



Utah Economic and Business Review

Bureau of Economic and Business Research
David Eccles School of Business
University of Utah

March/April 2004
Volume 64 Numbers 3 & 4

Highlights

- Hill AFB directly pumps more than \$1.0 billion into Utah's economy each year. The direct operations include a Utah payroll of \$962.2 million, direct employment of about 20,000 workers and local purchases totaling \$152.9 million.
- The long-term, statewide impact of closing Hill AFB would be a permanent loss of 41,700 jobs, an annual decline of \$2.5 billion in earnings and \$2.65 billion in personal income. The economy would be \$3.43 billion smaller (a decline of 1.7% from the baseline projection). The annual loss of tax revenue would be \$199 million. The resident population in Utah would be 50,400 less than if Hill remained in operation. The permanent employment impact represents a change of 2.1% on a projected baseline of 2.0 million. The population impacts represent a change of 1.6% in a projected baseline of 3.3 million.
- The federal civilian jobs at Hill AFB are not "average" jobs. They are some of the best jobs in Utah. As high-paying, stable jobs with benefits they will be hard to replace. Since the earnings of most civilians working at Hill AFB are almost double the state average it would take almost 68,000 new jobs to offset the loss of \$2.35 billion in earnings.
- The closure of Hill AFB would be the equivalent of losing a few years of economic growth. Eventually the economy will stabilize on a new growth path. Statewide, this could happen within two to three years of base closure.
- Closing Hill AFB would have economic repercussions on the Davis/Weber region unparalleled since the Great Depression. The departure of such a large employer would have enduring impacts on the size, structure and composition of the regional economic base, leading to a decrease in jobs, population, earnings and income, and a much smaller regional economy.
- Davis County suffers the greatest losses should Hill close. These are so large that employment in the county would not return to the pre-base closure level for nearly a decade. The population of Davis County would actually drop, the first time since 1940 that an urban county in Utah has sustained a population decline.

The Economic, Demographic and Fiscal Impacts of Closing Hill Air Force Base

Jan Crispin-Little
Pamela S. Perlich

The upcoming round of Defense Base Closures and Realignment (BRAC) is threatening the existence of Hill Air Force Base (Hill AFB). The Department of Defense is aggressively approaching this round of BRAC in its attempt to eliminate 20% to 25% of its current capacity. The purpose of this study is to assess the economic, demographic and fiscal impacts of closing Hill AFB on the state of Utah and the Davis/Weber region. These impacts, which have been generated by the REMI model, project the employment, population, earnings, income and value-added impacts of closing Hill AFB.¹

Overview of Hill AFB

Hill AFB has been the largest component of Utah's defense sector, and one of the largest employers in the state for decades. Long established as an engine of economic growth, Hill AFB directly pumps more than \$1.0 billion into Utah's economy each year. The direct operations include a Utah payroll of \$962.2 million, direct employment of about 20,000 workers and local purchases totaling \$152.9 million. Clearly, Hill's economic contributions are substantial and an important source of economic activity in the state of Utah.

Hill AFB is located in northern Utah approximately 30 miles north of Salt Lake City and eight miles south of Ogden. The base currently covers almost 6,700 acres and stretches across two counties—Davis and Weber. Hill has had a presence in Utah since 1920 when the War Department established the Ogden Arsenal Army Reserve Depot in the area now occupied by the northwestern portion of Hill AFB. Over time, Hill's missions have changed and expanded. Today, the missions of Hill AFB encompass supply and repair of aircraft and missile parts, including munitions storage and handling. The base is one of three air logistics centers in the USAF Materiel Command, serving as home to the Ogden Air Logistics Center which provides worldwide engineering and logistics management for the

F-16, A-10, Minuteman III and Peacekeeper Intercontinental Ballistic Missiles.

The largest tenant at Hill is the Ogden Air Logistics Center—one of three such centers assigned to the Air Force Materiel Command headquartered at Wright-Patterson Air Force Base, Ohio. The center has worldwide logistics management and maintenance support responsibilities for weapon systems and currently manages/maintains the F-16 Fighting Falcon, A-10 Thunderbolt, Minuteman III and Peacekeeper silo-based Intercontinental Ballistics Missiles (ICBMs). In addition, Hill AFB is host to the 388th Fighter Wing, the 419th Fighter Wing and the Air Force Reserve F-16 wing. Other units include the 84th Radar Evaluation Squadron and Defense Enterprise Computing Center Ogden.^{2,3}

Hill AFB is bordered by the communities of Sunset, Clearfield and Roy on the west, Layton on the south, South Weber on the East and Riverdale to the north. The city of Clinton is west of Sunset, but does not border the base. (Figure 1)

Table 1

**Hill Air Force Base
Utah Personnel Statistics: FY 2003
(Current \$)**

Personnel Classification	Employment/ on Base	Share of Total	Payroll	Share of Total
Active Duty Military ¹	5,178	25.8%	\$156,549,143	16.3%
Federal Civilians ²	11,290	56.2%	\$677,400,000	70.4%
Non-Appropriated Fund Civilians	360	1.8%	\$6,329,257	0.6%
Tenants ³	1,841	9.2%	\$110,460,000	11.4%
Reserves				
Utah residents: 1290	1,409	6.4%	\$12,554,000	1.3%
Non-Utah residents: 119				
Contractors	4,344	-	NA	-
Total	24,422	100.0%	\$962,232,300	100.0%

Note: "Share of Total" column only includes groups for which payroll information was available.

1 The payroll for Active Duty Military includes a housing allowance for personnel living off-base.

2 Includes civilian employees serviced by Hill AFB Human Resources.

3 Includes civilians not serviced by Hill AFB Human Resources, but employed by the U.S. Air Force.

Source: Hill Air Force Base Economic, Plans and Programs Directorate. Estimates of housing allowance made by BEBR based on discussion with Hill AFB staff.

Employment

In FY 2003, the workforce at Hill AFB included 5,178 military personnel and 13,491 civilians all working in Davis County.⁴ The military payroll is \$156.5 million and the civilian payroll is \$677.4 million. Another 1,409 Air Force reserves (reservists) visit the base during the course of the year for training. Of these, 1,290 are Utah residents and 119 live in other states. Also located on base are employees of private business that provide services to

Table 2

**Hill Air Force Base Personnel
by Location of Residence: FY 2003**

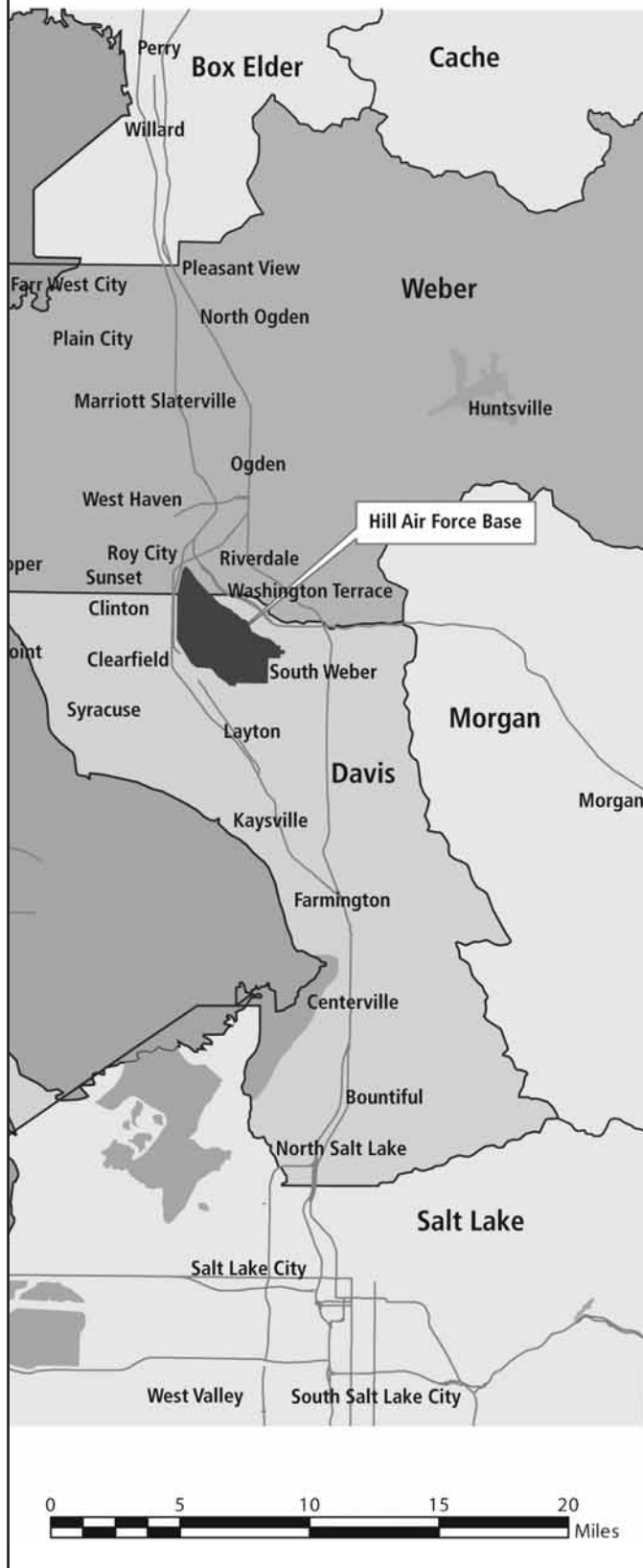
Active Duty Military			Federal Civilians ¹			Reserves		
County	#	%	County	#	%	County	#	%
Davis	4,120	79.6%	Davis	6,199	46.0	Weber	436	33.8%
Weber	979	18.9%	Weber	5,774	42.8	Davis	387	30.0%
Region Total	5,099	98.5%	Region	11,973	88.8	Region	823	63.8%
Salt Lake	42	0.8%	Salt Lake	706	5.2	Salt Lake	242	18.8%
Utah	10	0.2%	Box Elder	274	2.0	Utah	80	6.2%
Cache	9	0.2%	Morgan	190	1.4	Cache	47	3.6%
Box Elder	6	0.1%	Utah	102	0.8	Box Elder	22	1.7%
Tooele	6	0.1%	Cache	86	0.6	Tooele	22	1.7%
All Others	6	0.1%	All Other	160	1.2	All Other	54	4.2%
Non-Region Total	79	1.5%	Non-Region	1,518	11.2	Non-Region	467	36.2%
Grand Total	5,178	100.0%	Grand Total	13,491	100.0	Grand Total	1,290	100.0%

1 Includes all federal civilian employees working at Hill AFB.

Source: Calculated by BEBR based on information provided by the Plans and Program Directorate at Hill AFB.

Figure 1

Hill Air Force Base



Hill's employees, and civilian contractors that provide services specific to Hill's missions. About 4,300 people work on base during the year who are not directly employed by Hill or by the U.S. Air Force. In total, more than 24,000 people travel to and work at Hill AFB during the course of a year. (Table 1)

Base employees reside throughout the Wasatch Front; however, more than 91%, or 17,895 employees of the base live in either Davis or Weber County. (Table 2)

Components of Hill AFB Base Spending

Hill's direct spending in Utah totals \$1.11 billion and includes payroll and contract spending. Indirectly, the U.S. Air Force provides money to Utah companies through the Prime Contracting process to support the missions at Hill.

Payroll. Approximately 86.3% of Hill's direct spending in Utah is payroll-related. In FY 2003, Hill's payroll totaled \$962.2 million and included \$950.7 million paid to military and civilian employees and \$11.5 million paid to reservists living in Utah.

Contract Spending. In FY 2002, Hill AFB purchased \$152.9 million in goods and services from Utah businesses. Of this, \$67.0 million was spent locally through procurement arrangements for goods and services needed to operate the base. Another \$47.9 million was spent on services for Hill employees (health care, education, etc.) and for goods sold at the base commissary and base exchange. New construction totaled \$38.0 million.

Prime Contracts. In FY 2002, Prime Contracts let to Utah companies through central procurement at Hill totaled \$790.0 million. Based on interviews with Utah's largest prime contractors, about \$425.0 million of all contracts awarded to Utah companies remain in the state. The largest prime contractor in Utah is Northrop Grumman with prime contracts totaling \$769.1 million.

When the direct operations of Hill AFB are combined with the estimated value of Prime Contract Awards performed in Utah, total spending tied to the base is about \$1.5 billion. A summary of Hill's activities in Utah is shown in Table 3.

The Role of Hill Air Force Base in the Davis/Weber Region

Hill's impact is felt throughout the state of Utah; however, the two counties most directly affected by Hill's operations are Davis County and Weber County (Davis/Weber region). With more than 20,000 employees, Hill AFB is the largest employer in the region. If treated as a separate industry, only services and retail trade employ more people.

Table 3

**Summary of Hill Air Force Base Activity in Utah
Payroll: FY 2003; Non-Payroll: FY 2002
(Current \$)**

Employment	
Military Personnel	5,178
Civilian Personnel	13,491
Reserves	1,290
Total Employment	19,959
Payroll	
Military Personnel	\$156,549,143
Civilian Personnel	\$794,189,257
Utah Reservists	\$11,783,000
Total Payroll	\$962,521,400
Procurements and Contracts	\$152,945,665
Prime Contract Awards	\$425,000,000
Grand Total Spending	\$1,540,467,065
<small>Note: The total presented for Prime Contract Awards includes the estimated amount spent in Utah only. Source: Hill Air Force Base.</small>	

Overview of the Region

The Davis/Weber region had an estimated 2003 population of 462,246 and 2001 employment totaling 234,763.⁵ Unlike many areas where military bases are located, the Davis/Weber region is not a rural area isolated from other population centers. Geographically

and economically the region is part of the Greater Wasatch Area that includes a ten-county commuter shed.⁶

Nearly one-half of Davis County residents in the labor force leave Davis County to work. Two-thirds of these Davis out-commuters commute to Salt Lake County. Nearly one-third of Weber County residents in the labor force leave Weber County to work. Most of these out-commuters (62.4%) commute to Davis County and 24.1% commute to Salt Lake County.⁷ Based on current commuting patterns it is clear that the region is not isolated but is strongly tied to Salt Lake County, which has long been the center of employment in the state.

For many years, Davis County's economy has been driven by Hill AFB. While the county's economic base has become more diversified, Hill is still the largest employer and plays a major role in the economic vitality and stability of the area. Weber is impacted by Hill AFB because of the large number of civilians who work at the base and live in the county.

Regional Economy

As Table 4 shows, two industries—services and government—account for almost half of all employment in the region. As measured by employment, services is the largest sector accounting for 27.2% of all employment in the region. The earnings of service workers total \$1.4 billion and account for 22.3% of total earnings in the region.

Table 4

**Employment and Earnings and Share of Employment: 2000
Davis County and Weber County**

	Davis County				Weber County			
	Jobs	% of Total	Earnings	% of Total	Jobs	% of Total	Earnings	% of Total
Agricultural Services	963	0.8%	\$15.3	0.4%	848	0.8%	D	-
Mining	163	0.1%	\$4.1	0.1%	45	-	D	-
Construction	9,366	7.8%	\$292.4	8.5%	7,274	6.7%	\$222.4	7.4%
Manufacturing	10,876	9.1%	\$375.8	10.9%	15,464	14.1%	\$641.0	21.4%
Transportation, Public Utilities	3,901	3.3%	\$141.8	4.1%	3,001	2.8%	\$106.5	3.6%
Wholesale Trade	3,556	3.0%	\$108.7	3.2%	2,974	2.7%	\$89.0	3.0%
Retail Trade	22,948	19.1%	\$369.2	10.7%	19,487	17.8%	\$290.2	9.7%
Finance, Insurance, Real Estate	10,929	9.1%	\$161.6	4.7%	8,200	7.5%	\$144.3	4.8%
Services	30,399	25.4%	\$670.0	19.5%	31,973	29.3%	\$765.8	25.6%
Government	26,788	22.3%	\$1,304.8	37.9%	20,032	18.3%	\$724.0	24.2%
Federal Civilian	11,232	9.4%	\$750.2	21.8%	6,146	5.6%	\$301.7	10.1%
Military	5,378	4.4%	\$241.1	7.0%	1,033	1.0%	\$15.7	0.5%
State Government	774	0.6%	\$29.3	0.9%	4,958	4.5%	\$149.8	5.0%
Local Government	9,404	7.8%	\$284.1	8.3%	7,895	7.2%	\$256.7	8.6%
Total	119,889		\$3,443.5		109,298		\$2,994.2	

D: Not disclosed

Source: Bureau of Economic Analysis, CA25N report, downloaded at: www.bea.doc.gov.

Government is the second largest sector in the region with nearly 47,000 jobs and accounts for about 20% of the region's employment. In Davis County, government employment is concentrated in federal government (primarily Hill AFB). In Weber County, government employment is spread between federal civilian (primarily the IRS), state (Weber State University) and local government (public education).

The importance of federal workers to the region's economic base is underscored by the share of earnings they provide compared to the share of employment they represent. Federal government jobs account for about 10% of total employment and 20% of total earnings. This disparity occurs because the average earnings of federal civilian employees are much higher than the average earnings of all workers in the region.

Both counties have a significant retail industry which provides employment for 42,000 workers, or 18.5% of total employment. In comparison, the earnings of workers in the retail sector account for just 10% of total earnings region-wide.

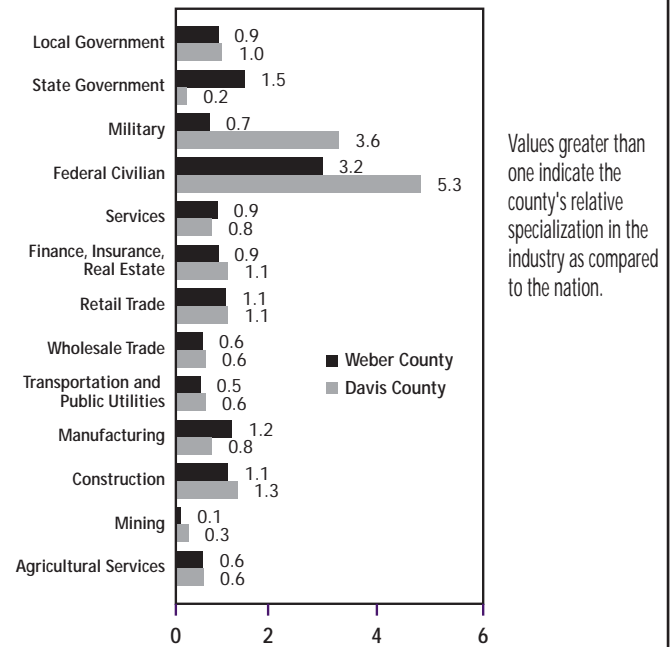
The fourth largest sector in both counties is manufacturing. In Weber County manufacturing generates about 15,400 jobs (14.1% of county employment) and \$641.0 million in earnings (21.4% of county-wide earnings) Davis County's manufacturing sector is much smaller, with almost 11,000 jobs (9.1% of the county's employment) and \$375.8 million in earnings (11% of county-wide earnings).

A comparison of the economic structure for each county with that of the U.S. is shown in Figure 2. This analysis makes use of location quotients to show the relative importance of each industry to the region.⁸ In general, the larger and more economically diversified the region and the fewer the number of industries in the classification scheme, the closer all location quotients are to 1. In this context, the dependency of Davis and Weber Counties on government employment, especially federal government employment, is remarkable.

Compared with the nation, Weber County's economy is specialized in manufacturing, state government, and federal civilian employment. Federal civilian employment in the county is three times the national concentration due primarily to the presence of the Internal Revenue Service. Weber State University contributes to a high concentration in state government employment. Two of the county's ten largest employers (Autoliv and Fresenius) are durable equipment manufacturers contributing to the county's above average concentration in manufacturing.

Figure 2

**Employment Location Quotients:
Davis and Weber Counties Relative to the Nation**



Source: Bureau of Economic and Business Research, University of Utah.

Consequently, employment in four industrial sectors in Weber (agricultural services, mining, transportation and public utilities, and wholesale trade) is well below the national concentration. The employment share in all remaining industries is essentially equal to their share in the national economy.

Davis County exceeds the country in its share of employment in federal government and construction, but is under-represented in almost every other industry. The single most remarkable difference between Davis County and the U.S. is the concentration in federal civilian employment which is five times the national concentration due solely to the presence of Hill AFB. Military employment is three times the national average. The above average concentration in construction occurs because millions of dollars in construction spending is awarded each year by Hill AFB to companies located in Davis County.

The Importance of Hill AFB in the Region

Hill AFB affects the annual flow of dollars into the region in three ways. First, employees of Hill who reside in the region spend a significant portion of their earnings locally thereby stimulating business sales in the local economy. Second, Hill purchases goods and services from vendors and suppliers located within the region which then

supports jobs and generates earnings throughout the region. Lastly, a large share of the Prime Contracts awarded to Utah businesses in support of the missions at Hill have been awarded to businesses located in the region. A portion of this money is also spent locally. These components of Hill's activities are discussed below.

Employment and Earnings. As shown in Table 5, 17,072 employees, or 91% of the civilians and military personnel who work at Hill AFB live in Davis or Weber County. In addition, 823 of the Air Force reservists living in Utah reside in the region.

Most of Hill's employees (almost 68%) are civilians. This ratio of civilian to military employees is a distinguishing and important feature of Hill AFB, and a contributing factor in the growth and expansion of Davis County. Compared with civilians, military personnel receive a larger share of their total earnings from payments-in-kind for clothing and housing so they allocate a smaller share of their total spending to these items. Military personnel also have access to goods and services at base commissaries and base exchanges. Retail facilities located on base have a dampening effect on retail sales and services in the communities surrounding a military base.

In contrast, civilians are responsible for their own housing, do not have access to commissaries or exchanges on base and spend a large share of their income in the local economy. This spending increases demand for residential services and drives economic expansion. Because Hill employs such a large number of civilians, the impact of the base on the local community is greater than the impact of a base staffed primarily by military personnel.

The jobs at Hill AFB are valuable to the region as they are largely unaffected by routine economic cycles. Federal defense spending is not subject to the fluctuations inherent in normal economic and business cycles. They do not contract substantially during times of economic slowdown or recession. Likewise, they do not necessarily increase during economic expansions.

Housing. Military personnel and their dependents account for an estimated 14,991 people living in the region. Of these, 3,875 live in military housing located on base (1,318 military and 2,557 dependents). As Hill AFB does not maintain any off-base housing, the remaining military personnel (and their dependents) are provided a housing

Table 5

Distribution of Hill Air Force Base Personnel by County of Residence: FY 2003 (Current \$)

	Davis County	Weber County	Region Total	Statewide Total
Active Duty Military¹				
Employment	4,120	979	5,099	5,178
Earnings	\$120,856,455	\$33,027,544	\$153,883,999	\$156,549,143
Federal Civilian				
Employment	6,199	5,774	11,913	13,491
Earnings	\$356,631,907	\$346,416,720	\$703,048,627	\$794,189,257
Reserves				
Employment	387	436	823	1,290
Earnings	\$3,448,170	\$3,884,760	\$7,332,930	\$11,493,900
Totals				
Employment	10,706	7,189	17,895	19,959
Earnings	\$480,936,532	\$383,329,024	\$864,265,556	\$962,232,300

¹ Includes housing allowance estimates made by BEBR.
Source: Hill AFB, Plans and Programs Directorate.

allowance to help offset the cost of renting or purchasing a home.

An estimated 33%, (1,683) of all military personnel own or are purchasing homes in either Davis or Weber County. The remaining 2,098 military either rent or live with friends and/or family. Of this group, BEBR estimates that between 900 and 950 active duty military personnel live in rental units adjacent to, or in close proximity to the base.⁹

Civilian employees are responsible for their own housing arrangements. Assuming the rate of home ownership by Hill's civilian employees is identical to that of the region's population, the 11,973 civilians living in the region own or are purchasing 9,129 homes. Therefore, an estimated 10,812 homes in the region are owned by employees of Hill AFB. Based on the current housing stock, one out of every 14 homes in the region is owned by an employee of Hill AFB.¹⁰

Procurement Contracting

About 90% of the purchases made by Hill AFB in Utah are made from businesses located in Davis County. Contracts for construction, services, materials equipment and supplies totaling \$117.8 million have been awarded to a mix of companies within the region. Goods and services totaling \$36.1 million are purchased locally through procurement contract arrangements. An additional \$43.6 million in contracting was spent for services used by Hill employees (health and education services) and to procure goods for resale at the base exchange and commissary. The cost of construction of on-base buildings and facilities totaled \$38.0 million.

Table 6 shows the direct contributions of Hill AFB to the Davis/Weber region.

Table 6**Economic Activity of Hill Air Force Base in the Davis/Weber Region (Current \$)**

Employment	
Military Personnel	5,099
Civilian Personnel	11,973
Reserves	823
Total	17,895
Payroll	
Military Personnel	\$153,883,999
Civilian Personnel	\$703,048,627
Reserves	\$7,417,282
Total Payroll	\$864,449,908
Procurements	\$36,139,220
Contracts	\$43,664,403
Construction	\$38,019,933
Grand Total Spending	\$982,273,464

Note: Employment and Payroll Date: FY 2003,
Procurements, Contracts and Construction: FY 2002.
Source: Hill AFB, Plans and Programs Directorate.

Statewide Impact of Closing Hill Air Force Base

As one of Utah's largest employers, Hill AFB makes a significant contribution to the state and has an even greater impact on those communities in close proximity to the base. The loss of Hill translates to lost jobs and income for Utah workers, reduces the number of households that can be supported, and permanently changes the structure and size of the Utah economy.

The economic, demographic and fiscal impacts on the state are presented in two window years—2009 and 2020. The impacts of closing Hill begin immediately (2006) but most of the effect will not be fully realized until 2009 when military personnel and their dependents are reassigned to other bases. The year 2009 was selected because it shows the first full year of impact on the Utah economy. The initial shock of closing Hill AFB will push markets into disequilibrium. Eventually, the economy will adjust and stabilize on a new growth path. The year 2020 was selected to show how the state's economy will be permanently impacted after this market adjustment occurs.

Statewide Impact Summary

(Financial projections are in constant 2001 dollars)

Short-Term Impacts

- In 2009, the impact of closing Hill AFB will be a loss of 47,400 jobs, a decline of \$2.35 billion in earnings and \$2.29 billion in personal income. Hill's closure shrinks the state's economy by \$3.58 billion. The annual loss of state tax revenue will be \$192.4 million.

- The population impact of closing Hill AFB will be 31,000 fewer people living in the state than if Hill remained in operation. This population impact includes about 7,600 school age children, or about 1.3% from the projected school age population baseline of 578,000. The impact on school age population will moderate, but not eliminate the upcoming boom expected to begin in 2005.
- Closing Hill will lower per capita personal income by \$542 in 2009; this means that each person in Utah will have, on average, \$542 less to spend than if Hill remained in operation.

Long-Term Impacts

- The long-term, statewide impact of closing Hill AFB will be a permanent loss of 41,700 jobs, an annual decline of \$2.5 billion in earnings and \$2.65 billion in personal income. The economy will be \$3.43 billion smaller (a decline of 1.7% from the baseline projection). The annual loss of tax revenue will be \$199 million.

Closure Scenario Description

The results presented here are based on the following assumptions regarding the closure of Hill AFB:

- The scenario assumes the complete closure of Hill AFB. Property will be retained by the Department of Defense (DOD). Therefore, conversion issues have not been considered in this analysis.
- Base closure will occur over a three-year period beginning in 2006 and ending in 2008. We assume there will be no construction activities at Hill after the BRAC notifications in 2005. Sixty percent of local contracting and employment will be eliminated the first year. By the second year, 80% of the base's activities will be realigned, with closure completed by the end of year three.
- The closure scenario assumes operations in 2006 are identical to those in FY 2003 with respect to employment and payroll and in FY 2002 with respect to spending.
- The direct employment reductions include only the active duty military and civilian employees at Hill. While there may be a small cadre of military personnel assigned to the base to perform basic maintenance and security, we assumed this at zero.
- This scenario does not include the impact of Prime Contract Awards.
- Fiscal impacts assume a tax structure identical to that currently in place. Changes in Utah's tax policy will alter future tax revenues.
- The lost earnings of military personnel are not included in the fiscal impacts because military personnel do not pay taxes to state and local governments in the same ways that civilians do.

- The resident population in Utah will be 50,400 less than if Hill remained in operation. This impact includes 15,400 school age children—a change of 2.1% of the baseline projection of 743,000.
- The permanent employment impact represents a change of 2.1% on a projected baseline of 2.0 million. The population impacts represent a change of 1.6% in a projected baseline of 3.3 million.

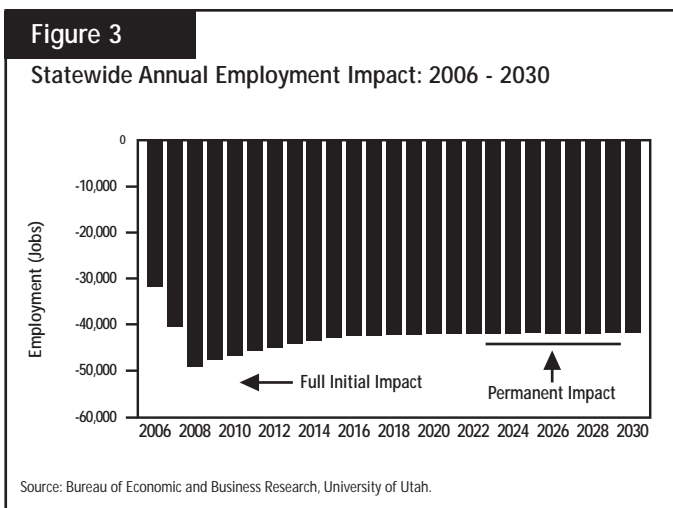
Table 7 shows the summary impacts of closing Hill AFB on the state of Utah. Table 7

Impact on Employment and Earnings

The employment impacts include the loss of all military and civilian jobs at Hill AFB. The most direct and enduring impact on employment will be the loss of almost 13,500 high-paying, value-added civilian jobs. After sharply declining in 2009, the employment impact becomes less severe as markets adjust to the closure of Hill. (Figure 3)

All sectors of Utah's economy will be affected. As measured by absolute jobs lost, the sectors most impacted initially will be federal government, services, and retail trade. With the exception of the government sectors (state, local and federal), the employment loss in all other sectors become less severe by 2020; that is, the initial loss in 2009 is greater than the permanent loss 11 years after base closure. (Table 8)

In contrast to other industries, the government sector will not rebound over time. The direct impacts of losing



military and civilian employees does not moderate because these jobs will be permanently removed from the state's economic base. Employment losses in state and local government actually becomes larger over time in response to a decrease in demand for services caused by changes in population, particularly due to the reduction in the number of school age persons. The cost savings from a smaller population results in lower demand for government services.

The employment losses that result from Hill AFB are not trivial; however, in the larger context, they represent a relatively small part of the state's economy. The employment impact of 47,000 jobs in 2009 is a 2.9% decline from a projected baseline of 1.6 million jobs. By 2020, the permanent employment impact is a decline of

2.1% of the projected baseline of 2.0 million jobs. Even with the closure of Hill, at a statewide level, employment continues to increase as other sectors of the economy continue to grow. While closing Hill does precipitate a change in Utah's employment growth path, this change is not significant. (Figure 4)

Impact on Income and Gross State Product

Personal income is the major determinant of spending. Disposable personal income is the portion of personal income that remains after personal taxes are subtracted. It represents the amount of income available for consumption and savings.

Variable	2009	Change from Baseline	2020	Change from Baseline
Employment	-47,430	-2.9%	-41,730	-2.1%
Earnings (Bil.)	-\$2.35	-4.1%	-\$2.50	-3.0%
Personal Income (Bil.)	-\$2.29	-3.7%	-\$2.65	-2.4%
Disposable Personal Income (Bil.)	-\$2.01	-3.0%	-\$2.31	-2.4%
Gross State Product (Bil.)	-\$3.58	-2.6%	-\$3.43	-1.7%
Population	-31,000	-1.2%	-50,480	-1.6%
School Age Population	-7,555	-1.3%	-15,405	-2.1%
State Tax Revenue				
Individual Income Tax	-\$69.8		-\$73.8	
General Sales Tax	-\$88.8		-\$94.0	
Motor Fuel Sales Tax	-\$14.8		-\$11.2	
Other Taxes	-\$19.0		-\$20.1	
Total	-\$192.4	NA	-\$199.1	NA

Note: The financial losses shown in 2020 are permanent, annual losses in the economy.
Source: Bureau of Economic and Business Research, University of Utah.

Table 8

**Employment and Earnings Impact and Share of Loss, by Sector: 2009 and 2020
(Earnings Impact in Millions of 2001 \$)**

Sector	Impact in 2009				Impact in 2020			
	Job Impact	Share of Loss	Earnings Impact	Share of Loss	Job Impact	Share of Loss	Earnings Impact	Share of Loss
Manufacturing	-1,964	4.1%	-\$113.1	4.8%	-1,202	2.9%	-\$76.8	3.1%
Mining	-9	0.0%	-\$1.1	0.0%	-5	0.0%	-\$0.5	0.0%
Construction	-3,355	7.1%	-\$146.0	6.2%	-1,832	4.4%	-\$95.1	3.8%
Transportation & Public Utilities	-931	2.0%	-\$56.6	2.4%	-669	1.6%	-\$45.2	1.8%
FIRE	-1,803	3.8%	-\$57.4	2.4%	-1,311	3.1%	-\$46.1	1.8%
Retail Trade	-6,498	13.7%	-\$147.1	6.3%	-5,235	12.5%	-\$136.6	5.5%
Wholesale Trade	-937	2.0%	-\$51.0	2.2%	-544	1.3%	-\$33.3	1.3%
Services	-11,010	23.2%	-\$390.2	16.6%	-8,893	21.3%	-\$360.0	14.4%
Agr, Forestry, & Fish Services	-305	0.6%	-\$6.4	0.3%	-295	0.7%	-\$7.1	0.3%
State and Local Government	-1,942	4.1%	-\$84.2	3.6%	-3,079	7.4%	-\$140.5	5.6%
Federal Civilian	-13,490	28.5%	-\$1,070.0	45.5%	-13,490	32.3%	-\$1,296.2	51.9%
Federal Military	-5,178	10.9%	-\$227.3	9.7%	-5,178	12.4%	-\$261.7	10.5%
Total	-47,424	100.0%	-\$2,351.4	100.0%	-41,733	100.0%	-\$2,499.3	100.0%

Source: Bureau of Economic and Business Research, University of Utah.

Closing Hill reduces total personal income in Utah by \$2.29 billion in 2009. Another way to assess the impact of losing \$2.29 billion in personal income is on a per capita basis. Closing Hill will lower per capita income by \$542 in 2009; this means that each person in Utah will have, on average, \$542 less to spend on goods and services than if Hill AFB remained in operation. The initial decline in personal income (2009) is slightly less than the expected loss in earnings because of transfer payments (particularly welfare and unemployment insurance). While transfer payments offset the earnings impact in the short term, these resources are eventually depleted. This, in combination with the permanent structural change created by the loss of federal civilian jobs, results in a greater loss (\$2.65 billion) in personal income by 2020.

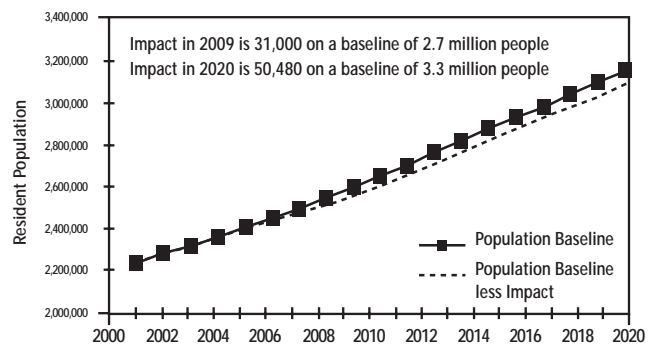
Real disposable personal income (DPI) drops by \$2.01 billion in 2009—3.0% less than the baseline projection. By 2020, the permanent annual loss of DPI increases to \$2.3 billion and represents 2.4% of the baseline projection. The continued decline in DPI is driven by many things including the loss of high paying civilian jobs at Hill AFB and an increase in the number of moderate and lower paying jobs in other sectors of the economy. The loss of income that results from the closure of Hill AFB will only be mitigated with an equal number of new high-paying jobs, or the creation of many more jobs at lower rates of pay.

The single most comprehensive indicator of the state's economic performance is gross state product (GSP).

Similar to gross domestic product for the nation, it is a measure of the total dollar value of all final goods and services produced in the state. In 2009, the impact on Utah's GSP is a decline of \$3.58 billion, or about 2.6% of the projected baseline GSP of \$139.0 billion. As Utah's economy expands the decline in GSP accounts for a smaller share of the state's projected GSP. In 2020, the decline in GSP levels off at a permanent annual loss of \$3.43 billion and accounts for just 1.7% of the projected GSP.^{11,12}

Figure 4

**State of Utah Employment: 2001 - 2020
Baseline and Baseline less Hill AFB Impact**



Source: Bureau of Economic and Business Research, University of Utah.

Impact on Population

Initially, the population impact of closing Hill results in a population base that is about 31,000 people smaller than that projected if the base remains open. This represents a change of 1.2% from a baseline projection of 2.6 million. Over time, the population impact actually increases both in absolute numbers (50,400 fewer people) and as a percentage of the projected baseline population (1.6% decline). The population impact increases for several reasons, the primary reason is the compounding effect of the fertility rate.

As shown in Figures 5 and 6, initially, the impact population is largely made up of working persons (individuals between the ages of 20 and 30) and their children. These young working age people are in their peak childbearing years. Consequently, the loss of this group results in fewer taxpayers and fewer school age children living in Utah than there would have been if the base remained.

The initial impact on the school age population will be a decrease of almost 7,600 children or 1.3% of the projected baseline of 578,031. This impact is small when compared to the expected increase of 10,000 school age children per year projected to begin in 2005 and continuing for at least a decade. By 2020, the impact on the school age population increases to 15,405 and represents 2.1% of the projected baseline of 742,605. The increase in the school age impact population from 2009 to 2020 (1.3% of the projected baseline to 2.1% of

the projected baseline) occurs because this group will eventually account for a larger share of the impact population. Again, this is a function of the compounding effect of the fertility rate.

Fiscal Impacts

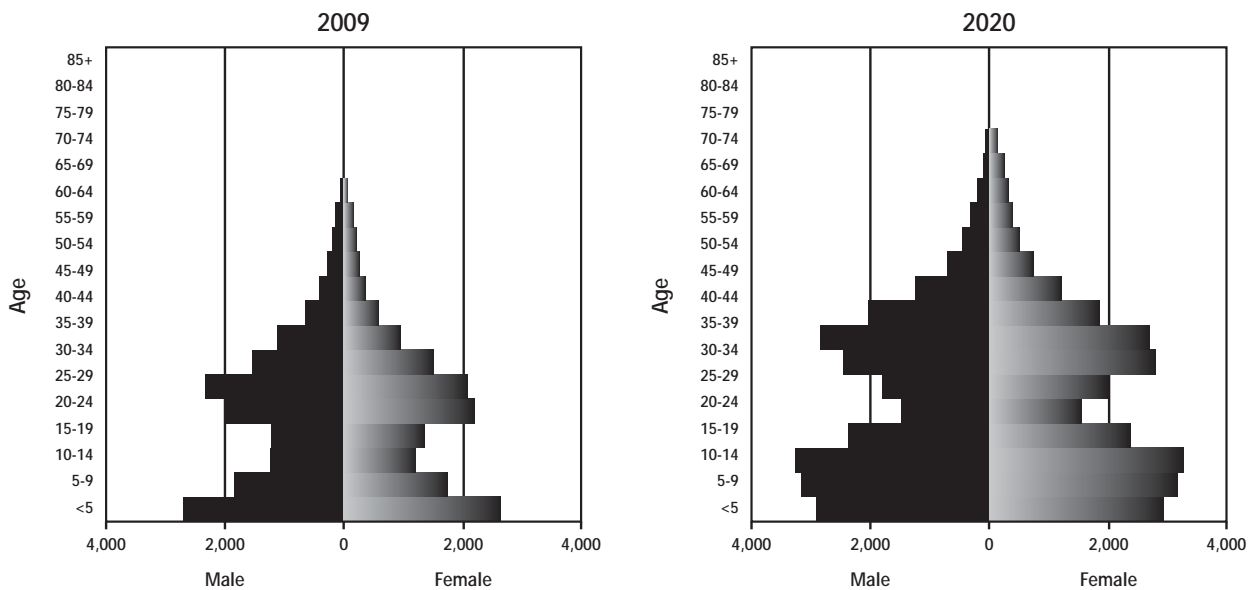
While slower population growth may provide some slight short-term relief for the state's education system in terms of fewer students, it also reduces the working population which negatively impacts state tax revenue. In 2009, the impact on state tax revenue will be a loss of \$192.4 million. The largest decline will be the loss of general sales tax which is estimated to decline by \$88.8 million, followed by a decline of \$69.8 million in individual income tax. By 2020, the permanent, annual loss in state tax revenue will be \$199.1 million. The largest decline will be in general sales tax (-\$94.0 million) followed by individual income tax (-\$73.8 million).¹³

How Long to Recovery?

The speed at which the state begins its new growth path is dependent on job growth. To offset the short-term employment impact of closing Hill AFB, the state needs to create almost 48,000 new jobs. In robust economic times, this is equivalent to losing one year to three years of economic growth. In recent historical experience, job growth in this range has not occurred on an annual basis since the economic boom of the mid-1990s. (Figure 7)

Figure 5 & 6

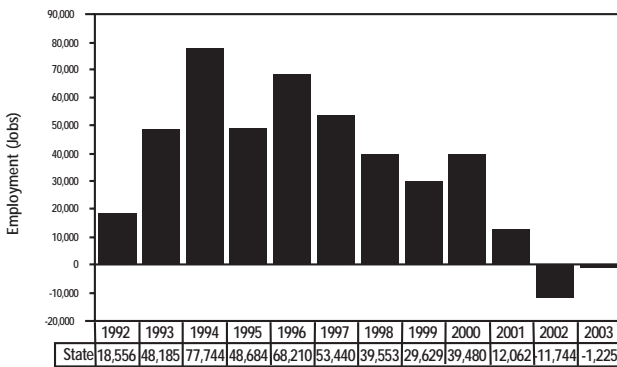
State of Utah Impact Population: 2009 and 2020



Source: Bureau of Economic and Business Research, University of Utah.

Figure 7

**State of Utah
Annual Changes in Employment Levels : 1992 - 2003**



Source: Bureau of Economic and Business Research, University of Utah.

As shown in Figure 7, job growth in Utah started to slow in 1996. During the five-year period from 1993 through 1997, employment increased by more than 296,000 jobs, averaging about 59,000 jobs each year. In comparison, from 1998 through 2001, about 121,000 jobs were created; an average of about 30,000 per year. Currently, Utah is experiencing a “jobless economic recovery”. Forecasts show employment growing by 11,000 to 12,000 new jobs annually over the next few years as well under the 48,000 job mark. Given current growth expectations, it could take three to four years to mitigate the employment losses caused by Hill’s closure.

Offsetting the impact on earnings will be even more difficult. The federal civilian jobs at Hill AFB are not “average” jobs. They are some of the best jobs in Utah. These high-paying, stable jobs with benefits will be hard to replace. Since the earnings of most civilians working at Hill AFB are almost double the state average it will take almost 68,000 new jobs to offset the loss of \$2.35 billion in earnings.

In a sense, Utah never really “recovers” from the losing Hill AFB—the economy will always be permanently smaller than if the base remained in operation. However, Utah’s economy has demonstrated it can survive dramatic economic events (closure of Geneva Steel, employment losses at Kennecott, the energy bust of the 1980s and dramatic declines in defense spending in the 1990s). The question is not whether the Utah economy will

begin to expand but when. The closure of Hill AFB will be the equivalent of losing a few years of economic growth. Eventually the economy will stabilize on a new growth path. Statewide, this could happen within two to three years of base closure. Table 9 compares the economic and demographic conditions in Utah if Hill AFB is closed.

Regional Impact of Closing Hill Air Force Base

Closing Hill AFB will have economic repercussions on the Davis/Weber region unparalleled since the Great Depression. The departure of such a large employer will have enduring impacts on the size, structure and composition of the regional economic base, leading to a decrease in jobs, population, earnings and income, and a much smaller regional economy.

Short-Term Impacts

- In 2009, when the base is fully closed, the impact on the region will be a loss of almost 35,000 jobs, an annual decline of \$1.81 billion in earnings and \$1.58 billion in personal income. The impact on gross regional product (GRP) is a decline of \$2.54 billion, or 11% of projected GRP. Tax revenue (excluding property tax) will decline by \$7.7 million annually.
- There will be about 21,400 fewer people living in the region than if Hill remained in operation. Included in the population impact are about 5,300 school age children, or a change of 4.7% from the projected baseline of 110,000.
- Based on the estimated housing stock in Davis and Weber in 2003, one in every 14 homes in the region is owned by an employee of Hill AFB. With Hill’s

Table 9

**Statewide Economic and Demographic Activity Comparison: 2009 and 2020
With Hill AFB and Without Hill AFB
(2001 \$)**

Variable	2009		2020	
	With Hill AFB	Without Hill AFB	With Hill AFB	Without Hill AFB
Employment	1,638,260	1,590,830	1,999,973	1,958,243
Earnings (Bil.)	\$57.1	\$54.7	\$84.7	\$82.3
Personal Income (Bil.)	\$74.6	\$72.3	\$110.2	\$107.6
DPI (Bil.)	\$66.5	\$64.5	\$97.2	\$94.9
Per capita PI	\$28,115	\$27,574	\$33,803	\$33,509
Gross State Product (Bil.)	\$139.0	\$135.4	\$204.9	\$201.5
Population	2,654,124	2,623,124	3,260,094	3,209,615
School Age Population	578,031	570,476	742,605	727,200

Source: Bureau of Economic and Business Research developed in cooperation with the Utah Governor’s Office of Planning and Budget.

Table 10

**Hill Air Force Base Closure Analysis
Economic, Demographic and Fiscal Impact Summary: 2009 and 2020
Davis/Weber Region
(2001 \$)**

Variable	Davis/Weber Region				Davis County			
	2009	Change	2020	Change	2009	Change	2020	Change
Employment	-34,996	-12.7%	-32,273	-9.7%	-30,020	-19.9%	-28,150	-15.2%
Earnings (Bil.)	-\$1.81	-19.7%	-\$2.06	-15.3%	-\$1.62	-31.6%	-\$1.89	-25.2%
Personal Income (Bil.)	-\$1.58	-10.8%	-\$1.89	-8.9%	-\$1.15	-13.8%	-\$1.38	-11.2%
Disposable Personal Income (Bil.)	-\$1.38	-10.6%	-\$1.65	-8.8%	-\$1.01	-13.6%	-\$1.21	-11.2%
Gross Regional Product (Bil.)	-\$2.54	-11.1%	-\$2.54	-7.5%	-\$2.18	-17.8%	-\$2.21	-12.1%
Population	-21,489	-4.2%	-33,130	-5.5%	-15,150	-5.4%	-21,070	-6.2%
School Age Population	-5,309	-4.7%	-10,013	-7.7%	-3807	-6.0%	-6,300	-8.5%
Tax Revenue (Mil.) ¹	-\$7.7	NA	-\$8.8	NA	-\$6.3	NA	\$7.3	NA

Note: "Change" indicates the percentage difference from the baseline projection.
 1 Includes sales and other selected tax revenues. Does not include property tax revenue.
 Source: Bureau of Economic and Business Research, University of Utah.

closure, as many as 6,200 homes owned by employees of Hill could be put on the market over a two- to three-year period beginning in 2006. In addition, residential construction could drop off immediately and property values begin to decline.

Long-Term Impacts

- The long-term impact on the region will be a permanent loss of about 32,200 jobs, an annual decline of \$2.06 billion in earnings and \$1.89 billion in income. The region's economy will be permanently smaller by \$2.54 billion. Excluding property tax, the loss of tax revenue will be \$8.8 million annually.
- The population impact on the region will be 33,000. This includes 10,000 school age children, or a decline of 7.7% in the projected school age population baseline projection of 130,900.

Impacts on Davis County

The impacts of closing Hill disproportionately affect Davis County. Since WWII, Hill AFB has been the dominant influence on Davis County's economy, and has been the defining factor in establishing Davis as one of Utah's most prosperous counties. The closure of Hill AFB represents the loss of an industry that has been the foundation of Davis County's economy for the past 60 years.

Short-Term Impacts

- During the first year of the three-year phased closing (2006), employment and population in Davis County actually decline. In 2006, the net effect on employment is a loss of about 15,400 jobs which increases to 19,000 by 2008. These losses are so large that employment in

Davis County does not return to the 2005 pre-base closure level of about 136,000 until 2014.

- More significant is the 1.4% drop in the County's population (about 3,800 people) in 2006. The decrease in Davis County's population base will be the first time since 1940 that an urban county in Utah has sustained a population decline.
- At *full* base closure in 2009, the employment impact in Davis County is 30,000 (one in five jobs), a decline of \$1.62 billion in earnings (a decline of 32% from the baseline projection) and \$1.15 billion in personal income (a decline of 14% from the baseline projection). The county's economy will be \$2.18 billion smaller (a decrease of 18%). The annual loss of sales and other selected tax revenue will be \$6.3 million.
- By 2009, the population impact is 15,100 which includes 3,800 school age children, or about 6.0% of the projected school age population baseline of 63,000.

Long-Term Impacts

- The long-term impact on Davis County will be a permanent loss of about 28,000 jobs (a 15% decline from the projected baseline), an annual decline of \$1.89 billion in earnings (25% decline) and \$1.38 billion in personal income (11% decline). The county's economy will be permanently smaller by 12%, or \$2.21 billion. The annual loss of sales and other selected tax revenue will be \$7.3 million.
- There will be 21,000 fewer people living in the county than if Hill remained in operation. Included in this figure are 6,300 school age children, or about 8.5% of the projected school age population of 74,355.

Table 10 shows the economic, demographic and fiscal impacts of closing Hill AFB on Davis/Weber Region and Davis County.

Regional Employment and Earnings Impact

In 2009, the employment impact of closing Hill AFB is a region-wide loss of almost 35,000 jobs and a decline in earnings of \$1.81 billion. Included in the employment impact is the direct loss of 18,669 civilian and military jobs and subsequent loss of 16,328 jobs due to the multiplier process as well as other demographic and market adjustments. This job loss represents 12.7% of projected employment in the region, or about one in eight jobs. By 2020, the region-wide impact on employment will be the permanent loss of about 32,000 jobs and \$2.06 billion in earnings.

The employment impact on Davis begins in 2006 with the direct loss of 11,201 jobs at Hill AFB and subsequent loss of 7,819 jobs. This loss is so large that in 2006, employment actually drops by 15,415 jobs, and continues to decline over the next two years resulting in a net decline in employment of about 19,000 by year-end 2008.

By 2009, the employment impact is about 30,000, or one in five jobs. However, by 2009 other sectors of the economy in Davis County generate enough jobs to stop the net decline and employment starts to trend upward. Nonetheless, the actual job loss incurred during the phase-out period is so large that employment does not return to the pre-base closure level until 2014. The initial impact on earnings in 2006 will be the loss of \$951.7 million which quickly escalates to \$1.62 billion by 2009—a 32% decline in the baseline projection.

In contrast, the initial employment impact in 2006 in Weber County will be 3,341, which causes employment to dip slightly (997 jobs) below the pre-base closing level of 116,000. In 2007, given optimistic growth assumptions, the county's economy will produce enough jobs to push employment back to its pre-base closing level. The permanent employment impact in 2020 is the loss of 4,123 jobs. (Figures 8 and 9)

Even if Hill AFB remains in operation, over time, employment in the region will move toward a service economy. The departure of Hill accelerates this trend. With some exceptions service sector jobs tend to be lower paying jobs. Therefore, if employment growth is driven by the creation of jobs in low wage sectors, very high rates of job creation will be necessary to compensate for the loss of earnings caused by Hill's closure.

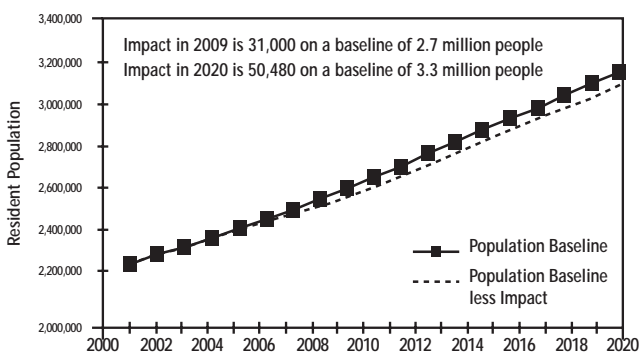
Impact on Industrial Sectors

All sectors of the region's economy will be affected by the closure of Hill. Aside from the decline in federal government employment, construction, services, retail trade, and state and local government all sustain job losses in 2009. Table 11 shows the number of jobs lost and the earnings associated with those jobs for 2009 and 2020 in the region and in Davis County. Table 12 shows the losses as a share of employment in each industrial sector in 2009.

Services and Retail Trade. The drop in household spending due to the loss of payroll and the loss of spending related to Hill's operations have large-scale impacts on employment in services and retail trade. The impact on the services sector will be a loss of 5,963 jobs in 2009—a decrease of 14% from the baseline projection. Within this sector, job losses will be concentrated in food service, healthcare and education.

Figure 8

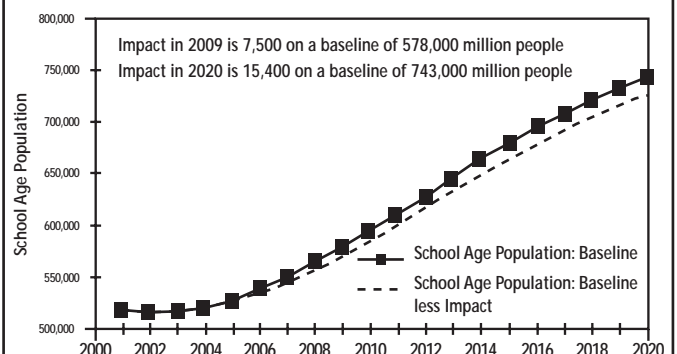
State of Utah Population: 2001 - 2020
Baseline and Baseline Less Hill AFB Impact



Source: Bureau of Economic and Business Research, University of Utah.

Figure 9

State of Utah School Age Population: 2001 - 2020
Baseline and Baseline Less Hill Impact



Source: Bureau of Economic and Business Research, University of Utah.

Table 11

**Impact on Employment and Earnings: 2009 and 2020
Davis/Weber Region and Davis County
(2001 \$)**

Sector	Davis/Weber Region				Davis County			
	Impact in 2009		Impact in 2020		Impact in 2009		Impact in 2020	
	Jobs	Earnings	Jobs	Earnings	Jobs	Earnings	Jobs	Earnings
Manufacturing	-853	-\$48.4	-561	-\$36.2	-489	-\$21.9	-332	-\$20.9
Construction	-2,177	\$89.3	-1,263	-\$63.0	-1,594	-\$64.5	-954	-\$47.7
Transportation & Public Utilities	-320	-\$15.9	-243	-\$14.3	-227	-\$10.2	-173	-\$9.9
FIRE	-867	-\$20.0	-555	-\$15.4	-603	-\$12.1	-370	-\$9.6
Retail Trade	-4,549	-\$94.6	-3,848	-\$95.9	-3,345	-\$67.3	-2,870	-\$72.0
Wholesale Trade	-385	-\$15.7	-244	-\$12.1	-277	-\$10.4	-183	-\$8.8
Services	-5,973	-\$181.9	-5,128	-\$185.5	-4,070	-\$112.5	-3,627	-\$125.3
Ag., Forestry, & Fish. Services	-187	-\$3.5	-192	-\$4.3	-134	-\$2.6	-137	-\$3.3
State and Local Government	-1,018	-\$44.8	-1,568	-\$76.0	-620	-\$23.2	-835	-\$39.0
Federal Civilian	-13,490	-\$1,067.7	-13,490	-\$1,295.5	-13,490	-\$1,063.8	-13,490	-\$1,293.9
Federal Military	-5,178	-\$227.3	-5,178	-\$261.7	-5,178	-\$227.0	-5,178	-\$261.7
Total	-34,997	-\$1,809.0	-32,270	-\$2,059.8	-30,021	-\$1,615.8	-28,149	-\$1,892.2

Source: Bureau of Economic and Business Research, University of Utah.

The impact on retail trade will be a loss of 4,549 jobs—a decrease of 15.5% from the baseline projection. Retail businesses that sustain the largest employment losses include grocery stores (695 workers) furniture and household furnishing stores (230 workers) and general merchandise stores (583 workers).²³

Construction. Annually, Hill AFB spends millions of dollars for construction and construction maintenance. Most of these contracts are awarded to companies located in the Davis/Weber region. The loss of these dollars culminates in the loss of 2,177 construction jobs in the region in 2009. The impact on construction represents about 12% of the projected 2009 construction employment baseline. By 2020, the impact on

construction will be a loss of 1,263 jobs.

Job loss in the construction industry could ultimately be larger than the estimates presented here. The construction undertaken for Hill AFB is nonresidential construction. Currently, this segment of Utah's construction industry is not showing significant growth. Instead, construction has been driven by activity in the residential sector. With the employment and population losses projected throughout the region, it is unlikely that residential construction will continue at the unprecedented levels reported over the last few years. The loss of nonresidential construction at Hill AFB, combined with a likely downturn in residential construction in the region could further escalate employment losses in the construction industry that may continue well into the next decade.

State and Local Government. State and local government will sustain an employment impact of 1,018 fewer jobs in 2009. The impact becomes larger over time to adjust to the size and age distribution of the population. By 2020, the employment impact on state and local government will be a loss of 1,568 jobs, or 4.9% of the total employment impact in that year. While this study does not fully model the fiscal impacts of Hill AFB, the cost savings from a smaller population results in lower demand for government services and that is reflected in the employment impacts for this sector.

Table 12

**Job Loss by Sector as a Share of Total Sector Employment: 2009
Davis/Weber Region and Davis County**

Sector	Davis/Weber Region		Davis County	
	Job Loss	Loss as a Share of Sector	Job Loss	Loss as a Share of Sector
Manufacturing	-853	3.0%	-489	4.1%
Construction	-2,177	11.9%	-1,594	14.6%
Transportation & Public Utilities	-320	4.3%	-227	5.2%
FIRE	-867	4.3%	-603	5.1%
Retail Trade	-4,549	8.8%	-3,345	11.4%
Wholesale Trade	-385	5.7%	-277	7.1%
Services	-5,973	7.1%	-4,070	9.3%
Ag., Forestry, & Fish. Services	-187	6.4%	-134	8.3%
State and Local Government	-1,018	3.9%	-620	5.1%

Source: Bureau of Economic and Business Research, University of Utah.

With the exception of the government sector, all industrial sectors in the region are expected to show improvement by 2020; that is, the impact in 2009 is greater than the impact 11 years after base closure.

Impact on Income and Gross Regional Product

Closing Hill AFB reduces personal income in the region by \$1.57 billion in 2009. Disposable personal income drops by \$1.38 billion—a decrease of almost 11.0% over the projected baseline.

The single most comprehensive indicator of an area's economic performance is gross regional product. Similar to gross state product for the state, it is a measure of the total dollar value of all final goods and services produced within the region. In 2009, the impact on the region's GRP is a decline of \$2.54 billion—a drop of 11%. As the region's economy expands, the decline in GRP accounts for a smaller share of the region's projected GRP by 2020 even though in absolute terms the value remains unchanged. In 2020, the permanent, annual decline in GRP will be \$2.53 billion, or about 7.5% of GRP.

Again, most of the impact occurs in Davis County. In 2009, the impact on real personal income in Davis County is \$1.15 billion—a decline of 13.8%. Another way to view the impact of losing \$1.15 billion in personal income is on a per capita basis. Closing Hill will lower per capita income in Davis County by \$2,629 in 2009; this means that each person in Davis will have, on average, \$2,629 less to spend on goods and services than if Hill remains in operation. The impact on the county's GRP in 2009 is a loss of \$2.18 billion representing a decrease of almost 18% from the baseline projection. By 2020, the loss in GRP levels off at \$2.2

billion annually, representing a permanent decrease of 12.1%.

Impact on Population

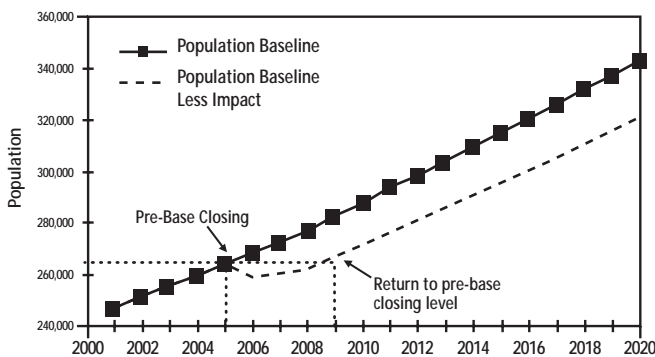
The closure of Hill AFB impacts the region's resident population immediately as military personnel and their dependents are reassigned to other military bases. In 2006, the population impact on the region is 9,741 and results in a net population decline of 2,388 people. Natural increase will help offset the population impact and the region's population returns to its pre-base closure level in 2007. By 2009, the population impact increases to about 21,500 people (which includes about 12,000 military personnel and their dependents) and eventually reaches 33,130 people by 2020.

By 2020 the population impact increases in absolute terms and as a share of the baseline projection. In 2009, the population impact represents 4.2% of the baseline projection but increases to 5.5% of the baseline projection in 2020. Again, this increase is largely driven by the compounding effect of the fertility rate. However, while the population impact becomes greater with time, at no point after 2009 does the region suffer a net loss in population. Instead, population growth continues as a result of natural increase.

Most of the impact population occurs in Davis County since most of the military personnel and their dependents reside in that county. In 2006, the population impact in Davis is 8,208 which causes a net population decline of almost 3,800 people. This decline is so large that population in the county does not return to its pre-base closing level until 2009. In contrast population in Weber County actually increases by about 1,400 people in 2006. (Figures 10 and 11)

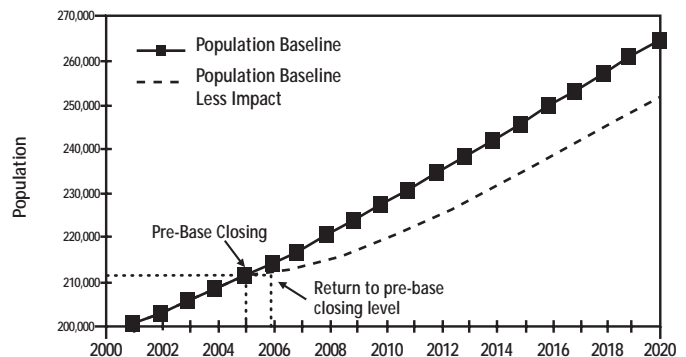
Figure 10 & 11

Davis County Population: 2001-2020
Baseline and Baseline Less Hill AFB Impact



Source: Bureau of Economic and Business Research, University of Utah.

Weber County Population: 2001-2020
Baseline and Baseline Less Hill AFB Impact



Source: Bureau of Economic and Business Research, University of Utah.

The population decline in Davis County is worth noting. While population fluctuations are common in rural areas highly dependent on natural resources, urban counties rarely experience such changes. The projected decrease in Davis County's population would be the only time since the late 1940s that an urban county in Utah has experienced a decline in population.

The impact population in Davis County is largely made up of working age adults and their children which translates to fewer taxpayers and fewer school age children living in the area. In 2009, the initial regional impact on the school age population will be a decrease of about 5,300 children from a projected baseline of 110,051. This means there will be about 5,300 fewer children in the education system in Davis County than if Hill remained in operation. The districts most affected will be Davis School District and Weber School District.

Initially, most of the school age impact population will be the dependents of military personnel who live in Davis County. The school age population impact in Davis County in 2006 is large enough to cause a net decline of 1,500 school age children living in the county. These declines continue until 2009. The permanent impact on the county's school age population is 6,300 children—a decrease of 8.5% from the projected baseline. (Figure 12)

The impact on Weber County is much smaller. As shown in Figure 13, the impact on school age population is about 1,500, but does not cause the number of school age children living in the region to dip below the pre-base closing level. By 2020, the impact in Weber County increases to about 3,700 school age children, or about 6.6% of the baseline projection.

The decline in the school age population in the region will partially ease the pressure of the upcoming school

boom; however, it also means a loss of about \$1.2 million in impact aid for Davis and Weber School Districts.¹⁴

Impact on Housing

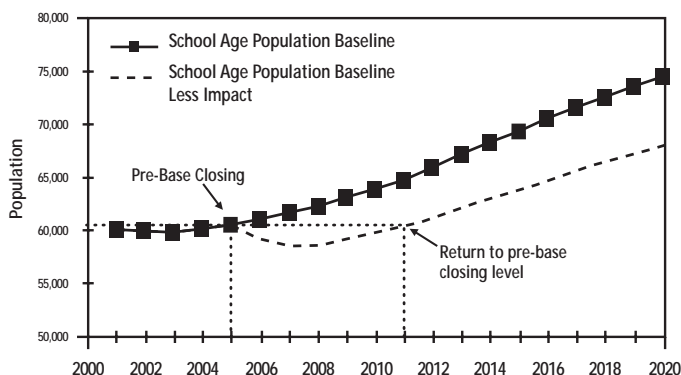
An estimated 33%, or 1,683 military personnel own or are purchasing homes in Davis and Weber County. An estimated 9,129 federal civilians own or are purchasing homes in the region. From these estimates, 10,812 homes in Davis and Weber County are owned by employees of Hill AFB. That number, based on the area's estimated housing stock in 2003, represents one in every 14 homes in the region.

The sudden loss of jobs and declining population will impact the real estate market and residential construction in the area. The magnitude and duration of these impacts is difficult, if not impossible, to determine. Many economic and demographic variables affect property values and housing prices. Determinants include job growth, income, favorable demographics (young people creating new households), and interest rates. The closure of Hill AFB negatively impacts every economic and demographic variable in the region—job loss, lower employment growth, declining income, and out-migration of young workers. The question is, what effect will these impacts have on the region's housing market?

In the short term, demand for housing will drop as base employees leave the area. The pace of new home building in the region should slow as markets adjust to population decline, job and income loss, and increase in the number of homes placed on the market. The net result of these factors is an increase in supply of housing units at the same time that the community is losing people who would most likely be buying homes. Even the most optimistic builders will take pause when faced with these conditions. At a minimum, soft market conditions could

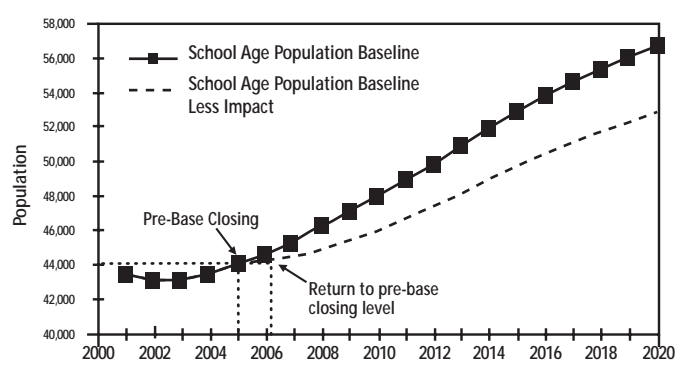
Figure 12 & 13

Davis County School Age Population: 2001-2020
Baseline and Baseline Less Hill AFB Impact



Source: Bureau of Economic and Business Research, University of Utah.

Weber County School Age Population: 2001-2020
Baseline and Baseline Less Hill AFB Impact



Source: Bureau of Economic and Business Research, University of Utah.

Table 13	
Primary and Other Residential Property Property Tax Impact Scenarios: 2006 (current dollars)	
2006	
Davis County (Based on an estimated taxable value in 2006 of \$6.7 billion)	
5% decline impact	-\$4.1 million
10% decline impact	-\$8.3 million
25% decline impact	-\$20.7 million
Weber County (Based on an estimated taxable value in 2006 of \$5.1 billion)	
5% decline impact	-\$2.9 million
10% decline impact	-\$5.8 million
25% decline impact	-\$14.5 million
Source: Calculated by BEBR using information from the Utah State Tax Commission, <i>Utah Property Tax, 2002 Annual Statistical Report</i> , Tables 2 and 8A.	

slow the rate at which housing in the region appreciates. A worse case would be declining property values.

Weak economic conditions lower demand for housing, which eventually depresses housing prices. This situation would be exacerbated if hundreds of homes are placed on the market at the same time. However, not all employees of Hill will leave the region. Based on conversations with Hill AFB staff, approximately 40% of all federal civilians working at Hill will be eligible for retirement within five years. These individuals may take early retirement and remain in the region. Of the remaining 60%, only a portion will move from the region to find jobs. Assuming that all military personnel leave the region and half of the civilians who own homes relocate, an additional 6,200 homes could be on the market over a two- to three-year period.

A study undertaken by the U.S. General Accounting Office has addressed the issue of declining housing values and closure of military bases. In two of the communities included in the analysis, new housing construction stopped and real estate values dropped 25% to 30%. However, within three years housing starts increased significantly and average home prices began to escalate. How applicable the experience of other communities is to the Davis/Weber region situation is uncertain, but it does show that housing markets do recover, and in a surprisingly short period of time.¹⁵

Fiscal Impacts

At the local level, the two revenue streams that will be most impacted

are property tax and sales tax. Property tax and sales tax are important revenue sources for counties, cities and school districts. Neither the decline in property values or the phasing of those declines can be precisely determined; however, the potential impact on property tax collections based on different valuation assumptions was estimated using data from the Utah State Tax Commission. These estimates are presented in Table 13.¹⁶ The distribution of the impacts among various taxing entities in each county for 2006 is shown in Table 14.

The impact on property tax collections could be significant. It is unlikely that taxing districts in the region could continue to operate at acceptable levels even with a 5% decline in property values. It is more likely that taxing districts would implement a property tax rate increase to compensate for the lost revenue.

The negative impact on sales and selected tax revenue in the region is estimated to be \$7.7 million in 2009 and \$8.8 million in 2020.¹⁷ These estimates include the impact on general sales tax and other selected sales taxes. The impact on Davis County will be a drop in tax collections in 2009 of \$6.3 million and \$7.3 million in 2020.

How Long to Recovery?

The regional impacts of closing Hill AFB will be large-scale and enduring. The speed at which the region moves to its new growth path will be dependent on job growth. To offset the short-term employment impact, the region will need almost 35,000 jobs. In robust economic times, this is the equivalent of losing five to seven years of growth.

Currently, the region's economy is anything but robust. From 1998 through 2002, total employment in the region increased by fewer than 18,000 jobs; or an average of about 3,500 jobs annually. In 2001 and 2002, Weber County actually lost jobs. While the current economic

Table 14					
Distribution of Property Tax Impact by Taxing District: 2006 (current dollars)					
Davis County	County	School Districts	Cities & Towns	Special Districts	Total
5% decline	-\$540,369	-\$2,588,082	-\$585,061	-\$418,481	-\$4,131,993
10% decline	-\$1,080,738	-\$5,176,164	\$1,170,122	-\$836,962	-\$8,263,986
25% decline	-\$2,701,844	-\$12,940,411	-\$2,925,305	-\$2,092,406	-\$20,659,965
Weber County					
5% decline	-\$759,712	-\$1,373,086	-\$498,172	-\$3264,654	-\$2,895,624
10% decline	-\$1,519,424	-\$2,746,172	-\$996,344	-\$529,308	-\$5,791,247
25% decline	-\$3,798,560	-\$6,865,460	-\$2,490,859	-\$1,323,269	-\$14,478,118
Source: Calculated by BEBR using information from the Utah State Tax Commission, <i>Utah Property Tax, 2002 Annual Statistical Report</i> , Tables 2 and 8A.					

Table 15

Comparison of Economic and Demographic Activity in the Davis/Weber Region: 2009 and 2020
With Hill AFB and Without Hill AFB
(2001 \$)

Variable	2009		2020		2009		2020	
	With Hill AFB	Without Hill AFB	With Hill AFB	Without Hill AFB	With Hill AFB	Without Hill AFB	With Hill AFB	Without Hill AFB
Employment	275,981	240,985	332,112	299,839	150,611	120,591	185,807	157,657
Earnings (Bil.)	\$9.2	\$7.4	\$13.4	\$11.4	\$5.1	\$3.5	\$7.5	\$5.6
Personal Income (Bil.)	\$14.6	\$13.0	\$21.3	\$19.4	\$8.3	\$7.2	\$12.3	\$10.9
DPI (Bil.)	\$13.0	\$11.6	\$18.8	\$17.1	\$7.4	\$6.4	\$10.8	\$9.6
Per Capita Personal Income	\$28,240	\$26,272	\$35,008	\$33,736	\$29,531	\$26,902	\$35,843	\$33,900
Gross Regional Product (Bil.)	\$23.0	\$20.4	\$34.0	\$31.5	\$12.3	\$10.1	\$18.2	\$16.0
Population	515,931	494,442	607,006	573,876	282,414	567,264	342,605	321,535
School Age Population	110,051	104,742	130,948	120,935	63,050	59,243	74,355	68,055

Source: Bureau of Economic and Business Research, University of Utah in cooperation with the Utah Governor's Office of Planning and Budget.

situation should be viewed as an aberration, the closure of Hill AFB will likely postpone an economic recovery in the region for many years.

For Davis County, the loss of Hill AFB could be devastating. The closure of Hill AFB is the equivalent of losing an entire industry—a large and important industry that provides the county with thousands of high-paying, high-skilled jobs with benefits. It will take years for Davis County to mitigate the negative effects caused by Hill's closure. To offset the employment impact alone will require 31,000 new jobs. To offset the earnings loss will be more difficult. Because the earnings of most civilians working at Hill are about double the average of all workers in the county, it will take about 48,000 new jobs to offset the loss of \$1.62 billion in earnings. Davis County has never had this kind of job growth on an annual basis.

Several factors play a role in determining the fate of the region's economy and its economic recovery. A growing economy is one of those factors as is the presence of other local industries that can soften the impact of the base closure.

Davis County's economy is best characterized as stable rather than growing. Growth in payroll employment is less than 1.0% and unemployment averaged 4.8% in 2003—only slightly lower than the state average of 5.2%. Further, Hill AFB is the single most important component of the county's economic base. There are simply no other industries currently operating in Davis County that could offset the loss of Hill. While the impacts of closing Hill AFB do moderate over time, it could take a decade for Davis County to recover its economic vitality.

Although Weber County's economy is more diversified, almost 27,000 of resident workers (about 30%) in Weber leave the county to work—the largest share (62%) commute

to Davis County. Included in the out-commuters are about 5,800 civilians working at Hill AFB. The closure of Hill, and the subsequent contraction of the Davis County economy means fewer economic opportunities for residents in both counties. Displaced civilian employees living in Weber may find it difficult to secure jobs at their former rates of pay anywhere in the region. A likely consequence will be an increase in out-commuting and those commuters will travel longer distances to work.

How long to economic recovery? In the broadest sense, the region's economy never really recovers. It will always be permanently smaller than if Hill remained in operation. It is possible that Hill's departure could encourage the development of other economic activities in the region. However, very few activities will have the same impact as Hill has on the region. Hill AFB is an export-based business that provides thousands of high-paying, stable jobs. Replicating Hill's economic contributions will be difficult, if not impossible. The closure of Hill AFB could have profound short-term effects on Davis County and long-term repercussions for the region that could take decades to overcome.

Table 15 compares the economic and demographic activity in the region, and in Davis County if Hill remains in operation and the projected economic and demographic conditions if Hill is closed.

Endnotes

1 The baseline referred to in this study has been developed in conjunction with the Governor's Office of Planning and Budget and not yet official.

2 *Public Health Assessment: Hill Air Force Base*, Federal Facilities Assessment Branch, Division of Health Assessment and Consultation, Agency for Toxic Substances and Disease Registry. Accessed at: <http://www.atsdr.cdc.gov>.

3 *Team Hill: Hill Air Force Base Guide*, 2003.

4 The fiscal year referred in this study is the U.S. Government Fiscal Year (FY) ending September 30. Personnel data include employment and payroll as of September 2003. The financial data (Hill AFB purchases and Prime Contract Awards) include activity during FY 2002.

5 The employment and earnings used in this study are from the Bureau of Economic Analysis and include full-time, and part-time jobs. Full-time and part-time jobs are counted at equal weight. Employees, sole proprietors and active partners are included in the numbers but unpaid family workers and volunteers are not. Proprietors employment consists of the number of sole proprietorships and the number of partners in partnerships. The data also include military personnel and the wages they receive.

6 Counties include: Box Elder, Davis, Juab, Morgan, Salt Lake, Summit, Tooele, Utah, Wasatch and Weber.

7 Perlich, Pamela S. "Commuting Patterns in Utah: County Trends for 1980, 1990 and 2000". *Utah Economic and Business Review*, May/June 2003, Vol. 63, Nos. 5 & 6.

8 A location quotient (LQ) is the ratio of an industry's share of the local economy to an industry's share of the national economy. A location quotient greater than 1 indicates the regional economy is more concentrated in that industry than it is nationally.

9 This estimate was based on telephone interviews with property managers in 11 complexes located within five miles of the base, including the following: Cherry Creek, Fox Creek, Goldstone, Hidden Cove, Layton Meadows, Pepper Ridge, Pinnacle Mountain View, Quail Cove, Sterling Pointe, Sun Valley, Wing Pointe.

10 Estimated using county-level housing tenure rates from the Census 2000, Summary File 3. Upward adjustments to the housing stock were made using BEBR construction permit data to account for new homes permitted since the 2000 Census. This estimate is an "upper bound" since it assumes all individuals at Hill AFB represent individual households. The number of housing units owned by Hill employees will be lower if two individuals working at Hill live in the same household.

11 Gross domestic product is the total final value of all the goods and services produced in a given region, in a year. Gross state product is the state counterpart to the national gross domestic product.

12 While GSP measures the value of the state's economy and is a good measure of overall economic activity, changes in earnings and personal income are preferred measures of economic well-being of the residents in the region.

13 The impact on state tax collections has been estimated using ratios developed by the Governor's Office of Planning and Budget. The tax ratios have not been applied to lost military earnings.

14 These estimates were generated by BEBR based on consumer spending pattern data contained in the Consumer Expenditures Survey in 2001 (Table 34); U.S. Department of Labor, Bureau of Labor Statistics (April 2003).

15 Federal Impact Aid payments are provided by the Department of Education to local school districts that educate federally-connected students (military, American Indians and federal public housing). Impact Aid payment information provided by Davis School District and Weber School District.

16 *Military Base Closures: Progress in Completing Action from Prior Realignment*s; (GAO-02-433) U.S. General Accounting Office. Accessed at: <http://www.gao.gov/newitems/d02433.pdf>.

17 These estimates were made using information contained in the *Utah Property Tax, 2002 Annual Statistical Report* (Tables 2 and 8A), published by the Utah State Tax Commission, accessed at: <http://propertytax.utah.gov>.

The impact on property tax collections is based on the following assumptions:

(1) Residential taxable value of property in Davis County will increase by 5% in 2003 and 2004 and 3% in 2005. The taxable value of residential property in 2006 will remain at the 2005 level. That level is estimated to be \$6.8 billion. Residential taxable value of property in Weber County will increase by 3% annually from 2002 through 2005. The taxable value of residential property in 2006 will remain at the 2005 level. That level is estimated to be \$5.1 billion.

(2) The impacts assume that the decline in property values will uniformly affect all communities in both counties and that the declines will be immediately reflected in the assessed valuation data.

(3) The impacts were generated as follows:

[property taxes charged based on the estimated value of residential property in 2006]

less

[property taxes charged based on the estimated value of residential property in 2006 less the % decrease in value]

(4) Property tax collections in 2006 were estimated using the 2001 ratio of "property taxes charged" to "taxable value of residential property". For Davis County that ratio is .0122. For Weber County the ratio is .0113.

18 These estimates were made using information contained in *Utah Taxable Sales: 1998-2000, by County and by Industry*, published by the Utah State Tax Commission, accessed at: <http://www.census.gov/govs/estimate/00allpub.pdf>. To calculate the impacts, BEBR estimated the ratio of taxable sales in Davis and Weber County as a percentage of total personal income in each county. This ratio was then applied to the projected earnings loss (less the military earnings) for the region and for Davis County.

Methodology

The economic and demographic impacts in this report have been generated with the REMI (Regional Economic Models, Inc.) model in combination with various estimation techniques. REMI is a structural equation dynamic simulation model that produces alternative scenarios into the future.

REMI simulates the growth path, structure, and characteristics of the economy and population into the future. The baseline projection models the future that is most likely to occur, given our current understanding of economic and demographic trends. Key exogenous variables include fertility, mortality, labor force participation rates, migration propensities, industry growth rates, productivity growth rates, and structural changes in the economy. The model calculates the baseline growth path of population, production, employment, income, capital stock, and government revenues and expenditures. The relative competitive position of the region as well as changing relative prices (including wages) and agglomeration economies are determinants of this equilibrium growth path.

In order to calculate the impact of a given event, an alternative projection is generated that models the new growth path with the anticipated changes introduced by the particular event. The results of this alternative projection are compared to the baseline projection to evaluate how population, income, employment, production, and other outcomes will differ from the baseline case. In the case of the closure of Hill Air Force Base, the projected impacts on population, income, employment, and production are negative. This means that all of these will be lower than they would have been if Hill Air Force Base had continued to operate into the future.

Bureau of Economic and Business Research
University of Utah
1645 East Campus Center Drive, Room 401
Salt Lake City, Utah 84112-9302

Address Service Requested

NON-PROFIT ORG.
U.S. POSTAGE PAID
Salt Lake City, UT
Permit No. 1529

UTAH ECONOMIC AND BUSINESS REVIEW

VOLUME 64 NOs. 3 & 4



A. Lorris Betz
Interim President

David Eccles School of Business

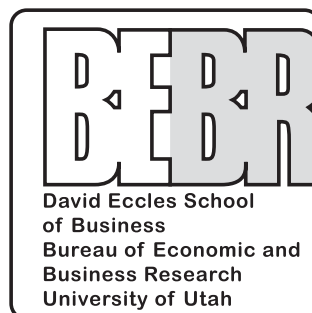
Jack W. Brittain

Dean

Bureau of Economic and Business Review

James A. Wood

Director



Research Staff

Cathy Crawford	<i>Administrative Assistant</i>
Jan E. Crispin	<i>Senior Economist</i>
Diane S. Gillam	<i>Accountant/Editor</i>
Alan E. Isaacson	<i>Research Analyst</i>
Nanda K. Kattavarjula	<i>Research Assistant</i>
Pamela S. Perlich	<i>Senior Research Economist</i>

<http://www.business.utah.edu/bebr/>

The University seeks to provide equal access to its programs, services, and activities to people with disabilities.