	0.2%
Specialized design services	\$29,975,322	\$56,420	0.2%
Source: IMPLAN 2022			

The proposed activity is anticipated to generate more than \$4.3 million in total taxes. Federal taxes represent 70% of the total taxes generated. This scenario is projected to generate more than \$863,000 annually in state tax revenues. In addition, this scenario is projected to generate more than \$400,000 annually in County and sub-county tax revenues annually.

Weber, Davis and Tooele Counties						
Estimated Tax Impacts - 100,000 SF Manufacturing Facility						
	Sub County General	Sub County Special Districts	County	State	Federal	Total
Direct Jobs	\$39,617	\$56,679	\$28,507	\$460,325	\$2,120,729	\$2,705,856
Indirect Jobs	\$29,355	\$41,623	\$21,053	\$159,869	\$507,331	\$759,231
Induced Jobs	\$68,250	\$96,475	\$48,894	\$242,920	\$442,254	\$898,793
Total Jobs	\$137,222	\$194,777	\$98,454	\$863,114	\$3,070,313	\$4,363,880
Source: IMPLAN 2022						

Construction Impacts – Manufacturing Facility

In addition to operational impacts, the development of a new 100,000 square foot manufacturing facility will have additional impacts associated with the construction of a facility of this type. In order to model the anticipated impacts associated with the construction of a new 100,000 square foot manufacturing facility, an order-of-magnitude construction cost was used as the primary input to the IMPLAN model. IMPLAN uses the total construction cost to drive impacts, including the number of construction jobs and wages. The total construction cost also drives the induced costs associated with construction materials and other goods and services.

In order to estimate the cost for constructing a 100,000 square foot manufacturing facility in the three-county region, information from the Marshall Valuation Service (MVS) was used. MVS provides construction cost information for hundreds of building types, construction materials and quality levels. In addition, MVS localizes the construction cost estimates by providing cost multipliers for major communities in each state.

For analytical purposes, the MVS costs for Industrial, Engineering (Research & Development) Buildings was used. MVS has five construction types, and several quality levels within each type of construction. A base cost of \$196 per square foot was used for an excellent quality, Class A construction type property. This base cost was increased by the MVS multipliers totaling 11.2% for current construction costs in the Salt Lake City region as compared to the MVS national baseline cost for this type of a structure. This raised the average per square foot construction cost for the hypothetical 100,000 square foot facility to \$218 per square foot. An additional 20% was added to reflect soft costs, permitting and land acquisition, which brought the total “all-in” project cost to just over \$261 per square foot of building area. As such, a total estimated project cost of \$26.2 million was used as the primary input to the IMPLAN model for the construction project.

Based on the IMPLAN model, the creation of a 100,000 square foot manufacturing facility would create almost 300 total jobs, including 208 direct jobs and 89 indirect and induced jobs. Total labor income would exceed \$16.8 million, including more than \$12.8 million in labor income attributable to the direct jobs. Total output would exceed \$40.1 million, including more than \$25.6 million associated with the direct jobs.

It is important to recognize that construction jobs are, by their project-specific nature, temporary. When the construction project is completed, the jobs and wages “stop”. Thus, these estimates of jobs, labor income, value added, and total output are not recurring annually.

Weber, Davis and Tooele Counties				
Estimated Impacts - 100,000 SF Manufacturing Facility				
	Employment	Labor Income	Value Added	Total Output
Direct Jobs	207.7	\$12,858,191	\$13,410,143	\$25,659,666
Indirect Jobs	30.2	\$1,658,155	\$2,717,568	\$6,029,791
Induced Jobs	58.5	\$2,304,121	\$4,483,208	\$8,467,069
Total Jobs	296.4	\$16,820,467	\$20,610,918	\$40,156,526
Source: IMPLAN 2022				

The construction of a new 100,000 square foot manufacturing facility will have impacts in other areas of the regional economy, particularly as a result of purchasing construction materials for the project, and as workers spend their paychecks in the regional economy. The other real estate sector, limited-service restaurants sector, employment services section, the truck transportation sector and the hospital sector are the five industries (other than construction jobs) expected to see the most growth.



Weber, Davis and Tooele Counties				
Estimated Job Creation Impacts - 100,000 SF Manufacturing Facility				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
Total Jobs	207.7	30.2	58.5	296.4
51 - Construction of new manufacturing structures	207.7	-	-	207.7
447 - Other real estate	-	3.4	2.7	6.1
510 - Limited-service restaurants	-	0.1	3.6	3.7
472 - Employment services	-	1.8	1.0	2.7
417 - Truck transportation	-	2.2	0.5	2.7
490 - Hospitals	-	-	2.5	2.5
457 - Architectural, engineering, and related services	-	2.2	0.2	2.4
411 - Retail - General merchandise stores	-	0.0	2.2	2.2
509 - Full-service restaurants	-	0.2	1.9	2.2
483 - Offices of physicians	-	-	2.0	2.0

Source: IMPLAN 2022

Industry growth associated with the construction of a new 100,000 square foot manufacturing facility will affect the construction sector to a significant degree, almost 16%. The Table below provides an overview of industries that are expected to see an increase in output. As shown below, the top ten industries affected are all construction-related sectors.

Weber, Davis and Tooele Counties			
Estimated Industry Growth Impacts - 100,000 SF Manufacturing Facility			
Industry	Industry Output	Activity Output	Growth
Construction of new manufacturing structures	\$161,810,727	\$25,659,666	15.9%
Mineral wool manufacturing	\$5,569,439	\$13,918	0.2%
Fabricated pipe and pipe fitting manufacturing	\$15,117,489	\$34,464	0.2%
Ready-mix concrete manufacturing	\$91,623,835	\$199,824	0.2%
Commercial and industrial machinery and equipment rental and leasing	\$201,350,053	\$424,561	0.2%
Other concrete product manufacturing	\$81,524,425	\$167,922	0.2%
Other fabricated metal manufacturing	\$27,306,483	\$53,572	0.2%
Wholesale - Machinery, equipment, and supplies	\$94,885,835	\$172,855	0.2%
Prefabricated wood building manufacturing	\$2,984,830	\$3,892	0.1%
Metal window and door manufacturing	\$6,041,917	\$7,397	0.1%

Source: IMPLAN 2022

A \$26 million construction project will also generate short-term tax revenues. As discussed above, the temporary nature of construction projects means that once the project is completed, the tax-related impacts associated with the construction will end. However, the project is expected to result in total tax revenues of more than \$4.3 million. While the majority of these taxes are Federal taxes, State taxes are expected to be more than \$835,000, while General County taxes are projected to be almost \$95,000. Sub-County taxes are expected to approach \$320,000.

Weber, Davis and Tooele Counties						
Estimated Tax Impacts - 100,000 SF Manufacturing Facility						
	Sub County General	Sub County Special Districts	County	State	Federal	Total
Direct Jobs	\$21,488	\$31,228	\$15,552	\$424,916	\$2,270,269	\$2,763,454
Indirect Jobs	\$36,128	\$51,109	\$25,889	\$145,198	\$321,462	\$579,787
Induced Jobs	\$74,527	\$105,348	\$53,391	\$265,381	\$483,587	\$982,234
Total Jobs	\$132,144	\$187,685	\$94,832	\$835,495	\$3,075,318	\$4,325,475
Source: IMPLAN 2022						

1.10. Economic Impacts of a New Office Facility

While the development of a new 100,000 square foot manufacturing facility might support 100 jobs, an office facility has a much higher employment density. A typical office facility has a density of 200 square feet per employee, such that a 100,000 square foot facility could support 500 jobs. For analytical purposes, four employment categories were used as inputs to the IMPLAN model: 150 jobs in the custom computer programming services sector; 150 jobs in the management of companies and enterprises sector; 150 jobs in the scientific research and development sector; and 50 jobs in the office and administrative services sector.

These job creation estimates were used as the primary inputs into the IMPLAN model to evaluate the impacts of the new economic activity.

Operational Impacts

The results of the IMPLAN simulation of a new 100,000 square foot office facility indicate that in addition to the 500 direct jobs, the project would support an additional 384 indirect and induced jobs. This indicates a multiplier of 0.76 indirect and induced jobs for every direct job. This multiplier is lower than the 100,000 square foot manufacturing simulation, which had a multiplier of just over 1.0 indirect and induced jobs for each direct job. The higher multiplier for manufacturing is due to the higher level of purchasing for materials used in the manufacturing process.

Total labor income is projected to be \$44.8 million, including \$29.3 million associated with the direct jobs, and almost \$15.5 million associated with the indirect and induced jobs. Total output / gross regional product is estimated at \$128.2 million, including \$72.5 million associated with the direct jobs and \$55.8 million associated with the indirect and induced jobs.

Weber, Davis and Tooele Counties				
Estimated Impacts - 100,000 SF Office Facility				
	Employment	Labor Income	Value Added	Total Output
Direct Jobs	500.0	\$29,318,353	\$33,449,901	\$72,485,777
Indirect Jobs	228.1	\$9,304,321	\$14,812,627	\$33,152,088
Induced Jobs	156.2	\$6,153,270	\$11,973,066	\$22,607,612
Total Jobs	884.2	\$44,775,945	\$60,235,594	\$128,245,477
Source: IMPLAN 2022				



The four direct jobs categories (scientific research and development services, management of companies and enterprises, custom computer programming services and office administrative services) are projected to see the highest number of total jobs. Other sectors expected to see higher levels of total job growth include other the real estate sector, the employment services sector, the management consulting services sector and the limited-service restaurant sector. Combined, these ten sectors account for 666 total jobs, or 75% of all the jobs associated with this simulation.

Weber, Davis and Tooele Counties				
Estimated Job Creation Impacts - 100,000 SF Office Facility				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
Total Jobs	500.0	228.1	156.2	884.2
464 - Scientific research and development services	150.0	8.0	0.2	158.2
469 - Management of companies and enterprises	150.0	6.2	1.1	157.3
459 - Custom computer programming services	150.0	1.1	0.1	151.3
470 - Office administrative services	50.0	6.2	0.5	56.6
447 - Other real estate	-	46.1	7.3	53.5
472 - Employment services	-	34.6	2.6	37.2
462 - Management consulting services	-	19.6	1.5	21.1
510 - Limited-service restaurants	-	2.1	9.6	11.7
455 - Legal services	-	8.5	1.1	9.6
509 - Full-service restaurants	-	4.1	5.2	9.3

Source: IMPLAN 2022

The Table below provide an estimate of the percentage increase (growth) of the economic activity as it relates to the existing activity within key sectors of the region's economy. For example, the scientific research and development services sector would increase by almost \$15 million annually over its existing industry output of \$257 million. This represents an increase of 5.8%.

Weber, Davis and Tooele Counties			
Estimated Industry Growth Impacts - 100,000 SF Office Facility			
Industry	Industry Output	Activity Output	Estimated Growth
Scientific research and development services	\$257,389,359	\$14,956,455	5.8%
Management of companies and enterprises	\$404,539,967	\$22,961,230	5.7%
Office administrative services	\$85,184,599	\$3,745,819	4.4%
Scientific research and development services	\$1,022,691,134	\$34,228,057	3.4%
Employment services	\$438,526,685	\$2,850,663	0.7%
Management consulting services	\$487,327,177	\$2,486,844	0.5%
Legal services	\$221,336,636	\$1,110,270	0.5%
Environmental and other technical consulting services	\$25,386,282	\$125,108	0.5%
Marketing research and all other miscellaneous professional, scientific, and technical services	\$297,622,890	\$1,106,853	0.4%
Advertising, public relations, and related services	\$130,912,346	\$481,465	0.4%

Source: IMPLAN 2022

The operation of the 100,000 square foot office facility envisioned in this simulation is expected to generate more than \$12.1 million in annual tax revenues. While Federal taxes account for almost \$8.5 million annually, the State of Utah is projected to see more than \$2.4 million annually. The host counties are projected to receive more than \$282,000 annually, while sub-county districts are projected to receive \$950,000 annually.

Weber, Davis and Tooele Counties						
Estimated Tax Impacts - 100,000 SF Office Facility						
	Sub County General	Sub County Special Districts	County	State	Federal	Total
Direct Jobs	\$103,253	\$147,837	\$74,319	\$1,148,103	\$5,435,766	\$6,909,278
Indirect Jobs	\$91,372	\$129,636	\$65,546	\$544,444	\$1,769,540	\$2,600,537
Induced Jobs	\$199,234	\$281,625	\$142,729	\$709,210	\$1,291,492	\$2,624,289
Total Jobs	\$393,859	\$559,098	\$282,594	\$2,401,756	\$8,496,798	\$12,134,105
<i>Source: IMPLAN 2022</i>						

Construction Impacts

The construction of a 100,000 square foot office facility will generate short-term impacts on the region. In order to model the anticipated impacts associated with the construction of a new 100,000 square foot office facility, an order-of-magnitude construction cost was used as the primary input to the IMPLAN model. IMPLAN uses the total construction cost to drive impacts, including the number of construction jobs and wages. The total construction cost also drives the induced costs associated with construction materials and other services.

In order to estimate the cost for constructing a 100,000 square foot office facility in the three-county region, information from the Marshall Valuation Service (MVS) was used. MVS provides construction cost information for hundreds of building types, construction materials and quality levels. In addition, MVS localizes the construction cost estimates by providing cost multipliers for major communities in each state.

For analytical purposes, the MVS costs for Office Buildings was used. MVS has five construction types, and several quality levels within each type of construction. A base cost of \$288 per square foot was used for an excellent quality, Class A construction type property. This base cost was increased by the MVS multipliers totaling 10.2% for current construction costs in the Salt Lake City region as compared to the MVS national baseline cost for this type of a structure. This raised the average per square foot construction cost for the hypothetical 100,000 square foot facility to \$317 per square foot. An additional 20% was added to reflect soft costs, marketing and land acquisition, which brought the total “all-in” project cost to just over \$381 per square foot of building area. As such, a total estimated project cost of \$38.1 million was used as the primary input to the IMPLAN model for the construction project.

Based on the IMPLAN model, the creation of a 100,000 square foot office facility would create more than 470 total jobs, including 335 direct jobs and 136 indirect and induced jobs. Total labor income would exceed \$26.0 million, including more than \$19.9 million in labor income attributable to the direct jobs. Total output would exceed \$60.3 million, including \$38.1 million associated with the direct jobs.



It is important to recognize that construction jobs are, by their project-specific nature, temporary. When the construction project is completed, the jobs and wages “stop”. Thus, these estimates of jobs, labor income, value added, and total output are not recurring annually.

Weber, Davis and Tooele Counties				
Estimated Construction Impacts - 100,000 SF Office Facility				
	Employment	Labor Income	Value Added	Total Output
Direct Jobs	334.8	\$19,931,860	\$20,308,051	\$38,100,000
Indirect Jobs	45.9	\$2,524,574	\$4,046,032	\$9,086,929
Induced Jobs	90.7	\$3,570,514	\$6,947,250	\$13,120,964
Total Jobs	471.4	\$26,026,947	\$31,301,333	\$60,307,892
Source: IMPLAN 2022				

The construction of a 100,000 square foot office facility is projected to create 335 direct construction jobs. Other sectors which are projected to see the creation of at least four indirect / induced jobs include the other real estate sector, the architectural and engineering sector, the limited-service restaurant sector and the truck transportation sector. The ten sectors shown in the Table below account for 80% of the total jobs created in this simulation.

Weber, Davis and Tooele Counties				
Estimated Construction Job Creation Impacts - 100,000 SF Office Facility				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
Total Jobs	334.8	45.9	90.7	471.4
55 - Construction of new commercial structures, including farm structures	334.8	-	-	334.8
447 - Other real estate	-	5.2	4.2	9.4
457 - Architectural, engineering, and related services	-	5.8	0.3	6.1
510 - Limited-service restaurants	-	0.2	5.5	5.8
417 - Truck transportation	-	3.2	0.8	4.0
490 - Hospitals	-	-	3.9	3.9
411 - Retail - General merchandise stores	-	0.1	3.4	3.5
509 - Full-service restaurants	-	0.4	3.0	3.4
483 - Offices of physicians	-	-	3.1	3.1
396 - Wholesale - Other durable goods merchant wholesalers	-	2.9	0.3	3.1
Source: IMPLAN 2022				

The construction of a 100,000 square foot office facility is projected to result in the growth of numerous sectors of the regional economy. The construction of new commercial structures sector is projected to see an increase of more than 11% as a result of this hypothetical project.

Economic Impact Analysis

Weber, Davis and Tooele Counties			
Estimated Construction Industry Growth Impacts - 100,000 SF Office Facility			
Industry	Industry Output	Activity Output	Growth
Construction of new commercial structures, including farm structures	\$334,907,056	\$38,100,000	11.4%
Cut stone and stone product manufacturing	\$7,852,306	\$52,429	0.7%
Other concrete product manufacturing	\$81,524,425	\$455,731	0.6%
Metal window and door manufacturing	\$6,041,917	\$15,771	0.3%
Prefabricated metal buildings and components manufacturing	\$69,148,882	\$157,245	0.2%
Prefabricated wood building manufacturing	\$2,984,830	\$6,334	0.2%
Commercial and industrial machinery and equipment rental	\$201,350,053	\$424,337	0.2%
Asphalt shingle and coating materials manufacturing	\$104,254,666	\$217,948	0.2%
Wholesale - Other durable goods merchant wholesalers	\$380,143,861	\$754,400	0.2%
Concrete block and brick manufacturing	\$6,411,269	\$11,104	0.2%
Source: IMPLAN 2022			

Other sectors projected to experience a significant increase include the cut stone and stone product manufacturing sector, the other concrete products manufacturing sector and the metal window and door manufacturing sector. The ten sectors in the Table above represent more than \$40 million in total output, or two-thirds of the total output of the proposed construction project.

The \$38.1 million office construction project will also generate short-term tax revenues. The temporary nature of construction projects means that once the project is completed, the tax-related impacts associated with the construction will end. However, the project is expected to result in total tax revenues of more than \$6.7 million. While the majority of these taxes are Federal taxes, State taxes are expected to be more than \$1.3 million, while general County taxes are projected to be more than \$150,000. Sub-County taxes are expected to exceed \$520,000.

Weber, Davis and Tooele Counties						
Estimated Construction Tax-Related Impacts - 100,000 SF Office Facility						
	Sub County General	Sub County Special Districts	County	State	Federal	Total
Direct Jobs	\$46,550	\$67,094	\$33,588	\$686,584	\$3,507,903	\$4,341,720
Indirect Jobs	\$53,472	\$75,649	\$38,319	\$216,157	\$489,389	\$872,986
Induced Jobs	\$115,479	\$163,234	\$82,728	\$411,214	\$749,374	\$1,522,028
Total Jobs	\$215,501	\$305,977	\$154,634	\$1,313,955	\$4,746,665	\$6,736,733
Source: IMPLAN 2022						



1.11. Conclusions

Hill Air Force Base is one of the largest employers in the State of Utah, with total employment of almost 22,000 military personnel and Department of Defense civilian workers. The Hill AFB Cost and Economics Division's 2021 Economic Impact Statement estimates that the Base's economic impact was more than \$7.1 billion, including more than \$5.4 billion in direct, indirect, and induced payroll.

Based on place-of-residence data for employees, it is estimated that Davis County represents more than 54% of the employees in the three Host counties, with Weber County representing 41% and Tooele County accounting for less than 1%. All other counties represent just under 5%. Using these percentages to allocate the Hill AFB's 2021 economic impact of \$7.1 billion across the region, the total economic impact on Davis County would be \$3.9 billion, with an additional \$2.9 billion in Weber County and \$15 million in Tooele County.

The upcoming expansion of the Ogden Air Logistics Center and the upgrades to the Ground Based Strategic Deterrent program will result in a significant number of new jobs in Weber, Davis and Tooele counties. As the projects are implemented, it is estimated that at least 3,400 direct jobs will be created, as well as almost 2,700 indirect and induced jobs. These jobs will create more than \$470 million in annual labor income, with almost 77% of the labor income associated with the direct jobs.

Weber, Davis and Tooele Counties				
Projected Job Creation Impacts - GBSD and OO-ALC Expansion				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
GBSD - Northrop	1,200.0	1,066.1	659.4	2,925.5
GBSD - Federal	1,200.0	-	517.4	1,717.4
OO-ALC	1,000.0	-	431.1	1,431.1
Total Jobs	3,400.0	1,066.1	1,607.9	6,074.0
Projected Labor Income Impacts - GBSD and OO-ALC Expansion				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
GBSD - Northrop	\$122,421,508	\$45,178,736	\$26,340,023	\$193,940,268
GBSD - Federal	\$130,257,685	\$0	\$20,395,045	\$150,652,731
OO-ALC	\$109,925,943	\$0	\$17,226,996	\$127,152,939
Total Jobs	\$362,605,137	\$45,178,736	\$63,962,065	\$471,745,937
Source: IMPLAN 2022				

The expansion of OO-ALC and the GBSD program are projected to have significant impacts on value added and total output in the three-county region. Value added from these projects is projected to be almost \$700 million annually, with almost \$500 million of that amount associated with the direct jobs, and the remaining \$195 million associated with the indirect and induced jobs. Total output from these projects is projected to approach \$1.1 billion annually. More than \$675 million of this amount is associated with the direct jobs, and the remaining \$400 million associated with the indirect and induced jobs.

Economic Impact Analysis

Weber, Davis and Tooele Counties				
Projected Value Added - GBSD and OO-ALC Expansion				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
GBSD - Northrop	\$166,082,580	\$69,574,350	\$51,257,456	\$286,914,386
GBSD - Federal	\$178,617,266	\$0	\$39,685,632	\$218,302,898
OO-ALC	\$150,737,143	\$0	\$33,524,166	\$184,261,309
Total Jobs	\$495,436,989	\$69,574,350	\$124,467,254	\$689,478,593
Projected Total Output Impacts - GBSD and OO-ALC Expansion				
Industry	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs
GBSD - Northrop	\$346,566,003	\$162,686,705	\$96,757,404	\$606,010,113
GBSD - Federal	\$178,617,266	\$0	\$74,925,087	\$253,542,353
OO-ALC	\$150,737,143	\$0	\$63,276,272	\$214,013,415
Total Jobs	\$675,920,412	\$162,686,705	\$234,958,763	\$1,073,565,881
Source: IMPLAN 2022				

The proposed projects are expected to generate more than \$122 million annually in total tax revenues. More than \$90 million of this revenue is Federal tax revenues. The State is projected to see \$22.7 million in annual tax revenues and the Counties are expected to receive more than \$2.1 million annually. Sub-county general and special taxing districts are projected to receive more than \$7.1 million annually.

Weber, Davis and Tooele Counties						
Estimated Tax Impacts - GBSD and OO-ALC Expansion						
	Sub County General	Sub County Special	County	State	Federal	Total
GBSD - Northrop	\$1,710,184	\$2,427,530	\$1,227,031	\$10,577,969	\$37,073,352	\$53,016,066
GBSD - Federal	\$665,698	\$950,305	\$478,625	\$6,575,115	\$29,047,182	\$37,716,924
OO-ALC	\$561,790	\$801,973	\$403,917	\$5,548,814	\$24,513,247	\$31,829,741
Total Jobs	\$2,937,671	\$4,179,809	\$2,109,573	\$22,701,898	\$90,633,781	\$122,562,732
Source: IMPLAN 2022						

In terms of future economic impacts, the IMPLAN model was used to evaluate two “hypothetical” growth scenarios – a 100,000 square foot manufacturing facility and a 100,000 square foot office facility. A manufacturing facility has a much lower density of employees, estimated at 100 direct employees. Indirect and induced jobs are projected to result in another 103 jobs. Total labor income is estimated to be \$15.8 million annually, with \$11 million attributable to the direct jobs and the remaining \$4.8 million in labor income attributable to the indirect and induced jobs.

A 100,000 square foot office facility has a significantly higher employment density than a manufacturing facility and is expected to support 500 direct jobs. The multiplier for the number of indirect and induced jobs is lower, estimated to be 384 jobs combined, or 0.77 indirect and induced jobs for every direct job. Total labor income is estimated to be \$44.8 million annually, with \$29.3 million attributable to the direct jobs and the remaining \$15.5 million in labor income attributable to the indirect and induced jobs.

The construction of a 100,000 square foot manufacturing or office facility will also have some short-term economic impacts. Construction projects, by their nature, have a limited economic impact, which ends when the construction is completed.



The Table below provides a comparison of the impacts associated with the construction of a new 100,000 square foot manufacturing facility as compared to a 100,000 square foot office facility. The office construction project has a higher cost, and thus creates a more significant number of direct jobs. Total job creation for the office construction project is 471 versus 296 for the manufacturing construction project.

Weber, Davis and Tooele Counties		
Projected Job Creation - New Construction		
Industry	Manufacturing Construction	Office Construction
Direct Jobs	207.7	334.8
Indirect Jobs	30.2	45.9
Induced Jobs	58.5	90.7
Total Jobs	296.4	471.4
Projected Labor Income Creation - New Construction		
Direct Jobs	\$12,858,191	\$19,931,860
Indirect Jobs	\$1,658,155	\$2,524,574
Induced Jobs	\$2,304,121	\$3,570,514
Total Jobs	\$16,820,467	\$26,026,947
Source: IMPLAN 2022		

The office construction project is anticipated to generate more than \$26 million in labor income, with almost \$20 million associated with the direct construction jobs. The manufacturing construction project is anticipated to generate more than \$16.8 million in labor income, with almost \$12.9 million associated with the direct construction jobs.



