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BONN INTERNATIONAL CENTER FOR CONVERSION · INTERNATIONALES KONVERSIONSZENTRUM BONN



report *4*

Restructuring the US Military Bases in Germany Scope, Impacts, and Opportunities

june *95*

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In 1996 the United States will complete its dramatic post-Cold War military restructuring in

Germany. The results are staggering. In a six-year period the United States will have closed or reduced almost 90 percent of its bases, withdrawn more than 150,000 US military personnel, and returned enough combined land to create a new federal state.

The withdrawal will have a serious affect on many of the communities that hosted US bases. The US military's yearly demand for goods and services in Germany has fallen by more than US \$3 billion, and more than 70,000 Germans have lost their jobs through direct and indirect effects.

Local officials' ability to replace those jobs by converting closed bases will depend on several key factors. The condition, location, and type of facility will frequently dictate the possible conversion options. Nevertheless, human variables—such as the conversion approach, negotiating abilities, market knowledge and even the creativity of local and state officials—is just as important.

This report attempts to fill the existing information deficit regarding the scope, nature, and status of the US drawdown as well as the post-closure impacts and redevelopment opportunities for Germany. Finally, the report takes a close look at the specific conversion efforts of the Fulda and Mainz Army Military Communities and Hahn Air Base.

A condensed German version is available upon request.

Editor:
Alisa M. Federico

Cover photo:
Returning home. Private Arnaldo Soto-Cuevas of the 11th Armored Cavalry Regiment at the Fulda Military Community closing ceremony on October 8, 1993.



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Restructuring the US Military Bases in Germany: Scope, Impacts, and Opportunities

by
Keith B. Cunningham
and Andreas Klemmer

june 95

Introduction

The end of the Cold War has brought tremendous changes to US overseas deployments. Those changes are most severe in Germany, where more than 80 percent of the United States' troops in Europe were stationed during the Cold War.

Since the end of that confrontation, the United States has withdrawn nearly 200,000 troops from Germany—a reduction of more than 75 percent. This drawdown has allowed the United States to close many of its military bases in Germany and return them to local civilian authorities. Gauging the degree of local impact is more difficult for US bases overseas than it is for US domestic bases. In the United States, bases tend to be highly concentrated, centralized facilities, while in Europe, bases tend to be collections of isolated sites. This is particularly true of the US Army in

Germany, which was organized into Military Communities at the local level. The US Air Force is organized into more centralized Air Bases.

The New US Doctrine in Germany

The United States no longer needs to protect Western Europe from the immediate threat of an invasion from the east. Nevertheless, it still envisions Europe, and more specifically Germany, as an important part of the new political and security landscape. According to the US Department of Defense's 1994 *Report on Overseas Basing*, current doctrine is as follows:

The European forward presence force will be sufficient to promote US interests of access and influence, contribute to stability and transition of former states

of the Soviet Union and their satellites, support crisis response and be a key component of the US contribution to the North Atlantic Treaty Organization (NATO) under the new NATO Strategy and US National Military Strategy (Vest, 1994, p.1).

It is clear that this new strategy will not require Cold War force levels. Although predictions were made prior to the US withdrawal from Germany, its ultimate scope and impact have not been determined to date.

About the Authors

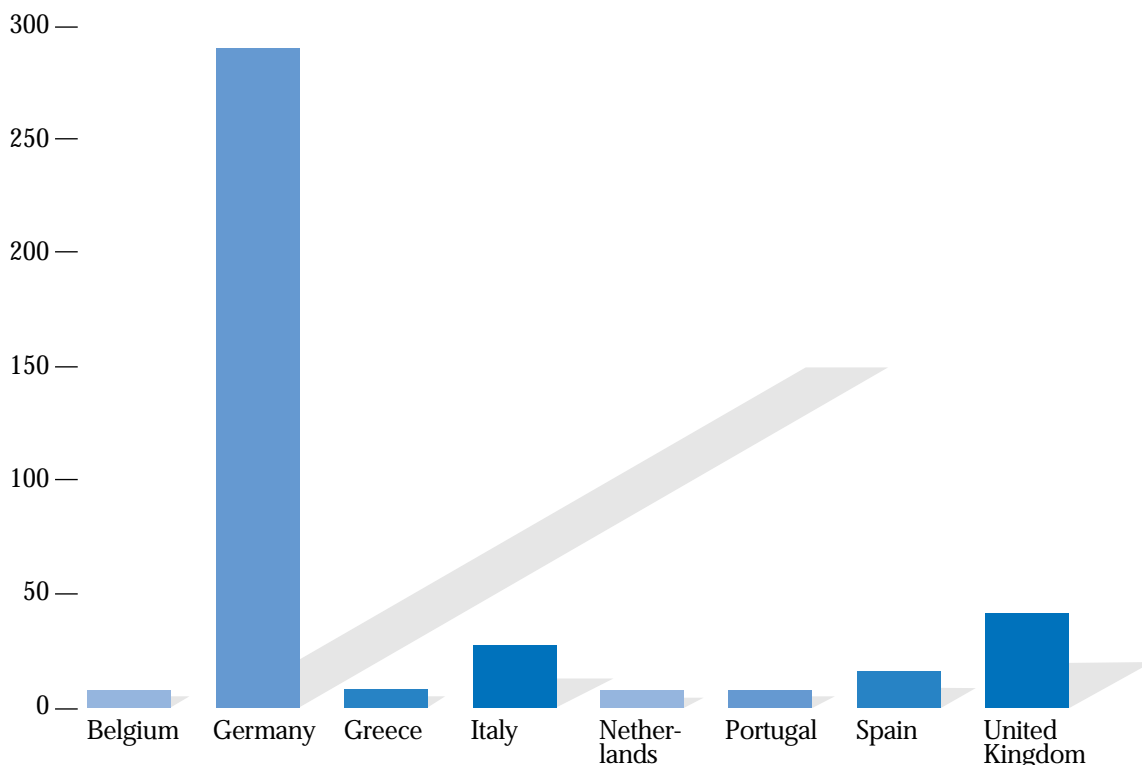
Keith Cunningham, an American, is the project manager for base closure and conversion projects at BICC.

Andreas Klemmer, a German, is a free-lance researcher for BICC.

Figure 1: US European Deployments 1989
In thousands

Source: DoD, 1989

Notes: Personnel figures include active duty and civilian personnel.



Assessing the US Drawdown

As this unprecedented military withdrawal from Germany enters its final stages in early 1995, very little substantive analysis of it exists. To date, research has addressed the issue in one of three ways.

- Several government and private research organizations conducted studies in 1989 and 1990 of the US presence in Germany and hypothesized about the possible ramifications of an American withdrawal. Of this group, a two-volume project conducted by the Stockholm International Peace Research Institute (SIPRI) was the most significant. Simon Duke, in *United States Military Forces and Installations in Europe* (NY: Oxford University

Press, 1989), conducted a community-level inventory of the US military presence throughout Europe in 1989, while *Europe After an American Withdrawal*, edited by Jane M. O. Sharp (NY: Oxford University Press, 1990), hypothesized about the security and economic impact of a complete US withdrawal before the withdrawal began.

- Region-specific analyses of the economic importance of the US forces were conducted by most of the German states. These studies, however, did not focus on the United States, but rather combined the impact of all military forces within their state. Some of them speculated about the effects potential reductions might have on the regional economy.

- Several case-specific economic impact studies were conducted early in the drawdown (1990-1992). Most of these were accomplished by exclusively German research organizations such as the Forschungsinstitut für Friedenspolitik, local organizations such as the Angestelltenkammer Bremen, and state or national government agencies. They usually focused on the earliest closures, such as in Bremerhaven and Zweibrücken. Additional case studies are being conducted as the withdrawal continues.

As the end of the drawdown moves into sight, this study relieves the deficit of information regarding the scope and impact of the dramatic changes in the US military presence

Table 1: Major US Base Closures in Germany 1990-1995

Source: Statistical Annex

Notes:

* Authorized positions = the number of positions for which a site is appropriated funds each year. The US Army's term of art is 'places, not faces,' in which 'faces' is the actual number of positions filled.

** These bases were closed, or began closing, before 1991. Accurate area information was not available (Duke, 1989).

Closed Bases	Authorized Positions* Lost	Acres Returned
Aschaffenberg Military Community	915	3,635
Bad Tölz Military Community**	446	
Berlin Brigade Army Base	6,554	2,078
Bitburg Air Force Base	6,443	1,704
Frankfurt Military Community	10,505	714
Fulda Military Community	5,097	6,361
Göppingen Military Community**	4,350	
Hahn Air Force Base	6,857	1,934
Heilbronn Military Community	1,456	1,165
Hessisch-Oldendorf Air Force Station	648	27
Lindsey Air Force Base	2,932	105
Mainz Military Community	5,662	1,192
Munich Military Community	3,082	378
Norddeutschland Military Community	7,440	906
Neu-Ulm Military Community**	4,100	
Nürnberg Military Community	11,259	9,871
Pirmasens Military Community	8,881	4,629
Tempelhof Air Force Station	1,868	908
Wildflecken Military Community	3,436	18,023
Zweibrücken Air Force Base	3,142	654
Zweibrücken Military Community	3,326	101
Total for Base Closures	98,399	54,385

in Germany. In addition to organizing, quantifying and analyzing these impacts, the report provides previously unavailable macro- and micro-level base closure data for all US sites throughout Germany. Finally, the paper offers case studies to demonstrate opportunities and obstacles in economic adjustment. In this way, it may draw more accurate conclusions about the nature of the United States' future German base structure, conversion plans at returned sites, and achievable policy goals for both the German and US governments.

US Withdrawal: A Brief Outline

At the end of the Cold War the United States maintained 47 major military bases (37 Military Communities¹ and 10 Air Bases) in Germany. Since then 21 of them have been reduced in size and personnel by more than 80 percent, while only 9 were completely unaffected by reductions.

The statistics in Table 1 represent only the closed bases—more than 50,000 additional authorized positions have been lost due to reductions at bases that were not completely closed. Six major facilities (see Table 2) illustrate how severe reductions can impact military bases that remain operational.

Table 2: Selected Reduced US Bases in Germany

Additionally, the US military forces do not fill all of their authorized positions—on average, 10 percent of all authorized positions go unfilled (Deputy Chief of Staff for Conventional Forces in Europe, interview, 24 March 1995).

Impacts of the US Withdrawal

Although the loss of tens of thousands of jobs throughout Germany will have an adverse effect on the country's economy, it is not shared equally across the entire nation. The first factor affecting local impact is the nature of the United States' German base structure. Except for some minor instances, US Forces are concentrated in the German states of Rhineland-Palatinate, Baden-Württemberg, Hesse, and Bavaria. Similarly, these four states have experienced the bulk of the closures.

As many of these reductions have occurred only recently, the long-term consequences for the German economy are impossible to gauge; nevertheless, the short-term consequences may be measured in three ways. First, more than 32,446 Germans have lost their jobs on US bases since 1991. Second, the United States has returned more than 92,000 acres (37,260 hectares) of property. To put it into perspective, this amount of land is almost the same size as the German federal

state of Bremen and is twice as large as the US District of Columbia. Third, the loss of more than US \$3 billion in annual spending by the US military in the German economy will adversely affect local retailers and contractors. Figure 2 shows the extent to which US military spending in Germany has decreased since the end of the Cold War.

Converting US Military Bases

Although the US restructuring is virtually complete, the process of converting returned bases has only just begun. Foreign base closures are often viewed favorably in Germany for two primary reasons. First, foreign bases tend to employ foreigners, not Germans. Significant amounts of money still flow into the German economy, but far less than if the same facility employed all Germans. Second, there is a high demand for development-ready land in German urban centers, and most of the US Army's Military Communities are located near German city centers. The actual conversion of individual sites, however, depends largely on four factors.

¹ In 1991 the US Army reorganized the command structure for its overseas bases. This number of facilities reflects the pre-reorganization structure with the addition of the previously closed Neu-Ulm and Bad Tölz Military Communities.

Source: *Statistical Annex*

Notes:

* *Endstrength* = total number of authorized positions.

Significantly Reduced Bases	1991 Endstrength*	Change since 1991	Percentage Reduction
Gießen Military Community	13,191	-7,313	55
Karlsruhe Military Community	8,647	-5,911	68
Rhein-Main Air Force Base	5,381	-5,119	95
Sembach Air Force Base	2,274	-2,018	89
Stuttgart Military Community	12,960	-9,494	73
Worms Military Community	3,985	-2,691	68

- The condition of the facility is crucial to successful conversion. Although the United States' sites tend to be in excellent condition, environmental contamination, different building standards, and length of time abandoned can erode a site's condition.
- Certain types of sites are more easily converted than others. The return of housing units and recreational sites is almost always viewed positively by German officials, and Army barracks and depots can provide positive conversion opportunities. However, other types of sites, such as Army helicopter airfields and ammunition dumps, lack realistic conversion options.
- Location plays a vital role in conversion opportunities. Otherwise promising sites are difficult to convert if they are located in rural or undeveloped regions. Conversely, sites with absolutely no reuse potential may attract investment interest if they are located in a thriving urban center.
- The conversion strategy employed by the different German authorities may make the difference between success and failure. Foremost among

these strategies is land ownership. Too often, disagreements over purchase price and type of development delay redevelopment, while over time the site deteriorates.

Conclusions

In five years, the US military presence in Germany has undergone a comprehensive transformation, evolving from a huge, decentralized, defensive force to a modestly sized, more concentrated, forward-based quick-response force. As the US Army Europe's yearly publication for 1995 states, „USAREUR's unique forward-deployed presence an ocean closer to Europe, Africa or the Middle East makes it the first choice for defending American interests in those regions“ (USAREUR, 1995, p.4). During this restructuring, approximately 88 percent of all US bases in Germany were either closed or reduced.

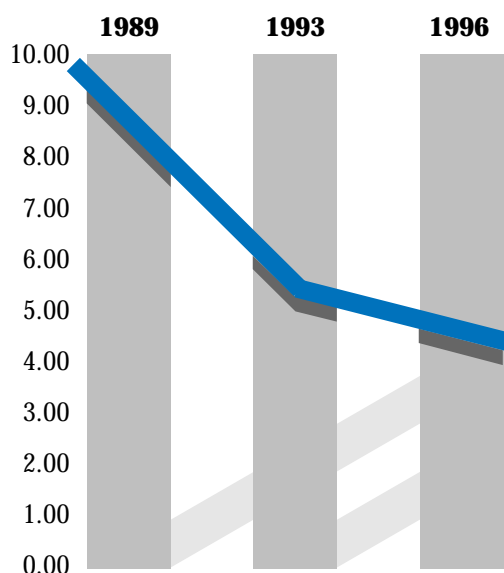
Although this evolution has not had a significant effect on Germany's economy as a whole, it has seriously impacted the regions and communities that supported the United

States' Cold War structure. The American withdrawal has brought both the challenge of replacing the US economic presence and the opportunity to more productively use community resources. Ultimately, the capacity of the affected communities to adjust successfully depends on a number of factors, including their initiative in planning for closure and their ability to set realistic goals.

This report would have been impossible to complete without the assistance and cooperation of the US Department of Defense. Particularly helpful were the US Army Europe Office of the Chief of Public Affairs, the US European Command Public Affairs Directorate, and the US Air Force Europe Office of Public Affairs. In addition, all of the individual base-level public information offices deserve special acknowledgment, especially the 222nd, 414th and 415th Base Support Battalions.

The authors would also like to thank the following organizations for their assistance and suggestions for this project: the Bundesvermögensamt for Berlin, Kassel, Trier and Koblenz; Business Executives for National Security; the Mainz-Finthen Air Club; the Hessen Gesellschaft für Forschung Planung Entwicklung mbH; Flughafen Hahn; the Hahn Holding Company; Network DEMILITARIZED; the Rheinland-Pfalz Ministerium für Wirtschaft und Verkehr; Städte Bitburg, Fulda, Mainz and Kaiserslautern; and the Office of Economic Conversion in the US Department of Commerce Economic Development Administration.

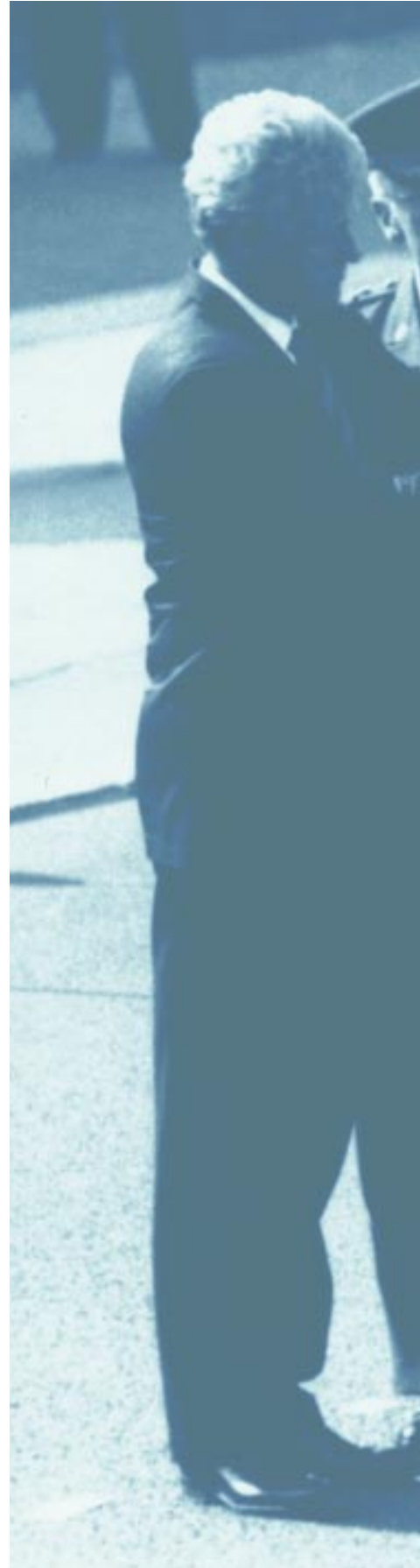
**Figure 2: Disappearing Dollars—
US Military Budget for Germany 1989 to 1996
In billions of US \$**



Source: DoD, 1989; author's projections (see *Economic Impact* section, below). One should note that not all of this money enters the German economy; much of the expenditure on payroll, as well as some on contracts, goes to American companies.

▶▶
**Next page:
Mission Completed.
President Bill Clinton attaches
the Superior Unit Award to
the Berlin Brigade colors
at the unit's inactivation
ceremony on 12 July 1994
as German Chancellor
Helmut Kohl and several
USAREUR officers look on.**

US Forces in Germany





Military Infrastructure in Germany: From Occupation to Cooperation

The scale of the US presence in Germany during the Cold War and the subsequent restructuring has traditionally been difficult to measure, due first to the sensitivity of the data and second to the speed of the drawdown. This chapter provides details on the build-up of the US military presence, the US base structure in Germany during the Cold War, and the evolution of that structure since 1990. It concludes with a description of the result of that transformation—the emerging US base structure in Germany at endstate in 1996.

A half century of global conflict came to a peaceful close as the Cold War entered the history books. When the Berlin Wall fell in November 1989, seven different countries maintained permanent bases in East and West Germany. Incredibly, more than 1.3 million soldiers guarded the front line of Germany's inner border (Grundman and Matthies, 1993), a border that seemed to vanish overnight.

The full demobilization that never occurred after World War II finally began, bringing sweeping changes to Germany. In West Germany, the United States was the chief actor, with a 70 percent share of the foreign military presence. At the end of the Cold War, the United States maintained 285,000 troops in Germany (DoD, 1989) at almost 800 discrete sites (DoD/OASD, 1993). By 1995, those numbers had fallen to approximately 94,000 troops at about 260 sites. Understanding this unique political and strategic build-up and its eventual demobilization requires a brief return to 1945 and the end of World War II.

The End of World War II: Former German bases (1945-1949)

After the final defeat of Nazi Germany in May 1945, the victorious Allied Forces divided Germany into four military sectors, each of them administered by one of the primary allied partners—the United States, England, France, and the Soviet Union. The US forces took control of the southern and central-western provinces of Germany, today's federal states of Bavaria, Baden-Württemberg and Hesse. France took control of the central and western regions, England received the northern partition, and the Soviet Union became responsible for the eastern section. Likewise, the German capital of Berlin was divided into four military sectors, each one administered by one of the Allied Forces (Duke, 1993). Although the strictly enforced Western occupation zones would not last long, they continued to dominate the base structure and positioning of the Allied Forces throughout the Cold War and to this day.

The mission of the US Forces was to secure and control their section of the country. Therefore, they maintained a widespread network of installations in the sector. In many cases, the United States commandeered former German bases for its own use. The bases were well suited for military use, available, and generally located near city centers and industrial facilities. With no formal government to request, the United States simply assumed ownership of the installations and other facilities deemed necessary (USAREUR/OSGS, 1994).

Pre-1955 Construction

Growing tension between the USSR and the other Allied Forces quickly came to dominate post-war policies in Germany. Fears of aggression on both sides of the East-West border facilitated the transformation of the role of foreign forces in Germany from one of occupation to one of protection (USAREUR, 1993). To guard against the perceived threat, the United States, France, and England continued to maintain large military deployments in their respective zones long after the situation within Germany was secured (Harkavy, 1989).

In 1949, a new West German government was created with the support of the Western Allied Forces. However, it lacked the necessary independence to negotiate with the Allied commanders, and was in effect told to lease the ground and installations 'required for defense purposes' to the Allied Forces without financial compensation (Sharp, 1990). Additionally, all costs associated with re-building, maintaining, and establishing bases for the Allied Forces during this time were paid by the German government as part of reparation transfers, or 'Besatzungskostenmittel' (Official of Bundesvermögensamt Kassel, interview, 4 November 1994).

In addition to facilities in their own sector, the US Forces took over a number of strategic positions in the federal state of Rhineland-Palatinate from the French forces. Also during this time, the United States established Military Communities in the former British areas of Bremerhaven—in support of the northern city's important port facilities—and in North Rhine-Westphalia—in support of the nearby Netherlands Military Community (Vest, 1994).

Post-1955 Construction

West Germany completed its evolution to Western ally in 1955 by establishing itself as a sovereign nation and joining the North Atlantic Treaty Organization (NATO). Membership in NATO nullified the previous

The Berlin Exception

Although the United States paid for construction and maintenance of its German bases after 1955, Berlin was a different story. Due to its precarious position well within the borders of East Germany, West Berlin, until 1990, was formally ruled by the three Western Allied commanders. Under this special status, the West German government paid all expenses of the Allied troop deployments in West Berlin. As a result, US employment figures were significantly undervalued. Officially, the United States employed only 25 German civilians in Berlin. However, West Berlin employed approximately 5,000 German civilians to maintain its foreign military presence. The cost of housing more than 10,000 foreign troops was quite expensive—more than DM 1.1 billion for fiscal year 1992 (this expense was referred to as the 'Einzelplan 35' in the annual federal budget). These resources were not resented by West Germany, since it could not defend the strategically vulnerable city.

With the end of the Cold War and reunification, Berlin is now safely nestled inside Germany. Mission completed, its special status was gladly canceled.

Source: *Deutscher Bundestag, 1991.*

basing agreement between West Germany and the Allied Forces. Instead, the bases had to comply with the NATO statutes governing troop deployments in a Member State (in 1959, several amendments, referred to as the 'NATO-Zusatzabkommen,' were added) (Duke, 1989).

In compliance, the United States began paying all expenses to maintain, improve, or establish bases in West Germany, as did the other Allied Forces. In return, West Germany agreed to lease the land for free. To further strengthen Germany's inner-border, other NATO partners—Canada, Belgium and the Netherlands—also permanently deployed smaller military contingents to West Germany. West Germany contributed to its own defense by building a standing army of approximately 490,000 troops.

Once moved into their strategic position after World War II, both sides respected the status quo (with the notable exception of the failed Berlin Blockade) for almost 50 years. Only in the late 1980s, beginning with *perestroika* in the Soviet Union and ending with the breakup of the East European power bloc, would positions on the European strategic chessboard be subject to reconsideration.

After the Cold War

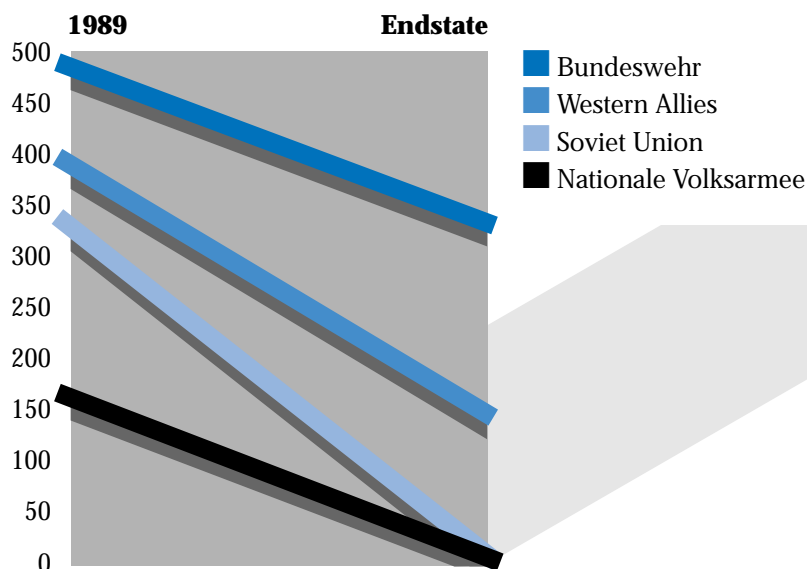
On 3 October 1990 Germany was reunified, eliminating the Cold War front-line guarded by seven countries and dramatically changing the international security system in Europe. Also on that date, the new all-German national government became fully independent, allowing Germany the power to unilaterally review the statutes governing the stationing of foreign troops on its soil. To date, Germany remains interested in hosting NATO troop deployments indefinitely.

Despite the continued strength of the NATO alliance, however, the burden of sustaining more than 1.3 million soldiers on German soil became unbearable—not only for the Western and the Eastern powers but also for a reunified Germany. As a result, all involved countries have dramatically reduced their troop deployments in Germany. Although the restructuring process is ongoing, the new international base structure within Germany is beginning to emerge. Figure 3 illustrates the dimensions of the readjustment process.

Figure 3:
Military Personnel Reductions in Germany
Figures in thousands

Source: *Grundman and Matthies, 1993, p. 24.*

Notes: *Endstate is defined as the stable level following the completion of reductions (USAREUR/PA, 1993).*



Sharing the Burden of Defense: A Survey of US Bases in Germany During the Cold War

Unless otherwise noted, the figures in this section are drawn from the Statistical Annex. The principal sources are the US Department of Defense Base Structure Reports as well as News Releases on the 18 rounds of overseas base realignments. Please refer to the Annex for details on specific sources and methodology.

The US Base Structure

Before 1990, the United States operated 37 Army Military Communities and 10 Air Force Bases in Germany. By 1991, however, those numbers had fallen to 34 and 8, respectively, with the closure of the Bad Tölz, Neu-Ulm, and Göppingen Military Communities and the Zweibrücken and Hessisch-Oldendorf Air Bases. For reasons explained in the Statistical Annex, the US Army statistics in the following section reflect the situation in 1991.

Due to the troop-intensive nature of army bases, their expansive training areas, and the sheer number of their facilities, the US base structure in Germany was dominated by the Army (see Figure 4). There are no US Navy bases in Germany (DoD, 1989).

As a result of the original 1945 occupation zone, approximately 94 percent of US civilian and military personnel and 97 percent of US military land holdings were still located in the southern and southwestern German federal states of Bavaria, Baden-Württemberg, Hesse and Rhineland-Palatinate in 1991. Within that region, the United States divided its Army bases and personnel almost equally between two lines of defense. The first line fanned out along southern sections of the inner-German front-line, with its

strategic center at the Fulda Gap. Further Army units were stationed in the 'hinterland' of southwestern Rhineland-Palatinate, westwards from the river Rhine, and in close proximity to the border with France and Luxembourg. Primarily these bases made up the northern flank of the second line of defense (Duke, 1989) and protected the six US Air Bases (Bitburg, Hahn, Ramstein, Sembach, Spangdahlem, and Zweibrücken), which were concentrated in the relatively small state of Rhineland-Palatinate.

US Army Bases

Since the United States originally moved into Germany as an occupational force, US Army bases in Germany are significantly different from their domestic counterparts. The state-side Army bases tend to be large, single-site, self-sufficient facilities located in rural or suburban areas (Cunningham, 1993). By comparison, the US Military Communities in Germany are collections of independent sites often very near the city center. Together, however, they comprise the same types of facilities located on one site in the United States.

Figure 4:
US Air Force and Army Shares of Primary Base Indicators
September 1991

Source: DoD/OASD, 1993

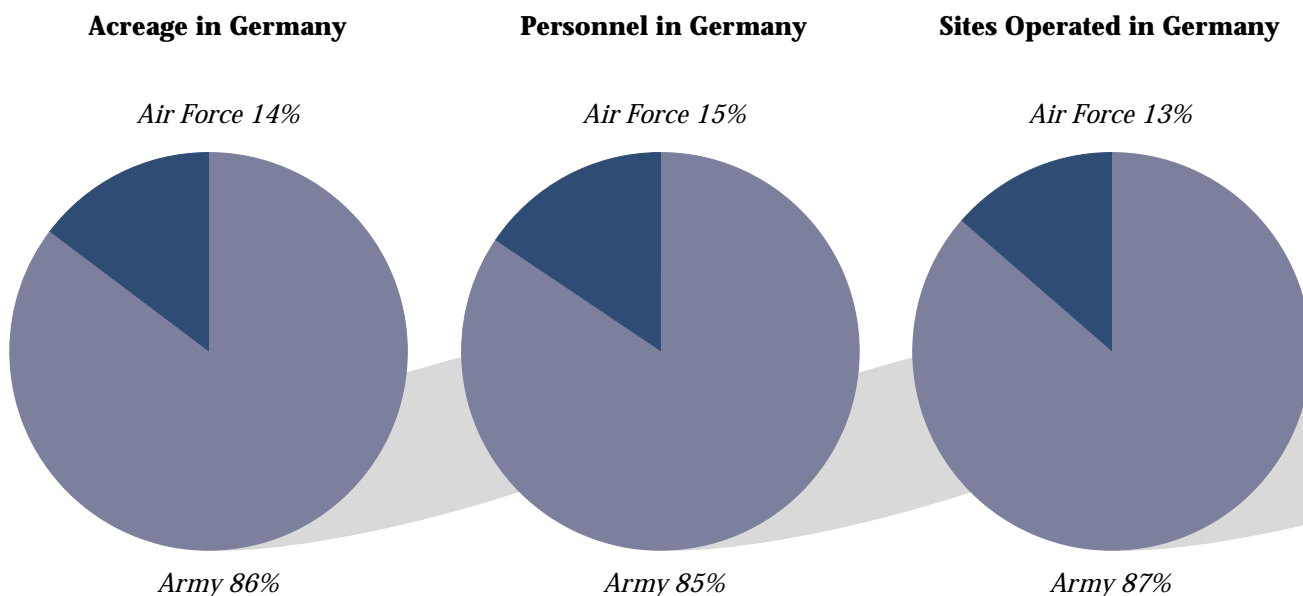


Table 3: Military Community Composition of Area Support Groups September 1991

Source: DoD/OASD, 1993

Hanau = names underlined mark the regional headquarters of the Military Community

Notes:

* Personnel endstrength is defined as all military personnel, US civilians and foreign nationals working at the particular facility. It does not include family members and other non-working

dependents. Additionally, endstrength expresses the number of authorized positions per base.

** Since the Berlin Brigade and the Munich Military Community were already scheduled for disbandment when the command consolidation occurred, they were not included in the ASG structure.

Military Community	Personnel endstrength*	Size in Acres	Number of sites
6th ASG Totals	12,960	4,442	31
<u>Stuttgart</u>	12,960	4,442	31
26th ASG Totals	36,014	18,312	78
Heidelberg	9,515	6,561	18
Heilbronn	1,456	529	3
Karlsruhe	8,647	2,798	22
Mannheim	12,402	7,726	16
Worms	3,985	698	19
29th ASG Totals	27,356	12,798	39
<u>Kaiserslautern</u>	12,863	5,897	16
Pirmasens	8,881	4,631	17
Zweibrücken	5,612	2,270	6
53rd ASG	22,718	4,764	48
<u>Bad Kreuznach</u>	4,953	1,015	13
Baumholder	10,939	2,457	19
Mainz	6,826	1,292	1
54th ASG	1,595	1,524	10
<u>Rheinberg</u>	1,595	1,524	10
98th ASG Totals	20,192	23,520	35
Aschaffenburg	933	3,643	10
Schweinfurt	7,050	12,949	7
Würzburg	12,224	6,928	18
99th ASG Totals	26,600	22,403	75
Ansbach	5,582	4,006	14
Augsburg	5,171	3,587	12
Bamberg	3,462	3,545	6
Göppingen	21	6	1
Heilbronn	0	636	5
Garmisch (Munich)	1,103	750	13
<u>Nürnberg</u>	11,261	9,873	24
100 ASG Totals	20,390	114,223	21
<u>Grafenwöhr</u>	4,252	54,827	10
Hohenfels	7,442	39,180	3
Vilseck	5,260	2,193	1
Wildflecken	3,436	18,023	7
103rd ASG Totals	25,598	4,783	70
Darmstadt	7,565	2,740	20
Frankfurt	11,261	776	37
Wiesbaden	6,764	1,267	13
104th ASG Totals	30,243	21,781	83
Fulda	5,117	6,381	23
Gießen	13,191	12,751	33
<u>Hanau</u>	12,035	2,649	27
543rd ASG Totals	7,901	1,145	24
Garmisch (Munich)	461	239	9
Norddeutschland (<u>Bremerhaven</u>)	7,440	906	15
Berlin Brigade**	6,554	2,078	42
Munich Community**	3,082	378	6
TOTAL	241,273	232,151	562

sharing the burden

Each Military Community consists of one or more barracks, or *Kasernen*, near the city center which acts as the administrative and social center of the community. The soldiers and their families may live in nearby US-operated 'family housing complexes' or find their own housing within neighboring German communities. Most Military Communities also operate training ranges and airfields outside the city center. Additionally, the community likely supports a number of other, isolated sites such as radio stations, depots, warehouses, and hospitals. All of this causes the average community to operate more than 17 different sites in at least two different German cities. With 42 individual installations, the Berlin Brigade operated the most isolated sites.

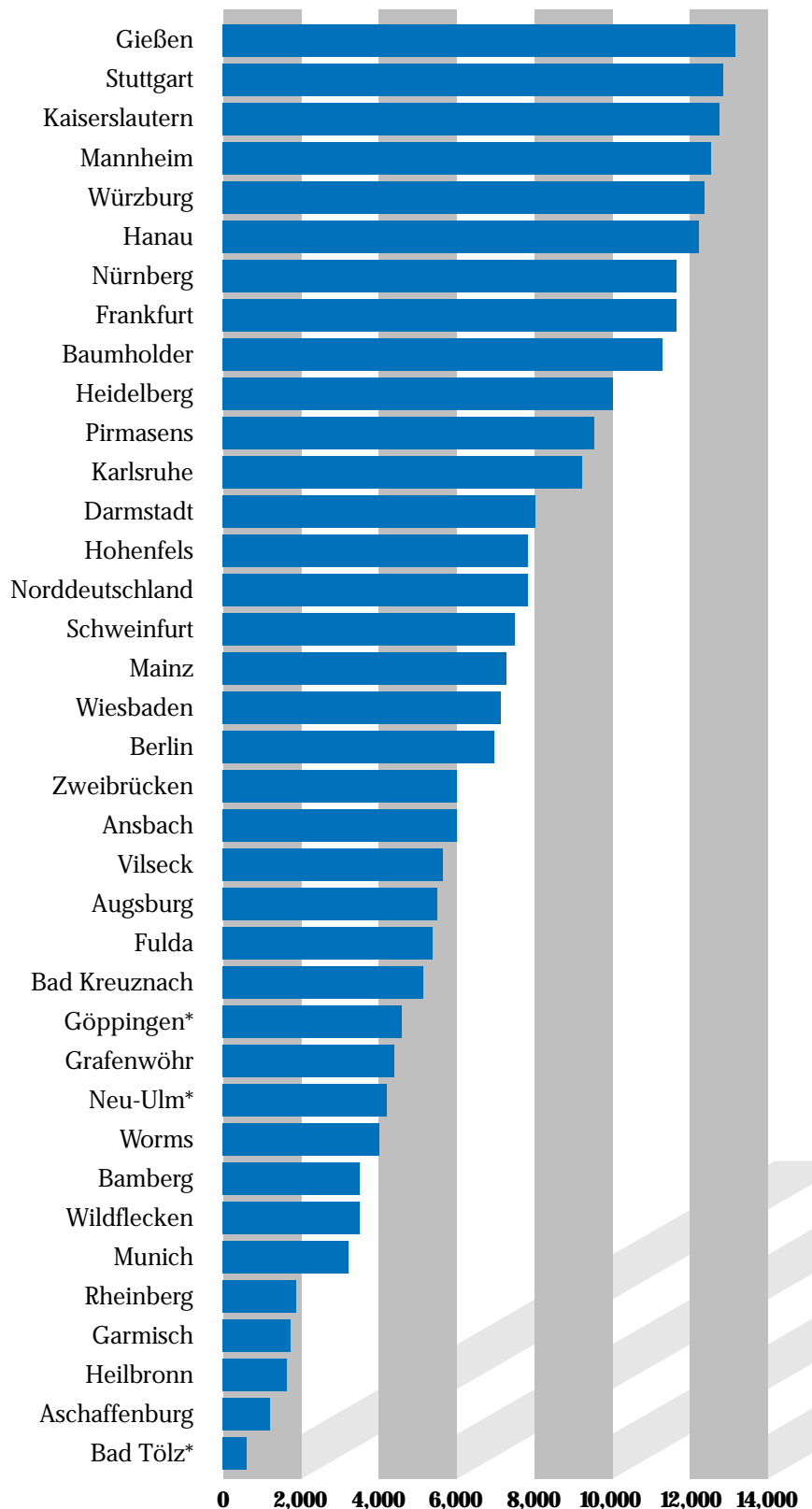
Shortly after the end of the Cold War, the Military Communities were reorganized under the command umbrella of Area Support Groups (ASGs) to facilitate consolidation. Thirteen ASGs were established in Germany in 1991, containing a total of 34 Military Communities (USAREUR/PA, 1993; DoD/OASD, 1993). The union of several multi-city Military Communities under one command made ASGs even less similar to domestic bases than were the Military Communities.

There is only a limited correlation between the three ways of measuring an installation's size—end-strength, area, and number of sites. In 1991, the Gießen Military Community had the largest number of authorized positions with an approximate endstrength of 13,000 positions, but it covered less than 13,000 acres (5,265 hectares). The 54,000-acre (21,870-hectare) Grafenwöhr Military Community covered the most area, but had an authorized endstrength of just over 4,000 positions. At the same time, despite the Berlin Brigade's 42 independent sites, its 6,500 authorized positions and 2,000 acres (810 hectares) were not among the largest. However, if Berlin's 5,000 civil employees employed by the German government in support of the US Forces are included, the figure grows significantly (Deutscher Bundestag, 1991).

Figure 5: The Cold Warriors—Authorized Endstrength of Army Military Communities, 1991*

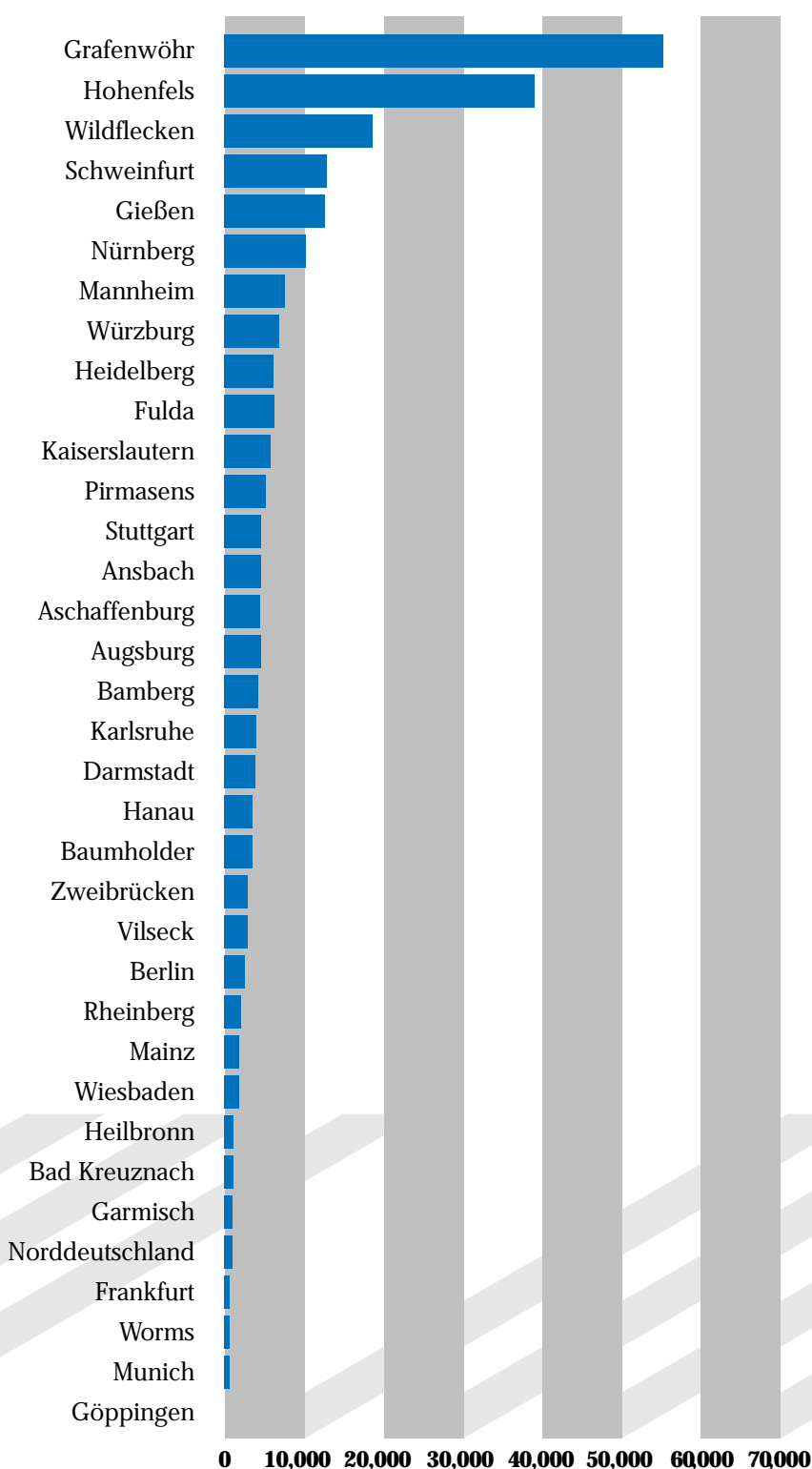
Source: DoD/OASD, 1993

Notes: *The Military Communities of Bad Tölz, Neu Ulm, and Göppingen—closed in 1990—were included in this graph as they existed in 1989. See: Duke, 1989.



**Figure 6: Covering the Bases—
Size of US Army Military Communities in 1991**
In acres

Source: DoD/OASD, 1993



While personnel is fairly evenly distributed between different Military Communities, base size is dominated by the three large training areas in the Grafenwöhr, Hohenfels, and Wildflecken Military Communities (see Figures 5 and 6). Taken together, these three Military Communities represent more than 50 percent of all US Army land holdings in Germany.

A number of installations with both a large size in acres and a high authorized personnel endstrength, such as Gießen, Stuttgart, and Nürnberg, represent the primary troop locations of the Cold War US Army base structure in Germany. The second tier of installations, as shown by personnel and size, was formed by the military districts of Mannheim, Würzburg, Hanau, Frankfurt, and Kaiserslautern.

US Air Force Bases

Unlike the highly decentralized, multi-site nature of the US Army Military Communities, US Air Bases in Germany are relatively compact facilities where the primary functions of the base are conducted on one massive 'main site.' Isolated sites, while still significant—especially on the larger Air Bases—are limited in comparison to their Army counterparts. One indication of this difference is that all Air Force personnel are assigned to the main site, while Army personnel are usually assigned to a number of sites within a community. The concentrated nature of the US Air Bases in Germany is also consistent with the structure of the United States' domestic Air Force bases.

Unlike in the case of the Army bases, a strong correlation exists between the size and personnel of the different Air Bases.

Figure 7 clearly indicates that Ramstein Air Base was the United States' primary Air Base in Germany. Bitburg, Hahn, and Spangdahlem represented the second tier. The other bases were much less significant and were generally positioned near major troop concentrations. Thus, Tempelhof provided air service for the Berlin Brigade and Lindsey provided air support for the Wiesbaden Military Community.

Table 4: US Air Bases in Germany for Fiscal Year 1987*

Source: Statistical Annex

Notes:

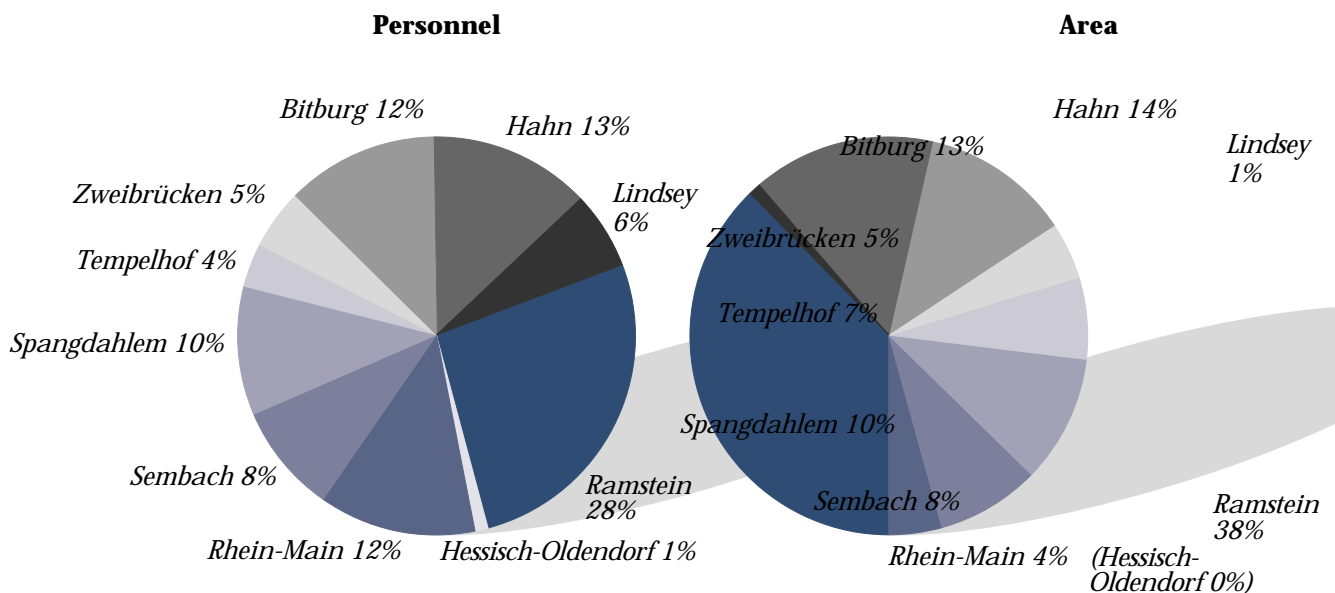
* Except for Hessisch-Oldendorf and Zweibrücken, which had closed by 1991, the DoD Base Structure Report FY 1993 (1991 figures) was used for these categories because it allowed greater

detail regarding the number and size of the bases' specific sites. The size and site data for the two closed bases may be underestimated and should be handled with care. See the Statistical Annex for more details.

Installation	Location	Personnel endstrength	Size in acres*	Number of sites*
Bitburg Air Base	Bitburg	6,443	1,704	15
Hahn Air Base	Lautzenhausen	6,857	1,934	18
Lindsey Air Base	Wiesbaden	2,932	105	3
Ramstein Air Base	Landstuhl	14,810	5,234	23
Rhein-Main Air Base	Frankfurt	6,285	504	4
Sembach Air Base	Sembach	4,124	1,048	12
Spangdahlem Air Base	Spangdahlem	5,701	1,314	6
Hessisch-Oldendorf Air Station	Hessisch	648	27	5
Zweibrücken Air Base	Zweibrücken	2,867	694	5
Tempelhof	Berlin	1,868	908	2
TOTAL	10 Bases	52,535	13,472	93

Figure 7: Troops vs. Size— Individual US Air Bases' Share of Indicators 1987

Source: Statistical Annex



After the Cold War: Restructuring the US Presence in Germany

Unless otherwise noted, the figures in this section are drawn from the Statistical Annex. The principal sources are the News Releases on the 18 rounds of European base realignments. Please refer to the Annex for details on specific sources and methodology.

Between January 1990 and February 1995, the US Department of Defense announced 20 rounds of overseas base closures; the operation of a total of 953 installations has been ended, reduced or placed on a standby status. Eighteen of those rounds affected 636 sites in Germany. The majority of the US installations in Germany to be involved in the readjustment measures have been Army facilities (556 sites), while 80 sites belonged to the US Air Bases.

US Army Base Closures

The Early Rounds: 1990

The US European Command made its first site-return announcements in 1990, when it dissolved the Military Communities of Bad Tölz and Neu-Ulm. The Göppingen Military Community was also severely reduced through the return of seven installations to the German civil authorities. Only one small communications site with nominal personnel of 21 authorized positions remained after September 1991.

The Munich and the Heilbronn military districts of the US Army were reorganized at the same time, with sections destined for different ASGs. In the course of that process, the United States returned all nine sites located within the city limits of

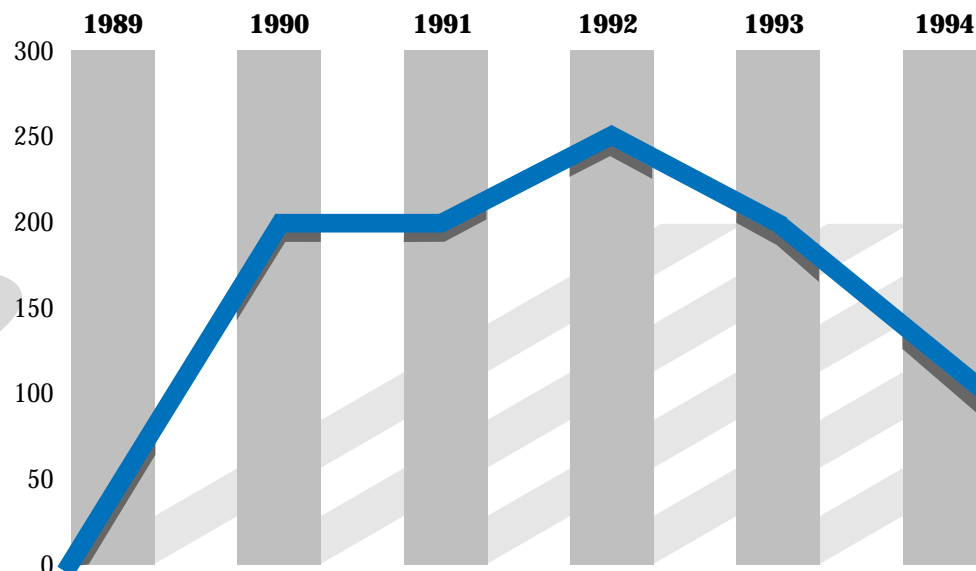
Munich and four sites in Heilbronn. Over the next two years, the United States returned the remaining sites in Heilbronn (Vest, 1994) and changed the name of the Munich Military Community to Garmisch, reflecting its new geographic orientation.

Stuttgart experienced the largest absolute reductions in the early months of the post-Cold War restructuring, with ten sites returned. Despite this reduction, Stuttgart remained the one of the largest Military Communities in Germany.

Between one and five sites were returned at each of 16 other Military Communities, but none of them were primary sites. These secondary sites included small training ranges, storage sites, and communication facilities. Nevertheless, apart from the aforementioned reductions, many bases were untouched by the early restructuring.

Figure 8:
Pace of US Overseas Base Closures
Number of sites returned per year

Source: USEUCOM, Rounds 1 - 17



▶▶
Next page:
The vast majority of vehicles awaiting shipment to the United States are stored in Garmersheim, between Heidelberg and Karlsruhe.



1990



1996



Gaining Momentum: 1991-1994

In 1991, the readjustment program of the US Army Europe (USAREUR) gained dynamic momentum. Between September 1991 and October 1994, the United States returned 264 out of the total 563 USAREUR military installations it still operated in Germany. An additional 44 installations were reduced in operation. Through this restructuring, the number of US Army installations in Germany dropped approximately 50 percent over three years.

During this period, the US Army abandoned some of the most powerful symbols of the Cold War, including Check Point Charlie, as well as the rest of its 42 Berlin facilities, all three Fulda border observation points and other holdings in that strategically important passage, and the massive 17,000-acre (7,000-hectare) Wildflecken Training range. Such massive troop concentration points as Frankfurt, Nürnberg, Norddeutschland, and Pirmasens—all with endstrengths in excess of 10,000—were disbanded.

Leveling Off: 1995-1996

As the US Army's European draw-down enters its final stages in 1995, its impressive scope has become clear (USEUCOM, 23 February 1995, Round 18).

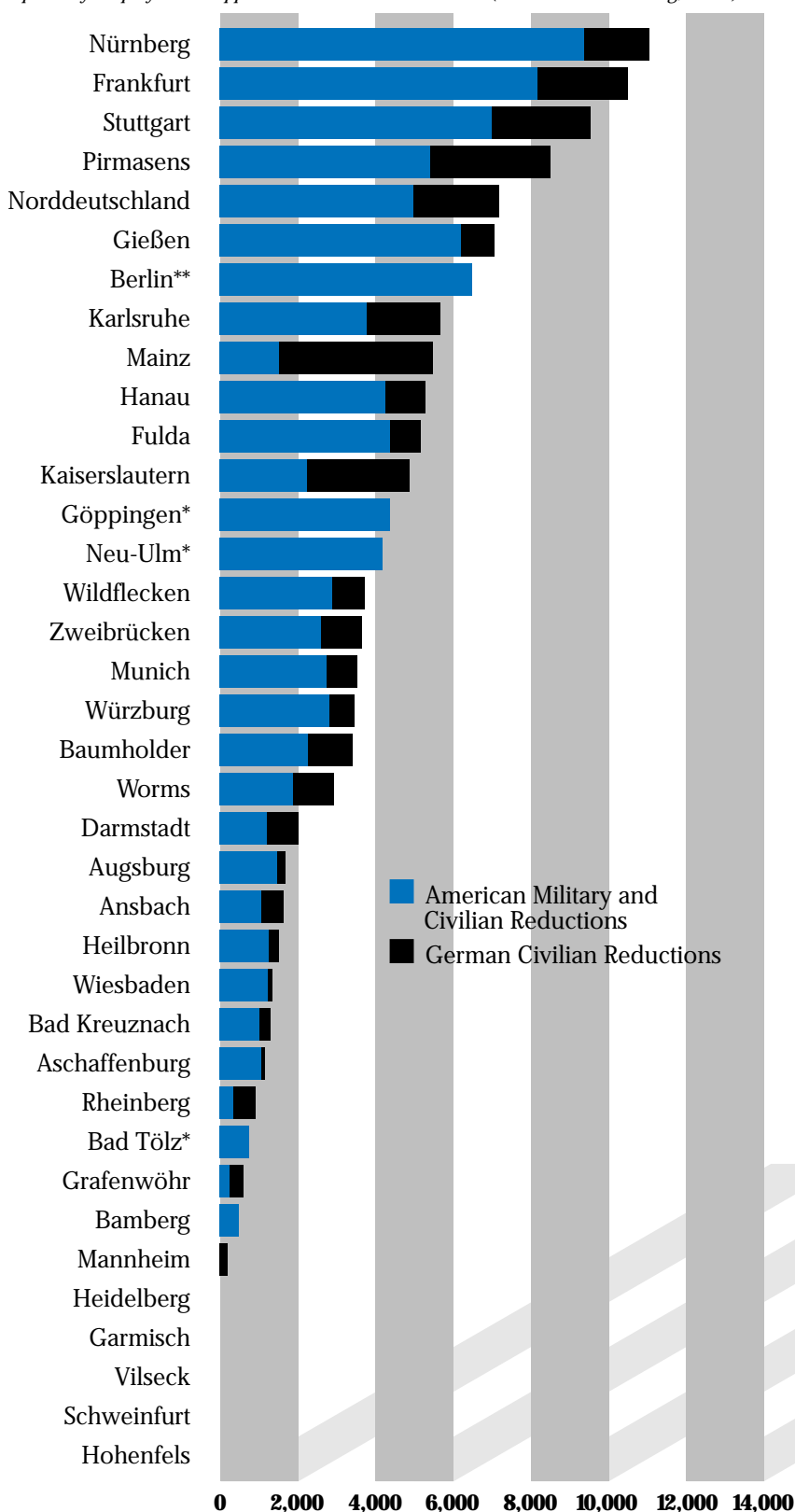
- The level of US Army personnel in Germany has been reduced from 210,000 in 1989 to approximately 82,000 today, and is projected to level off at 65,000 by 1996—a total reduction of more than 70 percent (Statistical Annex; USAREUR/PA, 1995).
- The US Army disbanded ² 40 percent of its Military Communities (15), while no Military Community was able to completely avoid reductions.
- The US Army has returned more than 100,000 acres (40,500 hectares) of land to German civil authorities since 1991.

² As DoD does not define 'closure,' this report defines closure to be the reduction of 80 percent of personnel, area and sites. See: Cunningham and Pages, 1994.

Figure 9: Feeling the Pain

US Army Personnel Reduction Since 1991* by Military Community

Source: DoD/OASD, 1993. **Notes:** * These bases closed before 1991, and the statistics represent approximations for 1989. No German civilian figures are available. See: Duke, 1989. ** This figure does not include the 5,000 German civilians that the German government reportedly employed in support of the US forces in Berlin (Deutscher Bundestag, 1991).



■ The US Army has eliminated 32,000 direct German civilian positions on US bases since 1991. These employment impacts may be even more severe when the loss of contract spending and the multiplier effect are considered (see Impacts on the German Economy, below).

Although most Military Communities have become a fraction of their former size, other installations have retained the vast majority of their personnel and facilities as consolidation sites. The Army has committed itself to maintaining its largest, most useful training sites, which are located at Grafenwöhr, Hohenfels, and Vilseck. Consequently, these facilities have experienced only token reductions. The US Army's European Headquarters in Heidelberg has also benefited from being a consolidation point for closing bases throughout the region—by some accounts, it retains more positions than it did in the 1980s (USAREUR Public Information official, interview, 24 March 1995). In addition to the complete closure

of the Aschaffenburg, Bad Tölz, Berlin, Frankfurt, Fulda, Göppingen, Heilbronn, Mainz, Munich, Neu-Ulm, Norddeutschland, Nürnberg, Pirmasens, Wildflecken, and Zweibrücken Military Communities, other communities have experienced significant personnel reductions. While avoiding complete closure, for example, the Military Communities of Stuttgart, Hanau, Gießen, Karlsruhe, and Kaiserslautern experienced reductions of more than 2,500 personnel each—a greater number than in many complete closures (Statistical Annex; 415th BSB, 1995; 104th ASG/414 BSB, 1995) .

Figure 9 illustrates the direct US and German personnel reductions that have occurred through the return of military sites at each of the Army's 37 Military Communities (in terms of authorized positions). According to the Army, the number of actual positions filled is an average of 10 percent less than the number of authorized positions. In this case, however, budget problems and the severe nature of the reorganization may make the average higher than

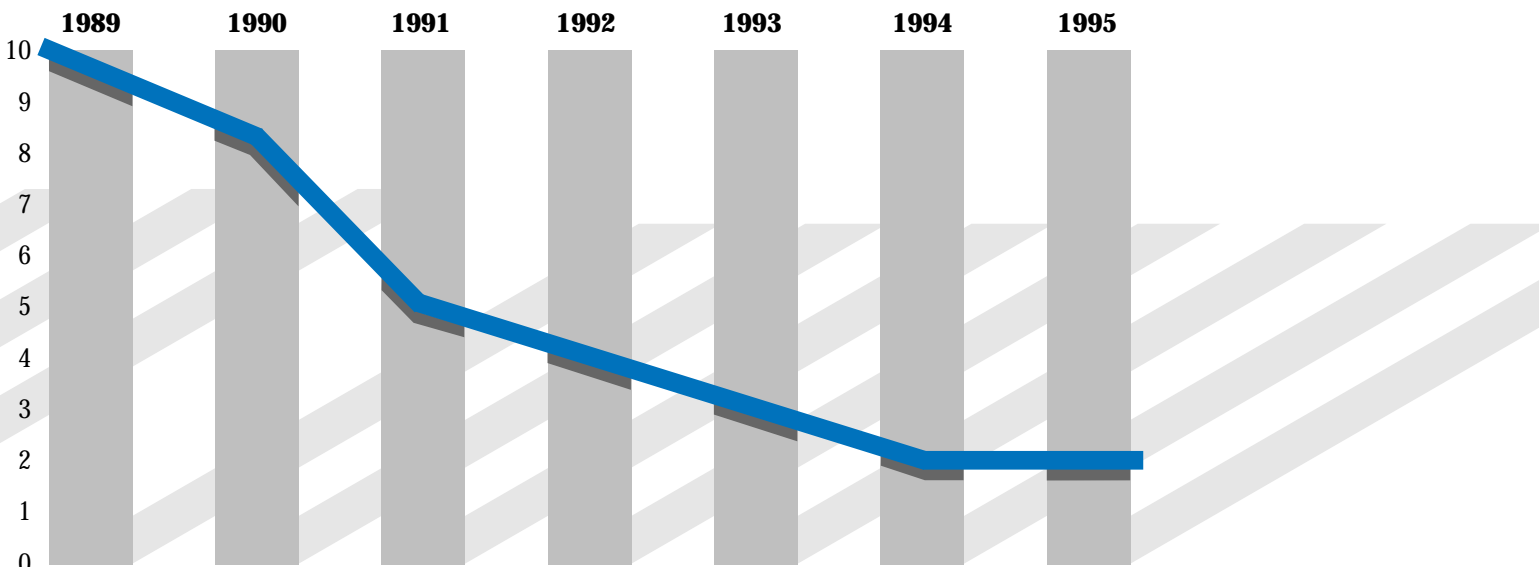
usual (Deputy Chief of Staff for Conventional Forces in Europe and USAREUR Public Information official, interviews, 24 March 1995). Although the Army's component will not be officially completed until 1996, the drawdown is ahead of schedule at most sites (USAREUR/PA, 1995). In the majority of bases, the current authorized endstrength is already approaching the target level for the end of drawdown. The most recent European Command base closure list stated: „To date, the Secretary of Defense has announced his intention to return or reduce operations at 953 overseas sites thus virtually completing our drawdown“ (USEUCOM, 23 February 1995, Round 18, p.1).

US Air Force Base Closures

The Air Force cut more aggressively in the early rounds than did the Army. In 1990, the Air Force announced the closure of two of its smaller German airfields—Hessisch-Oldendorf, located near the city of Hannover in the federal state of

Figure 10: Concentrated Air Power Reductions at US Air Force Main Sites in Germany
Number of Fully Operated Main Sites Remaining

Source: Statistical Annex; Vest, 1994.



Lower Saxony, and Zweibrücken, in the federal state of Rhineland-Palatinate at the German-French border. As an indication of future reductions, a number of the individual sites belonging to the Hahn and Sembach Air Bases were also returned during the early rounds. Combined, the closures in 1990 affected 16 Air Force sites.

The Air Force also used the Desert Storm conflict in 1990-1991 to rotate fighter squadrons state-side. For instance, Hahn Air Base's squadron of F-16 fighters never returned to Germany after Desert Storm (former Director of Host Nation Relations, Hahn Air Base, interview, 8 December 1994). Concurrently, the Air Force's realignment program accelerated in 1991 with the closure of the Bitburg, Tempelhof, and Lindsey Air Bases and the reduction of Sembach Air Base. Much smaller sites belonging to Ramstein and Spangdahlem Air Bases were also returned during that year.

More recently, US Air Force Europe reduced operations at Rhein-Main Air Base toward its goal of concentrating activities at Ramstein Air Base (GAO, 1994b). To facilitate that transition, the German company operating the civil portions of the Rhein-Main Airport is subsidizing the construction of new facilities on Ramstein as an in-kind payment for the value of the US facilities it received (GAO, 1994a). The airport authority will use the free space at Rhein-Main to establish a new cargo center (*European Stars and Stripes*, 23 December 1994, p.4). This reduction had still not been officially announced as of April 1995. The total effects of the Air Force's restructuring in Germany impact 60 individual sites and 6 main sites. In four years, the United States reduced 60 percent of its Air Force installations in Germany.

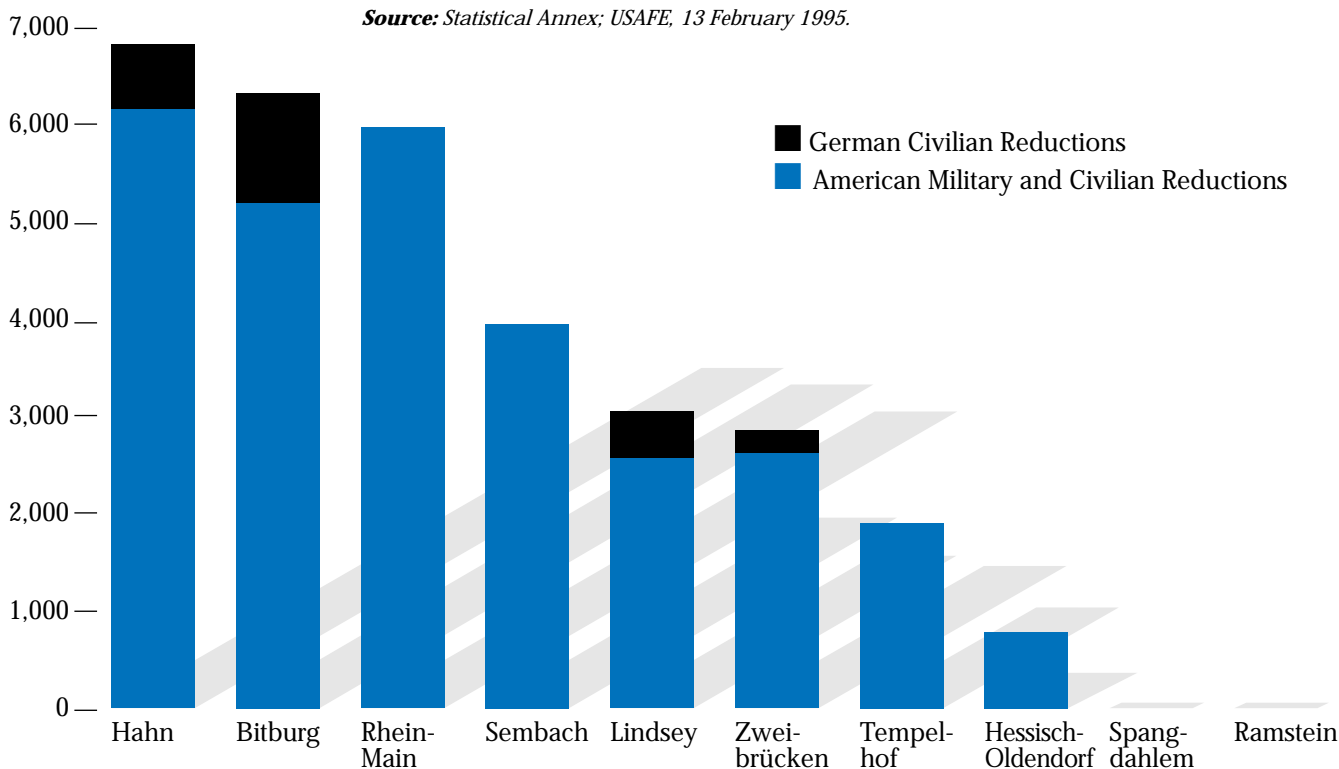
From 1990 to 1994, the United States withdrew approximately 28,500 Air Force soldiers and civilians—a 60 percent reduction—while 2,500

German civilians were laid off, a reduction of more than 50 percent. It is currently impossible to accurately determine how much land the US Air Force has returned to Germany due to the status of reduced facilities. According to the official DoD closure announcements, for example, the Air Force has not returned any land at Rhein-Main Air Base despite already accepting payment for the facilities from German authorities. Given this complication, it is clear that the Air Force has returned at least 4,000 acres (1,600 hectares) as a result of complete returns.

As the US Air Force drawdown enters its final stages, the complete closures of the already greatly reduced Rhein-Main and Sembach Air Bases are the only additional changes expected. These returns may be announced when the upgrades at Ramstein Air Base are completed sometime in 1996.

Figure 11: Grounded
Personnel Reduction at US Air Bases since 1987

Source: Statistical Annex; USAFE, 13 February 1995.



Endstate: The Emerging US Base Structure in Germany

The Future Army Base Structure

As the Army enters the final stages of the drawdown, the endstate—or post-restructuring level—is in sight. The United States will retain approximately 65,000 military personnel in Europe with a commensurate number of US and German civilian support staff. That will leave one Army Corps (V Corps) supporting 37 Combat Battalions in 1996, down

from two Corps (V Corps and VII Corps) supporting 147 Combat Battalions in 1990 (USAREUR/PA, 1995).

The new base structure needed to support these forces has also emerged. Rather than a decentralized, wide-ranging web of installations in practically every major city in southern Germany, many of the remaining Army bases are concentrated in the central region of Germany.

Aside from the obvious need to retain the US Army Europe (USAREUR) Headquarters at Heidelberg, the other facilities retained by the USAREUR in Germany appear to fall into one or more of three categories: (1) location convenient to airlift bases; (2) location near large training sites; (3) best of the V Corps facilities.

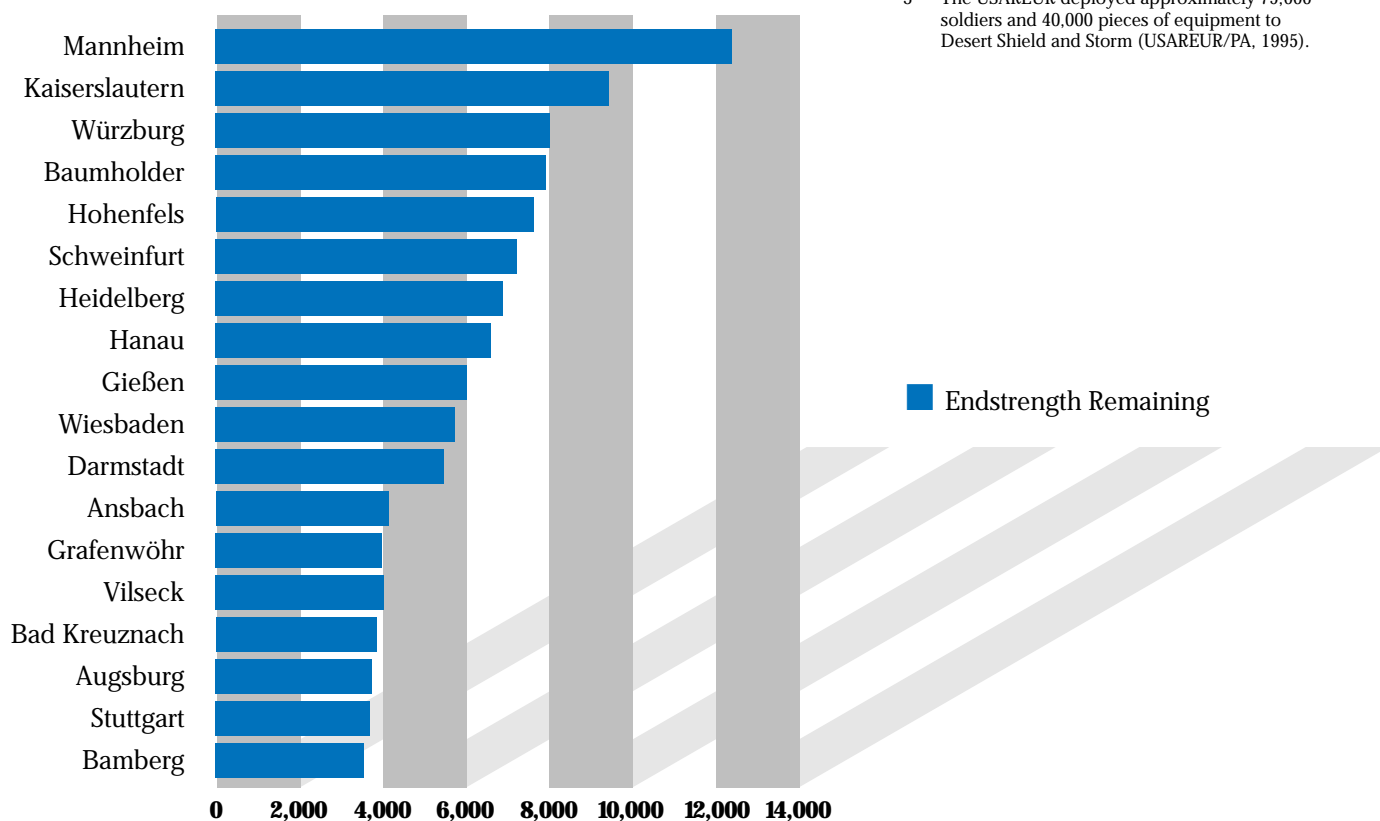
Military Communities Near Airlift Bases

No longer perpetually rooted in Europe to protect against a possible Soviet-led attack, the USAREUR has a new mission to project US force overseas. As a result, out-of-area deployments by the USAREUR have increased dramatically in recent years. In the entire 41 years from 1948 to 1989, only 11,851 USAREUR troops on 18 occasions were sent outside their narrow area of operation. In comparison, during just four years after Desert Storm³ (1991 through 1994), 21,883 soldiers were deployed on 49 separate missions (USAREUR/PA, 1995). This represents a 2,000 percent increase in the number of soldiers deployed out-of-area per year.

³ The USAREUR deployed approximately 75,000 soldiers and 40,000 pieces of equipment to Desert Shield and Storm (USAREUR/PA, 1995).

Figure 12: Staying Put
US Military Communities with more than 3,000 authorized endstate positions

Source: Statistical Annex



This dramatic increase in deployment is not surprising. The USAREUR's 1993 publication, *US Army Europe—The Right Force for a Changing World*, described the complete shift from a stationary, defensive force to a forward-based response force:

Cold War missions, operational procedures and training techniques are no longer relevant. They have been replaced with new missions calling for rapid deployment of force packages across the entire operational spectrum . . . faced with a different environment, uncertain threat and shift in focus from defense of the European region to contingency operations in any of 82 countries in US European Command area of responsibility, USAREUR reexamined its reason for being . . . (USAREUR/PA, 1993, p.9–10).

As an indication of the continued escalation of capability, USAREUR's area of responsibility increased to 100 countries in 1994 (USAREUR/PA, 1994). Figure 13 illustrates how the new focus on out-of-area deployments has increased since the end of the Cold War. Recent deployments have included such varying missions as building a civil hospital in the former Soviet State of Georgia and security assistance in Liberia (USAREUR/PA, 1994).

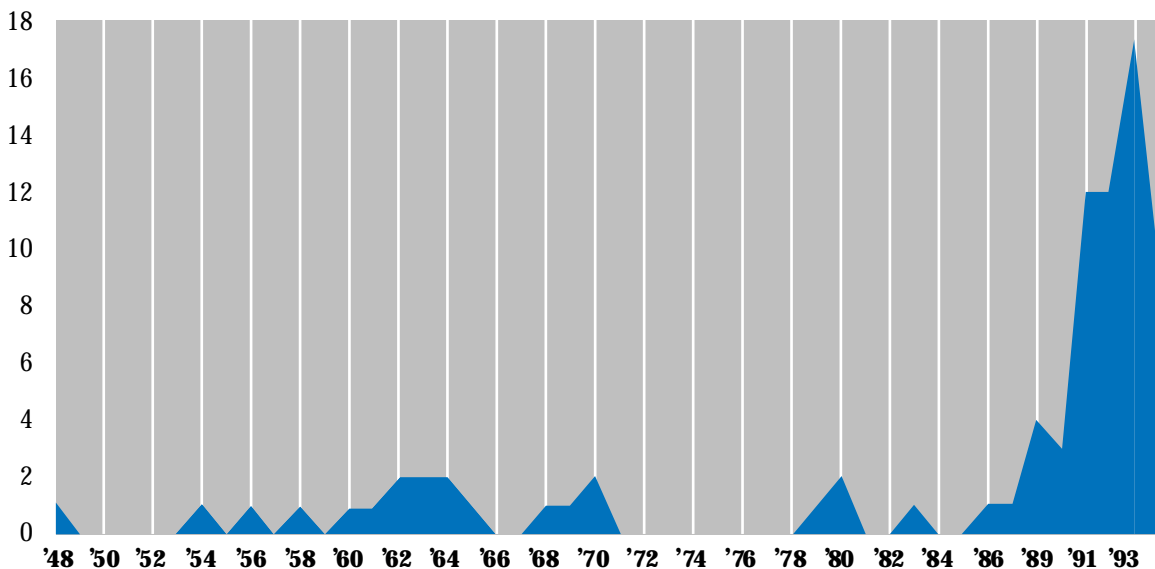
As a result of its new focus on deployments, USAREUR has retained bases near Ramstein Air Base—the Air Force's only remaining, fully active German airlift base. This may explain the continued strength of the Baumholder, Bad Kreuznach, Kaiserslautern, and Wiesbaden Military Communities. Despite overall troop reductions in Europe of 70 percent, these four communities have undergone reductions of less than 30 percent since 1991.

Military Communities Near Large Training Ranges

The United States remains committed to retaining its two largest training ranges in Germany—Grafenwöhr and Hohenfels—as the primary training areas for the multi-national coalition forces of the future (USAREUR/PA, 1993). The first high-profile, multi-national training exercise was 'Atlantic Resolve 1994,' which combined major components from US, German, French, British, and Dutch forces at the Hohenfels Training Range. The individual use of the training sites has also become more international. Since the Cold War, the United States has opened its training ranges to expanded use by the US Marines, Dutch forces, and Bundeswehr (German) forces (USAREUR/PA, 1995).

Figure 13: Send in the Troops
 Number of USAREUR Deployments Since World War II

Source: USAREUR/PA, 1994; USAREUR/PA, 1995.



To support this policy, the USAREUR has retained the Military Communities of Hohenfels and Grafenwöhr for training, as well as Vilseck and Würzburg to support those efforts. At endstate in 1996, these four Military Communities will retain 87 percent of their cumulative endstrength (23,336) and 98 percent of their area (100,786 acres/40,818 hectares).

The Best of the Rest

The top two guidelines cited in the USAREUR's eight-step reduction philosophy are: 'get out of the worst installations' and 'retain the best quality-of-life installations' (USAREUR/PA, 1994). True to these guidelines, the remaining facilities represent the best of the V Corps. These include Bad Kreuznach, Baumholder, Wiesbaden, Darmstadt, Hanau, and Gießen (USAREUR, 1990). Also as a result of this policy, the USAREUR retained its recently renovated barracks, regardless of location. These include barracks at Mannheim (US \$14.89 million in renovations), Schweinfurt (\$8.75 million), Würzburg (\$5.6 million), Stuttgart (\$4.5 million), Ansbach (\$2.3 million), and Kaiserslautern (\$2.27 million) (USAREUR/PA, 1994). Facilities at the alpine community of Garmisch will remain at near-Cold War strength for their quality-of-life benefits as the Armed Forces Recreational Center (USAREUR/PA, 1993).

Emerging Air Force Base Structure

Although the Air Force has not publicly announced its future intentions as explicitly as has the USAREUR, its future structure becomes apparent through analysis of the reductions. Initially, it appeared that US Air Force Europe (USAFE) was planning on reducing its base structure to two primary bases in Germany—Ramstein and Spangdahlem (GAO, 1994b; Stadt Kaiserslautern official, interview, 30 November 1994 interview).

Both bases were understandable choices. Ramstein is the USAFE Headquarters, is located near troop concentrations in Germany, and is large enough to handle all types of US military aircraft (GAO, 1994b). Spangdahlem hosted the United States' most modern fighter planes in Germany (Cragg, 1988) and is located in the most rural county of Germany (Henter, 1995). Spangdahlem also benefited from its position near Bitburg Air Base. When Bitburg closed, most of its housing units and some support facilities were transferred to Spangdahlem (Trier Bundesvermögensamt official, interview, 19 January 1995).

The plan to consolidate around only two Air Bases in Germany, however, may have been derailed by a June 1994 US General Accounting Office study questioning its prudence. The report stated:

Torrejon and Rhein-Main [Air Bases] supported 58 percent of the airlift missions during the Persian Gulf War and, according to US Transportation Command officials, the United States could not conduct another Persian Gulf War-sized, Middle East operation without these bases (GAO, 1994b, p.5).

Nevertheless, since that report was published, Torrejon Air Base in Spain closed (Vest, 1994). While USAFE has not made any formal announcement about Rhein-Main's future, the United States has accepted US \$62.5 million worth of payment-in-kind projects in return for closing facilities at Rhein-Main (GAO, 1994a). Moreover, the current endstrength of Rhein-Main is only 262 military and civilian personnel (USAFE, 23 January 1995). That represents a significant decrease from its 1987 authorized endstrength of 5,872 (DoD/OASD, 1987).

Sembach Air Base also retains a small endstrength of 256 (USAFE, 23 January 1995), resulting from an April 1991 reduction, and the USAFE may be planning to return the base completely once upgrades at Ramstein are completed (Rheinland-Pfalz, Ministerium für Wirtschaft und Verkehr, 1994a).

Based on this analysis, the USAFE may already be approaching endstate. Depending on whether or not Rhein-Main and Sembach are eventually closed, USAFE's endstate could vary between 14,000 and 14,500 active-duty US military personnel in Germany, with approximately 7,000 US and German civilian support personnel (Statistical Annex).

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Next page:
A Cold War relic.
The tank proving ground at the Mainz Army Depot.

Impact on the German Economy





The Economic Impact

Closing or even reducing the operations at a military facility has an immediate effect on the economy through reductions in spending and lost jobs. Nevertheless, the economic pain of base closure is limited to the areas in which reductions actually occur. Some communities with a high dependence on US defense spending have not suffered at all as a result of the drawdown. Certain consolidation sites, such as Heidelberg and Ramstein, have actually benefited.

On the other hand, seemingly minor nation-wide losses in spending and jobs may devastate the local economies affected by the cuts. The closure of Bitburg Air Base, which had a 1987 endstrength of more than 6,400 and pumped an annual DM 200 million into the economy (Henter, 1995), had a very severe effect on Bitburg county, with an approximate population of only 93,000 people. What does the

United States' restructuring mean for neighboring local German communities and regional economies?

This chapter analyzes both the employment impact and the spending impact of the US withdrawal on a national, regional, and local level. It then illustrates the effect on German real estate markets of the return of a total land area greater than the German federal state of Bremen.

Direct Employment Effect on the German Labor Market

In understanding the economic impact of the US Forces on regional German labor markets, it is useful to distinguish between their function as direct employers and indirect employers of Germans. The role of the US Forces as direct employers of German civilians during the Cold

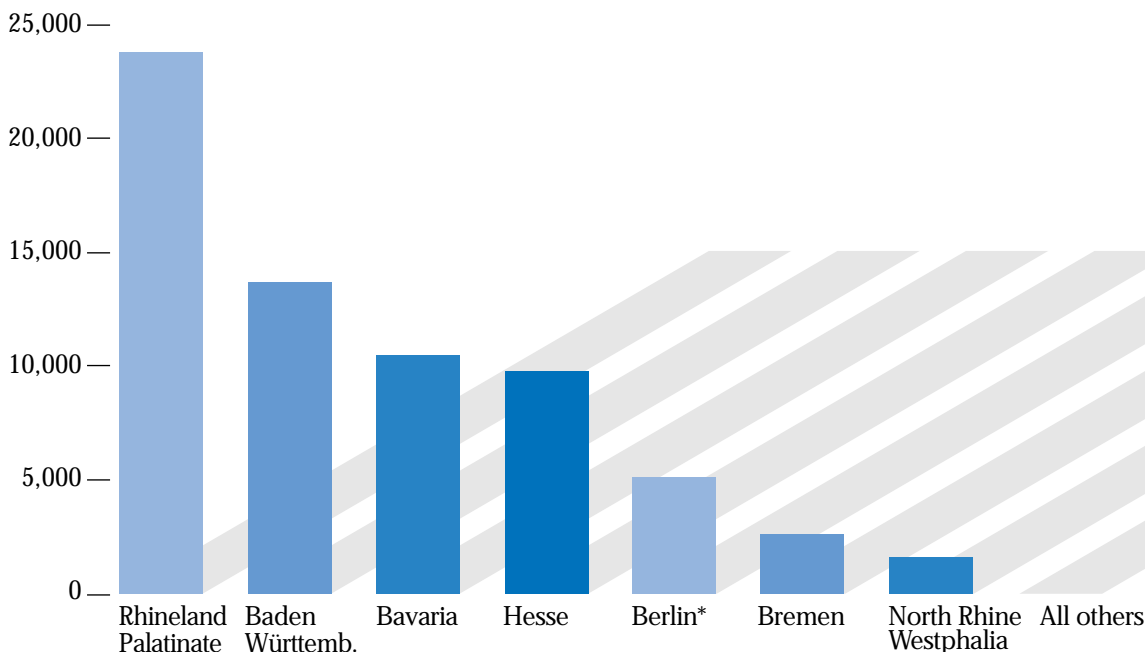
War is comparatively well documented. At the end of the Cold War, there were approximately 62,000 German civilians on payroll at US Army bases (1991) and 5,800 at Air Force bases (1987). In addition, approximately 5000 German civilians were employed by the German government at the US base in Berlin (Deutscher Bundestag, 1991). Breaking the statistics down by German federal state reveals that the southern and western states of Baden-Württemberg, Bavaria, Hesse, and Rhineland-Palatinate had the highest direct reliance on the US forces—a result of the original American occupation zone and the later French withdrawal from their zone.

The United States' post-Cold War base realignment program has had a considerable impact on the German civilians employed by the US Department of Defense. By April 1995, more than 41,000 authorized German civilian positions had already been eliminated (including the 5000 German civilians in Berlin), a reduction of more than 50 percent in less than six years (Statistical

Figure 14: German Civilians Employed on US Bases per State at the end of the Cold War

Source: Statistical Annex

Notes: * This figure does not include the 5,000 German civilians that the German government reportedly employed in support of the US forces in Berlin (Deutscher Bundestag, 1991).



Annex; Deutscher Bundestag, 1991). In absolute numbers, the most severe impacts on local labor markets (defined to be more than 1,000 authorized positions lost) were experienced in Berlin, Bremerhaven, Frankfurt, Hanau, Kaiserslautern, Karlsruhe, Mainz, Pirmasens, Nürnberg, Stuttgart, Zweibrücken and Gießen. It is important to note that all of these bases are in urban centers, with the exception of Pirmasens, Bitburg, and Zweibrücken. Most of these areas had hosted Army bases (all but Bitburg), while Berlin and Zweibrücken had hosted US Air Bases as well.

Contract Employment

US contract spending also results in direct employment of German nationals to an uncertain extent. One may produce an estimate based on the assumption that DM 1 billion

creates approximately 7000 German jobs.⁴ Thus in 1989, total contract spending of US \$1.74 billion (DoD, 1989) created approximately 21,000 construction and maintenance jobs (assuming an average exchange rate at that time of 1.68 DM/\$). Although more complete data is not available, contract spending decreased more than 40 percent by 1993 (DoD, 1993) and has likely decreased further since then. Thus, a conservative guess is that at least 7,000 of these jobs had been lost by 1995.

Telling the Whole Story: Local Economies Affected

The absolute figures of the local layoffs are not comprehensive indicators of the negative impact of the US withdrawal on local labor markets. The impact primarily depends on the structure of the regional economy. Indeed, most of the urban

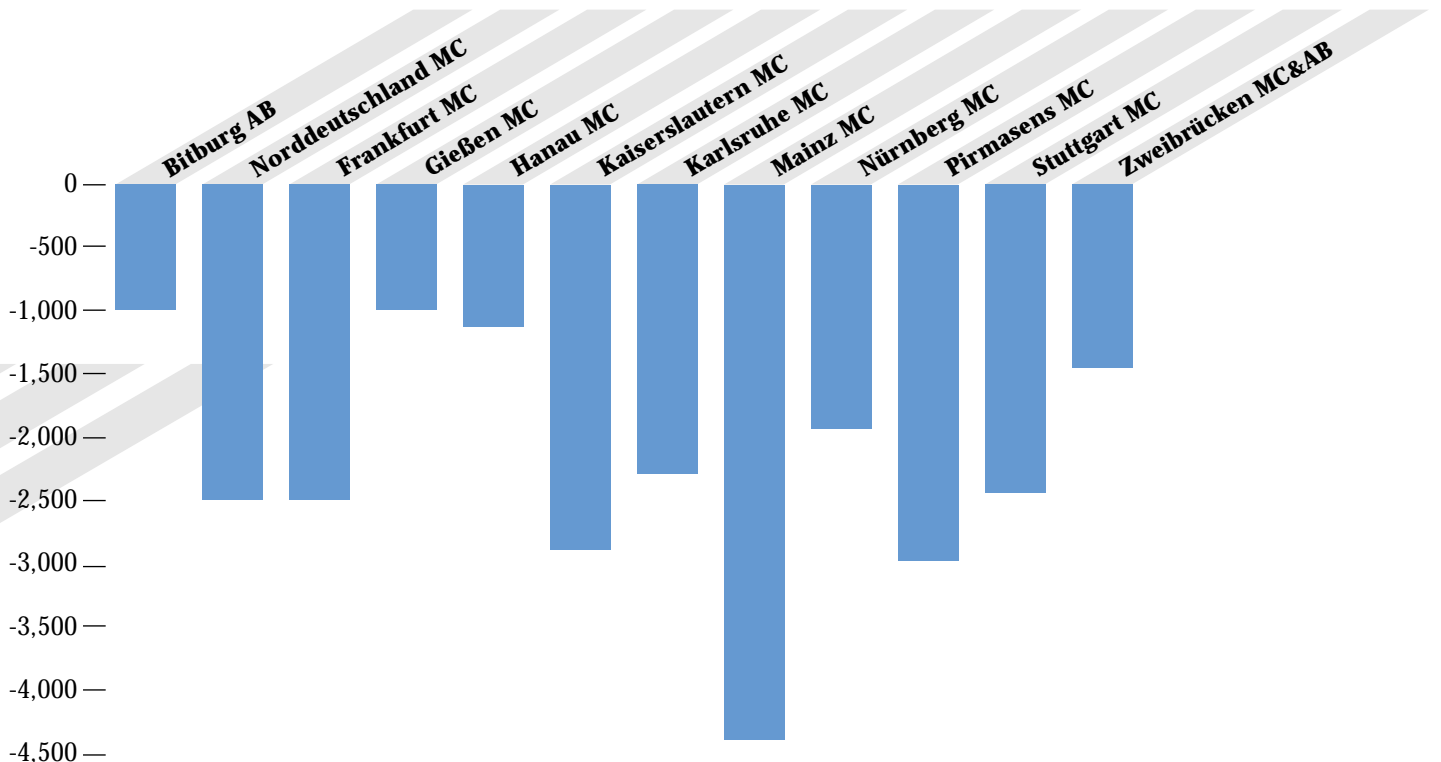
centers experiencing large reductions had a very low dependence in percentage terms on American military activities, often a negligible one (the city and county of Kaiserslautern and Bitburg, with their significant dependence on the economic activities of the US Forces, are clear exceptions) (Wirtschaftsministerkonferenz, 1990).

In these highly developed, urban areas, the labor market provides enough job opportunities to fully absorb German workers displaced by the US withdrawal. The case of Mainz, a city in the highly industrialized and densely populated Rhein-Main area, illustrates this observation. While Mainz suffered one of the largest layoffs and the US withdrawal caused short-term economic

4 This relationship is taken from multiplier analysis of the input/output tables of RWI, Rheinisch-Westfälisches Institut für Wirtschaftsforschung, in Essen, and is only a very rough estimate.

Figure 15: Post-Cold War Casualties
German Civilian Reductions exceeding 1000 at US bases

Source: Statistical Annex: The graph does not include the 5,000 German civilian employees laid off at the US base in Berlin, as these civilians were paid the German government (Deutscher Bundestag, 1991).



problems, most of the laid-off workers either found new jobs or were generously compensated through a special joint American-German benefits package (*Mainzer Rhein-Zeitung*, 10 September 1992; see Mainz case study). The local unemployment rate did rise between 1990 and 1993, but unemployment in all German cities rose during this time due to a nationwide economic recession.

The situation is very different in rural, underdeveloped areas in which the large American military bases were the principal employers for the local workforce. The German counties hosting the Air Bases in Hahn and Bitburg exemplify the link between the US withdrawal and a rising unemployment rate in structurally underdeveloped districts. In those counties, a comparatively low number of German civilians (678 and 1,042 employees, respectively) lost their jobs when the bases closed (Statistical Annex). Nonetheless, the lack of alternative job opportunities caused a temporary—sometimes permanent—dislocation of those workers (former Director of Host Nation Relations, Hahn Air Base, interview, 8 December 1994).

Indirect Employment Effects

Aside from the direct employment lost due to the United States' withdrawal, a secondary impact on the labor markets has occurred through the loss of indirect employment from US expenditure. One may use a multiplier of 1.56 to approximate the secondary employment impacts of the US withdrawal, based on a study of the indirect employment effects of the German and the British military forces in the city of Mönchengladbach (Brömmelhörster and Hamm, 1992a). A study of the American forces' withdrawal from the city of Bremen reached similar results using an econometric model (Elsner and Voss, 1991). Based on this multiplier approximation, the 72,800 German civilians employed as a result of the US presence created approximately 40,800 indirect

jobs in the German economy in 1989. By 1995, that figure had fallen to approximately 17,900, indicating an additional 22,900 German jobs have been lost due to the US draw-down and bringing the total number of German jobs lost since 1990 to approximately 71,000⁵ persons—still a relatively small number compared with the 26 million registered in Germany's total employed workforce in 1993.

US contract spending and the personal consumption of US soldiers and civilians also have significant indirect employment effects, which may make the number of German jobs lost considerably higher. Given the lack of available data, however, these effects are currently impossible to measure.

Impact on the Regional Demand for Goods and Services

A useful measure of the economic importance of the US Forces for the regional demand for goods and services is their annual total expend-

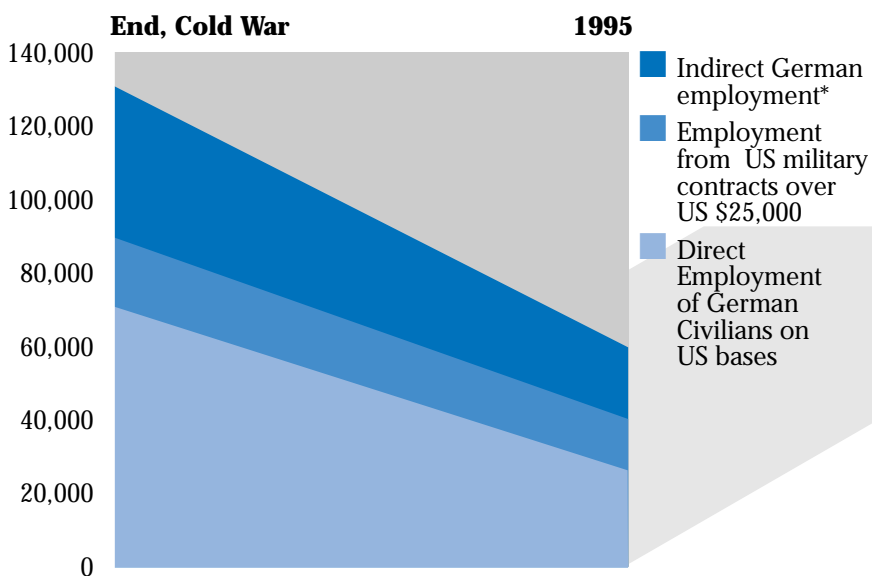
iture. According to the statistics of the US Department of Defense (DoD, 1989; DoD, 1993), the spending of the US Forces in Germany in Fiscal Year 1989 totaled over US \$9.7 billion—including all payroll outlays and prime contracts for supply and maintenance of the base infrastructure, but excluding the salaries of the German civilian employees on US bases.

In 1989, 82 percent of the total military budget was allocated for the wages of American soldiers and civilians; only 18 percent of the funds was earmarked for construction, service and supply contracts. In the same year, 511,008 individuals of American nationality lived and/or worked on US bases in Germany. This may be divided into active-duty military personnel from the different

5 Statistical Annex; Deutscher Bundestag, 1991. This figure is significantly lower than a figure cited by Schmidt-Eenboom (1989) for the indirect employment effects of the US bases in 1988. Although there is reason to believe that the latter was overestimated due to the classified nature of Cold War statistics, the former may underestimate the number of jobs by not taking into account the indirect effects of US contract spending and the consumption of US personnel.

Figure 16: Piling On
German Employment Impacts of US Forces

Source: DoD, 1989; DoD, 1993; Statistical Annex; authors' projections
Notes: *Does not include the indirect effects of US contract spending and the consumption of US personnel.



branches of the Forces, American civilians employed with the Forces, and military and civilian dependents. These family dependents alone account for about 227,000 individuals or approximately 50 percent of all Americans on US bases in Germany (calculations drawn from DoD, 1989 and DoD, 1993).

Since the end of the Cold War, these figures have dwindled substantially. For Fiscal Year 1993, DoD envisioned a total of approximately US \$5.3 billion to maintain a German base structure of 268,477 American individuals. Thus, the expenditure of the US Forces on troop deployment in Germany diminished almost 50 percent in just four years (calculations drawn from DoD, 1989 and DoD, 1993).⁶ The clear downward trend is obvious.

The US drawdown is scheduled to terminate in 1996 at endstate, with the projections of the final number of American individuals (troops, civilians, family members) on US bases in Germany at about 200,000 persons.⁷ No projections for the US military budget for Germany in FY 1996 were available at the time of publication, but its volume may be estimated to be US \$4 billion by assuming stable growth.⁸ Thus, the number of dollars spent by the US Forces in Germany for its military bases will stabilize in FY 1996 at endstate at a level about 56-60 percent below Cold War standards.

Two items in the American military budget for Germany are of special interest: the expenditure on supply, service and maintenance contracts and the expenditure on wages for active-duty military personnel and civilians. Both expenditure items have direct implications for the regional demand for goods and services.

Contract Expenditure

DoD statistics demonstrate that the total volume of the prime supply, service and maintenance contracts (over US \$25,000 only) for US bases in Germany reached US \$1.74 billion (about 18 percent of total expenditure) in FY 1989. After the end of the Cold War, this was reduced to US \$1.02 billion in FY 1993 (about

19 percent of total expenditure)—equivalent to a reduction of 41 percent in four years.⁹ All types of contracts were affected by the drawdown, but the primary reductions in US spending occurred in construction (92 percent) and military research and development (85 percent). In projecting the amount of contract spending for FY 1996, one may not assume a stable decrease as contract spending will likely level off. Nonetheless, given that contract spending as a proportion of total expenditure remained fairly stable, at least since the end of the Cold War (18-19 percent), and given our projection of US \$4 billion in total expenditure in FY 1996, one may estimate a total of approximately US \$740 million in contract spending for FY 1996.

At the same time, it is important to recognize that not all of the contract spending of the US Forces in Germany actually benefited German contractors. Even before the end of the Cold War, the US Forces had begun to redirect part of the contract money from regional German suppliers to American contractors. Such a move was motivated by both political and economic reasons. The 'buy American' strategy of the US command was supposed to strengthen American business worldwide and to return American tax money spent by the military to the US economy (Schmidt-Eenboom, 1989). For the most part, however, the changed purchasing strategy of the US Forces was motivated by the rapidly decreasing purchasing power of the dollar on the German market.

Private Consumption

In addition to the contract spending of the US Forces is another factor of economic relevance for the host country—the private consumption of the people working and/or living on the base. This group may be divided into two subgroups: (1) the active-duty military personnel and the American civilians employed on the base, plus their dependents, and (2) the German civilians employed on the base. A principal indicator of the volume of the private consumption of these two subgroups is the total wage paid to them.

Unlike the salaries of the US active-duty military personnel and American civilians, the wages of German civilian employees contributed 100 percent to the regional demand for goods and services. A 1991 study on the economic importance of the US bases in the federal state of Bavaria quantified the average annual gross income of the German civilians employed on American military installations to be about US \$27,000 in 1989 (Industrieanlagen-Betriebsgesellschaft mbH, 1991). Multiplying that per capita income by the total number of German civilians employed as a result of the US Forces' presence in 1989 (about 72,800 individuals, including the 5000 employed in Berlin by the German government) gives a total of US \$1.97 billion (Statistical Annex; Deutscher Bundestag, 1991). With the recent massive layoffs in the German workforce, that figure dropped significantly to an estimated US \$1.28 billion by 1993 and is projected to fall further to US \$790 million in

6 Budget figures do not include any special appropriations made by the US Congress to pay for the drawdown. See: USAREUR/PA, 1995.

7 The projected figure of 200,000 persons includes about 65,000 Army (USAREUR/PA, 1995) and 14,000 Air Force (Statistical Annex) soldiers, 18,000 civilians (Statistical Annex) and 103,000 dependents (estimation based on the typical dependent-to-military-personnel ratio, drawn from trends in the DoD Atlas/Data Abstracts as well as interviews with USAREUR Public Information personnel).

8 The US Forces had an average expenditure of US \$ 18,989 for each American individual assigned to military bases in Germany in FY 1989 (DoD, 1989); in absolute terms, that per capita expenditure rose slightly to US \$ 19,602 in FY 1993 (DoD, 1993), signifying an average increase of approximately US \$ 150 per capita per year. Assuming stable annual growth in the per capita expenditure through FY 1996, one may project a figure of US \$ 20,000 for each of the assumed 200,000 American individuals. Such a projection would bring the total expenditure of the US Forces in 1996 to US \$ 4 billion.

9 Expressed in absolute numbers, US \$ 700 million less was spent on the supply and maintenance of the bases in 1993 than in 1989. When one considers the consistent depreciation of the dollar against the German mark and a low but steady price inflation at an average of 3 percent in Germany since 1989, the decrease in the American demand for German supply and maintenance services appears more severe than the total figure implies. The US \$ 1 billion spent by the American military on the prime supply and maintenance of its Army and Air Force bases in 1993 bought less than two-thirds of the goods and services in Germany it would have in 1989.

1996 (assuming an annual growth in wages of 4 percent and a linear decrease in the number of German civilians from 1989 to 1995).¹⁰

The total wages paid to the 283,520 soldiers and American civilians in FY 1989 was US \$7.96 billion—a figure which would be cut almost in half by FY 1993 (US \$4.24 billion) (DoD, 1989; DoD, 1993). Figures for Fiscal Year 1996 are not available, but the volume of financial transfers to American base personnel may be estimated at US \$3.71 billion, assuming stable growth rates.¹¹ Thus, since the end of the Cold War more than 50 percent of the expenditure on wages for American base personnel has been withdrawn from Germany.

Not all of the money paid to American soldiers and civilians, however, was spent in the economy of the host country. In fact, the majority never stimulated the regional demand for goods and services but rather was spent in the shopping and social facilities operated by the United States. A study of the economic importance of the US Forces in Germany, published by the Institut der Deutschen Wirtschaft in 1989, estimates that in 1986 an average of 28 percent of the wages of the American soldiers and civilians were spent on German goods and services (Bebermeyer and Thiemann, 1989). According to Bebermeyer and Thiemann, with the value of the dollar falling against the mark after 1986, this figure decreased to 18 percent in 1987 and 14 percent in 1989. The consistent depreciation of the dollar combined with a low but steady price inflation in Germany has further eroded American purchasing power since 1989. Increasing military wages could not compensate for that loss. As a result, American consumers reduced their demand for German goods, changing to American products offered in the shops on base. A 1992 analysis of the economic importance of the American forces for the city of Bremen estimated that in 1991, no more than 10 percent of American wages were spent in the local economy (Eisbach and Heseler, 1992).

Using the estimation of Bebermeyer and Thiemann for 1989 (14 percent) as the calculation base for the proportion of US wages entering the German economy and assuming a share of 10 percent for 1993, the private consumption of American personnel and their dependents entering the German economy decreased from US \$1.11 billion at the end of the Cold War to US \$424 million (a decrease of 60 percent). Since 1993, this figure has been shrinking further, with serious reductions in the number of personnel on US bases and the exchange rate reaching an historic low (1.39 DM/\$) in March 1995. Assuming the 10 percent share has not fallen further, the private consumption of US personnel in 1996 may be estimated at US \$371 million.

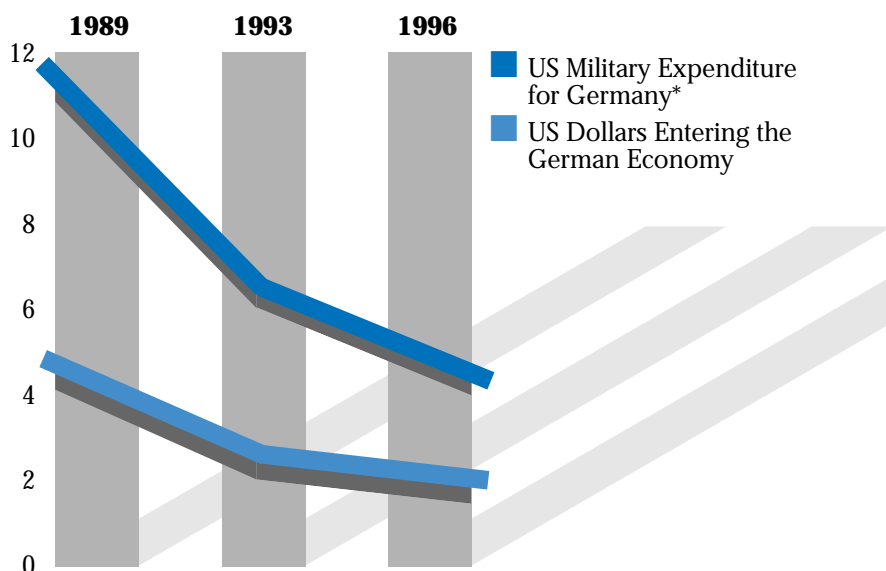
Total Entering the German Economy
Together, the consumption of Germans and Americans employed on US bases contributing to the regional demand for goods and services in 1989 had a value of US \$3.08 billion. In the same year, about US \$1.74 billion were spent by the US Forces on prime contracts

with private companies or the German government.¹² Thus, the total amount of money entering the German economic cycle through US military spending was US \$4.81 billion. By 1993, that figure had dropped significantly to US \$2.72 billion. As the US drawdown continues and the dollar's value falls further, the dollars stimulating regional German demand may be expected to decrease further both in absolute number and in relative exchange value—to an estimated US \$1.9 billion at endstate in 1996.¹³

¹⁰ In the absence of available data, one can only assume that the number of German civilians has decreased at a constant rate. Given a starting figure of 72,800 German civilians in 1989 and 31,880 remaining in 1995 (Statistical Annex; Deutscher Bundestag, 1991), German civilians were laid off at a rate of approximately 6820 per year. Thus, in 1993, approximately 45,500 contributed US \$ 1.28 billion to the German economy. As the US drawdown levels off between 1995 and 1996, so will the lay-offs of German civilians; to project the number remaining in 1996, therefore, one must use a rough estimate. Thus, a 15 percent reduction in the number of US troops from 1995 to endstate in 1996 (93,685 to 79,000, respectively) implies a corresponding reduction in the number of German civilians employed to support them—15 percent of 31,880, or 27,100. Multiplying this figure by the estimated average salary for 1996 gives an approximation of US \$ 790 million.

Figure 17: Trickle Down
Figures in billions of US Dollars

Source: DoD, 1989; DoD, 1993; Statistical Annex; Deutscher Bundestag, 1991; Industrieanlagen-Betriebsgesellschaft mbH, 1991; authors' estimations
Notes: *Includes not only payroll outlays for US personnel and contract expenditure, but also the salaries of German civilian employees.



From a macroeconomic point of view, the total volume of the contract expenditure and the private consumption of US personnel had been of marginal importance to the German economy in 1989; with the number of military dollars spent in Germany cut virtually in half, the economic factor of the American demand for German goods and services has become even less significant. Together, the financial transactions of the US Forces in Germany in 1993 made up US \$2.7 billion, or less than DM 4 billion—a negligible proportion of the national German economy as a whole in the same year.

Regional Disparities in the Economic Dependence on the US Forces

Although American contract spending and private consumption had a limited impact in relation to the entire German GDP, it exercised a substantial effect on the local and

regional economies of several German federal states. During the Cold War, about 97 percent of the total US military budget for Germany was spent in only four federal states: Baden-Württemberg, Bavaria, Hesse and Rhineland-Palatinate. Another 3 percent went to Bremen and North Rhine-Westphalia (Berlin does not appear because all expenses of the US Forces for its troop deployment in Berlin were paid by the German government). The clear geographical focus of US expenditure lay on Rhineland-Palatinate; about one-third of the total US military budget for Germany went to that federal state alone.

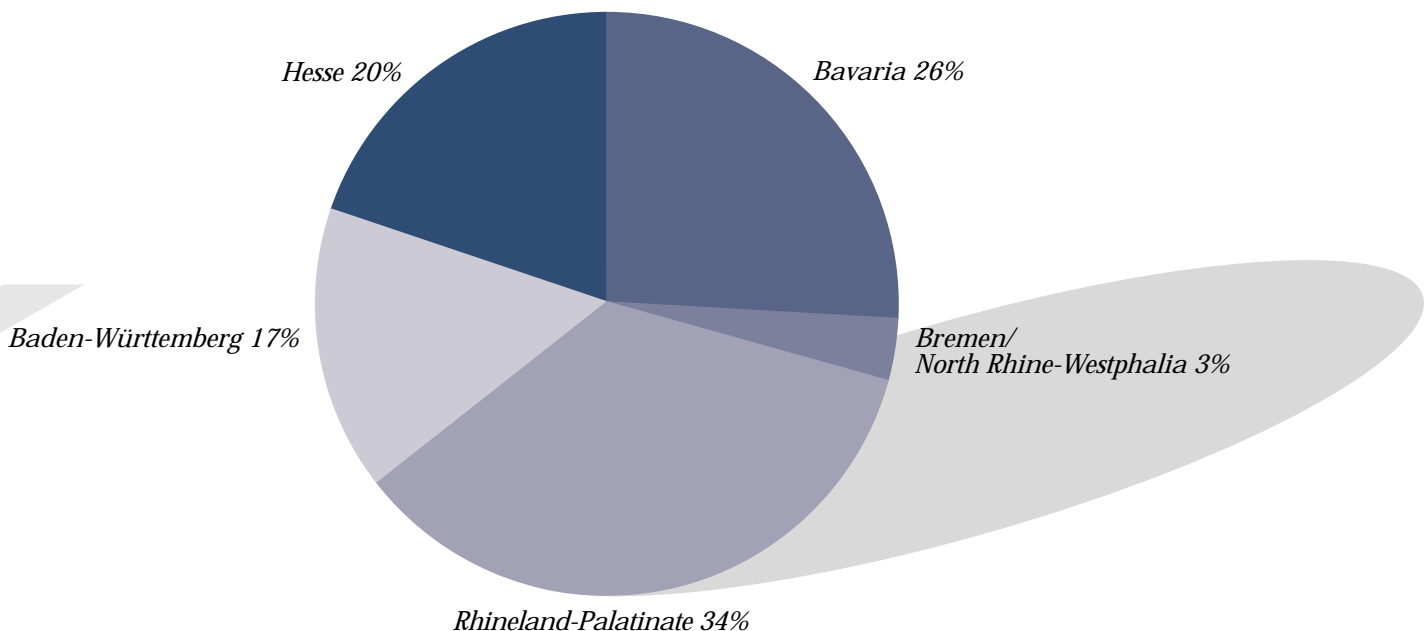
With the US base structure undergoing significant cuts, this geographical focus has even expanded: since the troop deployments in Berlin, Bremen and North Rhine-Westphalia have been withdrawn, 100 percent of US military expenses now contribute to the economies of Baden-Württemberg, Bavaria, Hesse and Rhineland-Palatinate. In the absence of recent data, it is assumed

that the internal distribution of funds among these federal states would have remained almost stable through 1995—with the possible exception of a shrinking share for Hesse. The closure of the large Fulda and Frankfurt Army bases and the simultaneous reductions in the operation of the Gießen and Hanau bases—all four of which are located in Hesse—probably had a disproportionately high impact on the number of dollars entering that federal state.

- 11 The per capita wage of the American base personnel had been US \$ 28,102 in 1989; it rose to US \$ 33,900 per capita in 1993, the equivalent of an annual growth of US \$ 1,500. Assuming such a growth rate to be stable through 1996, the average per capita income would be about US \$ 38,300. Multiplying this figure by the estimated 97,000 American soldiers and civilians assigned to US bases in 1996 would result in US \$ 3.71 billion spent on wages for American base personnel. (Calculations drawn from DoD, 1989; DoD, 1993; USAREUR/PA, 1995).
- 12 One should note that although these figures assume 100 percent of contract money enters the German economy (due to the lack of available data on the exact proportion), the actual percentage may be lower. Thus, the above figures may overestimate the number of dollars entering the German economy.
- 13 This figure does not take into account potential changes in the dollar's value against the mark.

Figure 18: Distribution of US Military Expenditure in Germany Per state 1988

Source: Schmidt-Eenboom, 1989.



disappearing dollars

Absolute figures on the total expenditure of US Forces per federal state do not allow a precise measurement of the relative importance of the American bases for certain regional and local markets. Therefore, the total expenditure of each US Base must be placed in relation to the economic strength of the particular governmental districts hosting them. In order to evaluate the relative importance of the US Forces on the regional demand for goods and services, the volume of the American economic activities (expressed in monetary terms) in a particular county is related to the total value

added by a particular region. The resulting proportion may mark the possible dependence of a regional economy on the US bases. Table 5 highlights the western German counties with a high dependence (defined to be more than 10 percent of regional GDP) on the foreign troop contingents stationed in the area. At the end of the Cold War, all nine governmental districts with a significant or high dependency on foreign military economic activities hosted American installations; in the special case of Zweibrücken, both American and French forces were stationed in the district.

In 1989, all but two German districts with a high economic dependence on foreign military bases were located in Rhineland-Palatinate. All of these districts and cities especially vulnerable to any withdrawal of foreign troop contingents were hosting US installations.

The city district and surrounding county of Kaiserslautern demonstrated an exceptional dependence on the economic activities of the Army and Air Force Bases. The complete withdrawal of US Forces from that area would have caused serious dislocations. While such a worst-case scenario for the local economy did

Table 5: German governmental districts/cities with the highest dependence on the regional demand for goods and services of foreign military bases (1989)

Source: Wirtschaftsministerkonferenz, 1990.

County/city	Hosting:	Federal state:	Economic dependence on foreign military bases (% of regional GDP)
Kaiserslautern (County)	Ramstein Air Base Kaiserslautern Military Community	Rhineland-Palatinate	35.0-43.4
Birkenfeld	Baumholder Military Community	Rhineland-Palatinate	16.1-20.3
Bitburg/Prüm	Bitburg Air Base	Rhineland-Palatinate	12.8-16.1
Kaiserslautern	Kaiserslautern Military Community	Rhineland-Palatinate	12.7-14.9
Kitzingen	Installations of the Würzburg Military Community	Bavaria	10.4-13.7
Zweibrücken	Zweibrücken Air Base; Zweibrücken Military Community; installations of the French Army	Rhineland-Palatinate	11.1-13.1
Osterholz	Installations of the Norddeutschland Military Community	Bremen DC	8.1-10.8
Landau	Installations of Karlsruhe/ Pirmasens Military Community	Rhineland-Palatinate	8.0-10.8
Donnersberg	Sembach Air Base	Rhineland-Palatinate	7.7-10.1

not materialize, in the course of the base restructuring program several of the main installations were reduced in operation—eliminating approximately 3,000 authorized positions formerly assigned to German civilians. About 2000 Army authorized positions for active-duty military personnel disappeared, causing these soldiers together with their dependents to leave the area (415th BSB, 1995). On the other hand, since Ramstein Air Base (close to Kaiserslautern) is slightly expanding, it is assured that the Army and Air Force will remain in Kaiserslautern to some extent.

In comparison with Kaiserslautern, the rural district of Bitburg was hit worse by the US drawdown. The economy of the county had been strongly linked with the Bitburg Air Base: when the Air Force closed the installation in 1994, it eliminated the district's chief employer. Thousands of Americans left the area, a withdrawal felt painfully by their former German landlords—renting flats to US personnel living off-base had been a wealthy source of income for the locals—and many others (Henter, 1995). With the virtual deactivation of the neighboring Sembach Air Base, Donnersberg county faced a similar situation; as the county's economy was far less dependent on the American troops, however, the negative effects of the military drawdown may be more easy to counter.

Just two of the German counties with high dependence on foreign troops were located outside Rhineland-Palatinate. One of them, Kitzingen in Bavaria, will not suffer from the US withdrawal; the Larson and Harvey barracks plus the neighboring family housing areas have not closed. Several other rural Bavarian counties (for instance, Bad Kissingen county, which formerly hosted installations of the closed Fulda Military Community) revealed a considerable economic dependence on the US Army bases, but in none of the districts did their dependence exceed 10 percent of their regional GDP.

Communities Facing a Double-hit

In some cases, simply recording the Army and Air Force reductions individually does not tell the whole story. Several communities must attempt to recover from the simultaneous closure of both an Army Military Community and an Air Force Base. These communities include Frankfurt with the closure of the Frankfurt Military Community and the reduction of Rhein-Main Air Base, Zweibrücken with the closure of its Air Station and Military Community, and Berlin with the closure of Tempelhof Airport and the Berlin Army base.

These double-hits may become doubly beneficial if the local economy is prepared to handle it. For instance, Berlin will use the end of the Cold War to quickly replace the withdrawing soldiers as the unified-German capital returns to that city. Frankfurt will also benefit; much of the Military Community was located in valuable urban centers, and the Air Base is located on the expanding civilian Rhein-Main Airport.

Zweibrücken is not so lucky. The loss of almost 4,000 US Air Force jobs, 3,300 US Army jobs, and thousands of additional German civilian jobs from this predominately rural area near the French-German border (DoD, 1989; DoD, 1993; Steinebach, 1992) will be difficult to overcome. Recently, Zweibrücken was dealt another severe blow due to the closure of several other neighboring Air Bases (Rheinland-Pfalz, Ministerium für Wirtschaft und Verkehr, 1994a). Although their closure will not directly affect Zweibrücken, heavy competition from new civilian cargo and passenger airports at Hahn and Bitburg will make developing a similar airport at Zweibrücken considerably more difficult.

The other highly dependent district not located in Rhineland-Palatinate was the rural county of Osterholz in Bremen, which was hit by the complete US withdrawal from the local Lucius D. Clay Barracks. The neighboring city of Bremerhaven also suffered from the closure of the Carl Schurz Barracks and the port facilities (in the US Army, the city lost its fifth biggest employer; Eisbach and Heseler, 1992), but the economic dependence of the city on foreign troops never reached similar dimensions to Osterholz.

None of the counties or city districts with a high economic dependence on the US bases were located in Hesse. Although the foreign troops stationed in Hesse exercised a considerable impact—generally in rural counties such as the Wetterau district, which hosted part of the Fulda Military Community, or the Main-Kinzig district, where the Hanau Military Community is located—their economic importance was not predominant overall. Moreover, the major US bases in Hesse were located in structurally developed and densely populated areas (Darmstadt, Wiesbaden, Frankfurt), where the importance of the economic activities of the US Forces was more restricted.

In addition, none of the highly vulnerable counties were located in Baden-Württemberg. The comparatively high economic potential of the counties and cities in that federal state limited the regional dependence on the US bases; in none of them did the share of the economic activities of US bases in the regional GDP exceed 5 percent.

In the densely populated area of West Berlin (about 2 million inhabitants), the demand for goods and supplies of the approximately 6,500 soldiers and their family members had no significant impact on the local economy.

Impact on the Real Estate Market

Although on a regional basis Germany's economy was adversely affected by the loss of jobs and spending resulting from the US withdrawal, the country will regain the use of more land than the German state of Bremen or more than twice the size of America's District of Columbia. Receiving an area roughly the size of a new state in less than five years is bound to have a significant effect on Germany's real estate market. Whether that effect is positive or negative depends upon a number of factors, including site condition, location, and type.

- German authorities report, and visual inspection reveals, that most of the 452 facilities closed since 1991 were in generally good condition when returned to the civil authorities for several reasons (HLT, 1994a; HLT, 1994b). First, the US Forces in Europe benefited from generous budgets during the Cold War, allowing them to build and maintain first-rate facilities. Second, the usually positive relationship between the military and their local hosts facilitated some creative arrangements regarding infrastructure and equipment the US left behind. Third, the short interval between the closure announcement and the actual return of the facility (less than one year on average) ensured that the facilities did not sit vacant for long periods of time. The condition of facilities tends to deteriorate during the long vacancies common in US domestic base closures (Cunningham, 1993).
- The real estate impact also depends greatly on the location of the site returned. The return of a remote, undeveloped training range will have a very limited effect on the local economy. Conversely, the return of highly developed barracks, depots or housing areas close to a city center could stimulate the local real estate market. Most of the developed US Army sites are located

in or near cities for reasons discussed earlier. Air Bases tend to be located in more isolated areas.

- The type of military site also impacts its reuse potential. A survey of US sites in Germany revealed that most fall into one of 18 different categories (listed in Figure 19). While large Air Base main sites hold the most potential for economic development and job creation, they also pose the largest obstacles for conversion. A large civil airport may employ thousands, but only if a market and the necessary resources exist. Each individual Army site has less job-creating potential, but the decentralized nature offers a significant conversion advantage. A community may redevelop each site independently of the condition of other sites within the Military Community. In Mainz, for example the Sandflora Family Housing Area will be fully converted long before the plan for Finthen Air Field on the other side of town is even completed. The single-site Air Bases (like US domestic bases) require a more coordinated approach as well as up-front capital for redevelopment.

The United States operated and returned significantly more barracks and housing units than any other type of unit (see Figure 19). As the heart of the US military's infrastructure, Army barracks and Air Base main sites are multi-functional by nature. Most Air Bases and many barracks contain a variety of facilities within their boundaries, such as administrative complexes, schools, retail facilities, and even hospitals. The following statistics do not reflect those sub-set facilities.

The number of facilities, however, says very little about the total size of those sites. Training areas dominate the amount of area retained and returned. Nevertheless, much of this area is undeveloped wilderness and countryside; most of the usable infrastructure is located on the other sites.



▲ **The historic Ludendorff Kaserne section of the Downs Barracks in Fulda**

When planning the drawdown, DoD attempted to consolidate its activities onto the largest, most central, flexible sites (USAREUR/PA, 1994). This policy was particularly clear with regard to housing facilities, where waiting lists had been unacceptably long during the Cold War: „One very positive aspect of the drawdown for soldiers in Europe is that at the endstate there will be sufficient government housing for almost every USAREUR soldier and his or her family“ (USAREUR/PA, 1994, p.7). As a result, the United States is returning the bulk of its smaller sites while retaining its largest ones for future use. Figure 20 illustrates the progress of this policy by comparing the number of barracks, housing units, Air Base main sites, and training areas returned with the area they represent; the return of a smaller percentage of acres than of the

number of sites implies a retention of or consolidation onto relatively larger sites.

In terms of employment, 'barracks' was the again the most abundant type of site, with 164,487 authorized personnel in 1991. Airfields, with 60,971 authorized positions, were the only other major employer in terms of site type (Statistical Annex). This conclusion is not surprising, as barracks are the principal administrative sites for the US Army and airfields are their Air Force counterparts.

Impact and Potential by Installation Type

Figures are drawn from the Statistical Annex unless otherwise noted.

Army Barracks

These installations are the administrative headquarters buildings for US Army Military Communities. They are large, mixed-use sites often including vehicle storage sites, housing units, administrative office space, and a variety of service facilities.

Location: The United States' 130 barracks in 1991 were usually located near the center of German cities.

Size: The combined size was approximately 24,579 acres (9,954 hectares) in 1991. All but three of the barracks covered less than 1000 acres (405 hectares) and 60 percent were less than 100 acres in size. The smallest, Kennedy Kaserne in Frankfurt, covered only one acre.

Personnel: Combined employment in 1991 was 162,000 authorized positions. Individual employment varies dramatically from 4 authorized positions at Strub Kaserne in the Munich Military Community to 7,526 authorized positions at the Smith Barracks in Baumholder.

Restructuring: Since 1991, the United States has closed 75 barracks (58 percent reduction), eliminated approximately 80,000 authorized positions (47 percent reduction), and returned 11,000 acres (4,455 hectares, 46 percent reduction).



Market impact: The return of US barracks has a generally positive effect on the local real estate market. Barracks' proximity to urban centers, excellent accessibility (most barracks are already included in the city's public transportation network), and development-ready buildings make them valuable property. The strict German zoning laws make barracks even more advantageous (HLT, 1994b).

Reuse potential: Since barracks tend to be administrative, storage, housing, and communication centers, they are well suited to redevelopment. Often, civilian equivalents already exist for most of the buildings on barracks. Most of these sites were in good to excellent condition when they were returned, making reuse even easier.

Although many buildings—such as housing, administrative offices, and schools—may be reused immediately, others are less attractive to investors. The large vehicle storage sites and sports fields usually do not attract significant private investment (Bundesvermögensamt Kassel official, interview, 4 November 1994; Stadt Mainz conversion official, interview, 8 December 1994).

Family Housing Areas

These are groups of apartment-style housing units that are specifically used for permanently stationed US military personnel and their families. Many of them also include shopping centers and schools.

▲ *The now-closed and converted Sandflora Family Housing Area in Mainz.*

Location: The United States' 118 separate housing sites are located on an airfield, barracks or nearby suburban area.

Size: Combined, family housing sites covered 10,569 acres (4,280 hectares) in 1991. Individually, they can range in size from a small number of apartment blocks in an urban district to an entire town with all of the amenities of a small city. For example, the Patrick Henry Village near Heidelberg covers 2,550 acres (1,030 hectares) and houses thousands of American citizens (author's visual inspection).

Personnel: Since the US personnel that live in family housing units are counted at their place of employment, the number of people employed at housing units is very low or even zero. The combined employment at all Army housing units was 7,335. With an average of less than one employee per site, housing has the lowest personnel per site among US facility types.

Restructuring: From 1991 to 1995, the United States closed 65 family housing units (60 percent reduction), returned 2,383 acres (965 hectares, 23 percent reduction), and eliminated approximately 43,892 authorized positions (43 percent reduction).

Market impact: German cities are nearly unanimous in their need for additional housing. Returned US

family housing units are always in high demand. Even on isolated air bases, housing units never go wanting.

Reuse potential: Most housing units are in excellent condition. In many cases, the United States even left major appliances, such as refrigerators and washing machines, behind. Developers are eager to purchase returned housing units despite the need for renovations, such as electrical re-wiring and the addition of balconies. Many of the Air Force housing units have an additional major obstacle of being coal heated. Since private coal licenses are unavailable for environmental reasons, these units must be converted to oil or gas power at a high cost. For instance, the state of Rhineland-Palatinate estimates that it will cost DM 100 million to convert the coal-powered buildings at Hahn Air Base (Flughafen Hahn official, interview, 8 December 1994).

Training Areas

The largest in terms of area, these sites are used for a variety of military training exercises. There are two different kinds of training ranges operated by the US military: (1) very large, undeveloped training ranges in rural locations near the former East-West German border, and (2) smaller, specialized training areas located near barracks or airfields. All but one of the United States' training ranges are operated by the Army.

Location: Most of the United States' 56 smaller training areas were located in suburban areas, while the three very large ranges were located in more isolated, rural areas.

Size: The combined size of US training ranges was 162,121 acres (65,660 hectares) in 1991, but the three very large training ranges comprised 63 percent of that area (Grafenwöhr: 51,685 acres; Hohen-

fels: 39,170 acres; and Wildflecken: 16,889 acres). Excluding those three, the average size of US training ranges is 1,100 acres (446 hectares), with the smallest being the two-acre Frasdorf Operations Area in Munich.

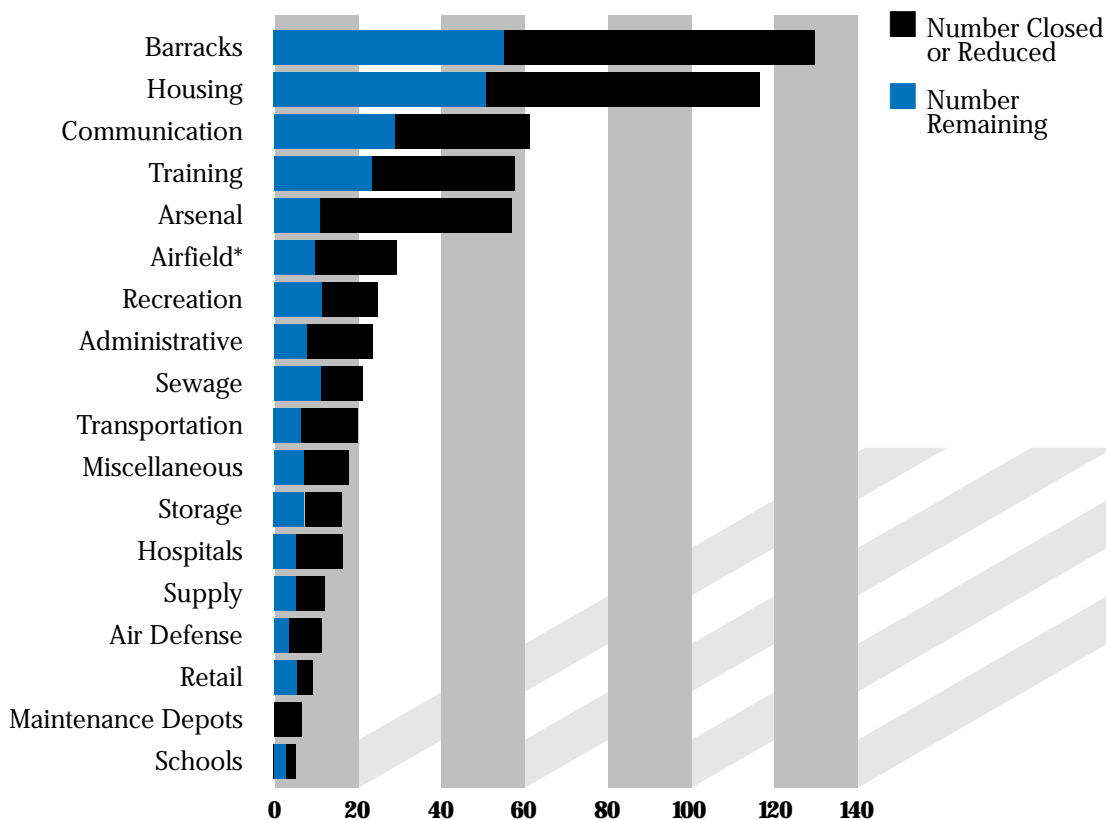
Personnel: The combined 1991 employment for all training ranges was 8,195, but 90 percent (7,217) of those authorized positions are assigned to the Hohenfels training range. Excluding that site, training ranges have an average employment of 17 positions, and many sites have no dedicated personnel.

Restructuring: From 1991 to 1995, the United States closed 34 training ranges (52 percent), returned 69,544 acres (28,165 hectares, 42 percent reduction). One-fourth of the land returned is due to the closure of the 16,889-acre (6,840-hectare) Wildflecken Training Range. The closures eliminated 381 positions (5 percent reduction).

Figure 19: Number of US Military Sites in Germany by Type
As of 23 February, 1995

Source: Statistical Annex

Notes: *Includes US Army airfields as well as US Air Force Air Base main sites



Market impact: The return of the massive Wildflecken Training Range had no affect on the real estate market as the Bundeswehr continues to operate Wildflecken as a military training area (Wildflecken City official, telephone interview, 19 April 1995). The smaller ranges near urban centers have a positive affect on real estate markets. Their location and relatively undeveloped state make them appealing to developers of all types. However, the potential presence of unexploded munitions or other types of dangerous contamination at some sites can temper developers' enthusiasm for undeveloped training areas.

Reuse potential: Since no civilian equivalent of a military training range exists, the sites must be completely redeveloped to provide any economic benefit. As mentioned above, the redevelopment potential for the smaller, suburban ranges is high. However, redevelopment has been blocked on several occasions due to the presence of protected plants and animals on the site. In those cases, the ranges are converted into wildlife preserves.¹⁴

Airfields

The United States operates two very different types of airfields. (1) The Air Force uses a number of massive airfields in Germany for jet-powered aircraft of various sorts. These are basically medium to large civilian airports complete with all of the associated infrastructure. Some of these main sites even include small, external air stations for emergency or overflow use. (2) The Army operates a larger number of much smaller airfields for helicopter operations, which can only support very small winged aircraft. Both types of airfields usually include air strips, taxiways, hangars, storage facilities, air traffic towers, and administrative offices.

Location: In 1991, all but three of the Air Force's ten main Air Bases were located in rural areas. The exceptions are Tempelhof Airport in Berlin, Rhein-Main Air Base in Frankfurt, and Lindsey Air Base in Wiesbaden (all three have now closed



▲ **Aerial view of the city-sized Hahn Air Base. Hahn was more than three times larger than the closest neighboring community of Kirchberg.**

or been reduced). The Army's 22 airfields were predominately located in suburban regions near troop concentration points.

Size: The combined size of US Air Force airfields was 8,870 acres (3,592 hectares) in 1991, averaging 887 acres (360 hectares) per site. Army airfields are much smaller by comparison—an average of 155 acres (63 hectares) per site. The smallest Air Force base was the Hessisch-Oldendorf Air Station with only 27 acres (11 hectares). The smallest Army airfield is the two-acre Landstuhl Heliport, Kaiserslautern.

Personnel: The US Air Force bases had a combined endstrength of 52,810 in 1987, ranging from 648 at Hessisch-Oldendorf to 14,810 at Ramstein Air Base. The US Army employed 11,359 at airfields in 1991. Employment ranged from zero personnel at several sites to 4,600 at the Wiesbaden Airfield (however, all but three had less than 1,000 employees).

Restructuring: From 1987 to 1994, the US Air Force closed six Air Bases and severely reduced operations at two others (75 percent affected). It also returned 3078 acres (1,247 hectares, 34 percent reduction), and eliminated more than 28,509 positions (54 percent reduction). Since 1991, the Army has closed 12 air-

fields (60 percent reduction), returned 1,829 acres (740 hectares, 53 percent reduction), and eliminated 2,912 positions (24 percent reduction).

Market impact: Since airfields are often large and expensive to purchase, maintain and operate, they may become an initial drag on the local real estate market. Usually, the relevant regional office of the Bundesvermögensamt (Federal Treasurer) must break these large properties into a number of parcels to find buyers. Even then, few private investors are interested in purchasing the actual airstrip.

Reuse potential: The obvious reuse opportunity for an airfield is a civil airport, yet they represent the most difficult type of site to redevelop. The returned airfields—especially the Air Force's bases—took billions of dollars to build and maintain and are usually in excellent condition. However, Germany has a relatively low demand for civil airports due to its size and excellent rail system. Even in areas that might support a cargo or passenger airport, other significant obstacles exist. Local citizens, concerned about noise and pollution, may block an initiative, and military airfields are not well suited for civil aircraft. Even the massive Air Force fighter bases cannot support fully loaded cargo and passenger jets without expensive runway upgrades. All of these problems would require years and significant public support and capital to overcome. Even then, an airport may not be profitable. For these reasons, most communities do not plan to use the airstrip at Army airfields. On the other hand, most communities attempt to redevelop Air Force bases into civil airports. That in itself will hurt their chances for success, as Bitburg, Hahn, and Zweibrücken are all in the same geographic area.

¹⁴ See for example: *Allgemeine Zeitung*, 23 March 1994 and 21 April 1994; *Mainzer Rhein-Zeitung*, 13 March 1994.

Depots

These sites are very large industrial facilities used to repair and upgrade the United States' Army equipment

in Germany. Although tailored to military equipment, such as tanks, these depots are not unlike large civilian maintenance sites for trains and other vehicles (authors' visual inspection, 26 April 1995).

Location: All three of the US Army's depots were located in or near German cities.

Size: These depots are massive industrial sites where thousands of vehicles may be handled simultaneously. They covered 2,383 acres (965 hectares) in 1991.

Personnel: Like civilian industrial sites the Army's depots were labor intensive, employing a total of 13,455, or 3,364 per site. These sites were also the largest single-site employers of German civilian workers—8,476 Germans worked in the three large US depots in 1991. Additionally, these high-paying industrial jobs were generally better than other German positions on US bases (Stadt Mainz conversion official, interview, 8 December 1994).

Restructuring: All three depots have been severely affected by the drawdown. Mainz was closed, while Kaiserslautern and Gießen were severely reduced. In the process, 11,155 authorized positions were eliminated, including more than 6,000 German industrial positions (Vest, 1994).

Market impact: The real estate impact was negligible in all but Mainz—Kaiserslautern and Gießen were only reduced. In Mainz, however, the closure of the depot—like the closure of any large manufacturing plant—had a negative effect on the local real estate market. In addition to problems in selling the actual site, interest in the land around the industrial site remains depressed due to questions about the future of the depot (see Mainz case study).

Reuse potential: The reuse potential for depots is deceiving. Since they are modern industrial sites that could employ thousands, local authorities usually have high hopes for conversion; as officials in Mainz found out, however, making a military-specific industrial site com-



▲ **Various US Army vehicles at the Mainz Army Depot.**

petitive in the commercial sector is very difficult.

Arsenals

This type of site, designed to store munitions, is very common. Arsenals range greatly in size and employment. Additionally, arsenals are not isolated facilities and are often included in mixed-use sites, such as barracks, airfields, and training areas.

Location: The United States' 59 arsenals were either located near main sites such as barracks or air-

fields, at 'forward positions' near the former inner-German border, or in isolated areas safely away from all population centers.

Size: Combined, arsenals covered 15,833 acres (6,412 hectares) in 1991. Their individual sizes varied widely, from 6 acres at the Bad Kissingen Ammo Facility to 2,269 acres at the Miesau Ammunition Depot.

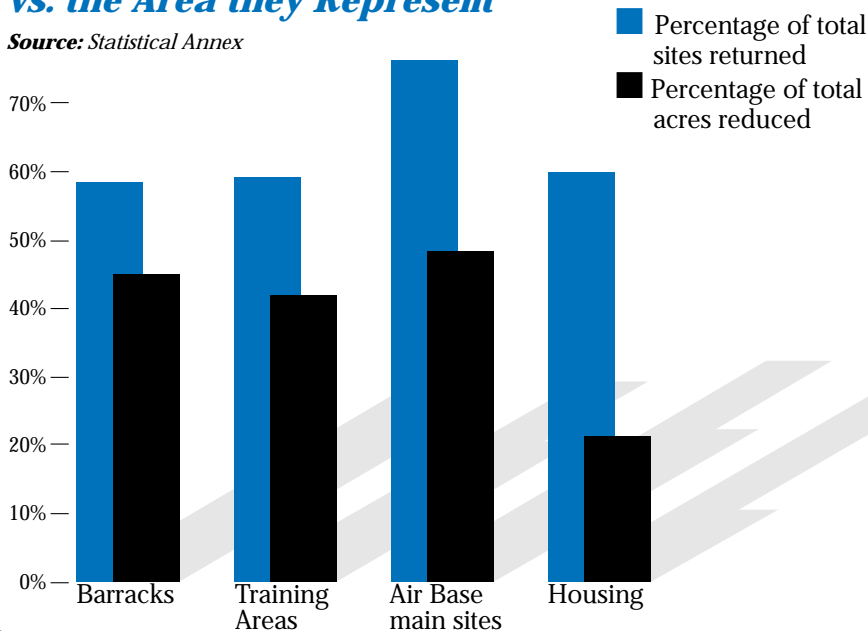
Personnel: Combined, depots and arsenals employed 13,613 in 1991. Although there were two huge ammunition distribution points (Miesau with 2,286 authorized positions¹⁵ and South Camp Vilseck with 5,260 authorized positions), most others averaged only 115 authorized positions each.

¹⁵ The Statistical Annex shows only 1,133 authorized positions due to the restructuring of the Kaiserslautern Military Community. In addition, Miesau changed Military Communities during this time.

Restructuring: From 1991 to 1995, the United States closed 46 arsenals (78 percent) and reduced Miesau. As a result of the closures, it returned 9,218 acres (3,733 hectares, 57 percent reduction) and eliminated 4,806 authorized positions (including the reductions at Miesau; 35 percent reduction).

Figure 20: Number of Sites Returned vs. the Area they Represent

Source: Statistical Annex





▲ ***The Hahn American High School will house part of Rhineland-Palatinate's new Police Academy.***

Market impact: The closure of ammunition sites located near urban centers have a generally negative affect on the real estate market. The sites are often contaminated and not easily reused for civilian storage (i.e., many of them are heavily reinforced and underground). Even in instances where contamination is not a problem it is very difficult to overcome local fears to the contrary. The more isolated sites, however, impact the real estate market less as those areas are not being developed.

Reuse potential: Ammunition storage facilities have almost no reuse potential. Even demolishing these concrete reinforced facilities requires millions (Bundesvermögensamt Kassel official, interview, 4 November 1994; Stadt Mainz conversion official, interview, 8 December 1994).

Recreation Areas

These sites are dedicated to the recreation of the members of the US Forces. They vary significantly, and may include the following: officers' clubs, athletic fields, girl scout camps, golf courses, and ski lifts. Not all recreational areas are isolated sites; many are incorporated into other sites such as family housing units and barracks.

Location: In 1991 the United States operated 27 recreational sites. Many of the smaller sites were located

near family housing units, barracks, or airfields. The larger sites were located away from troop concentrations in some of Germany's most popular tourist areas, such as Garmisch in the Alps and on Lake Chiemsee in Bavaria.

Size: Combined, all independent recreational sites covered 1,452 acres (588 hectares) in 1991.

Personnel: Combined employment was 1,063 in 1991.

Restructuring: From 1991 to 1995, the United States closed 14 sites (50 percent reduction), returned 541 acres (219 hectares, 37 percent reduction), and eliminated 1,000 authorized positions (95 percent reduction).

Market impact: The return of these sites nearly always has a positive affect on the real estate market due to their location in urban and tourist locations and the obvious development opportunities they create. However, isolated sports fields may not be in high demand.

Reuse potential: These sites have perfect reuse potential for exactly what they were used for by the US forces. A bowling alley remains a bowling alley, a hotel stays a hotel. The ease of conversion depends on the amount of equipment the United States leaves behind. Unfortunately for German civil authorities, US policy advocates removal of equipment: „To improve remaining recreational facilities after drawdown is complete, equipment is being

taken from closing communities and given to those that remain“ (USAREUR/PA, 1993, p.25). For instance, the United States removed the seats from Hahn Air Base's theater when it closed (Public Relations official, Flughafen Hahn, interview, 8 December 1994), and took the bowling pins when the bowling alley at Bitburg Air Base closed (Mayor of Bitburg, interview, 19 January 1995).

Communication Facilities

These sites are common, usually small, isolated radio control towers or transmitters. Like depots, all communications facilities are not isolated sites—many are located on airfields, barracks, etc. From 1991 to 1995, the United States closed 30 of its 62 communication sites.

Hospitals

The US military operates an Air Force and Army hospital network located near troop concentration points. From 1991 to 1995, the United States closed 11 of its 15 independent hospitals. However, it still operates other significant medical facilities on barracks and Air Base main sites.

Others

This vague category groups together installations that do not fit into another standardized group. It includes warehouses, military schools, chapels, Army Air Defense sites, and a small number of special facilities, such as the US Army Schwanheim Calibration Laboratory in the Höchst Area of the Frankfurt Military Community, the Bremerhaven Dock Area, and the Rheinau Coal Port.

▶▶ ***Next page:
Sign of the times.
The once highly controversial
cruise missile facility at
Hahn Air Base is scheduled
now to become part
of an 18-hole golf course.***

Closing, Returning, and Converting US Bases





The Decision Process

The closure and conversion of US military bases is neither simple nor automatic. Rather, a significant number of regulations, on both the US and the German sides, affect this often complicated process. This chapter provides details on the method used by the United States to determine which bases to close, the negotiations between US and German authorities, and the land disposal procedure applied by the German government.

Closing a US Base in Germany

Selected sites, based on weighted criteria, are nominated for closure by the Unified Commanders with geographical responsibility, in Germany's case the European Unified Commander. DoD then seeks input from the military services, defense agencies, and other relevant government agencies regarding alternative uses. Once the list of sites has been approved by the Unified Commanders, it is transmitted to the Joint Staff—the highest non-civilian military authority (Vest, 1994).

The Joint Staff consults with various DoD components, the National Security Agency, the US State Department, and the German Government. Taking into consideration the comments and requests made by these organizations, the final version of the list is drafted and sent to the Secretary of Defense for approval. Following that approval, Congress, host governments and the media are notified (Vest, 1994).

Unlike the multi-tiered commission process required for domestic base closures (BRAC, 1993), the US Department of Defense maintains complete authority over the foreign base closure process. This has to a large extent de-politicized the foreign base closure process. The US Congress did make an attempt to link the foreign and domestic base closure processes by requiring DoD to make 25 percent of all closures in

foreign countries (US Congress, House, 1993). However, the language was eventually weakened to merely require DoD to consider foreign bases when making its domestic base closure decisions (*National Defense Authorization Act for Fiscal Year 1994, 1993*).

DoD already endeavors to coordinate the two efforts. The announcement of each of the two most recent domestic base closure lists was accompanied by a nearly simultaneous announcement of substantial overseas closures, perhaps to undermine domestic public suspicions that overseas bases were not being closed. Further linking the two processes, however, may have the unexpected effect of slowing the overseas closure process. Under the current system, most overseas facilities are returned to the host country within a year of the closure announcement. This is four times as fast as the domestic closure process, which averages more than four years.

An Inclusive or Exclusive Process?

In the early stages of the US military drawdown in Germany (1990 to early 1991), the German civil authorities were invited to provide input concerning the path of the US military realignment strategy. The United States attempted to take those views into account. However, as the withdrawal process became more intense during 1991–1993, most of the German requests became impossible to meet.

The case of the state government of Rhineland-Palatinate exemplifies this situation (Rheinland-Pfalz, Ministerium für Wirtschaft und Verkehr conversion official, interview, 15 December 1994; Rheinland-Pfalz state conversion clearinghouse official, interview, 15 December 1994). In 1989–90, Rhineland-Palatinate conducted a comparative analysis of the area's US installations and recommended a selective realignment strategy to the

Weighted criteria for selecting US overseas bases for closure

- The nature of the threat.
- The geographical location of the installation (optimum to support assigned mission, proximity to threat, proximity to transportation assets)
- The number and types of forces stationed and their logistical support
- The existing facility inventory with special interest upon the flexibility to support current/probable future missions, on the age and condition of buildings and infrastructure, on the recurring costs of the installation and on the local area support (utilities, security, political opposition).
- Agreements with the host nation including any relevant treaties or limits on numbers and types of forces and weapons deployed in the country.

Source: Vest, 1994, p.3

US commanders. Thus, the state requested that the United States close primarily installations in densely populated and highly industrialized urban areas along the river Rhine and river Mosel axis (e.g., Mainz) but keep open the sites located in rural and underdeveloped areas of the state (e.g., Bitburg, Pirmasens, Baumholder).

Initially, the US commanders responded positively to the request by making early reductions at Mainz Military Community and Hahn Air Base (Vest, 1994). Nevertheless, as the speed and scope of the withdrawal increased, the US regional planning staff came under severe pressure to make additional, more aggressive reductions. Rhineland-Palatinate's priorities became inconsequential as the United States was

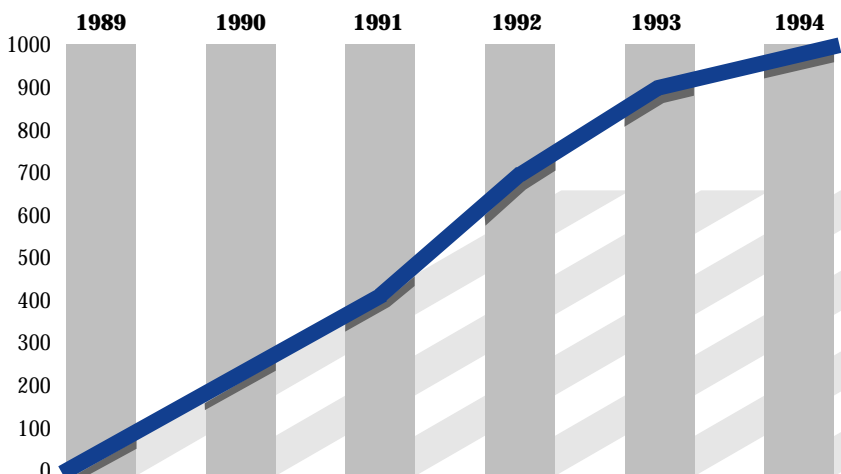
forced to close bases in both developed regions, like Mainz, and undeveloped regions, like Bitburg.

The US withdrawal accelerated during the early 1990s; the United States began announcing additional closures on an average of one every two months during late 1992 and throughout 1993. As a result, installations were told of the US withdrawal only weeks before the public was informed. The hurried pace of the withdrawal did not allow sufficient time for the United States to adequately consult local authorities. In many cases, US public relations offices struggled to keep pace. For instance, both Bitburg and Hahn Air Bases are currently listed as reduced sites despite the fact that they have been reduced to zero.

In none of the cases reviewed were the German civil authorities able to stop or reverse the US decision to withdraw. In some limited cases, such as Bitburg (described in the Hahn Case Study), German officials were able to delay closure. Conversely, some high-level requests to delay closure were denied, as in the case of the Mainz Army Depot and the Fulda Military Community (described in the case studies).

Figure 21:
Cumulative Number of US Overseas Sites Returned
Sites returned to date

Source: USEUCOM, Rounds 1 - 18



Despite their inability to adequately consult local authorities or in some cases delay closures, the US military authorities assisted in easing the transition in other important ways. US military and civil authorities assisted the German civil authorities by arranging shared-use agreements, on-site inspections, and even financial compensation for the Germans laid off by the closure.

As standard procedure, the US command provided detailed information regarding the particular installations, their size, function and condition. The inspection of the sites was allowed; permission was granted for German experts to assess possible contamination on the installation while it was still under operation. In most other sites, the United States was willing to provide additional transition assistance where possible and where local interest existed. The following are specific examples of such site-by-site arrangements:

- Hahn Air Base command allowed the airstrip and several buildings on the Air Base to be co-used by a civil charter airline. The base commander also allowed German school classes to be settled provisionally in excess

space at the on-base American high school (former Director of Host Nation Relations, Hahn Air Base, interview, 8 December 1994).

- As US contracts began decreasing, the headquarters of the Mainz Military Community openly encouraged the conversion efforts of the private German company operating the US Mainz Military Depot. The two most significant areas of assistance included selling the depot's equipment to the company under highly favorable terms and providing a transition assistance package of DM 60 million for the 5,700 displaced German workers (*Mainzer Rhein-Zeitung*, 10 September 1992).
- At Finthen Army Airfield in Mainz, a civil air club had been allowed access to the runway of Finthen Airfield for years (Luftfahrtverein-Mainz director, interview, 26 April 1995).

The high degree of cooperation between the base commanders and the local communities reflects the positive relationship enjoyed between most bases and their host communities. According to interviews with local citizens, American service personnel were usually viewed as a positive part of the local neighborhood. Ironically, this positive relationship has fostered a more cooperative transition than is present in many of the United States' domestic closures, where negotiations may deteriorate into bitter court battles (Cynkar, et al., 1993).

Post-Closure US-German Negotiations

When the United States decides to return a facility, it must conduct negotiations with the German government along two lines—compensation for buildings and environmental clean-up.

Residual Value Negotiations

Although the US military does not own the land at its German military facilities, it did construct and improve many of the buildings at those facilities. Since improvements can significantly increase the site's land value, the United States is eager to seek some compensation for the infrastructure improvements it financed. The final compensation agreement is called the site's residual value (GAO, 1994a).

The potential residual value for returned military installations in Germany is considerable. A June 1994 report by the US General Accounting Office (GAO, 1994a) estimated the total residual value of returned sites in Germany to be US \$3.4 billion (out of a total of US \$3.8 billion in Europe). However, the GAO report voiced explicit skepticism over whether the United States can expect to receive such a large monetary compensation, as the United States and Germany independently calculate the residual value of the capital improvements made to the property. These independent calculations rarely agree. Differences in value occur in two predictable areas.

- *The difference between uncompensated day-to-day maintenance and compensated capital improvements.* While the German government will pay for capital improvements to the land it receives, it will not pay for ordinary, mandatory maintenance. Many of the capital improvements claimed by the United States, such as new roofs or modern plumbing, are considered to be mandatory daily maintenance by German auditors (Bundesvermögensamt Kassel official, interview, 4 November 1994).
- *The difference between the building costs and the current market value for the building.* Buildings have two values—the cost of construction and the market value of the land with those

buildings. On most real estate, the value of the buildings appreciates the value of the land beyond the construction costs, but military bases are an exception. For instance, the construction of reinforced F-16 fighter shelters on Hahn Air Base was costly, but they retain little or no market value as the planes have departed (see Hahn Case study). In Hahn, the shelters will have to be demolished in order to develop the site for civil purposes. Although it has not yet occurred, theoretically the expenses resulting from the demolition of former military infrastructure could be posted as negative residual value, causing the Bundesvermögensamt—the regional branch of the German federal Finance Ministry, which is responsible for the disposal of returned US base property—to ask the United States for financial compensation (Bundesvermögensamt Kassel official, interview, 4 November 1994).

To date, the United States has received only US \$3 million in cash from Germany for a small number of properties returned before 1991. Unable to negotiate additional satisfactory cash-settlements with Germany, the US military turned to payment in-kind (PIK). Under PIK agreements, the German government finances necessary military construction projects within Germany instead of paying in cash. Germany favors these agreements because they create jobs for German workers and preclude the need for future residual value negotiations if that site closes. DoD also prefers these agreements as they allow the completion of projects that may have otherwise been unaffordable (GAO, 1994a). By April 1993, the US negotiators had concluded PIK agreements totaling US \$197.7 million for construction and upgrades at consolidation points for the US Army and Air Force. In the largest PIK settlement, the German government agreed to finance several construction projects at Ramstein Air Base, totaling US

\$62 million, in exchange for buildings returned at Rhein-Main Air Base (GAO, 1994a).

According to the GAO, the US military hopes to continue focusing on PIK agreements in future negotiations with Germany. Nevertheless the US Congress, favoring cash settlements, has restricted the types of PIK agreements available and has placed bureaucratic hurdles in the way of approval, thus delaying the negotiation process (representative of the USAREUR Director of Real Estate, phone interview, 30 October 1994).

Environmental Clean-up

The residual value of former US military installations in Germany will be offset to some extent by the costs of their environmental clean-up. Both German and US government policies require the United States to clean all contamination at the facilities for which it is responsible and to return the land in the same condition it was found. Such mutual agreement rests on the NATO statutes governing the stationing of foreign troop contingents in Allied countries (Wegman and Bailey, 1994). In some cases where the United States took over an existing military facility after World War II, it has been impossible to determine the exact cause of all contamination on the site.

There are two options for fulfilling the legal requirements: (1) the United States may clean the contamination, and (2) the German government may clean the site and deduct the cost from its agreed-upon residual value. The second option is preferred by both governments in areas of low-level environmental contamination (Wegman and Bailey, 1994). Conversely, the German government requires the US government to clean toxic dumpsites and other highly polluted areas before returning the site (Bundesvermögensamt Kassel official, interview, 4 November 1994).

The value of former military installations has become a complicated issue for the German federal Bundesvermögensamt and public or private parties interested in purchasing individual sites. Although the German national government attempts to minimize the price it must pay the United States for a closed military facility, it also hopes to maximize the amount it receives through a third-party sale.

Like the United States during the residual value negotiations, the German national government has found that no one is prepared to pay a high price for most closed US bases. In most cases, the national government is forced to lower its asking price for the land significantly to make a sale (HLT officials, interview, 10 November 1994; Stadt Mainz conversion official, interview, 8 December 1994; Stadt Fulda conversion official, interview, 21 October 1994). The negotiation process may last years, stalling conversion needlessly. For example, the national government initially offered Hahn Air Base for a price of DM 360 million (former Director of Host Nation Relations, Hahn Air Base, interview, 8 December 1994).

Almost two years later, it was forced to sell the property for DM 30 million—with an option of another DM 7 million if the planned conversion project is ultimately successful (Rheinland-Pfalz, Ministerium für Wirtschaft, Verkehr, Landwirtschaft und Weinbau, 1995). During a potentially damaging winter, the site lay vacant (see the Hahn Case Study).

Hahn is not alone. In both other case studies, the government will be forced to significantly lower the price of facilities to attract interest. Nonetheless, the German national government may have solved the problem by implementing a more flexible pricing mechanism in 1994, as evidenced by the recent sales of Hahn Air Base and Lee Barracks. As this is the largest short-term obstacle to successful conversion, the government's attempt to solve it is encouraging.

The German Base Disposal Process

Once the US Forces vacate bases, the sites are officially returned to the German Government through the regional offices of the Bundesvermögensamt, which are responsible for administering all federal property within the region. With regard to returned US military bases, that responsibility includes providing security and maintenance, documenting the facilities and condition—including environmental contamination—and calculating the residual value of the buildings and the technical infrastructure. In theory, the sites are not to be re-incorporated into the Federal Treasury until the US negotiations are completed, but in practice, the conversion process is not significantly delayed by the slow pace of US-German negotiations. Aware that an agreement will eventually be reached, the Bundesvermögensamt converts the site as quickly as possible.

Once the Bundesvermögensamt receives the site, a specific land disposal process—similar to the one in the United States—is automatically triggered (Nordrhein-Westfalen, 1995). Priority for purchasing the land observes the following progression:

- The German military forces may claim sites or parts of sites. For instance, the German military claimed the massive closed US Wildflecken Training Range for its own use (Wildflecken city official, phone interview, 19 April 1995).
- Next, the Bundesvermögensamt evaluates the legitimacy of any third-party claims of land ownership. The largest example of disputed ownership has developed over the US sites initially seized by the German Reichswehr before World War II. An association representing many of the affected cities is currently challenging the Bundesvermögensamt's ruling that ownership of this land remains with the federal government (see the Fulda case study).

- Non-military federal agencies have the next opportunity to request parts of closing bases. For instance, the national German telephone company, Deutsche Telekom, claimed one building on the now-closed Lee Barracks in Mainz (author's visual inspection). As a result, that component of the base was immediately converted, while the rest of the facility continued through the land disposal process.
- State-level government agencies have the next chance to purchase land at a closed base. For example, the state of Hesse has decided to purchase a large part of the closed Downs Barracks in Fulda for use as a new regional police headquarters and a new office of development and agriculture (see the Fulda case study).
- City-level government is the final public authority to receive an opportunity to purchase closed US facilities. Although cost is often a major problem, many cities attempt to purchase facilities in order to guide the redevelopment effort. For instance, the city of Mainz has voiced its intention to purchase all of the closed Finthen Army Airfield site in the hope of redeveloping it into a large housing complex. The city of Fulda also considered purchasing large parts of the former Downs Barracks, but eventually decided it could not afford it (see the respective case studies).

Finally, the remaining land is made available for purchase by private investors. For instance, at Bitburg Air Base, the Bundesvermögensamt is accepting private offers for the facility (Trier Bundesvermögensamt official, interview, 19 January 1995).

▶▶

***Next page:
An aerial view of the Fulda Military Community at the 9 October 1993 closure ceremony shows Sickels Airfield in the foreground, Downs Barracks beyond the fields, and the city of Fulda in the background.***

Case Studies

This section of the report will show how three particular communities have responded to the closure of a large neighboring military facility. These cases were specifically chosen to provide a broad view of different facility types and local approaches to conversion, as indicated in Table 6.



Fulda Military Community

Unless otherwise noted, all data in the Fulda case study, including cited newspaper articles, was verified through the authors' on-site inspection and through personal interviews with the following individuals: Bundesvermögensamt Kassel official, 4 November 1994; Stadt Fulda conversion official, 21 October 1994 and 27 April 1995; officials of HLT Gesellschaft für Forschung Planung Entwicklung mbH, 10 November 1994.

Background

The city of Fulda is located in the central-eastern section of the German state of Hesse. Fulda lies in the gap formed by the Rhön and Vogelsberg mountains. With a population of 60,000, Fulda is the urban center for the largely rural region of Eastern Hesse, less than 20 miles (30 kilometers) from the former border of East Germany.

Since World War II, the United States maintained a strong permanent presence in Fulda. Initially, the US Forces moved into Fulda as part of

its occupation zone. To maintain order, it took over operation of the former German military facility, called the Ludendorff Kaserne, located near Fulda's city center. The United States' role changed quickly, however, with the formal partitioning of Germany.

The Cold War created a very tense situation at the border between eastern and western Germany. Suspicion of a possible invasion led to significant troop build-ups on each side of the border by the United States and the Soviet Union. During that time, the role of the Fulda Military Community continued to grow. In size, the barracks spread well beyond the original boundaries of the Ludendorff Kaserne, and an airfield was built at another site within the city. In importance, Fulda became the US headquarters for monitoring and patrolling the 385-kilometer border between West and East Germany, with a special focus on the strategically important Fulda Gap.

Fulda's military importance appeared to vanish on 3 October 1990 upon the reunification of Germany, which eliminated the border defended by US troops for 45 years. Fulda provided a dramatic illustration of the complete restructuring the end of the Cold War would require for the US military forces in Germany. Two years after reunification, the principle mission of the more than 5,000 US soldiers in the Fulda Military Community had become patrolling an open border (DoD/OASD, 1994).

The US presence would not last. Early in 1991, the United States announced the closure of its Fulda Border Observation Posts (Vest, 1994). By the summer of 1993, the US European Command decided to close all three major locations of the Fulda Military Community and return the sites to the German government. The last American soldiers left Fulda just one year later in the summer of 1994.

Table 6

Sources: *Statistical Annex; visual inspection by author.*

	Fulda	Mainz	Hahn
Facility types			
Barracks	●		
Depot		●	
Housing	●	●	●
Training			
Army Airfield	●	●	
Air Base main site			●
Storage site	●	●	●
Arsenal	●	●	●
School	●		●
Communication	●	●	●
Retail	●		●
Hospital	●		
Leadership			
City Government		●	
State Government			●
National Gov't.	●		
Location			
Urban		●	
Suburban	●		
Rural			●

Community Response

Unlike other urban regions within Europe, Fulda's community leaders encouraged the United States to remain. The community actually mounted a campaign to save the base, similar to efforts by American communities (Stadt Fulda, 1994; Cunningham, 1993). A local delegation visited the Pentagon in Washington hoping to reverse the decision to close the Fulda Military Community. Fulda used many of the same arguments US communities use in defending local military bases—the excellent condition of facilities and military-friendly disposition of its citizens (Stadt Fulda, 1994). As is usually true in the case of American communities, Fulda waged its campaign to save the base in vain. The United States had already decided to withdraw from the old border and concentrate its troops near its Air Bases in the region where the Main and Rhine rivers join.

Once the community's leaders realized the decision was final, Fulda turned its attention toward mitigating the closure's negative economic impacts. Although primary responsibility for marketing the base lies with the German federal government, the city has remained very active in the redevelopment process. Fulda has attempted in a number of ways to ensure that its concerns regarding the conversion process are considered.

- Fulda, along with other German communities, has challenged the federal government's claim to the area of the former Ludendorff Kaserne (see the Downs Barracks section for details).
- Fulda considered declaring parts of Downs Barracks an emergency development zone or using relevant paragraphs of the German Construction Code to exert its authority. Qualifying for such status at closed military facilities would allow the community to control the type of development at the site by providing a preemptive purchase right over all areas of the zone (see the Downs Barracks section for details).

- Fulda requested the state-owned real estate and development consulting company Hessische Landesentwicklungs Treuhandgesellschaft (HLT) to conduct an appraisal of the closure sites. HLT's recommendations provided more guidance to the federal authorities charged with attracting investment. Fulda also surveyed its inhabitants on their views of the future role of the former base (the results of the survey are not yet known).

Historical events also helped Fulda retain control of the facilities (HLT, 1994b). Fulda never sold the area that became Sickels Air Field to the federal government. Instead, it leased the site to the German federal government through a special contract. The national government, in turn, sublet the land to the US Army. Thus, the title to the actual land is retained by Fulda (see the Sickels Air Field section for details).

Scope of Facilities

The Fulda Military Community, like most US Army bases in Germany, is spread over a number self-contained sites; it consists of 26 independent facilities spread throughout the city of Fulda and two neighboring communities, Bad Hersfeld to the north and Bad Kissingen to the south. Two of the Military Community's primary facilities—Downs Barracks and Sickels Airfield—are located within the city of Fulda. The third, McPheeters Barracks, is located in Bad Hersfeld.

Downs Barracks and Sickels Airfield represent more than 70 percent of the total employment lost due to the closure of the Military Community. In the community of Fulda, these two facilities accounted for 99 percent of the troop presence and 73 percent of the land holdings of the US military. The Downs Family Housing Complex, adjacent to Downs Barracks, occupied an additional 26 acres (10.5 hectares) (Statistical Annex). Due to the size and importance of these facilities,

the success of Fulda's conversion effort will ultimately hinge on its ability to convert them.

Downs Barracks and Family Housing Complex

The Facility

As Downs Barracks was the command and cultural center of the Fulda Military Community, it provided a wide range of services for the military families stationed at Fulda— family housing units, a large parade ground, numerous administration buildings including facility headquarters, troop dormitories, a car pool, a school, a bank, a gasoline station, officers and enlisted clubs, a fitness center, a cinema, a bowling center, a hospital, sports fields, and a firing range.

The age of the facilities varies. The parade grounds, a number of administration buildings, and dormitories on Downs Barracks constituted the Ludendorff Kaserne before it was taken from the German military during World War II. The rest of the buildings were constructed after 1945. The buildings, the waste disposal system, and the traffic infrastructure of Downs Barracks were all produced to German standards and are considered to be in excellent condition (HLT, 1994b). The installation even has a rail connection to Germany's national rail system (the Deutsche Bundesbahn).

German-US Negotiations

Residual value negotiations have not yet begun, but they promise to be very complicated (Vest, 1994). The buildings on Downs Barracks fall into one of three differently handled categories (HLT, 1994b) that combine to result in an initial residual value claim of US \$42.9 million (Vest, 1994).

- Several of the troop dormitories and administrative buildings in heart of the complex were built as part of the Ludendorff Kaserne prior to World War II. Since these buildings were built by the Germans, the United



States cannot make any residual value claims on the original structures. However, it may claim compensation for any capital improvements it financed. The German government tends to view such improvements as necessary maintenance and, thus, not covered in residual value calculations.

- Many of the buildings at Downs Barracks were built by the United States between 1945 and 1955. These buildings, including most of Downs Barracks Family Housing units, were built using German reparation fees paid to the US Forces after World War II. The German government claims ownership of these buildings. It is unclear if the United States will challenge that claim in its residual value negotiations. As with the old Ludendorff Kaserne, it may claim the value of any capital improvement it made to these buildings since 1955 (Vest, 1994).
- After 1955, the United States built additional structures financed entirely with American dollars. The United States will claim the present value of these facilities (Vest, 1994). Germany, however, may argue that some of the buildings have less value for civilian uses. For example, an ammunition storage site may cost millions to build, but is useless for any other purpose.

Two additional factors will tend to counterbalance the United States' legitimate claims for residual value. First, the United States is required to return the facilities in the same condition as they were received. This obligation is irrelevant in the many cases where the buildings are considered an improvement to the property, but in other cases where the structures have no civilian use, Germany may seek to deduct the demolition costs from the United States' residual value claims (i.e., the large asphalt-covered car pool and tank garages). Second, the United States is required to pay for clean-up of its environmental contamination (NATO, 1949).

The environmental contamination at Downs Barracks, consisting primarily of fuel and automotive lubricants, is typical for this type of the facility. US European Command estimates that environmental clean-up for the Fulda Military Community as a whole will cost between US \$250,000 and \$1,000,000 (Schmidt-Eenboom, 1992). In cases where neither German nor US officials consider the environmental contamination serious, they have agreed that the host government will deduct the environmental clean-up costs from their final residual value payments (Wegman and Bailey, 1994).

Land Disposal

Fulda has joined forces with other German cities through the Städtetag, or national mayor's association, to challenge the federal government's claim to ownership over the former German barracks. In 1937, the German military required Fulda to cede land for use as the Ludendorff Kaserne. After the war, the Allied Forces took de facto control of many such bases. In the agreement between the new West German government and the United States that formalized the terms of the US bases in Germany, the German government claimed ownership of the land it leased to the US military for an undetermined amount of time for defense purposes.

Recently, as the Allied Forces return facilities seized before the war, the communities wish to recover the land. Arguing that the cities should regain ownership of land ceded before World War II, the Städtetag has filed a lawsuit against the federal government. Fulda and the other communities are arguing that the Bundesrepublik seized the land in the same way the German military did in 1938. The court has not yet rendered a decision on this claim.

Redevelopment

Despite the lawsuit, the German federal government took control of Downs Barracks—with the support of the city—following the departure of the US troops in the summer of 1994. As the facilities' caretaker, the

German government has been responsible for securing and maintaining the facility during conversion planning.

The rapid conversion of Downs Barracks to civilian use would benefit everyone involved. The German government could stop paying the high costs of maintaining an abandoned facility. Fulda could begin building its local tax base and replacing the positive economic stimulus of the large US presence. The 538 displaced German workers could have an opportunity to find new jobs on the converted facility (Statistical Annex).

As the first step in land disposal, the German federal government has waved its right to claim parts of the Downs Barracks. The Bundesvermögensamt has therefore parceled the base into a number of individual sites for sale to public or private investors.

The Bundesvermögensamt's generous projections of DM 60–100 million in revenue from property sales at Down Barracks may not be overly optimistic. The HLT's analysis revealed that the barracks complex profits from a number of development advantages, including a convenient location near Fulda's city center, modern, excellently maintained facilities, and a natural balance of residential and commercial buildings.

Consequently, a number of investors have shown interest in the facility. One interested party is the Hesse state government—next in line after the federal government. It plans to re-locate the regional police headquarters, establish an office of development and agriculture, and move other utility-related offices to Downs Barracks. The exact offices to be located in Fulda and the facilities required are currently under negotiation.

As the final public entity entitled to purchase land, Fulda has not made public any intentions of retaining parts of the barracks for city offices. Nevertheless, Fulda has not ceded

all of its rights to the future development of the facility. As mentioned above, Fulda may reserve the right to purchase the land to block certain investors by declaring parts of Downs Barracks an emergency development zone, or 'Sanierungsgebiet.'

In addition to the public interest in Downs Barracks, a number of private investors have already voiced interest in various parts of the facility, and some small firms have already moved onto the site on a rent-to-own basis called 'Verkaufsoptionsverträge.' In most cases, the private investment closely matches the military equivalent for each site. Thus, the old officers' club may become a discotheque, the base chapel will become a Protestant church, the fuel reserve tanks may be converted for use by a petroleum trading company, and even the tank garages may be converted for the storage of construction machinery. In a more unusual case, the German Red Cross' orchestra hopes to use one of the troop dormitories as an exercise facility.

Additionally, the Bundesvermögensamt has reached an agreement on all 290 residential units at Downs Barracks Family Housing. A group of private investors has agreed to purchase the entire lot for DM 23.5 million. Renovation is already well underway and some families have already moved onto the site.



► ***Cold War scars. Miles of barbed-wire fence, like this row at Downs Barracks, are one of the more visible obstacles to conversion.***



While most areas of the facility enjoy some investment interest, the recreational areas have not. Of a number of athletic fields and facilities, only the tennis courts are rented by the local tennis club for a nominal price. The Bundesvermögensamt will integrate the street infrastructure of Downs Barracks into Fulda's existing network. Consequently, the city has already established several bus stops convenient to the facility. Even the disputed ownership lawsuit is not impeding conversion. Fulda has agreed to let the Bundesvermögensamt market and sell the disputed parcels. In turn, the German government has agreed to re-pay any profit from the sale of disputed land (less the value of the buildings) if Fulda wins the case.

These efforts to redevelop Downs Barracks are showing impressive results. The Bundesvermögensamt already estimates that the businesses moving onto the barracks will create 250-300 new jobs. This alone would replace half of the local jobs lost when the barracks closed.

Additional Perspectives

Based on its analysis, HLT suggested a different route for Fulda. HLT recommended that Fulda develop the entire facility into a new neighborhood within Fulda. Like other neighborhoods, it already contains housing, commercial and recreational sub-sectors. This plan would allow Fulda to better target and define the future of the site and, in effect, its city. HLT suggested that Fulda consider marketing the facility as a regional conference center for academic and business institutions (HLT, 1994b).

Fulda could have implemented this strategy in one of two ways. First, the city could have purchased the entire facility from the federal government. However, the costs of this option were prohibitively high—

purchasing the facility would have required Fulda to pay more than DM 50 million, conduct environmental clean-up negotiations with the German government, and develop a base-marketing plan.

Second, Fulda could have supervised the Bundesvermögensamt's negotiations by declaring the facility an emergency development zone, as mentioned earlier. However, this strategy also contained substantial costs. As in the former option, it would have required Fulda to create a special 'Rahmenplan,' or exact site-by-site description of the development to occur. What might be a simple re-zoning effort in some countries is significantly more cumbersome in Germany. Cutting through the bureaucratic red tape may take months or years if environmental groups or neighboring interests object.

After considering the costs, the regional recession, and the local demands for swift redevelopment, the Fulda City Council voted for a cooperative strategy led by the Bundesvermögensamt. At the same time, however, Fulda has not eliminated the possibility of declaring parts of the barracks an emergency development zone as a potential future option. In another attempt to influence the development, Fulda claims that articles 34 and 35 of the German Construction Code already provides the city with the right to control development within its boundaries.

Conclusion

Fulda chose against developing an entirely new neighborhood by itself in favor of a less glamorous but more practical approach to converting Downs Barracks. By allowing the Bundesvermögensamt to market the facility immediately, Fulda will have a fully redeveloped barracks in a relatively short amount of time.

The quantity of private sector interest in the base suggests that Downs Barracks was a diamond in the rough—the passive approach to conversion will not work on every



facility. Downs benefits from a number of natural advantages that cannot simply be re-created at every closing base. Facilities that lack Downs' excellent condition, marketable buildings, and good location will find redevelopment more difficult.

Sickels Airfield

The Facility

Sickels Airfield was a 180-acre US Army helicopter airfield situated in the western-most part of Fulda, just south of Downs Barracks. The facility is dominated by a 670 by 21 meter airstrip. The buildings on Sickels include an air traffic tower attached to an administration building, two hangers with garages and storage spaces, some living quarters with social facilities, a car pool, and four fuel tanks with a total capacity of 300,000 liters. Sickels has an emergency electrical generator but used the city's electrical service for normal daily operations.



German-US Negotiations

The German government rented the site for Sickels from Fulda in 1954 and sublet it to the US Army for use as a helicopter airfield. Since all of the buildings on the site were constructed by the United States after 1955, it will have some valid residual value claims. The German government's estimations are lower, as it plans to demolish much of the facility.

Contamination caused by the facility landfill and fuel leaks was judged slight by HLT and the US European Command (HLT, 1994b). Neither is expected to delay conversion efforts. As with other US closure sites, the cost of cleaning the contamination was factored into the residual value negotiations for the site.

Although the environmental contamination, as with Downs Barracks, is not expected to cause a problem,

the United States and Germany may disagree on the residual value of Sickels. Since the United States built and paid for the entire facility, it has estimated the site's residual value to be US \$15.3 million (Vest, 1994). While the German government agrees that the site has value, it estimates the market value of Sickels to be near zero or even negative once demolition costs are considered. These differences had not yet been resolved when this report was published.

The facility's overall positive condition caused HLT to publish the following statement in its final report:

Generally it has to be stated, the airfield is in excellent condition. If the airfield could be taken over with the whole existing infrastructure, it would probably be one of the best installations of its type in Germany (HLT, 1994b, trans. Klemmer, p.22).

▲ ***Diamond in the rough. The picturesque Ludendorff Kaserne section of Downs Barracks has attracted a number of public and private investors.***



Gauging by the facilities' excellent condition, the prospects for redevelopment are high, but low local demand for a helicopter airfield or a new regional airport—regardless of condition—temper those prospects.

Land Disposal

The property disposal process at Sickels airfield is unusual. The German national government owns most of the land at US military bases, but in this case the city of Fulda rented the land to the German government under a special contract known as a 'Gestattungsvertrag.' Through this contract, Fulda allowed the national government to negotiate with US Forces to construct and maintain an Army airfield at the site while retaining ownership locally. Consequently, Fulda will not have to buy the land back now that the base is closing, though it does not own the buildings on the land (HLT, 1994b).

This unusual situation placed the regional Bundesvermögensamt in an awkward position. While the community owned the land at Sickels and the United States owned the buildings, the Bundesvermögensamt was in charge of negotiating with both sides. After concluding environmental and residual value negotiations with the US Forces, the Bundesvermögensamt had to switch roles and begin the same negotiations with the community or local investors. The Bundesvermögensamt attempted to minimize the residual value payments to the United States, and the local community did the same in its bargaining with the Bundesvermögensamt. Throughout these delicate, lengthy negotiations, the Bundesvermögensamt paid to maintain and secure the facility despite not owning the buildings or the land. Finally, on 1 March 1995, Fulda accepted responsibility for the security and maintenance of Sickels (Stadt Fulda conversion official, letter to authors, 5 April 1995).

Facility Redevelopment

Despite the unique ownership circumstances, the Bundesvermögensamt is also responsible for marketing the facility to investors. It offered two possible conversion approaches to Fulda.

1. The Bundesvermögensamt could market the facility to private investors. It could try to find an investor willing to purchase the entire facility, but a more realistic option involved parceling the site and selling the individual lots. Any profits would be split between the city and national governments.
2. Fulda could purchase the buildings at Sickels and develop its own conversion strategy. For assistance in creating the best plan, Fulda requested aid from the HLT.

The initial idea was to develop the site as a new regional airport. As mentioned earlier, the site is among the best of its kind in the country. However, HLT's analysis revealed very low demand for a regional airport. Fulda's proximity to the largest airport in Europe, Frankfurt Rhein-Main, as well as the city's excellent rail connections, dashed any hope that Fulda could successfully develop an airport at Sickels.

The HLT report analyzed a number of options. A wind-energy park was rejected for the same basic reason as the airport concept. Developing a conference center or graveyard were rated more favorably in the report (HLT, 1994b). As an alternative, HLT recommended that Fulda purchase the buildings and develop it as a long-term real estate resource. This plan would allow Fulda to control the development and ensure the most efficient long-term land use (HLT, 1994b). Although purchasing the buildings may have been the best long-term strategy, the Fulda City Council voted not to purchase the buildings for a number of important reasons.

- The project would be too expensive. Still attempting to recover from a regional recession, Fulda lacked the necessary funds.
- The project would require too much time. Fulda would have to rezone a large region and create a 'Rahmenplan;' the bureaucratic red tape would take years to cut through, delaying redevelopment.
- The project may have been unfeasible. Unlike Downs Barracks, which is located near the city center, Sickels is in a slightly more rural area. Commercial rezoning of the area could meet with insurmountable opposition from neighboring land owners and interests fearful of the effect rezoning would have on their quality of life.

As a result, Fulda reached an agreement with the Kassel Bundesvermögensamt on the future of Sickels. The living quarters and social facilities will be converted into low-price student housing, and the air traffic tower will be retained as a monument in memory of US forces stationed in Fulda. Unfortunately, this piece-by-piece marketing approach does not guarantee that all portions will be used. The Bundesvermögensamt has been unable to attract any interest in much of the facility—there seems to be no civilian interest in the runway, rollfield, or car pool under this reuse strategy.

The Bundesvermögensamt plans to eventually demolish any unsold buildings and facilities. Until then, however, the Bundesvermögensamt will lease the facilities on short-term contracts of one to two years. For instance, a transport company has leased the helicopter hangers for storage of their over-sized vehicles. To develop a concept for the site's long-term future, Fulda conducted a development contest for Sickels among local architects in 1994. The results will be announced late in 1995 (Stadt Fulda conversion official, letter to authors, 5 April 1995).



Conclusion

Problems with marketability of an airstrip, even an excellently maintained one in a largely rural region, have stalled the conversion of Sickels. Since the costs of demolishing the facility are currently too high, Sickels will remain largely abandoned while the Bundesvermögensamt focuses on the Downs Barracks.

There is little compulsion to rush the conversion of Sickels in Fulda. The ability to redevelop an Army Military Community piece-by-piece gives them a large advantage over more centralized bases. The new companies moving onto Downs Barracks will be completely unaware that Sickels remains vacant. On an Air Base, on the other hand, where all of the different activities tend to be concentrated on one site, it is much more difficult to successfully redevelop sections without addressing less-desirable aspects of

the site. The Hahn Air Base case study illustrates the difficulties of converting a large, multi-purpose site.

Sickels could hardly be described as a showcase of conversion success, but a more ambitious approach to developing an unwanted airfield is also problematic. The Mainz case study of Finthen depicts the problems of taking a more ambitious approach to converting an Army airfield.

▲ ***Dancing anyone?
The closed officer's club on
Downs Barracks will become
Fulda's newest discotheque
according to German officials.***

Mainz Military Community

Unless otherwise noted, all data in the Mainz case study, including cited newspaper articles, was verified through the authors' on-site inspection and through personal interviews with a Stadt Mainz conversion official, 8 December 1994 and the director of the Mainz-Finthen air club (Luftfahrtverein-Mainz), 26 April 1995.

Background

The city of Mainz has a population of approximately 185,000 and is the capital of the federal state of Rhineland-Palatinate. Geographically, it is located on the western fringe of the densely populated, highly industrialized plain created by the junction of the Rhine and Main rivers.

Large numbers of foreign troops have been stationed in Mainz since World War II. For the first five years following the war, France maintained bases in Mainz as part of its occupation zone. The United States took over the bases in 1949 when the Bundesrepublik Deutschland was established. Mainz became an important element of NATO's strategic second line of defense from a possible invasion from the east. The United States also made use of the region's industrial might by developing a large armored-vehicle maintenance and repair facility in Mainz. By 1990, the Mainz Military Community had an authorized endstrength of more than 7,700, of which more than 3,700 were German nationals (Statistical Annex).

Nevertheless, sweeping transformations loomed on the horizon. Most of the military facilities throughout Mainz were made expendable by the end of the Cold War. The first closures in Mainz were announced in 1990; by the end of 1994, the United States had completely withdrawn from the city.

Community Response

The withdrawal of the US forces in Mainz was greeted with guarded enthusiasm. The return of almost 1000 acres (405 hectares) of prime land provided the city with an unprecedented chance to overcome one of its historic deficiencies—a 12,000-person housing shortage (*Mainzer Allgemeine Zeitung*, 8 September 1994). This opportunity led the city to eagerly plan for re-development of the facilities, in some cases even before the decision to close them was final. Such an enthusiastic response to base closure is in marked contrast to the visceral reaction of many American communities (Cunningham, 1993).

Mainz's enthusiasm was tempered by two important factors. First, the economic impact of the closures was severe—thousands of Germans lost their jobs when the bases closed. The US Army depot alone was the second largest German employer in Mainz and, unlike other US bases, this site provided German workers with high-paying industrial jobs. Finding acceptable re-employment for these workers would not be easy. Second, in most cases the

facilities were not easily convertible to housing units. To be successful, therefore, conversion would require considerable amounts of time and resources. Aware of these obstacles, Mainz demonstrated its willingness to seize the opportunities and face the challenges of base closure by initiating and accessing a number of development programs:

- Mainz immediately expressed its intention to purchase a number of the US facilities. Negotiations with the German government regarding price and timing began in 1992.
- Mainz qualified for state assistance through the two-year-old Rhineland-Palatinate conversion program, which provides financial and technical support for local conversion efforts throughout the state. Through that program, Mainz contracted studies of the environmental contamination and ecological importance of several of the US sites (*Stadtteil Layenhof*, 1994).
- Mainz successfully applied for inclusion as one of nine model cities in a 1994 federal government experimental urbandevelopment program, the 'Forschungsprogramm Experimenteller Wohnungs- und Städtebau,' which provided logistical and financial support for Mainz's conversion effort.
- Mainz established a provisional, inter-communal working group with the relevant cities to coordinate the development of the facilities that cross city borders.

Table 8: Mainz Military Community Closure Impacts

Source: Statistical Annex

Community	Number of Sites Returned	Total Acres Returned	Endstrength Reductions
Heidesheim	1	57	0
Ober-Olm	1	160	17
Mainz	10	947	5,428
Rüsselsheim	1	6	217
Wackernheim	1	22	0

Scope of Facilities

Similarly to other US Army Military Communities in Europe, the Mainz Military Community was spread over a number of self-contained sites throughout the neighboring communities of Rüsselsheim, Wackernheim, Ober-Olm, and Heidesheim. However, most of the major closures occurred within the city of Mainz itself.

Of the ten facilities closing, Mainz's two most ambitious projects include the conversion of the Mainz Military Depot and the redevelopment of Finthen Army Airfield.

Finthen Army Airfield

Finthen Airfield is located on the largely undeveloped, western-most edge of Mainz, and small parts of it actually cross the city border into the neighboring communities of Wackernheim and Essenheim. The facility is surrounded by a combination of open fields, the very small Mainz subcommunity of Finthen, and the ecologically sensitive Ober-Olm forest. Although Finthen is less than six miles (ten kilometers) from the Mainz city center, its current access is very limited. One small road passes through the Finthen suburb, and the only other road runs directly through the forest.

The site was initially developed as an airfield in 1939 by the German Luftwaffe. Following the airfield's seizure by the Allied Forces early in 1945, France continued to occupy the site as part of its occupation zone. The United States took over the site in 1959 and built it into a modern military heliport. The United States continued to invest heavily in the facility throughout its life. In 1990, it invested US \$26.4 million to construct two state-of-the-art helicopter maintenance hangars, a sum representing almost 20 per-

►
This anachronistic bus stop is within walking distance to a number of the closed US facilities in the Mainz Military Community.



cent of the US Army's annual military construction budget for Germany (*Mainzer Rhein-Zeitung*, 8 November 1989; Vest, 1994).

Even that investment could not save Finthen. In August 1992, the United States announced that Finthen's primary tenant, the 158th Aviation Regiment, would be withdrawn. Less than one year later, the base was returned to Germany. The small radar station and flight surveillance simulator, still under US control, will be returned in 1995.

Nevertheless, the base was not entirely vacated when the Americans left. In a relatively unusual agreement, the US Army co-used the airfield for a number of years before closure with a German civil air club, Luftfahrtverein-Mainz (*Mainzer Rhein-Zeitung*, 5 September 1992). After the Army left the base, the air club took over the new hangars and continued operating the airfield.

A visual inspection of the facilities revealed that, except for the minor areas still used by the United States and the air club, remaining idle for more than a year has taken a serious toll on the condition of Finthen.

Although the newer facilities are still in excellent condition, the rest of the infrastructure is deteriorating.

German-US Negotiations

Although the base had been operated by the German Luftwaffe and the French military, the United States funded the construction of all new facilities. Upon closure, the US Department of Defense calculated the value of improvements to the facility to be US \$8.8 million. However, the German government claims the market value of the facility is much less. Upon publication of this report, no final residual value agreement had been reached (Vest, 1994).

The environmental study commissioned by the city of Mainz in 1993 showed slight amounts of contamination on Finthen. Mostly limited to surface contamination from a kerosene tank and other petroleum products, the contamination is not considered serious. The number of

countries that previously owned the airfield would make determining the guilty party very difficult and costly (*Stadtteil Layenhof*, 1994).

Land Disposal

The Koblenz Bundesvermögensamt assumed responsibility for Finthen in August of 1993 upon its return by the US Army. The costly process of securing the facility is one of the immediate responsibilities of the agency. In the case of Finthen, security costs approximate DM 400,000 a year (*Mainzer Rhein-Zeitung*, 26–27 February 1994). In an attempt to avoid such costs, the Bundesvermögensamt began the property disposal process almost a year before the base officially closed.

With the first opportunity to claim land on the base, the federal government retained three apartment blocks of the former Finthen Family Housing area, made minor renovations, and began renting them to federal employees in June 1994. The Deutsche Bundespost (the German postal service) also voiced interest in using the airfield as a cargo center. It halted planning, however, when the city of Mainz opposed it.

After the state government of Rhineland-Palatinate renounced its purchase option, Mainz proceeded with its plans to purchase the entire facility. Any hope for a quick, smooth transfer vanished when the two sides disagreed on the price of the facility. As negotiations deteriorated, Mainz began preparing legally to declare the site an urban development zone (see Down Barracks in the Fulda case study). After conducting negotiations for more than two years and paying to secure a mostly abandoned facility for over a year, however, the Bundesvermögensamt has hinted that it is willing to compromise on the price. By publication, Mainz city officials had voiced optimism about reaching a price settlement.

Redevelopment

Until it reaches terms with Mainz on the sale of Finthen, the Bundesvermögensamt is renting space at Finthen to private tenants on a

three-year basis. The two primary tenants are the previously mentioned air club and a helicopter transport company. Some individual buildings have been rented by private companies for storage, and others are used by local musicians and artists (*Mainzer Rhein-Zeitung*, 26–27 February 1994). To round out the odd selection of uses, the former Army airfield even hosted an open-air rock concert¹⁶ attended by tens of thousands of people. Any revenue from such operations is used by the Bundesvermögensamt to offset the expenses of securing the facility.

Once it purchases the facility, Mainz has very ambitious plans for Finthen. The city leaders hope to establish an entirely new, model suburban neighborhood with 10,000–15,000 inhabitants. Although this plan will require demolishing the entire facility and starting from scratch, it was supported by the two other communities that hold a small share of Finthen. A housing project is attractive to communities for a number of reasons:

- *The current housing shortage.* As mentioned earlier, Mainz and its neighbors suffer from a severe shortage of housing. The addition of enough units to house up to 15,000 people could give Mainz a housing surplus for the first time since World War II.
- *Tax benefits.* The federal government provides city governments with a portion of the income tax it collects each year. The sum each city receives is based on the number of people who live there. As a result, attracting 10,000–15,000 people increases the city's federal tax return significantly. Additionally, the city government would receive tax revenue from all new businesses that an increased population is bound to attract.

¹⁶ The concert, featuring Rod Stewart, Tina Turner, and others, was held in the summer of 1993 over the protests of local farmers. It was largely responsible for raising the DM 180,000 that the German government has recouped from leasing parts of the base. See: *Mainzer Rhein-Zeitung*, 4 May 1993 and 15 May 1993; *Allgemeine Zeitung*, 5 May 1993 and 11 May 1993.



▲ *Inherited infrastructure large and small. Above: An aerial view shows Finthen Airfield with the Mainz skyline in the background.*

► *Abandoned office equipment at the Mainz Army Depot.*





- *New jobs.* Although a cargo center or other type of industrial development might have eventually produced more employment, a new community of this size is bound to create many new jobs, principally in the service sector.
- *Political popularity.* New housing is a common political promise for candidates throughout Germany. Particularly necessary in Mainz, housing development is opposed by comparably few interest groups as compared to other types of development.

These factors created severe obstacles for all other types of development. For example, any plans to establish a civil or regional airport at Finthen were immediately rejected (*Mainzer Allgemeine Zeitung*, 17 July 1992; *Mainzer Rhein-Zeitung*, 3 September 1992). The neighboring land owners—tired of the constant noise pollution and worried about the additional traffic—bluntly opposed the plan. This problem was clearly illustrated when the German Postal Service considered establishing a large cargo center at Finthen. Although the plan was initially supported by Wackernheim, Mainz's opposition killed the project. Mainz's primary argument that such development would have an adverse effect on traffic and congestion rings hollow—a new community of 15,000 people is bound to have a similar effect on local traffic.

Environmental groups had an entirely different idea for the base (Moseler, 1994). They argued that the base should be demolished and reincorporated into the Ober-Olm Forest. This would nearly double the current area of the forest, which has been shrinking due to development. Although these groups' plans did not prevail, they considerably delayed the planning process.

◀ ***Moving out. US Army trucks preparing to depart the closed Mainz Army Depot.***

Currently, environmental groups and even Mainz's Landespflegeamt (the city's landscaping official) express skepticism about the future of any plan for Finthen Airfield.

Obstacles

A new housing plan sounds promising, and politicians find it easy to support, but a number of overwhelming obstacles will delay the project for years, if not halt it entirely. The obstacles to the project, recently named 'Layenhof,' include the following factors.

The scope of the plan. Mainz has not yet developed a plan for financing the construction of the new city or even estimated how much such a project might cost. Several aspects of Layenhof guarantee that the price will be very high. For example, Mainz's plan for building houses for 10,000–15,000 people envisions applying state-of-the-art construction techniques, building a tram connection with the city center, and incorporating ecologically sound technologies into the houses. As the preliminary step to developing a more detailed plan, the German national government, the state of Rhineland-Palatinate, and Mainz have agreed to jointly finance a DM 710,000 international urban development contest from 1995-1996 (the national government will pay DM 390,000, the state DM 260,000, and the city DM 60,000; *Mainzer Allgemeine Zeitung*, 19 August 1994).

The schedule. While city leaders hope that construction can begin in 1998 and that the whole project can be completed in 2007, such a timetable will prove impossible. The absence of any detailed plan or funding mechanism, the opposition of environmental groups, and the sheer size of the project will certainly delay it well into the next century. At the same time, Mainz does not even currently own the land.

Two 'K.O.' Factors. There are two unavoidable problems that the local media has dubbed 'K.O.' factors, after the popular boxing acronym for 'knock-out.' Unless Mainz finds solutions to both of these problems, either one could destroy the entire plan.

- The nearby Wackernheim Shooting Range, used jointly by the US Army and the German police force, is not scheduled for closure. Community officials express hope that the range will also close, but if it does not there is a very slim possibility of attracting people to a neighborhood just over 820 feet (250 meters) from a shooting range where automatic weapons are commonly used.
- The only two access routes to the airfield either run directly through the small suburb of Finthen or through the ecologically sensitive Ober-Olm forest. The citizens of Finthen and the community of Ober-Olm have voiced their intention to block the necessary upgrades to the roads that 15,000 new residents would require. Any new road would face similar opposition.

Environmental Concerns. There is documented evidence of a wild bee population and rare plants on the large, open spaces of the Finthen Airfield site. Complete redevelopment of the site as a housing complex would destroy their current natural habitat. The redevelopment could also harm the already shrinking Ober-Olm forest (*Stadtteil Layenhof*, 1994; *Mainzer Allgemeine Zeitung*, 19 August 1992).

Questionable demand. Although Mainz suffers from a serious housing shortage, several projects are already underway that may make the Layenhof neighborhood excessive.

- The United States is already in the process of returning approximately 800 housing units in Mainz, such as the entire Martin Luther King Family Housing unit, which was immediately developed as housing.
- Lee Barracks, located in an existing developed neighborhood and already connected to public transportation, is also being converted primarily into housing. With the land already purchased and work underway, the project

will be finished long before the Layenhof and promises to add 700–1000 affordably priced housing units to Mainz.

Lost momentum. When the project began, the political, media, and public support was extremely high. Since the project has become bogged down, that support has gradually faded, and the city is now considering delaying the purchase of the facility. If support for the project continues to decay at this rate, it may just fade away entirely. On the other hand, support for the project may rise next year with the international design contest described earlier.

Mainz Air Club Opposition. If possession is nine-tenths of the law, the Mainz Air Club could single-handedly halt the Layenhof project. It has mobilized significant community support for retention of the site as a small civil airport. A petition in favor of the airport concept has already received more than 3,700 signatures (Martin Morawek, spokesperson for the Flugplatz Mainz Finthen movement, letter to authors, 27 April 1995).

Conclusion

Mainz has blocked the practical plan of developing Finthen Airfield into a cargo center supported by the German Postal System in pursuit of an ambitious housing plan. Although Layenhof is politically popular, the severe obstacles it faces have already delayed the project and may eventually destroy it. The combined strength of communities and the German Postal System would have helped to remove those obstacles had they chosen the former option.

At the same time, the site is already well suited for a modest cargo center or civil airport, but at its current rate of deterioration, it will not be usable for much longer. In order to develop a new neighborhood, Mainz will have to spend millions to completely demolish a site worth more than US \$8.8 million (Vest, 1994). In this instance, Mainz may have missed a reachable goal searching for Utopia.





▲ **MIT's bankruptcy has left the Mombach section of the Mainz Army Depot largely abandoned.**

Mainz Military Depot

The Facility

Three different facilities comprise the Mainz Military Depot—the original Mainz Military Depot and the Repair & Utility (R&U) Area, both in Gonsenheim, and the Mainz Military Depot in Mombach. The three industrial facilities cover more than 400,000 square meters (4.3 million square feet) and consume equal amounts of land in the Mainz sub-communities of Gonsenheim and Mombach (*Frankfurter Rundschau*, 17 October 1992). Their military mission was the maintenance and repair of the various types of heavy armored vehicles used in Germany.

The site had been a German military parade ground since 1911 at the time of its capture by Allied troops. The United States founded the

depot in 1953 after taking over the site from the French forces. It invested heavily in the facility over the next 30 years, creating a highly modern industrial complex able to

conduct all necessary repairs and maintenance for US tanks and personnel carriers. Quickly, the facility grew to become one of the largest military maintenance depots in Europe.

In a fairly unique arrangement, the depot had been built by the United States but was operated by a German contractor. The depot was operated by the German firm Luther and Jordan until its bankruptcy in 1979. Operation of the depot was immediately taken over by Mainz Industries Panzerwerk (MIP)—a private company founded with the help of a public development bank. The depot expanded significantly in 1983 when the German government purchased a bus production facility in Mainz-Mombach from the firm Iveco-Magirus and leased the facility to the US Army for use as part of the

Mainz Military Depot operated by MIP. In turn, the United States invested DM 300 million to upgrade and convert the facility (*Mainzer Rhein-Zeitung*, 1–2 February 1992).

The depot reached its peak in 1987 as Mainz's second largest employer, with 5,705 mostly German workers. Working at maximum capacity, the plant fed more than DM 550 million into the local economy through payroll and local sub-contracts every year (*Frankfurter Rundschau*, 17 October 1992). Nevertheless, the plant's 100 percent dependence on defense contracts entailed ominous consequences for the future of MIP. When the Cold War ended, the United States decided not to continue its DM 2 billion, five-year maintenance contract with MIP in favor of year-to-year contracts. With its defense market drying up, MIP attempted to diversify into civilian markets—a policy explicitly supported by the US Army.

In April 1992, the firm was reorganized to reflect its diversification (*Mainzer Rhein-Zeitung*, 1–2 February 1992). The new umbrella holding company was named the Mainz Industrie Technologie-Gesellschaft für Umwelt, Transport und Verkehr (MIT). The firm hoped to replace its declining defense contracts with the repair and maintenance of civilian vehicles such as buses, trams, and trains. Less than one month later, the US Army announced its intention to halt all future contracts to MIT and dismantle the Mainz Military Depot. MIT, in turn, announced its intention to continue operating the facility as a civil depot (*Mainzer Rhein-Zeitung*, 2–3 July 1994).

Land Disposal

The land ownership issue was not a problem for MIT, as both the land and buildings were owned by the German government. On the other hand, the United States owned all of the physical equipment inside the buildings. The Army's initial plan was to remove that equipment upon closure, but that arrangement would have turned a modern industrial plant capable of employing thou-

sands of workers into an empty warehouse. Realizing the plan would make MIT's conversion effort impossible, the Koblenz Bundesvermögensamt convinced the US Army not to remove the equipment. In early 1994, the US Army agreed to sell all of the depot's equipment, valued at DM 50 million, to MIT for much less (*Mainzer Rhein-Zeitung*, 11 February 1993).

Redevelopment

Due to the large number of jobs and local revenue it produced, the depot's successful conversion drew broad support from across the political spectrum. Local, state, and national leaders showed rare solidarity in helping to ensure the successful conversion of the site. Even the United States supported what quickly became the largest conversion effort to date in Rhineland-Palatinate.

- The United States invested approximately DM 60 million into a social security fund for employees laid off during the transition (*Mainzer Rhein-Zeitung*, 10 September 1992) and, as mentioned earlier, agreed to transfer the depot's equipment to MIT under favorable terms.
- The German federal government intervened in the US-MIT negotiations to support continued defense contracts during MIT's transition. After that effort failed, the government helped to ensure that the equipment would remain at the depot.
- The state of Rhineland-Palatinate played the largest role in supporting the conversion effort. Most importantly, the state guaranteed DM 75 million in private loans to MIT for conversion, and funded an additional DM 5.7 million for MIT investment projects from state technology funds. The state also agreed to co-finance the recycling of the city's old buses and trams at the former depot. Finally, the state assisted the dislocated workers by supplying direct assistance of DM 10 million to approximately 300 handicapped MIT employ-

ees to ease the transition and by providing free consulting and job-search assistance to the workers who were laid off (*Allgemeine Zeitung*, 28 July 1994; *Mainzer Rhein-Zeitung*, 2 December 1992 and 6 October 1992).

Even this level of across-the-board support could not save MIT—the conversion effort fell apart when MIT was unable to make its civilian services cost efficient. When the Mainz Public Transport Company found that it could virtually purchase new vehicles for the price MIT charged for recycling older models, it announced in November 1992 that it would not award any contracts to the former depot. MIT lost its other recycling contracts for similar reasons (*Mainzer Rhein-Zeitung*, 2 December 1992 and 13 June 1994).

Saddled with an enormous debt and the losses posted by most of its subsidiaries, MIT looked to the state for additional assistance. None was forthcoming. The state's blunt refusal to provide the necessary millions to bail out the firm, and the private sector's equal reluctance to invest, forced MIT to declare bankruptcy in the summer of 1994 (*Mainzer Rhein-Zeitung*, 1 July 1994). By declaring bankruptcy, MIT defaulted on its agreements with the state, the US Army, and the federal government.

- Rhineland-Palatinate must assume the responsibility for the DM 75 million private loan it guaranteed, and it lost additional millions in investment money.
- The United States never received payment for the equipment and, in theory, regained the rights to the industrial equipment in the depot.
- The Bundesvermögensamt must assume responsibility for securing and maintaining the facility.

All of this caused the Mainz Military Depot project to become Germany's largest conversion failure to date. Rising out of the ashes of the failed MIT, however, is a proposal by the very agency that refused to recycle its vehicles at the depot—ironically,

the Mainz Public Transportation Company has offered to move onto the southern part of the Gonsenheim site (*Mainzer Rhein-Zeitung*, 23 September 1994 and 24 March 1995).

Although the city's purchase preference in the German property disposal process may allow it, MIT's demise created such a complicated mess that even this modest plan must overcome several obstacles. First, the site is not quite abandoned. Private companies that had rented space at the depot before MIT went bankrupt, as well as several of MIT's subsidiary companies that were purchased by other companies, are still operating on the site. Most recently, one of these subsidiary companies has voiced its intention to become independent and to continue conducting minor repairs on US military equipment (MIT representative, interview, 26 April 1995).

Conclusion

The political need to find a quick replacement for Mainz's second largest employer made some large risks by the state and MIT necessary. It is impossible to establish the specific reasons for MIT's failure, but several facts are unavoidable.

- Rhineland-Palatinate may have been overly optimistic about MIT's chances for success when it guaranteed DM 75 million in loans without conducting a feasibility study.
- MIT certainly underestimated the obstacles of converting a large military maintenance plant and was forced to ask for additional funds.
- Everyone demanded that the firm completely convert itself in two years. When it was unable to become competitive in that short time period, support for the project evaporated.

In the end, an early abundance of funds and wishful thinking without patience, a plan, oversight, or even a concept of the project's feasibility caused the state's largest conversion project to end in bankruptcy.



Hahn Air Base

Unless otherwise noted, all data in the Hahn case study, including cited newspaper articles, was verified through the authors' on-site inspection and through personal interviews with the following individuals: former Director of Host Nation Relations, Hahn Air Base, 8 December 1994; Public Relations official, Flughafen Hahn, 8 December 1994 and 25 April 1995; Rheinland-Pfalz Ministerium für Wirtschaft und Verkehr conversion official, 15 December 1994; Rheinland-Pfalz State Conversion Clearinghouse official, 15 December 1994; Flughafen Hahn official, 8 December 1994; Hahn holding company representatives from Wayss and Freytag AG, 25 April 1995; Turkish embassy official, 7 December 1994.

Background

Hahn Air Base was located in the Hunsrück region of the federal state of Rhineland-Palatinate, specifically in the small community of Kirchberg (population 4000). Largely rural and undeveloped, the Hunsrück is situated roughly between the urban centers of Mainz to the east, Luxembourg to the west, and Cologne to the north.

Before the French forces founded an air base on the site in 1951 the area was farmland, and most of the area surrounding the base remains farmland to this day. In 1952, the United States took over the installation and began to erect the seventh largest US Air Base in Europe and the second largest in Germany. At the end of the Cold War, the base supported more than 13,000 people and three squadrons of F-16 fighter jets (Vest, 1994).

Situated away from the front line of the Cold War, Hahn was a major part of the United States' close-knit, continental European air power center. The United States' other major German Air Bases of Zweibrücken, Ramstein, Sembach, Bitburg, and Rhein-Main are all within 60 miles (100 kilometers) of Hahn. Beyond their location in the heart of US troop concentrations, these Air Bases were well situated to reach all locations within Europe and the Mediterranean region.

When the Cold War threat of an invasion of West Germany subsided, the United States was left with a huge excess capacity of expensive air fields. In 1991, the Air Force announced it would make major reductions at Hahn. The Desert Storm conflict provided an excellent transition for the fighter aircraft at Hahn, and F-16s assigned to the Persian Gulf returned straight to the United States after completing their mission. The soldiers departed Hahn two years later. On 30 September 1993, most of the facility was returned to civil German authorities. The United States continues to operate a very small ammunition dump, two radio stations, and some recreational facilities in one corner of the sprawling base, but the ammunition dump will close in 1995. Although Hahn officials voiced optimism that the radio stations and recreational facilities would also be returned in 1995, the United States has not yet officially announced its intentions.

Community Response

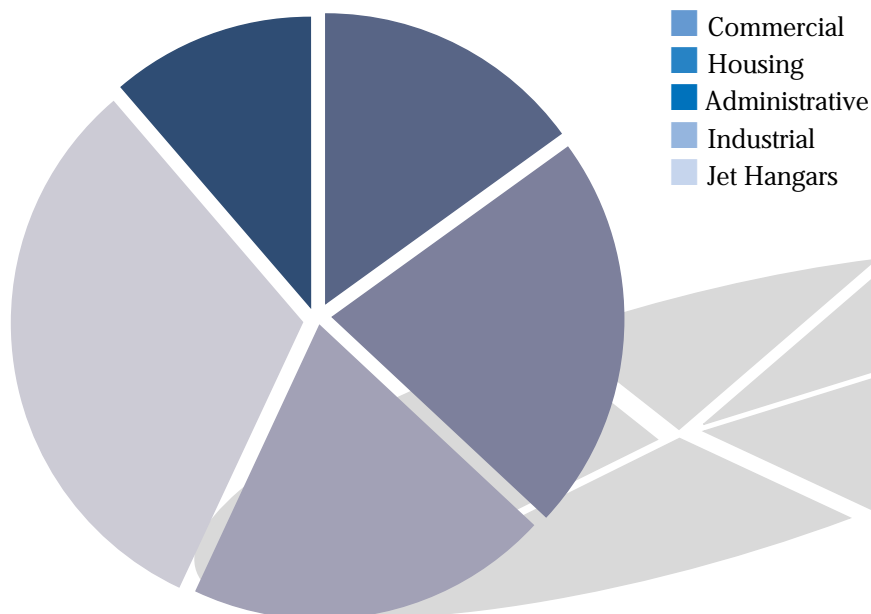
As with most US facilities in Germany, what began as an occupa-

tion force was transformed into a friendly relationship extending to German communities. Thousands of American families lived outside the base in a variety of neighboring villages. The symbiotic association reached its peak in the early 1990s, when Hahn's schools began accepting German students. The base's economic effects were even more important than its positive social effects. Through the purchasing power of more than 13,000 Americans and the employment of more than 800 Germans, Hahn was easily the largest single economic force in Rhein-Hunsrück (Lindemann, 1993).

Though the positive relationship and the economic vitality the base brought with it made Hahn's closure a severe disappointment to the surrounding region, the state regarded the closure more positively. With five of the eight military airports in Rhineland-Palatinate closing, the state viewed Hahn as the most easily converted. As Kirchberg and the other surrounding villages were too small to handle the conversion of the massive base, the state took the lead from the very beginning.

Figure 22: Hahn's Buildings

Source: Operation Hahn Take-Off, 1994.



Scope of Facilities

Unlike US Army Military Communities, US Air Bases tend to be more rural and centralized. The main site at Hahn is 1396 acres (565 hectares) in area, with a 8,025-foot (2,440-meter) runway and additional space for rollfields and taxiways. The base also contains 283 buildings of various types (see Figure 22) (*Operation Hahn Take-Off*, 1994).

Most of the buildings were constructed in the mid-1950s, but US investment continued throughout the life of the base. For instance, the huge commissary, the base chapel, and parts of the high school were built in the 1980s, the new kindergarten was completed in 1990, and the new Burger King Restaurant was only open for several months before the base closed.

Most of Hahn's buildings and infrastructure were well maintained. A visual inspection of the base revealed that the family housing units were particularly well preserved by the US Air Force; the United States even left the kitchen and laundry appliances intact in each of units of the large Hahn Family Housing complex. The older buildings are powered and heated by coal, which will cause significant redevelopment problems, while the newer buildings are powered by oil. All of Hahn's utility infrastructure is still operational, including a modern bio-composting plant. Moreover, the huge jet-fuel storage tanks have currently valid German operating licenses.

Although Hahn has a complete internal network of well-maintained roads, the external access to Hahn is less favorable. The base is connected to a secondary line of the German rail system, but the single track does not allow two-way transportation. The two-lane road connecting the installation to the



▶
A final look. The last two US F-16 fighter jets depart Hahn Air Base.



federal highway system is 22 miles (35 kilometers) away from Mainz and is not suitable for heavy traffic.

Land Disposal

Undisputed ownership and control of Hahn went to the German federal government when the United States departed in 1993. The site was administered through the Koblenz regional office of the Bundesvermögensamt. Thus, the standard base disposal process applied to Hahn.

Once the federal government passed on its opportunity to purchase parts of the facility, the state of Rhineland-Palatinate voiced its intention to purchase the entire main site of the Air Base. The ensuing negotiations over the purchase price began poorly. The installation was initially valued at DM 360 million by the Bundesvermögensamt, a sum that Rhineland-Palatinate bluntly refused to pay. After two years of negotiations, the Bundesvermögensamt's asking price fell dramatically. In September 1994, the Bundesvermögensamt agreed to sell Hahn to Rhineland-Palatinate

for DM 30 million—one tenth of its original asking price. As part of the agreement, the state will pay an additional DM 7 million if its subsequent private sector marketing is successful.

Early Redevelopment Efforts

Realizing that US reductions would occur after the end of the Cold War, Rhineland-Palatinate analyzed the effect of an American withdrawal from the various Air Bases within the state as early as 1989 and developed a priority listing of possible closures that was forwarded to the US Command (Rheinland-Pfalz, Ministerium für Wirtschaft, Verkehr, Landwirtschaft und Weinbau, 1995). As all of the US Air Bases in Rhineland-Palatinate were located in rural, undeveloped areas, none of them were excellent candidates for redevelopment. Nonetheless, the state's analysis showed that Hahn would be the easiest of the group to convert. After preparing economic feasibility studies, Rhineland-Palatinate requested that the United States close Hahn, but leave Bitburg

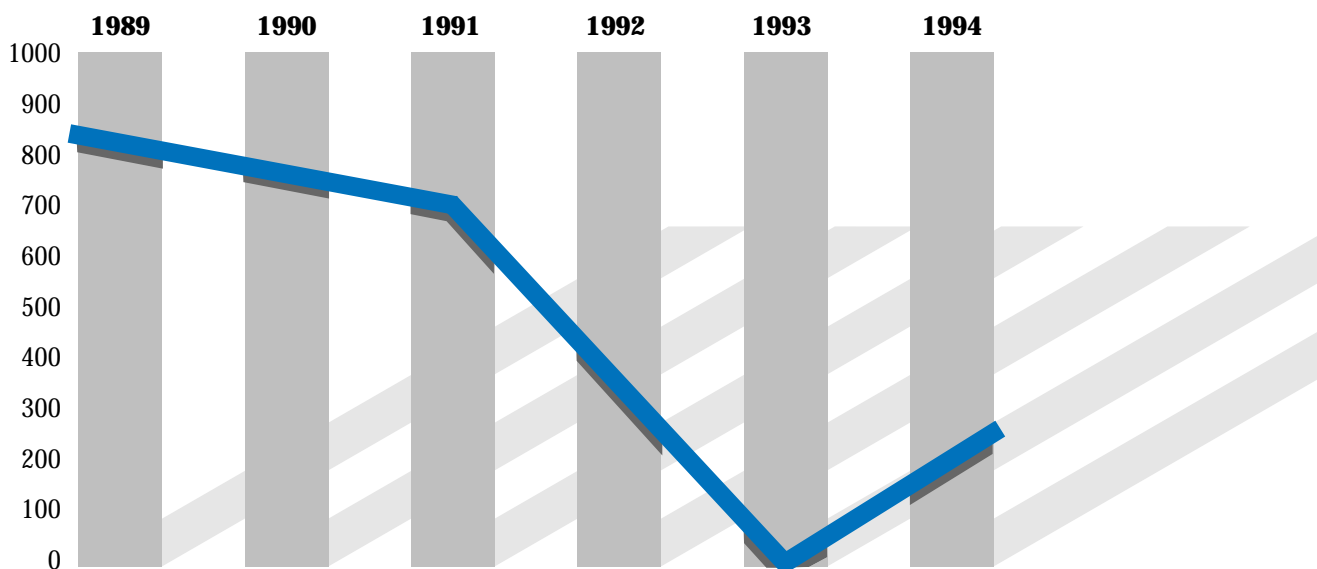
open. The state got its wish briefly when the United States announced the closure of Hahn in 1991; two years later in July 1993, however, the United States also announced the closure of Bitburg Air Base (Vest, 1994).

Despite the ultimate outcome, the closure of Hahn was initially welcomed by Rhineland-Palatinate. Only months after the closure announcement, the state declared its intention to convert Hahn into a civilian airport. At that point, it embarked upon the long process of constructing and implementing a master plan for Hahn.

In January 1992, nine months before the base closed, the state and several affected communities cooperated to create a public development company for Hahn Airport, the Entwicklungs und Betriebsgesellschaft Flugplatz Hahn (EBGH). The primary objective of the two-person, DM 1 million authority was to encourage civil co-use of the base before it closed, coordinate the smooth transfer of the base to civil authorities, and develop a concept for converting the base. EBGH

Figure 23: Rebirth of an Airfield?
German Employees at Hahn

Source: Lindemann, 1993; Rheinland-Pfalz, Ministerium für Wirtschaft und Verkehr, 1994a.



grew to almost 100 employees as the conversion concept matured (Rheinland-Pfalz, Ministerium für Wirtschaft und Verkehr, 1994a).

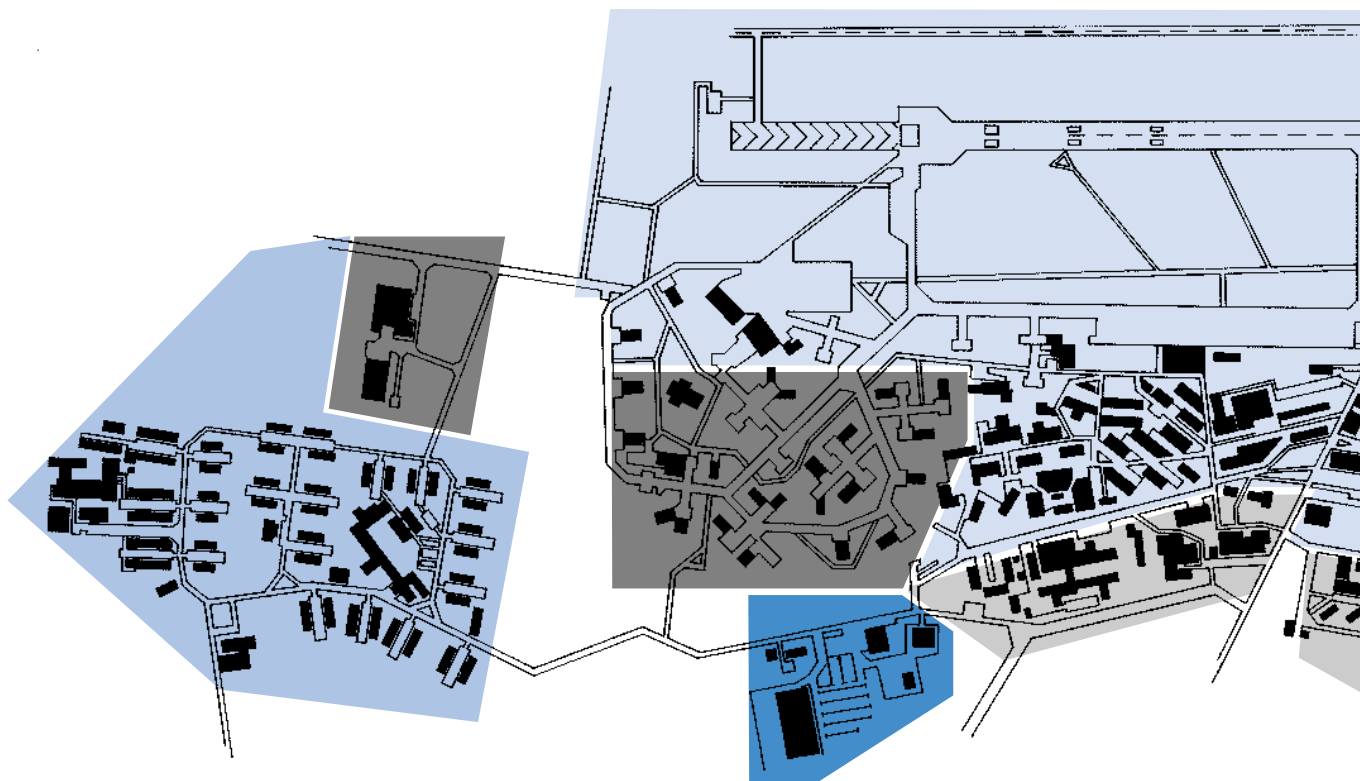
In April 1993, EBGH successfully negotiated a modest co-use agreement with the US Air Force. A civilian airport terminal was established in a building near the front gate of the base, and a civil airline contracted for one charter flight a week out of the newly created Hahn Airport. Throughout 1993, the civilian side of the airport supported a modest level of business, including 1000 flights and 7200 passengers (Rheinland-Pfalz, Ministerium für Wirtschaft und Verkehr, 1994a).

The base was officially returned to Germany on 30 September 1993. Less than one month later, EBGH signed a mutually beneficial, five-year 'emergency-use' agreement with NATO. Under that agreement, NATO retains the right to use the airstrip and approximately one-third of the base in the event of an emergency. Since the agreement officially made the site a military installation, it allowed the development company to avoid many of Germany's time-consuming, bureaucratic barriers to development.

The state was then able to begin the redevelopment process immediately (Rheinland-Pfalz, Ministerium für Wirtschaft und Verkehr, 1994a). As the United States had removed the navigation equipment from the flight tower upon closure, the state invested more than DM 25 million to purchase a state-of-the-art electronic air navigation system that would allow the airport to qualify for the highest level of landing license available (CAT III). A lower-level CAT I operating license was immediately



► **Conversion potential. Above: Hahn's cargo warehouse could become the heart of a thriving civilian airport. Below: Until then, local farmers use parts of the base for hay storage.**



granted, and CAT III became operational in March 1995 (Rheinland-Pfalz, Ministerium für Wirtschaft, Verkehr, Landwirtschaft und Weinbau, 1995). The Rhineland-Palatinate Ministry of Economic Affairs and Traffic granted the Hahn Airport a 24-hour operating license, but some local citizens, concerned about noise pollution at night, have threatened to file a lawsuit when Hahn attempts to implement the license in late 1995. Until the potential lawsuit is resolved, the airport possesses a day-only license. As the conversion effort began to gain momentum toward the end of 1994, Hahn Airport successfully attracted 11 new companies to its facilities. The types of contracts range widely from an Azerbaijan charter service to local farmers who use the F-16 hangars for hay storage. Combined, these companies have created approximately 100 new jobs (Rheinland-Pfalz, Ministerium für Wirtschaft und Verkehr, 1994a).

Building a Master Plan for Hahn

The Hahn redevelopment received a much-needed private sector boost in September 1994 when Rhineland-Palatinate created the Hahn Holding Company in cooperation with Wayss & Freytag AG (W&F), a large German construction company. Under the terms of the agreement, W&F owns 74.9 percent (50 percent by W&F, 24.9 percent by Hortana, a W&F subsidiary) of the stock and the state owns the other 25.1 percent. The company embarked with DM 10 million in operating capital and a ten-year goal of DM 120 million in investment (Rheinland-Pfalz, Ministerium für Wirtschaft, Verkehr, Landwirtschaft und Weinbau, 1995).

Soon after the agreement on the holding company was finalized, Rhineland-Palatinate unveiled its master plan for the future of Hahn Airport (see Figure 24). The ambitious plan focuses on a division of the base into different development sectors, including airport, education, sports and leisure, trade and industry, service, and commerce zones.

- **Airport:** The airstrip, all of the base's administrative area, and even some of the F-16 hangars are designated for airport development. The success or failure of the entire plan hinges on the successful development of a civilian airport, easily the largest section of the base. The master plan envisions a three-pronged approach to developing the airfield. First, redevelopment authorities will continue to develop the charter business already underway. Second, they hope to add a number of scheduled flights through the standard passenger carriers. Third, officials hope to encourage cargo services to use Hahn (*Operation Hahn Take-Off*, 1994). This may require luring business away from the Frankfurt's very popular Rhein-Main International Airport only 60 miles (100 kilometers) away, or simply accepting the overflow demand when the latter reaches maximum capacity in about 2020.
- **Education:** The western family housing complex has been designated for educational purposes, and much of its redevelopment

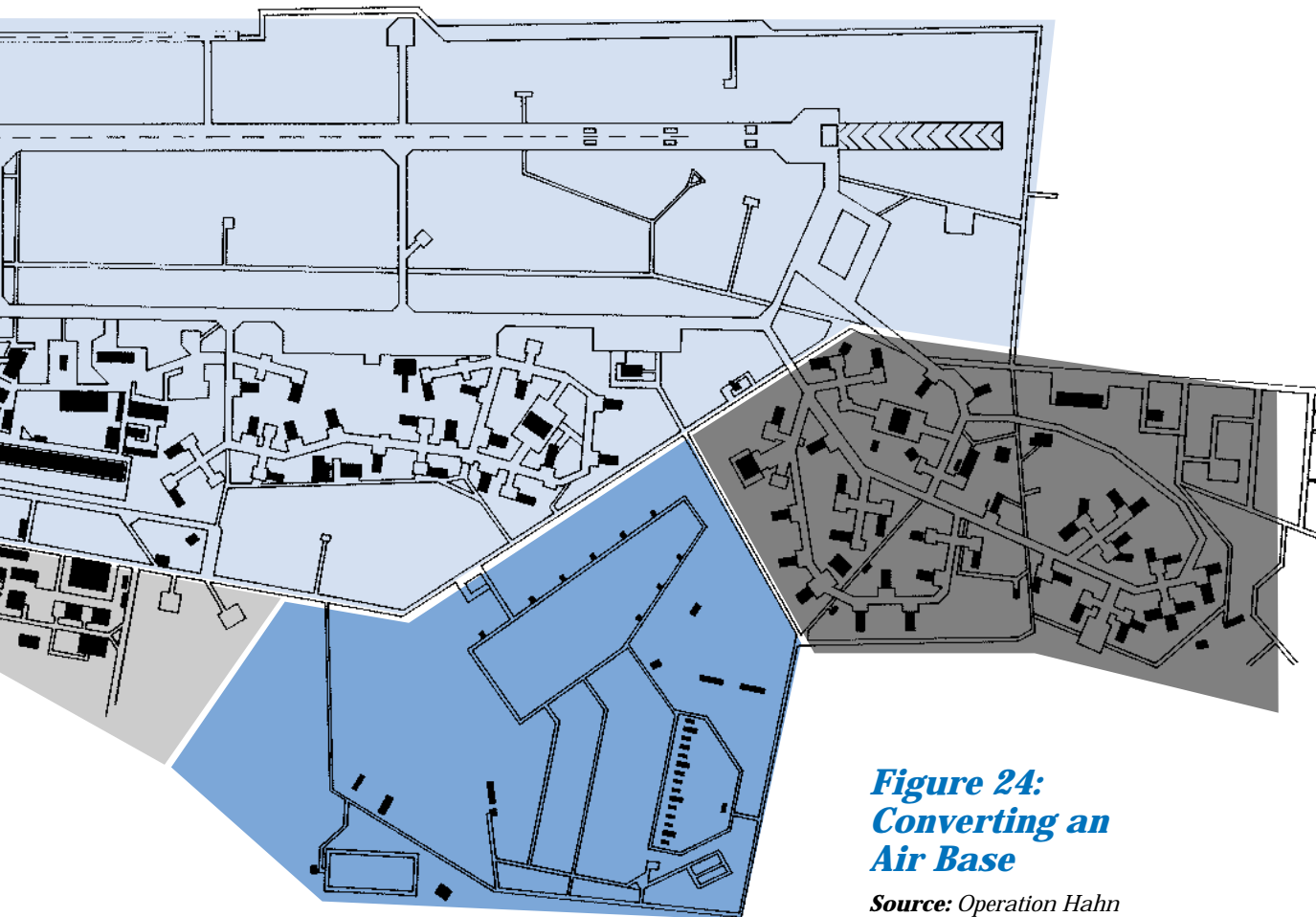


Figure 24:
Converting an
Air Base

*Source: Operation Hahn
Take-Off, 1994*

- *Airport*
- *Education*
- *Sports and Leisure*
- *Commercial*
- *Service*
- *Trade and Industry*

has already been completed (*Operation Hahn Take-Off*, 1994). W&F, through the holding company, will conduct the renovations and, in turn, sell the facility to the state for DM 48 million. The state's purchase of a facility in which it already owns a share is designed to limit W&F's risk. On 7 June 1994, Rhineland-Palatinate announced that the state's police academy would move onto two-thirds of the base's family housing complex and high school. The first 700-person class will begin in August of 1995. A state construction academy has voiced interest in taking over the balance of the housing complex and the elementary school, but at publication no final agreement had been reached.

- **Sports and Leisure:** The base's nine-hole golf course, the recreational facilities, and the ammunition storage area have been designated for sports and leisure

facilities. The plan envisions expanding the golf course onto the former ammunition dump and adding a hotel with a conference center to the site. Since the United States still retains some the facilities at the site and to date no private investor has voiced interest in that aspect of the plan, it remains a long-term goal. In the interim, a local golf club has taken over the operation and maintenance of the course.

- *Commercial:* When the United States departed, it left a brand new, huge commissary that served as the grocery and shopping center for base personnel and their families. Not surprisingly, the master plan has designated the commissary for retail development. A center built to serve 13,000 people, however, is clearly too large for the region's current level of development. Accordingly, no private investor has moved onto the site. One Hahn authority envisioned its transformation into a Duty Free Center for the airport if the charter service continues to grow. W&F has suggested that the huge refrigeration capacity be utilized for perishable cargo storage.
- *Service:* The base's power plant and water treatment plant have been designated as service areas and eventually their operation will be contracted out to the private sector.
- *Trade and Industry:* The rest of the base consists of two of the three F-16 squadron hangar areas designated for trade and industry. Although the plan envisions business parks on these sites, they will not develop anytime soon. Largely eye-sores today, the reinforced hangars are too small for civil aircraft, and without windows they are useless for everything but storage. Even demolishing the hangars and starting from scratch is problematic—since they were built to withstand a bomb attack, the



hangars will be very difficult to dismantle. The approximately DM 48 million price tag for demolishing the hangars may guarantee that hay storage and the like will be the highest level of development the trade and industry section will reach in the foreseeable future. Nonetheless, W&F has suggested that demolishing the hangars one-by-one as the cargo center expands will make the demolition process more affordable.

As part of the master plan, the holding company will create individual companies to operate each section. EBGH became the airport administrator and was renamed Hahn Flughafen Gesellschaft (HFG). A sign of their comparative importance, none of the other operating companies have been established.

Although the state maintains a minority position in the entire holding company, it owns a 66.7 per-

cent share in HFG and is in turn responsible for the airport's eventual prosperity or failure (Rheinland-Pfalz, Ministerium für Wirtschaft, Verkehr, Landwirtschaft und Weinbau, 1995) in the short run. If the 24-hour license is successfully implemented, W&F's stake increases to 50 percent.

To advertise the base to potential investors, the state has financed a lavish promotional campaign. A variety of glossy promotional pamphlets, brochures, posters, and a picture book are available in both German and English. The EBGH sponsors 'open houses' and site visits for a wide-range of potential international investors. For instance, in November 1994, the EBGH hosted a diplomatic delegation from the Turkish embassy in Bonn to survey the base for a Turkish company.



▲ ***An eerie silence dominates the currently abandoned Hahn Housing Annex, but that will change when it becomes the home of the state police academy.***



► ***Conversion obstacles. The reinforced F-16 bunkers at Hahn, like the ones pictured here, have no practical civilian use and will cost DM 48 million to demolish.***

Prospects for the Future

Since the demise of the Mainz Army Depot project, the Hahn Airport has become Rhineland-Palatinate's primary conversion effort. For that reason, the state will work overtime to see the Hahn Airport project succeed. The presence of W&F as a major private investor also indicates the potential prosperity of Hahn Airport. At the same time, the sheer size of the project makes complete success difficult to achieve. Currently, simply maintaining empty buildings and staffing the 34-officer police team requires an investment of millions each year. In the most optimistic scenario, state officials do not expect the airport to begin turning a profit for 20 years. In stark contrast, W&F expects the airport to begin turning and operating profit by 1996. Furthermore, the long-term success of the project depends on how the holding company resolves the following obstacles.

Problematic location. Hahn is not located conveniently near an urban center, and poor transportation access heightens that impression. The state has plans to connect Hahn to the direct highway system and the rail connection could be improved and repaired, but those plans stretch well into the next century. If access to the site is not improved dramatically, Hahn will not be able to handle the kind of traffic a profitable civilian airport of its size would create. Nevertheless, the state has promised to build a highway connection to Hahn, and W&F now reports that adequate rail connections to Hahn exist through one of its subsidiary's purchase of the line.

Deficiencies in base infrastructure. Although a military Air Base seems perfect for a civil airport, the fit is much less than exact. Hahn is riddled with infrastructure challenges. Some can be overcome quickly, such as installing individual

utility meters on housing units, but

two others are particularly troublesome. First, the runway currently will not support larger jets completely full of cargo or passengers, and few charters or cargo companies will agree to do business at Hahn if they can not use all of their airplanes' capacity. The holding company could solve this problem by lengthening the runway to 4,000 meters, a process which would take time, resources, and possibly the move of a road for the second time. Second, approximately 40 of the buildings and housing units at Hahn are powered by coal. Once the US Air Force left, the Hahn development company was unable to secure a coal-operating license for environmental reasons, making the buildings currently uninhabitable. However, the DM 100 million cost to convert these buildings to oil power could be prohibitively expensive. W&F has planned a 'conversion as necessary' strategy to make it more affordable. Nonetheless, not solving either of these problems would limit the potential success of Hahn's conversion.

Contradictory visions: The master plan draws two opposite visions of the base. Half of the plan foresees business parks, recreational facilities, and a shopping center. The other half envisions a busy charter and cargo airport. These are not complimentary uses. Few people dream of cargo airports and empty F-16 hangars for vacation or convention spots. The work required to convert Hahn into an attractive leisure center would be enormous, and even then, its potential marketability is highly questionable.

Size: The sheer size of the facility will force the holding company to develop the base section-by-section. As it develops one part, however, the other parts will deteriorate as they sit vacant. Even the new facilities will age quickly if they are not properly maintained. Additionally, the Air Base created a huge, artificial source of demand within a largely

undeveloped area. It is questionable whether a civilian airport in Rhein-Hunsrück could ever attract enough demand to completely utilize a facility that supported 13,000 people.

Finicky Private Support: W&F has a conditional stake in the airport aspect of the master plan. Early in the project, it will spend the majority of its resources developing the more secure educational sector. As mentioned earlier, there is already a major tenant interested in that area—ironically, the state. If W&F pulls out after completion of that aspect, the rest of the project may fall apart before it had a chance to succeed.

Despite these obstacles, Hahn has several factors in its favor that may help it overcome these obstacles enroute to becoming a successful and profitable project. Hahn's fate rests on the ability of the holding company to be realistic, at least in the short run, about Hahn's potential. There is virtually no possibility of converting a rural, Cold War Air Base into a vacation spot. Trying to do so only wastes millions.

The charter airline business also has limited potential. There are already several commercial airports in the area, including mainland Europe's largest airport—Frankfurt Rhein-Main. Additionally, some of the four other closing Air Bases in Rhineland-Palatinate will attempt to compete with Hahn for the charter business (see Bitburg box). Moreover, at one or two flights per company, Hahn would have to attract thousands of charter flights just to cover expenses. On the other hand, although it is unlikely Hahn can support itself completely on charter companies, they do bring in revenue and will not preclude Hahn's best chance for success.

More practically, the base could focus on developing itself as a cargo center. Some of the obstacles to the master plan as a whole would not affect Hahn's ability to develop a cargo center. For instance, aesthetics

Next Up: Bitburg

Two years after the United States closed Hahn and not long after the state of Rhineland-Palatinate committed itself to help finance Hahn's conversion, the United States also decided to close the nearby Bitburg Air Base. Very similar to Hahn, Bitburg hosted three full squadrons of F-15s (72 planes) and had an authorized endstrength of 6,500 in 1987.

This closure was a significant blow to the county with the largest per capita defense dependence in Germany—18 percent of its income. At the end of the Cold War, Bitburg Air Base was Bitburg county's largest German employer, engaging more than 1,000 employees and pumping more than DM 200 million into the local economy annually.

Following closely in Hahn's footsteps, Bitburg officials are planning to convert the closed Air Base into a civilian/cargo airport. Unfortunately, since it is located less than 60 miles (100 kilometers) from Hahn Airport, the state has been reluctant to invest in Bitburg's conversion. Private investors have also stayed away. Two public tenderings have produced no serious bids for the airport section of the base.

Undeterred, local officials are moving forward with the support of the Bitburg Brewery—Germany's largest. Like Hahn, local officials at Bitburg have established themselves as a NATO emergency site and have applied for an all-weather, 24-hour operating license.

Sources: *Statistical Annex; Henter, 1995; Wirtschaftsministerkonferenz, 1990; Trier Bundesvermögensamt official, interview, 19 January 1995.*

are not important at a cargo center—the F-16 hangars, abandoned buildings, and ammunition dumps that discourage the development of a leisure center would have absolutely no effect on the success of a cargo airport. Regional economics may also favor a new cargo center in the region. Frankfurt has successfully developed the largest airport in Europe largely because of its central location in Europe. Hahn's location, only 60 miles (100 kilometers) west of Frankfurt, gives it the same central location, and Hahn enjoys some competitive advantages over its large neighbor.

- It has received approval on a 24-hour operating license. Due to its more urban location, Frankfurt does not have this type of unrestricted license. If Hahn can overcome the potential court case blocking implementation of the license, this could become a major selling point to freight companies over Frankfurt.
- It can offer a more cargo-friendly environment. With the recent opening of the second massive passenger terminal, Frankfurt's cargo customers may start to get squeezed out (even with the withdrawal of the United States from Rhein-Main discussed below). Hahn can promise large amounts of excess space both on the ground and in the air for the foreseeable future.
- It can offer a price advantage. As a no-frills cargo center, Hahn could provide price relief from Frankfurt's regional monopoly. Its fees are currently 30 percent less than those of Frankfurt and 10–20 percent less than those of other small airports in Luxembourg and Brussels.

Even more encouraging for Hahn is that Frankfurt may reach its capacity within the next 20 years. The demand for airspace above Frankfurt has become so great that the airport management company actually paid to move the US Air Base co-located at the site to a different site (Ramstein). The United

States has not yet closed the base, possibly due to a recent GAO study noting that further Air Base reductions in Europe could jeopardize necessary capabilities (GAO, 1994b). Regardless of whether the United States closes Rhein-Main Air Base, however, studies have shown that Frankfurt will reach capacity by 2020.

Conclusion

Hahn benefits from being the darling of a number of Air Base conversion efforts in Rhineland-Palatinate. The money and exposure that creates are bound to attract interest, but will not guarantee success. Hahn must focus on its practical advantages and avoid impractical—but politically popular—money pits, while it works to increase private sector investment in the airport.

Although the entire base needs attention and resources to implement the master plan, more practical aspects (such as lengthening the runway and improving highway connections) that will make the airport more attractive to all companies—especially freight companies—require immediate work. The state can waste its money building hotels and golf courses on former ammunition dumps or it can focus on its half of the airport equation—upgrading the airport infrastructure and building a friendly investment climate.

Conclusions and Recommendations

The United States' comprehensive military withdrawal from Germany has presented a number of opportunities and challenges for both countries. This study has attempted to compensate for the information deficiency regarding this drawdown by documenting the scope of the US withdrawal, identifying the number and mission of the United States' remaining troops, and assessing the German communities' prospects for converting the closed facilities.

In addition to utilizing US Department of Defense data, the authors were able to gain an accurate sense of the US withdrawal on both the macro and micro levels by reviewing locally published newspaper articles, conducting on-site interviews with local, state, and national German authorities as well as USAREUR and USAFE officials, and visiting relevant facilities repeatedly. Following is a summary of the most significant findings of this year-and-a-half long study.

US Restructuring

The United States has taken a site-by-site approach to base closure and return in Germany. While US domestic base closures tend to follow a standard path, DoD retains considerably more flexibility in its overseas closures. Special sale arrangements, joint use of sites, and transition assistance for displaced Germans are examples of the type of arrangements local officials may negotiate with individual base commanders and DoD officials. At the same time, the US overseas base closure is generally more efficient than the domestic closure process. On average, the United States returns overseas bases less than one year after the closure announcement. The same procedure takes more than four years for domestic bases.

No single indicator can adequately assess the magnitude of the US withdrawal. The United States has

closed 21 major bases in the five years since the US base restructuring process began in 1990. This total includes 15 Army Military Communities and 6 Air Force Bases, and represents a decrease in the number of bases of over 40 percent. From another perspective, almost 90 percent of all US bases in Germany were reduced to some extent. A combination of factors—area returned, employment lost, and number of sites closed—provides the most accurate picture of the scope and significance of various sites, and reveals that Army barracks and Air Force main sites are at the heart of the US withdrawal. In addition, it appears that the United States is returning its smallest facilities and retaining its largest, most flexible sites. This is especially true of housing units, which the United States is retaining to compensate for previous shortages by providing US-operated housing for all of its troops by 1996 (USAREUR/PA, 1994).

At endstate, the United States will still retain approximately 80,000 US military personnel in Germany. These troops have adopted two new missions since the end of the Cold War. First, the United States will use its European-based forces to project power—through rapid deployments—into a 100-country region including Eastern Europe, the Middle East, and Africa (USAREUR/PA, 1995). Second, as multi-lateral military operations such as Desert Storm have grown in importance, the US forces in Germany have begun more frequent participation in multi-lateral training exercises and exchange programs with European countries.

The future American base structure in Germany has emerged with these new missions in mind. The bases retained by the USAREUR meet one or more of three general criteria: 1) proximity to the United States' remaining fully-active air mobility base (Ramstein); 2) support of its two major training ranges

(Hohenfels and Grafenwöhr); and 3) the best, most modern facilities belonging to its only remaining corps (V Corps) (USAREUR, 1990). Meanwhile, USAFE has consolidated onto its most modern fighter base—Spangdahlem—and the largest, most flexible air mobility base, Ramstein (GAO, 1994b; Cragg, 1988).

Impact on the German Economy

Several indicators may be used to measure the US withdrawal's impact on the German economy. The withdrawal process has already led to the loss of more than 150,000 authorized positions, including more than 35,000 German civilian positions, due to facility closures and reductions. Nürnberg, with the loss of more than 11,000 authorized positions, was the largest closure in terms of total personnel, while Mainz lost the most German civilian positions—more than 4,400 layoffs—due primarily to the closure of the massive Mainz Army Depot.

Many of the United States' largest facilities were reduced in the restructuring rather than closed. Excluding these officially and unofficially reduced sites from the employment equation would underestimate the impact of the US withdrawal by more than 25 percent. Personal inspection has revealed that in many cases these sites have been reduced to virtually zero. More than 38,000 total authorized positions, including more than 4,000 German direct employees, were cut as a result of these partial closures or reductions.

The restructuring process has therefore impacted many communities where the United States still retains a significant presence. Six of the 18 German communities that have lost more than 4,000 total authorized positions did not experience complete closures. The most extreme case is Kaiserslautern Military Community, which lost almost 5,000 total authorized positions even though none of its 18 individual facilities were completely closed.

In addition to its direct employment effects, i.e., German civilians laid off from US bases, the drawdown has resulted in indirect employment effects that, although more difficult to measure, are no less significant. In total, at least 70,000 German jobs have been lost due to the US withdrawal.

In terms of spending effects, the US military's yearly demand for goods and services in Germany has fallen by approximately US \$3 billion since the beginning of the drawdown. This sum includes the impact of lost contract spending, salaries of laid-off German civilians, and the loss of American military personnel and family members' consumption in the German economy.

Although the US withdrawal's effect on the German economy as a whole has been limited, the loss of billions of dollars has seriously affected the communities most dependent on the US Forces. As the US presence was almost exclusively limited to its (and France's) former occupation zones in southern and western Germany as well as Berlin, those regions have experienced the bulk of the withdrawal's consequences. Chief among the affected regions was the relatively small state of Rhineland-Palatinate, which has suffered from the closure of the Hahn, Bitburg, and Zweibrücken Air Bases and the Mainz, Zweibrücken, and Pirmasens Military Communities. At the same time, while larger cities may create sufficient job opportunities to quickly absorb Germans laid off as a result of the US withdrawal, smaller communities with a higher dependence on US spending, such as those surrounding Bitburg and Hahn Air Bases, may require successful base conversion to replace the jobs lost on the American bases.

US-German Negotiations

The US bases and military personnel generally enjoy a positive relationship with their host communities, a relationship that has influenced the withdrawal process by allowing a

high level of cooperation between German and American authorities. In many instances, US base commanders allowed German authorities to begin moving onto a base before the actual closure, and in almost all instances, site investigations previous to closure were allowed. This level of cooperation has helped the German authorities speed redevelopment by months or even years. On the other hand, while US authorities attempted to consider German authorities' restructuring requests early in the process, less communication and coordination was possible as the withdrawal gained momentum in 1992.

The case-by-case negotiations process, applied to all 636 returned or reduced US sites for environmental clean-up and residual value, creates too great of a burden for US and German officials. As a result, these negotiations lag far behind the efforts to convert the property. Unless these highly political negotiations are resolved equitably, they could delay conversion and taint an otherwise smooth withdrawal.

Conversion

There are three essential approaches to the conversion of US bases in Germany. First, larger cities may ensure their control of the base redevelopment process by purchasing the whole facility from the German government—as Mainz has done—and redevelop it themselves. Where a smaller community is unable to purchase a facility, the state may take an active role in conversion, as Rhineland-Palatinate has done with Hahn Air Base. In cases where neither the state nor the city purchase the facility, the Bundesvermögensamt becomes responsible for marketing and redeveloping the real estate, as is the case in Fulda.

The Bundesvermögensamt's requirement to sell closed base property at market-value prices has unnecessarily delayed the conversion process at many sites by months and even years. This problem is especially

prevalent on sites with very limited public demand, such as airfields. As few public or private price for closed base property, however, the Bundesvermögensamt has often been forced to ultimately lower the price to meet demand.

The relatively rapid, efficient implementation of US overseas base closure decisions benefits communities by allowing the community quick access following the US departure. In contrast, domestic American bases are often virtually abandoned for years before the site is formally closed, allowing significant deterioration to occur (Cunningham, 1993). One reason DoD delays closure on domestic bases is to allow communities time to prepare, but in practice this policy tends to waste scarce resources while the facility continues to depreciate. Thus, German communities gain an advantage in their ability to redevelop closed military sites almost immediately.

Nevertheless, the conversion prospects for US facilities in Germany are not equal—the condition, location, and type of a facility have a large impact on its reuse potential. Well-maintained, urban sites with complementary civilian uses—such as housing, recreational, and administrative sites—are the easiest to convert. Conversely, large, rural, undeveloped training ranges, such as Wildflecken, have little or no civilian development value.

In general, Army Military Communities are more easily converted than Air Force Bases for two reasons. First, Military Communities tend to be located in urban centers—due in large part to their original occupation mission—while Air Bases tend to be located in more rural, isolated areas. Second, Military Communities are decentralized, multi-site facilities that allow a site-by-site conversion approach. Air Bases, on the other hand, are more concentrated on one 'main site,' requiring a more coordinated conversion approach.

Although the US restructuring process has almost been concluded, the conversion process is just beginning. In order to improve that process and to help communities successfully redevelop closed bases, the authors offer the following recommendations for US officials, German authorities, and local leaders.

Recommendations for US Officials

The United States should consider negotiating a net-zero arrangement with German authorities in terms of residual value and environmental contamination. These offsetting claims have the potential to delay an otherwise expeditious withdrawal process. To avoid this possibility, high-level representatives from both countries could agree up-front that the United States will not pursue payments for facilities and that Germany, in turn, will clean the less serious sites. This approach is not historically unprecedented—the United States has already incorporated this type of net-zero arrangement into its status-of-forces agreements with Japan, South Korea, and the Philippines (Wegman and Bailey, 1994).

The US Department of Defense should promote its positive overseas closure experiences as a model for other downsizing efforts. The continued level of good-feeling between the United States military forces and German local officials, despite the severe reductions, is remarkable. DoD could also inform American communities about some of the more positive individual conversion efforts. For instance, US states and cities could learn from Hahn's creative public-private investment partnership.

The United States should model its domestic closure process after the overseas process, rather than vice versa. The overseas process allows DoD a flexibility currently impossible in the politically charged domestic base closure process. Nonetheless, certain positive

changes are possible. First, DoD should strive to close domestic bases faster; slow closure only allows unnecessary depreciation of potentially valuable sites. Second, additional flexibility to make such site-by-site arrangements as shared use and pre-closure environmental screening may allow DoD to avoid the occasional confrontational relationships with local officials.

Tracking well over 1,000 sites in Europe during a restructuring of this extent is a monumental task, and USAREUR and USAFE should conduct a complete survey of their active installations at endstate to ensure that each facility's status is accurate. Currently announcements of realignments and closures, particularly at reduced sites, lag behind implementation. This is especially true of Air Force Bases—for example, the United States accepted residual value payments for Rhein-Main Air Base in 1993 despite the fact that no official reduction or closure announcement was ever made. The relative stability achieved at endstate will allow the US Forces to conduct an accurate, site-by-site survey and to update any inaccurate or misleading information.

Recommendations for State and National German Authorities

German authorities should focus conversion assistance programs on small and/or highly dependent communities. Most of the USAREUR closures have occurred in highly developed urban areas such as Frankfurt, Mainz, and Nürnberg, which can absorb laid-off German civilians and finance conversion without significant outside assistance. Therefore, programs targeting only the number of jobs lost may inadvertently help less needy communities. Instead, such programs should direct their attention to isolated bases where dislocated Germans are less likely to find acceptable re-employment.

German government policy should apply realistic prices for base property. Current policy still requires communities or companies to pay full market value for former base property that was, in many cases, returned free of charge. Not surprisingly, the Bundesvermögensamt often cannot attract market value bids for closed base property, leading to delays and lengthy negotiations. Based on similar experiences, the United States enacted a regulation allowing communities in rural or depressed regions to purchase base property at a discount or even no cost (*Revitalizing Base Closure Communities and Community Assistance*, 1994). This policy helps both the government and communities: government benefits by eliminating years of costly marketing, and communities may use the funds saved for necessary infrastructure upgrades. Despite these advantages, the German government continues to demand market-value prices; it could save time and money by adopting a policy similar to the American one.

German authorities should either establish a national-level base conversion clearinghouse or link the current state-level efforts. US domestic base conversion efforts have benefited from the DoD's 35 years of base closure experience through its Office of Economic Adjustment (OEA). OEA recognizes not only that redevelopment is most successful if led by local authorities, but also that the national government has a vital counseling role. By providing a case worker to advise each community in planning redevelopment and by making modest grants for such efforts, OEA has helped communities successfully replace two civilian jobs for every one they lose (EAC, 1993). Although the German states have attempted to compensate for the lack of a German counterpart, none have been as effective or efficient as OEA. By linking the agencies currently active in Hesse, North Rhine-Westphalia, Rhineland-Palatinate, and Bavaria—either

independently or through a national clearinghouse—Germany could exponentially increase the resources and effectiveness of these efforts.

Recommendations for German Communities

Communities should start planning immediately, for once the United States decides to close an overseas base, it is usually returned in less than one year. While this speed maintains the base's good condition, it does not allow much time to plan. High-level requests and delegations to Washington, DC to reverse closure decisions have always met with disappointment; community leaders should therefore concentrate their efforts where they can make a difference. Since local base commanders retain considerable flexibility in implementing the closure, they are often in a position to negotiate favorable agreements—such as co-use agreements, environmental screening, and infrastructure transfers—with local officials. Initiating the planning cycle even before the United States decides to close specific sites may also ease some of the natural anxiety associated with base closure.

At the same time, local officials should prepare for further reductions. Although the drawdown is scheduled to reach endstate in 1996, some additional closures are still expected and the United States may decide on additional cuts beyond the current endstate levels as has occurred in the past (USAREUR/PA, 1994). Future reductions could have serious consequences for unprepared local communities. As the majority of reduced sites are subsequently closed, communities that host reduced sites have the greatest risk of future closures. Despite earlier reductions, for example, the Gießen Army Depot and Sembach Air Base still employ a significant number of German civilians; if the United States decides to close these facilities in the future, it may create considerable dislocations if local authorities are caught unprepared.

It is vital for local leaders to set realistic goals for conversion. Base conversion is difficult, expensive, and risky, and must be recognized as such. Excessive optimism or unattainable goals virtually guarantee the future perception that conversion was a failure, despite significant accomplishments. For instance, achieving all of the somewhat incompatible goals of the Hahn master plan is unlikely; as a result, the conversion effort may be judged harshly despite the fact that the development of a profitable public-private airport partnership in itself would be a first-time achievement in Germany. By setting realistic goals, local officials may avoid creating overexpectations in the media and public.

German communities need to demonstrate creativity in conversion planning, rather than following predictable strategies regardless of local demand. Overusing the same ideas or ignoring demand is frequently a recipe for failure, which may become the case at Bitburg Air Base, where community leaders plan to open a civil airport despite the presence of five other airports within 60 miles—including two already struggling, recently converted military sites. Many US communities have overcome similar market problems by developing more creative ideas for base reuse—from a truck driving school at England Air Base in Louisiana to a mushroom farm in the massive storage facilities at Loring Air Base in Maine to a state prison at Chase Naval Station in Texas (Cunningham, 1993). German local authorities can multiply their chances for success by applying fresh initiatives to their own conversion efforts.

Toward this end, they can learn from other base closure communities in Europe and around the world. Most community leaders in Germany tend to view base closure as a local challenge, to be solved locally; any communication with outside sources often takes place through their state conversion agency. While that is certainly useful, direct contact with other commu-

nities outside their state, country, and continent would yield a number of additional benefits. Local officials may be surprised to discover a striking number of similarities among US base closures throughout Europe: 1) as the bases were built during generally the same time period, they offer comparable infrastructure opportunities and obstacles; 2) the United States applies the same site-by-site negotiation approach throughout Europe, allowing communities to learn from the negotiation strategies and ideas of other communities; and 3) communities may learn creative conversion ideas and funding strategies from other communities. Although the ideas themselves may not be directly applicable, the decision-making process used to develop creative ideas may be transferable. This is true for bases all over the world.

While local officials should explore every available avenue, they cannot count on outside assistance. Ultimately, the responsibility for addressing the effects of the US withdrawal from Germany lies with leaders at the community level.

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Statistical Annex

Methodology

The Statistical Annex provides the detailed figures used to derive this report's charts, graphs and statistical analysis of the size, type, location, and number of personnel of US bases in Germany. Virtually all of the figures were drawn from US Department of Defense sources; our foundation documents were the DoD *Base Structure Report FY 1987* for the Air Force analysis and *Base Structure Report FY 1993* (September 1991 figures) for the Army analysis, as well as the official news releases for the 18 rounds of US European base realignments that were published periodically between January 1990 and 23 February 1995 by US European Command. The data contained in these announcements are comparable with the data in the DoD Base Structure Reports. The statistics were then verified through the Army and Air Force European Public Information Offices in Heidelberg and Ramstein, respectively. Where data discrepancies could not be resolved, the specific unit was contacted or the data was corroborated through local Military Stationing Installation Plans, local military and civilian officials, and other publicly available sources.

Two general problems were not completely avoidable:

- The Base Structure Reports before 1990 provide only a macro-level view of US Army deployments in Germany, with little community-specific information, due to the high level of data sensitivity during the Cold War. Soon after the end of the Cold War, the character of the report was made far more specific; the *Base Structure Report for Fiscal Year 1993* provides detailed information about specific sites as of September 1991. Although the US overseas realignment commenced in January 1990, it did not gain momentum until 1991—therefore, using 1991 figures should not affect the accuracy of the data in most

cases. Where possible, other sources were used as supplements for the three Army bases that closed before 1991 (see below). The *Base Structure Report* for FY 1987 is generally used for Air Force sites (with the exception of area information; see below). Thus, 'end of the Cold War' as used in this report signifies 1987 for the Air Force and 1991 for the Army.

- The United States streamlined its command structure from Military Communities into Area Support Groups (ASGs) to allow for a smaller force structure. In some cases, the former Military Communities are not directly comparable to ASGs. For example, the Munich Military Community was subdivided and assigned to three different commands. What is now called the Garmisch Military Community was part of the now disbanded Munich Military Community before the reorganization. To compensate for these discrepancies and to avoid obscuring the true nature of the drawdown, this report continues to categorize the bases under the old Military Community system.

More specific data inconsistencies were overcome in the following ways:

- To account for the three Army bases that closed before 1991 (Bad Tölz, Neu-Ulm, and most of Göppingen), additional sources were used: Duke, 1989 and Vest, 1994 (see Part III for details).
- For the area covered by the US Air Bases, the more accurate site-by-site information in the DoD *Base Structure Report FY 1993* was used (rather than the FY 1987 volume), except in cases where a base closed before 1991 (none were reduced). Therefore, the areas of Zweibrücken and Hessisch-Oldendorf Air Bases, both of which closed before 1991, may be slightly undervalued. Accurate statistics for German civilians at these two

bases were also not available.

- For a significant number of reduced or partially returned sites, in-depth interviews were conducted with the relevant local Army and Air Force Public Information Officers and Base Stationing Managers. Thus, multiple phone interviews were conducted with officials at the following bases: 54th ASG; 98th ASG; 29th ASG/415th BSB; 26th ASG/293rd BSB; 99th ASG/279th BSB; 6th ASG; 53rd ASG/222nd BSB. These findings were then verified to the greatest extent possible through the European Headquarters in Heidelberg (Army) and Ramstein (Air Force). In the many cases where sites have been reduced to at or near zero, the site is handled as a closed site even though it is not yet officially designated as such by the US Forces. See Part II for the specific status and sources for officially reduced sites.
- Kaiserslautern and Hanau Military Communities were unique. In these cases, the USAREUR statistics did not match those of the Base Structure Report because they have been reorganized internally—i.e., some consolidating operations moved in while other operations at the bases were de-commissioned or were transferred out. These changes were not reflected through closures or reductions as is usually the case. To harmonize the data, the authors used the *Army Stationing Installation Plan* for Kaiserslautern (415th BSB, 1995) and the *FY 1995 Population Density Tables of the 104th ASG/414th BSB* (1995) to assess the changes at Hanau.
- The Base Structure Reports list some facilities as 'combined' sites. This precludes a perfect categorization of the site in the Annex. Two examples of this are the Bernbach Training and Storage Areas, Hanau and the Flynn Family Housing and Training Area, Bamberg. The problem is resolved in this Annex by using the most significant category, i.e., airfield, barracks or training range.

Part I

Status of US Army Sites in Germany by Military Community

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.	Acres		Hectares	
Böblingen Fam Hsg	Stuttgart	6 housing	0	1	23	24	25	10.125	
Böblingen Officers Club	Stuttgart	6 rec	0	9	0	9	2	0.81	
Böblingen Range	Stuttgart	6 training	0	0	0	0	19	7.695	
Böblingen Tng Area	Stuttgart	6 training	0	0	0	0	2221	899.505	
Panzer Kaserne	Stuttgart	6 barracks	625	110	245	980	89	36.045	
Panzerstrasse	Stuttgart	6 barracks	0	0	0	0	9	3.645	
Kelly Barracks	Stuttgart	6 barracks	411	65	29	505	67	27.135	
Möhringen Family Housing	Stuttgart	6 housing	0	0	0	0	33	13.365	
Kefurt & Craig Village Family Hsg	Stuttgart	6 housing	0	0	0	0	39	15.795	
Patch Barracks	Stuttgart	6 barracks	1473	338	100	1911	109	44.145	
Steuben & Weicht Village Family Hsg	Stuttgart	6 housing	0	0	0	0	48	19.44	
Kornwestheim Golf Course	Stuttgart	6 rec	0	1	36	37	324	131.22	
Robinson-Grenadier Family Hsg	Stuttgart	6 housing	0	0	0	0	136	55.08	
Stuttgart Admin. Facility	Stuttgart	6 barracks	0	0	0	0	2	0.81	
Stuttgart Dependent School	Stuttgart	6 other	0	0	0	0	11	4.455	
Stuttgart Open Totals			2509	524	433	3466	3134	1269.27	
Aldingerstr. Family Housing	Stuttgart	6 housing	0	1	1	2	35	14.175	
Flak Kaserne	Stuttgart	6 barracks	727	22	70	819	44	17.82	
Krabbenloch Kaserne	Stuttgart	6 barracks	551	15	43	609	28	11.34	
Ludendorff Kaserne	Stuttgart	6 barracks	355	26	186	567	29	11.745	
Pattonville Fam Housing	Stuttgart	6 housing	62	230	105	397	170	68.85	
Stuttgarterstr. Fam Housing	Stuttgart	6 housing	0	0	0	0	6	2.43	
Wilkin Barracks	Stuttgart	6 barracks	534	44	0	578	28	11.34	
Echterdingen Airfield*	Stuttgart	6 airfield	912	1	1	914	235	95.175	
Nellingen Kaserne	Stuttgart	6 barracks	1262	431	226	1919	307	124.335	
Bad Cannstatt Hospital	Stuttgart	6 hospital	434	79	195	708	31	12.555	
Grenadier Kaserne	Stuttgart	6 barracks	67	153	1260	1480	21	8.505	
Kornwestheim AF and TNG*	Stuttgart	6 airfield	2	0	4	6	235	95.175	
Osterholz Storage Facility	Stuttgart	6 arsenal	4	13	94	111	59	23.895	
Robinson Barracks*	Stuttgart	6 barracks	234	638	143	1015	53	21.465	
Wallace & McGee Barracks	Stuttgart	6 barracks	18	149	180	347	23	9.315	
Weilimdorf Warehouse	Stuttgart	6 other	0	0	22	22	4	1.62	
Stuttgart Closed Totals			5162	1802	2530	9494	1308	529.74	
Percentage Closed		50%				73%	30%		
Edingen Radio Rcvr Facility	Heidelberg	26 commo	26	0	0	26	77	31.185	
Hammonds Barracks	Heidelberg	26 barracks	6	0	58	64	35	14.175	
Heidelberg AFN Relay Facility	Heidelberg	26 commo	0	0	0	0	19	7.695	
Heidelberg Airfield	Heidelberg	26 airfield	193	5	56	254	44	17.82	
Heidelberg Community Spt Ctr	Heidelberg	26 other	137	425	827	1389	28	11.34	
Heidelberg Golf Course	Heidelberg	26 rec	0	0	0	0	126	51.03	
Heidelberg Hospital	Heidelberg	26 hospital	565	232	341	1138	23	9.315	
Kilbourne Kaserne	Heidelberg	26 barracks	144	166	103	413	13	5.265	
Mark Twain Village Family Hsg	Heidelberg	26 housing	27	161	79	267	74	29.97	
Oftersheim Small Arms Range	Heidelberg	26 training	0	0	0	0	35	14.175	
Patrick Henry Village Family Hsg	Heidelberg	26 housing	36	363	23	422	2550	1032.75	
Patton Barracks	Heidelberg	26 barracks	617	41	220	878	275	111.375	
Schwetzingen Training Area	Heidelberg	26 training	0	0	0	0	2889	1170.045	
Seckenheim Autobahn Kaserne	Heidelberg	26 barracks	12	10	50	72	203	82.215	
Tompkins Barracks	Heidelberg	26 barracks	835	289	643	1767	89	36.045	
Königstuhl Radio Relay Sta	Heidelberg	26 commo	32	5	12	49	5	2.025	
Heidelberg Open totals			2630	1697	2412	6739	6485	2626.425	
Rheinau Kaserne	Heidelberg	26 barracks	29	0	0	29	34	13.77	
Heidelberg Closed totals			29	0	0	29	34	13.77	
Percentage Closed		6%				0%	0%		

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.	Acres		Hectares	
Camp Thomas Nast	Karlsruhe	26 barracks	97	4	0	101	35	14.175	
Germersheim RTO Facility	Karlsruhe	26 barracks	0	0	0	0	3	1.215	
Kandel Training Area	Karlsruhe	26 training	0	0	0	0	63	25.515	
Wörth Bivouac Area	Karlsruhe	26 training	0	0	0	0	246	99.63	
Friolzheim Comm Facility	Karlsruhe	26 commo	0	0	0	0	2	0.81	
Karlsruhe Shopping Center	Karlsruhe	26 other	93	73	584	750	36	14.58	
Mörsch Range	Karlsruhe	26 training	0	0	0	0	75	30.375	
Paul Revere Village Family Hsg	Karlsruhe	26 housing	7	159	33	199	176	71.28	
Rheinland Kaserne	Karlsruhe	26 barracks	668	27	0	695	33	13.365	
Smiley Barracks	Karlsruhe	26 barracks	517	107	367	991	41	16.605	
Waldstadt AFN Facility	Karlsruhe	26 commo	0	0	0	0	10	4.05	
Karlsruhe Open Totals			1382	370	984	2736	720	291.6	
Berg Storage Point	Karlsruhe	26 arsenal	0	0	0	0	131	53.055	
Geinsheim Activity	Karlsruhe	26 other	3	44	2	49	47	19.035	
Germersheim Ammo Area	Karlsruhe	26 arsenal	0	0	0	0	246	99.63	
Germersheim Army Depot	Karlsruhe	26 depot	434	70	1353	1857	454	183.87	
Bruchsal Ord Area	Karlsruhe	26 arsenal	0	0	0	0	581	235.305	
Gerszewski Barracks	Karlsruhe	26 barracks	1737	75	352	2164	215	87.075	
Karlsruhe Airfield	Karlsruhe	26 airfield	0	29	0	29	199	80.595	
Neureut Kaserne	Karlsruhe	26 barracks	1137	45	338	1520	163	66.015	
Neureut Labor Svc Kaserne	Karlsruhe	26 barracks	0	0	267	267	31	12.555	
Pforzheim Family Hsg	Karlsruhe	26 housing	0	4	3	7	10	4.05	
Feldberg Comm Facility	Karlsruhe	26 commo	9	5	4	18	1	0.405	
Karlsruhe Closed Totals			3320	272	2319	5911	2078	841.59	
Percentage Closed		50%				68%	74%		
Ben Franklin Village Family Hsg	Mannheim	26 housing	105	783	234	1122	231	93.555	
Coleman Barracks	Mannheim	26 barracks	3106	153	366	3625	580	234.9	
Edigheim Beacon Site	Mannheim	26 commo	0	0	0	0	1	0.405	
Friedrichsfeld QM Svc Ctr	Mannheim	26 supply	0	0	0	0	40	16.2	
Friedrichsfeld Storage Area	Mannheim	26 arsenal	14	42	178	234	16	6.48	
Funari Barracks	Mannheim	26 barracks	202	232	264	698	30	12.15	
Rheinau Coal Pt D-1	Mannheim	26 other	0	0	0	0	38	15.39	
Spinelli Barracks	Mannheim	26 barracks	1021	39	585	1645	200	81	
Sullivan Barracks	Mannheim	26 barracks	1699	310	218	2227	108	43.74	
Taylor Barracks	Mannheim	26 barracks	701	483	653	1837	114	46.17	
Turley Barracks	Mannheim	26 barracks	594	45	263	902	33	13.365	
Mannheim Open Totals			7442	2087	2761	12290	1391	563.355	
Lampertheim Ammo Area	Mannheim	26 arsenal	0	0	0	0	234	94.77	
Lampertheim Bridge Tng Site	Mannheim	26 training	0	0	0	0	0	0	
Lampertheim Training Area*	Mannheim	26 training	0	0	112	112	5112	2070.36	
Rheinau Coal Pt-4	Mannheim	26 other	0	0	0	0	6	2.43	
Viernheim-Lorsch Ammo Storage	Mannheim	26 arsenal	0	0	0	0	983	398.115	
Mannheim Closed Totals			0	0	112	112	6335	2565.675	
Percentage Closed		30%				0%	82%		
Grünstadt AAFES Facility	Worms	26 other	7	12	1083	1102	20	8.1	
Grünstadt Comm Station	Worms	26 commo	0	0	0	0	64	25.92	
Kerzenheim Comm Facility	Worms	26 commo	0	0	0	0	2	0.81	
Leistadt Comm Fac Hill 460	Worms	26 commo	0	0	0	0	2	0.81	
Dannenfels Comm Station	Worms	26 commo	44	3	7	54	4	1.62	
Lohnsfeld Comm Station	Worms	26 commo	48	24	66	138	344	139.32	
Worms Open Totals			99	39	1156	1294	436	176.58	

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.	Acres		Hectares	
Haide Labor Svc Camp	Worms	26 housing	0	0	249	249	16	6.48	
Weierhof Family Hsg	Worms	26 housing	3	14	77	94	25	10.125	
De La Police Kaserne	Worms	26 barracks	100	10	34	144	4	1.62	
Hardenburg Comm Sta HL516	Worms	26 commo	0	0	0	0	5	2.025	
Taukkunen Barracks	Worms	26 barracks	958	521	382	1861	31	12.555	
Thomas Jefferson Family Hsg*	Worms	26 housing	1	32	39	72	35	14.175	
Worms Athletic Field	Worms	26 rec	0	0	0	0	11	4.455	
Worms Community Park	Worms	26 other	0	0	0	0	41	16.605	
Worms QM Area	Worms	26 supply	20	0	10	30	7	2.835	
Worms R&U Area	Worms	26 other	1	3	108	112	7	2.835	
Worms Training Area	Worms	26 training	0	0	0	0	8	3.24	
Quirnheim Missile Station*	Worms	26 air def	0	0	0	0	31	12.555	
Schönborn Missile Station	Worms	26 air def	129	0	0	129	41	16.605	
<u>Worms Closed Totals</u>			<u>1212</u>	<u>580</u>	<u>899</u>	<u>2691</u>	<u>262</u>	<u>106.11</u>	
Percentage Closed		68%				67%	38%		
Dänner Kaserne	Kaiserslautern	29 barracks	44	110	192	346	20	8.1	
Dänner Post Chapel	Kaiserslautern	29 other	6	1	0	7	2	0.81	
Eselfürth QM Fac	Kaiserslautern	29 supply	14	1	81	96	35	14.175	
Hill 365 Radio Relay Fac	Kaiserslautern	29 commo	0	0	0	0	19	7.695	
Kaiserslautern Equip Spt Ctr	Kaiserslautern	29 other	22	15	67	104	80	32.4	
Kleber Kaserne	Kaiserslautern	29 barracks	1162	302	663	965	77	31.185	
Panzer kaserne	Kaiserslautern	29 barracks	323	299	193	815	0	0	
Bann Comm Sta	Kaiserslautern	29 commo	0	0	0	0	8	3.24	
Pulaski Barracks	Kaiserslautern	29 barracks	65	141	228	434	145	58.725	
Sambach AFN Fac	Kaiserslautern	29 commo	2	0	3	5	17	6.885	
Breitenwald Tng Area	Kaiserslautern	29 training	0	0	0	0	246	99.63	
Landstuhl Heliport	Kaiserslautern	29 airfield	246	7	0	253	2	0.81	
Landstuhl Hospital	Kaiserslautern	29 hospital	992	387	373	1752	225	91.125	
Miesau Ammo Depot	Kaiserslautern	29 arsenal	654	82	397	1133	2269	918.945	
Greater Vogelweh Facilities	Kaiserslautern	29 misc	71	99	48	218	0	0	
Community Fac Kaiserslautern East*	Kaiserslautern	29 other	0	4	8	12	53	21.465	
Kaiserslautern Arm Depot*	Kaiserslautern	29 depot	164	121	1225	1510	1279	517.995	
Rhine Ordnance Barracks*	Kaiserslautern	29 barracks	1327	108	212	1647	3689	1494.045	
<u>Kaiserslautern Open Totals</u>			<u>5092</u>	<u>1677</u>	<u>3690</u>	<u>9297</u>	<u>8166</u>	<u>3307.23</u>	
<u>Kaiserslautern Reduced Totals**</u>			<u>2033</u>	<u>0</u>	<u>2838</u>	<u>4871</u>	<u>0</u>	<u>0</u>	
Percentage Reduced		0%				34%	0%		
Dietrichengen Recreation Area	Zweibrücken	29 rec	724	24	208	956	4	1.62	
Kreuzberg Kaserne	Zweibrücken	29 barracks	442	1008	920	2370	65	26.325	
Oberaürbach Missile Station*	Zweibrücken	29 air def	0	0	0	0	32	12.96	
Zweibrücken Fam Hsg Area	Zweibrücken	29 housing	0	0	0	0	0	0	
Zweibrücken Airfield	Zweibrücken	29 airfield	0	0	0	0	0	0	
<u>Zweibrücken Closed Totals</u>			<u>1166</u>	<u>1032</u>	<u>1128</u>	<u>3326</u>	<u>101</u>	<u>40.905</u>	
Percentage Reduced		100%				100%	100%		
Ruppertsweiler Warehouse 7608	Pirmasens	29 other	0	0	0	0	2	0.81	
<u>Pirmasens Open Totals</u>			<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>	<u>0.81</u>	

** Kaiserslautern experienced a major restructuring. Many of its units were transferred to the US, but Kaiserslautern also became a consolidation point for other smaller units. The following figures represent the permanent employment lost due to the transition.

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.	Acres		Hectares	
Böllenborn Comm Fac	Pirmasens	29 commo	0	0	0	0	1	0.405	
Dahn Ammo Area	Pirmasens	29 arsenal	19	0	421	440	979	396.495	
Höhmühlback Railhead Fac	Pirmasens	29 other	0	0	0	0	12	4.86	
Husterhöh Kaserne*	Pirmasens	29 barracks	1914	752	2270	4936	724	293.22	
Leimen Ammo Area 67	Pirmasens	29 arsenal	0	0	0	0	43	17.415	
Lemberg Missile & Tng Area*	Pirmasens	29 training	0	6	2	8	930	376.65	
Merzalben UG Warehouse	Pirmasens	29 other	92	1736	55	1883	25	10.125	
Münchweiler Hospital	Pirmasens	29 hospital	631	21	49	701	116	46.98	
Münchweiler UG Whse 7602	Pirmasens	29 other	0	0	0	0	18	7.29	
Pirmasens QM Fac	Pirmasens	29 supply	8	77	238	323	7	2.835	
Ruppertsweiler Admin Area	Pirmasens	29 barracks	0	0	0	0	62	25.11	
Schmalenberg UG Whse 7600	Pirmasens	29 other	0	0	0	0	19	7.695	
Schopp Storage Facility	Pirmasens	29 arsenal	0	0	0	0	4	1.62	
Spirkelbach Storage Facility	Pirmasens	29 arsenal	0	0	0	0	16	6.48	
Wilgartswiesen Whse 7610	Pirmasens	29 other	0	0	0	0	3	1.215	
Fischbach Ord Depot	Pirmasens	29 arsenal	515	18	57	590	1670	676.35	
<u>Pirmasens Closed Totals</u>			<u>3179</u>	<u>2610</u>	<u>3092</u>	<u>8881</u>	<u>4629</u>	<u>1874.745</u>	
Percentage Reduced		95%				100%	100%		
George C. Marshall Kaserne	Bad Kreuznach	53 barracks	72	258	597	927	52	21.06	
Mörsfeld Storage Pt	Bad Kreuznach	53 arsenal	0	0	24	24	128	51.84	
Rheingrafenstein Tng & Stor Area	Bad Kreuznach	53 training	0	0	0	0	201	81.405	
Rose Barracks	Bad Kreuznach	53 barracks	1303	57	103	1463	46	18.63	
Anderson Barracks	Bad Kreuznach	53 barracks	1366	4	39	1409	124	50.22	
Camp Oppenheim Tng Area	Bad Kreuznach	53 training	0	0	0	0	161	65.205	
Dexheim Fam Hsg	Bad Kreuznach	53 housing	0	8	2	10	20	8.1	
Dexheim Missile Fac	Bad Kreuznach	53 air def	0	0	0	0	41	16.605	
<u>Kreuznach Open Totals</u>			<u>2741</u>	<u>327</u>	<u>765</u>	<u>3833</u>	<u>773</u>	<u>313.065</u>	
Bad Kreuznach Airfield	Bad Kreuznach	53 airfield	6	0	0	6	29	11.745	
Bad Kreuznach Family Hsg	Bad Kreuznach	53 housing	0	39	78	117	75	30.375	
Bad Kreuznach Hospital	Bad Kreuznach	53 hospital	420	38	202	660	20	8.1	
Fürfeld Class III & V Pt	Bad Kreuznach	53 arsenal	0	0	0	0	109	44.145	
Minick Kaserne	Bad Kreuznach	53 barracks	329	5	3	337	9	3.645	
<u>Bad Kreuznach Closed Totals</u>			<u>755</u>	<u>82</u>	<u>283</u>	<u>1120</u>	<u>242</u>	<u>98.01</u>	
Percentage Reduced		40%				23%	24%		
McCully Barracks	Mainz	53 barracks	1162	0	2	1164	77	31.185	
Wackernheim-Schwabenwaeldchen TA	Mainz	53 training	0	0	0	0	23	9.315	
<u>Mainz Open Totals</u>			<u>1162</u>	<u>0</u>	<u>2</u>	<u>1164</u>	<u>100</u>	<u>40.5</u>	
Azbill Barracks	Mainz	53 barracks	217	0	0	217	6	2.43	
Dr. MLK Village	Mainz	53 housing	1	19	19	39	62	25.11	
Dragoner Kaserne	Mainz	53 barracks	64	285	580	929	6	2.43	
Finthen Airfield	Mainz	53 airfield	132	0	0	132	455	184.275	
Finthen Fam Hsg	Mainz	53 housing	0	0	0	0	8	3.24	
Fintherlands Fam Hsg	Mainz	53 housing	0	0	0	0	9	3.645	
Lee Barracks	Mainz	53 barracks	366	8	36	410	272	110.16	
Mainz Army Depot	Mainz	53 depot	47	109	3762	3918	59	23.895	
Mainz R&U Area	Mainz	53 other	0	0	0	0	13	5.265	
Mombach Maintenance Plant	Mainz	53 depot	0	0	0	0	50	20.25	
Oberolmerwald CI III Store	Mainz	53 arsenal	0	0	17	17	160	64.8	
Sandflora Family Hsg	Mainz	53 housing	0	0	0	0	13	5.265	
Uhlerborn Housing Area	Mainz	53 housing	0	0	0	0	57	23.085	
Wackernheim Maintenance Fac	Mainz	53 other	0	0	0	0	22	8.91	
<u>Mainz Closed Totals</u>			<u>827</u>	<u>421</u>	<u>4414</u>	<u>5662</u>	<u>1192</u>	<u>482.76</u>	
Percentage Reduced		88%				83%	93%		

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.	Acres		Hectares	
Baumholder Airfield	Baumholder	53 airfield	0	0	0	0	47	19.035	
Baumholder Family Hsg	Baumholder	53 housing	0	23	27	50	94	38.07	
Baumholder Hospital	Baumholder	53 hospital	24	5	32	61	13	5.265	
Baumholder QM Area	Baumholder	53 supply	0	0	3	3	53	21.465	
Pfeffelbach Waterworks	Baumholder	53 other	0	0	0	0	55	22.275	
Smith Barracks	Baumholder	53 barracks	5536	447	1543	7526	1050	425.25	
Wetzel Family Hsg	Baumholder	53 housing	0	58	2	60	131	53.055	
Wetzel Kaserne	Baumholder	53 barracks	259	0	51	310	268	108.54	
Birkenfeld Housing Facility	Baumholder	53 housing	0	0	0	0	6	2.43	
Hoppstädten Sewage Treat Plt	Baumholder	53 other	0	0	0	0	5	2.025	
Hoppstädten Waterworks	Baumholder	53 other	0	0	0	0	18	7.29	
<u>Baumholder Open Totals</u>			<u>5819</u>	<u>533</u>	<u>1658</u>	<u>8010</u>	<u>1740</u>	<u>704.7</u>	
Baumholder Tac Def Missile Fac	Baumholder	53 air def	0	0	0	0	80	32.4	
Hoppstädten Airfield	Baumholder	53 airfield	0	0	0	0	105	42.525	
Neubrück Hospital*	Baumholder	53 hospital	1183	60	78	1321	109	44.145	
Idar Oberstein Family Hsg*	Baumholder	53 housing	0	0	0	0	31	12.555	
Nahbollenbach Storage Area*	Baumholder	53 arsenal	23	4	614	641	90	36.45	
Strassburg Kaserne*	Baumholder	53 barracks	239	27	110	376	40	16.2	
Winterhauch Storage Area	Baumholder	53 arsenal	0	0	0	0	182	73.71	
Balesfeld Missile Station	Baumholder	53 air def	591	0	0	591	80	32.4	
<u>Baumholder Closed Totals</u>			<u>2036</u>	<u>91</u>	<u>802</u>	<u>2929</u>	<u>717</u>	<u>290.385</u>	
Percentage Reduced		42%				27%	30%		
Herongen Storage Area	Rheinberg	54 arsenal	21	0	259	280	531	215.055	
Hinsbeck Comm Facility	Rheinberg	54 commo	111	51	231	393	0	0	
Twisteden Ammo Area	Rheinberg	54 arsenal	19	0	168	187	747	302.535	
<u>Rheinberg Open Totals</u>			<u>151</u>	<u>51</u>	<u>658</u>	<u>860</u>	<u>1278</u>	<u>517.59</u>	
Hamminkeln Comm Facility	Rheinberg	54 commo	8	0	0	8	0	0	
South Park Storage Area	Rheinberg	54 arsenal	98	1	366	465	239	96.795	
Dülmen Comm Facility	Rheinberg	54 commo	46	0	0	46	0	0	
Kalkar Housing Area	Rheinberg	54 housing	0	0	0	0	0	0	
Münster Comm Facility	Rheinberg	54 commo	119	15	15	149	1	0.405	
Simpson Barracks	Rheinberg	54 other	0	0	0	0	3	1.215	
Windberg Barracks	Rheinberg	54 barracks	6	2	23	31	3	1.215	
<u>Rheinberg Closed Totals</u>			<u>277</u>	<u>18</u>	<u>404</u>	<u>699</u>	<u>246</u>	<u>99.63</u>	
Percentage Reduced		70%				45%	16%		
Breitsol Comm Station	Aschaffenburg	98 como	15	0	3	18	8	3.24	
<u>Aschaffenburg Open Totals</u>			<u>15</u>	<u>0</u>	<u>3</u>	<u>18</u>	<u>8</u>	<u>3.24</u>	
Aschaffenburg Fam Hsg	Aschaffenburg	98 housing	0	0	0	0	78	31.59	
Aschaffenburg Tng Areas	Aschaffenburg	98 training	0	0	0	0	3226	1306.53	
Fiori Barracks	Aschaffenburg	98 barracks	206	2	28	236	37	14.985	
Graves Barracks	Aschaffenburg	98 barracks	26	1	11	38	47	19.035	
Jäger Barracks	Aschaffenburg	98 barracks	91	77	8	176	16	6.48	
Ready Barracks	Aschaffenburg	98 barracks	11	0	2	13	28	11.34	
Smith Barracks, Ascha.	Aschaffenburg	98 barracks	436	0	1	437	15	6.075	
Vielbrunn Ammo Area	Aschaffenburg	98 arsenal	0	0	0	0	184	74.52	
Mönchberg Comm Facility	Aschaffenburg	98 commo	15	0	0	15	4	1.62	
<u>Aschaffenburg Closed Totals</u>			<u>785</u>	<u>80</u>	<u>50</u>	<u>915</u>	<u>3635</u>	<u>1472.175</u>	
Percentage Reduced		90%				98%	100%		

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.	Acres		Hectares	
Faulenberg Kaserne*	Würzburg	98 barracks	142	145	1029	1316	63	25.515	
Giebelstadt Army Airfield	Würzburg	98 airfield	1611	31	253	1895	0	0	
Giebelstadt Dya Camp	Würzburg	98 rec	0	0	0	0	32	12.96	
Giebelstadt Tac Def Site	Würzburg	98 air def	0	0	0	0	26	10.53	
Harvey Barracks	Würzburg	98 barracks	386	33	425	844	630	255.15	
Kitzingen Family Hsg	Würzburg	98 housing	0	0	0	0	80	32.4	
Kitzingen Training Areas	Würzburg	98 training	0	0	0	0	2769	1121.445	
Larson Barracks	Würzburg	98 barracks	1888	84	344	2316	656	265.68	
Schwbnberg Ammo Area	Würzburg	98 commo	0	0	0	0	0	0	
Leighton Barracks	Würzburg	98 barracks	1170	341	743	2254	339	137.295	
Steinbachtal Ammo Area	Würzburg	98 arsenal	0	0	0	0	131	53.055	
Würzburg Hospital	Würzburg	98 hospital	312	197	95	604	14	5.67	
<u>Würzburg Open Totals</u>			<u>5509</u>	<u>686</u>	<u>1860</u>	<u>8055</u>	<u>4677</u>	<u>1894.185</u>	
Peden Barracks	Würzburg	98 barracks	619	135	340	1094	520	210.6	
Emery Barracks	Würzburg	98 barracks	956	22	38	1016	53	21.465	
Hindenburg Barracks	Würzburg	98 barracks	769	20	96	885	17	6.885	
Würzburg Training Areas	Würzburg	98 training	0	0	0	0	1584	641.52	
Hammelburg Fwd Storage Site	Würzburg	98 arsenal	0	0	0	0	0	0	
<u>Würzburg Closed Totals</u>			<u>2344</u>	<u>177</u>	<u>474</u>	<u>2995</u>	<u>2174</u>	<u>880.47</u>	
Percentage Reduced		30%				27%	32%		
Askren Manor Family Hsg	Schweinfurt	98 housing	1	1	28	30	71	28.755	
Conn Barracks	Schweinfurt	98 barracks	3698	2	7	3707	410	166.05	
Leward Barracks	Schweinfurt	98 barracks	2628	219	466	3313	127	51.435	
Massbach Qrs Site	Schweinfurt	98 arsenal	0	0	0	0	0	0	
Rottershausen Ammo Storage Area	Schweinfurt	98 arsenal	0	0	0	0	186	75.33	
Sulzheim Tng Area	Schweinfurt	98 training	0	0	0	0	145	58.725	
<u>Schweinfurt Open Totals</u>			<u>6327</u>	<u>222</u>	<u>501</u>	<u>7050</u>	<u>939</u>	<u>380.295</u>	
Schweinfurt Training Areas	Schweinfurt	98 training	0	0	0	0	12010	4864.05	
<u>Schweinfurt Closed Totals</u>			<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>12010</u>	<u>4864.05</u>	
		14%				0%	92%		
Rheinwarzhofen Rad Rel Fac	Nürnberg	99 commo	0	0	2	2	2	0.81	
<u>Nürnberg Open Totals</u>			<u>0</u>	<u>0</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>0.81</u>	
Erlangen Family Hsg	Nürnberg	99 housing	0	0	0	0	21	8.505	
Ferris Barracks	Nürnberg	99 barracks	2800	139	108	3047	317	128.385	
Tennenlohe Training Area	Nürnberg	99 training	0	0	0	0	7996	3238.38	
Herzo Base	Nürnberg	99 barracks	448	35	46	529	318	128.79	
Herzogenaurach Family Hsg	Nürnberg	99 housing	0	0	0	0	8	3.24	
Feucht Pol Storage Fac	Nürnberg	99 arsenal	0	0	0	0	41	16.605	
Merrell Barracks	Nürnberg	99 barracks	65	93	51	209	46	18.63	
Nürnberg Athletic Field	Nürnberg	99 rec	26	0	0	26	30	12.15	
Pastoriusstr Family Hsg	Nürnberg	99 housing	0	0	0	0	24	9.72	
Dambach Family Hsg	Nürnberg	99 housing	0	0	0	0	26	10.53	
Darby Kaserne	Nürnberg	99 barracks	1769	1186	296	3251	101	40.905	
Fürth Shopping Center	Nürnberg	99 other	2	38	1210	1250	14	5.67	
Johnson Barracks	Nürnberg	99 barracks	486	73	30	589	131	53.055	
Kalb Family Hsg	Nürnberg	99 housing	0	0	0	0	111	44.955	
Monteith Barracks	Nürnberg	99 barracks	1122	66	18	1206	311	125.955	
Nürnberg Coal Yard	Nürnberg	99 other	0	0	0	0	8	3.24	
Nürnberg Hospital	Nürnberg	99 hospital	489	341	46	876	29	11.745	
Nürnberg Transient Billets	Nürnberg	99 housing	0	0	0	0	2	0.81	
Schwabach Family Hsg	Nürnberg	99 housing	0	0	0	0	9	3.645	
Schwabach Range	Nürnberg	99 training	0	0	0	0	16	6.48	
Schwabach Training Area	Nürnberg	99 training	0	0	0	0	225	91.125	
Berbach Range	Nürnberg	99 training	0	0	0	0	26	10.53	
Pinder Barracks	Nürnberg	99 barracks	226	35	15	276	61	24.705	
<u>Nürnberg Closed Totals</u>			<u>7433</u>	<u>2006</u>	<u>1820</u>	<u>11259</u>	<u>9871</u>	<u>3997.755</u>	
Percentage Reduced		92%				100%	100%		

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.	Acres		Hectares	
Barton Barracks	Ansbach	99 barracks	205	6	45	256	35	14.175	
Katterbach Kaserne	Ansbach	99 barracks	1342	12	137	1491	409	165.645	
Urlas Tng Area	Ansbach	99 training	591	3	3	597	382	154.71	
Oberdachstetten Family Hsg	Ansbach	99 housing	0	0	0	0	10	4.05	
Oberdachstetten Training Area	Ansbach	99 training	0	0	0	0	799	323.595	
Storck Barracks	Ansbach	99 barracks	1408	110	156	1674	447	181.035	
<u>Ansbach Open Totals</u>			<u>3546</u>	<u>131</u>	<u>341</u>	<u>4018</u>	<u>2082</u>	<u>843.21</u>	
Bleidorn Family Hsg	Ansbach	99 housing	0	0	0	0	35	14.175	
Bleidorn Kaserne	Ansbach	99 barracks	51	5	25	81	16	6.48	
Feuchtlach Training Area	Ansbach	99 training	0	0	0	0	305	123.525	
Hindenburg Kaserne	Ansbach	99 barracks	382	275	424	1081	30	12.15	
Crailsheim Family Hsg	Ansbach	99 housing	0	0	0	0	29	11.745	
Crailsheim Training Area	Ansbach	99 training	0	0	0	0	1297	525.285	
McKee Barracks	Ansbach	99 barracks	172	16	183	371	190	76.95	
Gerhardshofen Fwd Strge Site	Ansbach	99 arsenal	0	0	31	31	27	10.935	
<u>Ansbach Closed Totals</u>			<u>605</u>	<u>296</u>	<u>663</u>	<u>1564</u>	<u>1929</u>	<u>781.245</u>	
Percentage Reduced		57%				30%	48%		
Hohenstadt Rad Rel Sta	Göppingen	99 commo	19	0	2	21	6	2.43	
<u>Göppingen Open Totals</u>			<u>19</u>	<u>0</u>	<u>2</u>	<u>21</u>	<u>6</u>	<u>2.43</u>	
Kennedy Vill Family Hsg	Heilbronn	26 housing	2	2	30	34	58	23.49	
Wharton Barracks	Heilbronn	26 barracks	483	163	326	972	58	23.49	
Siegelsbach Ammo Facility	Heilbronn	26 arsenal	450	0	0	450	413	167.265	
Dolan Barracks	Heilbronn	99 barracks	0	0	0	0	399	161.595	
Einkorn AFN Facility	Heilbronn	99 commo	0	0	0	0	136	55.08	
Hessental Family Hsg	Heilbronn	99 housing	0	0	0	0	5	2.025	
Matheshörleb Range	Heilbronn	99 training	0	0	0	0	18	7.29	
Lassbach Fwd Storage Site	Heilbronn	99 arsenal	0	0	0	0	78	31.59	
<u>Heilbronn Closed Totals</u>			<u>935</u>	<u>165</u>	<u>356</u>	<u>1456</u>	<u>1165</u>	<u>471.825</u>	
Percentage Reduced		100%				100%	100%		
Fryar Circle Family Hsg	Augsburg	99 housing	0	0	0	0	40	16.2	
Gablingen Kaserne	Augsburg	99 barracks	0	0	0	0	359	145.395	
Bonstetten Radio Relay Facility	Augsburg	99 commo	0	0	3	3	1	0.405	
Sheridan Kaserne	Augsburg	99 barracks	2372	254	964	3590	189	76.545	
Sullivan Heights Family Hsg	Augsburg	99 housing	0	0	0	0	19	7.695	
<u>Augsburg Open Totals</u>			<u>2372</u>	<u>254</u>	<u>967</u>	<u>3593</u>	<u>608</u>	<u>246.24</u>	
Augsburg QM Supply Ctr	Augsburg	99 supply	6	0	0	6	37	14.985	
Centerville Family Hsg	Augsburg	99 housing	0	0	0	0	63	25.515	
Cramerton Family Hsg	Augsburg	99 housing	0	0	0	0	55	22.275	
Flak Kaserne	Augsburg	99 barracks	900	194	64	1158	76	30.78	
Lechfeld Training Area	Augsburg	99 training	0	0	0	0	2613	1058.27	
Marxheim River Training Area	Augsburg	99 training	0	0	0	0	29	11.745	
Reese Barracks	Augsburg	99 barracks	316	7	91	414	106	42.93	
<u>Augsburg Closed Totals</u>			<u>1222</u>	<u>201</u>	<u>155</u>	<u>1578</u>	<u>2979</u>	<u>1206.495</u>	
Percentage Reduced		60%				30%	83%		
Bad Aibling Kaserne	Garmisch	99 barracks	322	1	4	327	318	128.79	
Hinterbrand Outdoor Educ Area	Garmisch	99 other	0	0	0	0	0	0	
Artillery Kaserne	Garmisch	99 barracks	13	8	2	23	22	8.91	
Garmisch Family Hsg	Garmisch	99 housing	2	121	339	462	83	33.615	
Garmisch Shopping Center	Garmisch	99 other	1	19	54	74	3	1.215	
Günzberg Comm Facility	Garmisch	99 commo	208	1	1	210	1	0.405	
Breitenau Skeet Range	Garmisch	rec	0	0	0	0	49	19.845	
Garmisch Golf Course	Garmisch	rec	0	0	0	0	73	29.565	
Gen Abrams Hotel & Disp	Garmisch	rec	16	0	0	16	11	4.455	
Gen Patton Hotel	Garmisch	rec	0	0	0	0	1	0.405	
Gen Von Steuben Hotel	Garmisch	rec	0	0	0	0	1	0.405	
Hausberg Ski Area	Garmisch	rec	0	0	0	0	36	14.58	
Sheridan Barracks	Garmisch	barracks	77	125	243	445	26	10.53	
<u>Garmisch Open Totals</u>			<u>639</u>	<u>275</u>	<u>643</u>	<u>1557</u>	<u>624</u>	<u>252.72</u>	

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.	Acres		Hectares	
Frasdorf Operations Area	Garmisch	99 training	0	0	0	0	2	0.81	
Berchtesgaden Accom Building	Garmisch	99 barracks	0	0	0	0	0	0	
Berchtesgaden Community Ctr	Garmisch	99 rec	0	0	0	0	1	0.405	
Berchtesgadener Hof Facility	Garmisch	99 rec	0	0	0	0	4	1.62	
Stanggass Camp Area	Garmisch	99 barracks	0	0	0	0	0	0	
Strub Kaserne	Garmisch	99 barracks	2	0	5	7	0	0	
Chiemsee Recreation Area	Garmisch	99 rec	0	0	0	0	42	17.01	
Gen Walker Hotel	Garmisch	99 rec	0	0	0	0	316	127.98	
Garmisch Supply Area	Garmisch	rec 0	0	0	0	0	0	0	
Garmisch Closed Totals			2	0	5	7	365	147.825	
Percentage Reduced		40%				0%	35%		
Bamberg Airfield	Bamberg	99 airfield	0	0	0	0	236	95.58	
Flynn Family Hsg & Training Areas	Bamberg	99 housing	0	0	0	0	2613	1058.265	
Warner Barracks*	Bamberg	99 barracks	2099	285	818	3202	227	91.935	
Warner Bks Family Hsg	Bamberg	99 housing	0	0	0	0	13	5.265	
Bamberg Open Totals			2099	285	818	3202	3089	1251.045	
Bamberg Storage & Range Area	Bamberg	99 arsenal	260	0	0	260	432	174.96	
Rothensand Fwd Storage Site	Bamberg	99 arsenal	0	0	0	0	24	9.72	
Bamberg Closed Totals			260	0	0	260	456	184.68	
Percentage Reduced		33%				8%	13%		
Amberg Family Hsg	Grafenwöhr	100 housing	0	0	0	0	9	3.645	
Frechetsfeld Radio Site	Grafenwöhr	100 commo	11	0	0	11	3	1.215	
Freihölser Training Area	Grafenwöhr	100 training	0	0	0	0	340	137.7	
Hirschau Training Area	Grafenwöhr	100 training	0	0	0	0	0	0	
East Camp Grafenwöhr	Grafenwöhr	100 barracks	1262	452	2200	3914	2699	1093.095	
Grafenwöhr Training Area	Grafenwöhr	100 training	0	0	0	0	51685	20932.425	
Grafenwöhr Open Totals			1273	452	2200	3925	54736	22168.08	
Amberg Airfield	Grafenwöhr	100 airfield	0	0	0	0	41	16.605	
Fuchstein Storage Area	Grafenwöhr	100 arsena	0	0	0	0	0	0	
Pond Barracks*	Grafenwöhr	100 barracks	35	64	203	302	43	17.415	
Röhrensee Kaserne	Grafenwöhr	100 barracks	20	1	4	25	7	2.835	
Grafenwöhr Closed Totals			55	65	207	327	91	36.855	
Percentage Reduced		40%				8%	0%		
South Camp Vilseck	Vilseck	100 arsenal	1262	452	2200	3914	2193	888.165	
Hohenfels Training Area	Hohenfels	100 training	5920	313	984	7217	39170	15863.85	
Pioneer Kaserne	Hohenfels	100 barracks	221	2	2	225	3	1.215	
Regensburg Family Housing	Hohenfels	100 housing	0	0	0	0	7	2.835	
Hohenfels Open Totals			6141	315	986	7442	39180	15867.9	
Percentage Reduced		0%				0%	0%		
Camp Wildflecken	Wildflecken	100 barracks	2220	386	826	3432	786	318.33	
Reussendorf Ammo Storage Area	Wildflecken	100 barracks	0	0	0	0	216	87.48	
Wildflecken Family Hsg	Wildflecken	100 housing	0	0	0	0	48	19.44	
Wildflecken QM Sup Pt	Wildflecken	100 supply	0	0	0	0	50	20.25	
Wildflecken Tac Def Site	Wildflecken	100 air def	0	0	0	0	34	13.77	
Wildflecken Training Range	Wildflecken	100 training	4	0	0	4	16889	6840.05	
Sterbfritz Fwd Storage Site	Wildflecken	100 arsenal	0	0	0	0	0	0	
Wildflecken Closed Totals			2224	386	826	3436	18023	7299.315	
Percentage Reduced		100%				100%	100%		
Weisskirchen AFN Frans Fac	Frankfurt	103 commo	0	0	0	0	18	7.29	
AM Fischstein Family Hsg	Frankfurt	103 housing	0	0	0	0	4	1.62	
AG Pub & Tng Aids Ctr	Frankfurt	103 barracks	11	47	195	253	10	4.05	
Frankfurt Open Totals			11	47	195	253	32	12.96	

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.			Acres	Hectares
Bad Vilbel Family Hsg	Frankfurt	103 housing	0	0	0	0	29	11.745	
Bad Vilbel Training Area	Frankfurt	103 training	0	0	0	0	30	12.15	
Camp King	Frankfurt	103 barracks	174	36	52	262	39	15.795	
Drake Barracks	Frankfurt	103 barracks	605	3	8	616	35	14.175	
Edwards Family Hsg	Frankfurt	103 housing	0	0	0	0	68	27.54	
Rose Airfield	Frankfurt	103 airfield	35	0	0	35	50	20.25	
Atterberry Family Hsg	Frankfurt	103 housing	10	9	206	225	31	12.555	
Betts Housing	Frankfurt	103 housing	791	487	108	1386	21	8.505	
Frankfurt Consolidated Mtr Pl	Frankfurt	103 other	0	0	0	0	6	2.43	
Frankfurt Hospital	Frankfurt	103 hospital	0	0	0	0	24	9.72	
Frankfurt Mortuary	Frankfurt	103 other	25	7	4	36	1	0.405	
Gibbs Barracks	Frankfurt	103 barracks	1123	458	1085	2666	24	9.72	
Gibbs Family Hsg	Frankfurt	103 housing	0	0	0	0	17	6.885	
Offenbach Barracks	Frankfurt	103 barracks	0	0	0	0	1	0.405	
Offenbach Spt Fac	Frankfurt	103 other	0	0	0	0	15	6.075	
Frankfurt Autobahn Svc Fac	Frankfurt	103 other	0	0	0	0	11	4.455	
Frankfurt Community Area	Frankfurt	103 rec	19	0	0	19	4	1.62	
Frankfurt Grünhof Area	Frankfurt	103 barracks	0	410	0	410	14	5.67	
Frankfurt HQs Area	Frankfurt	103 barracks	642	1724	478	2844	85	34.425	
Frankfurt Shopping Area	Frankfurt	103 other	7	489	0	496	19	7.695	
Grüneburg Park Admin Fac	Frankfurt	103 barracks	0	0	0	0	1	0.405	
Hansa Allee Family Hsg	Frankfurt	103 housing	275	138	326	739	11	4.455	
Hausen Equip Maint Ctr	Frankfurt	103 other	67	68	27	162	10	4.05	
Heddernheim Storage Fac	Frankfurt	103 arsenal	0	0	0	0	3	1.215	
Hügelstr Family Hsg	Frankfurt	103 housing	0	0	0	0	17	6.885	
Kennedy Kaserne	Frankfurt	103 barracks	309	96	174	579	1	0.405	
Platenstr Family Hsg	Frankfurt	103 housing	0	0	0	0	63	25.515	
Siegel BOQ Area	Frankfurt	103 housing	0	0	0	0	4	1.62	
Von Steuben Family Hsg	Frankfurt	103 housing	0	0	0	0	18	7.29	
Eschborn Storage Area	Frankfurt	103 arsenal	0	0	0	0	38	15.39	
Höscht Family Hsg	Frankfurt	103 housing	0	0	0	0	10	4.05	
Schwanheim Calibration Lab	Frankfurt	103 other	27	0	3	30	14	5.67	
<u>Frankfurt Closed Totals</u>			<u>4109</u>	<u>3925</u>	<u>2471</u>	<u>10505</u>	<u>714</u>	<u>289.17</u>	
Percentage Reduced		91%				98%	96%		
Amelia Earhart Hotel	Wiesbaden	103 housing	0	0	0	0	6	2.43	
American Arms Hotel	Wiesbaden	103 housing	0	0	0	0	5	2.025	
Hainerberg Hsg & Shop Ctr	Wiesbaden	103 housing	3	308	133	444	167	67.635	
Kastel Hsg Area	Wiesbaden	103 housing	0	0	15	15	28	11.34	
Kastel Storage Fac	Wiesbaden	103 arsenal	89	68	279	536	58	23.49	
Rheinblick Rec Annex	Wiesbaden	103 rec	0	0	0	0	172	69.66	
Wiesbaden Air Base	Wiesbaden	103 airfield	2726	700	1212	4638	638	258.39	
Wiesbaden Small Arms Range	Wiesbaden	103 training	0	0	0	0	26	10.53	
Wiesbaden Svc Annex	Wiesbaden	103 other	0	0	0	0	3	1.215	
<u>Wiesbaden Open Totals</u>			<u>2818</u>	<u>1176</u>	<u>1639</u>	<u>5633</u>	<u>1103</u>	<u>446.715</u>	
Aukamm Hsg Area	Wiesbaden	103 housing	0	45	0	45	93	37.665	
Camp Pieri	Wiesbaden	103 barracks	992	7	42	1041	38	15.39	
Crestview Hsg Area	Wiesbaden	103 housing	0	0	0	0	32	12.96	
Schierstein Hsg Area	Wiesbaden	103 housing	45	0	0	45	1	0.405	
<u>Wiesbaden Closed Totals</u>			<u>1037</u>	<u>52</u>	<u>42</u>	<u>1131</u>	<u>164</u>	<u>66.42</u>	
Percentage Reduced		30%				17%	13%		

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.	Acres		Hectares	
Babenhausen Family Hsg	Darmstadt	103 housing	1	0	6	7	0	0	
Babenhausen Kaserne	Darmstadt	103 barracks	1997	0	4	2001	365	147.825	
Bensheim Maint & Supply Fac	Darmstadt	103 other	0	0	0	0	7	2.835	
Cambrai Fritsch Kaserne	Darmstadt	103 barracks	1399	400	693	2492	64	25.92	
Darmstadt Carreer Ctr	Darmstadt	103 barracks	0	0	0	0	220	89.1	
Egelsbach Trnsmt Facility	Darmstadt	103 commo	0	0	0	0	122	49.41	
Jefferson Village Family Hsg	Darmstadt	103 housing	0	0	0	0	26	10.53	
Kelley Barracks	Darmstadt	103 barracks	860	7	22	889	121	49.005	
Lincoln Village Family Hsg	Darmstadt	103 housing	0	118	0	118	67	27.135	
Messel Small Arms Range	Darmstadt	103 training	0	0	0	0	44	17.82	
Nathan Hale QM Area	Darmstadt	103 supply	0	0	8	8	39	15.795	
St Barbara Village Family Hsg	Darmstadt	103 housing	0	0	0	0	13	5.265	
Walldorf Ammo Area	Darmstadt	103 arsenal	0	0	0	0	258	104.49	
Melibokus Radio Relay Station	Darmstadt	103 commo	18	0	0	18	5	2.025	
Darmstadt Open Totals			4275	525	733	5533	1351	547.155	
Ernst Ludwig Kaserne	Darmstadt	103 barracks	283	1	0	284	54	21.87	
Griesheim Airfield*	Darmstadt	103 airfield	170	0	819	989	246	99.63	
Griesheim Missile Facility	Darmstadt	103 air def	0	0	0	0	0	0	
Leeheim Bridge Training Area	Darmstadt	103 training	0	0	0	0	362	146.61	
Ober-Ramstadt Maint Plt	Darmstadt	103 other	4	2	9	15	21	8.505	
Münster Ammo Depot	Darmstadt	103 arsenal	743	1	0	744	706	285.93	
Darmstadt Closed Totals			1200	4	828	2032	1389	562.545	
Percentage Reduced		30%				27%	50%		
Armstrong Barracks	Hanau	104 barracks	864	14	8	886	59	23.895	
Armstrong Village Family Hsg	Hanau	104 housing	0	0	0	0	17	6.885	
Büdingen Ammo Area	Hanau	104 arsenal	0	0	0	0	10	4.05	
Büdingen Army Heliport	Hanau	104 airfield	0	0	3	3	29	11.745	
Tiergarten Training Area	Hanau	104 training	0	0	0	0	246	99.63	
Argonner Kaserne	Hanau	104 barracks	0	0	0	0	51	20.655	
Campo Pond Training Area	Hanau	104 training	0	0	0	0	257	104.085	
Cardwell Village Family Hsg	Hanau	104 housing	0	0	0	0	10	4.05	
Fliegerhorst Airfield Kaserne	Hanau	104 airfield	1626	23	4	1653	625	253.125	
Hutier Kaserne*	Hanau	104 barracks	852	0	0	852	33	13.365	
Lamboy Training Area*	Hanau	104 training	0	0	0	0	224	90.72	
New Argonner Family Hsg	Hanau	104 housing	0	0	0	0	83	33.615	
Pioneer Kaserne	Hanau	104 barracks	1142	0	0	1142	95	38.475	
Pioneer Village Family Hsg	Hanau	104 housing	0	0	0	0	61	24.705	
Wolfgang Kaserne	Hanau	104 barracks	0	370	54	424	99	40.095	
Yorkhof Kaserne	Hanau	104 commo	0	951	636	1587	4	1.62	
Hanau Open Totals			4484	1358	705	6547	1903	770.715	
Lorbach Ammo Area	Hanau	104 arsenal	0	0	0	0	12	4.86	
Alsberg Fwd Storage Site	Hanau	104 arsenal	0	0	0	0	0	0	
Bernbach Tng & Strg Areas*	Hanau	104 training	0	0	0	0	317	128.385	
Coleman Village Family Hsg	Hanau	104 housing	2	85	10	97	28	11.34	
Grebenhain Fwd Storage Site	Hanau	104 arsenal	0	0	0	0	0	0	
Roth Training Area	Hanau	104 training	249	0	0	249	126	51.03	
Benz Facility	Hanau	104 barracks	0	1	8	9	0	0	
Forage Depot	Hanau	104 other	0	10	48	58	9	3.645	
Francois Kaserne	Hanau	104 barracks	130	15	36	181	21	8.505	
Grossauheim Kaserne	Hanau	104 barracks	915	19	328	1262	215	87.075	
Hessen-Homburg Kaserne	Hanau	104 barracks	0	0	9	9	18	7.29	
Add. Reductions Various Locations			2769	0	752	3521			
Hanau Closed Totals			4065	130	1191	5386	746	302.13	
Percentage Reduced		40%				45%	28%		
Bad Hersfeld Class III Dump	Fulda	104 other	0	0	0	0	3	1.215	
Daley Village Family Hsg	Fulda	104 housing	20	0	0	20	17	6.885	
Fulda Open Totals			20	0	0	20	20	8.1	

Site	Military Community	ASG Type	US Milit.	Personnel			Total	Acres	
				US Civil.	Ger. Civil.	Acres		Hectares	
Bad Hersfeld Engineer Area	Fulda	104 other	38	0	138	176	11	4.455	
Bad Hersfeld Training Area	Fulda	104 training	0	0	0	0	272	110.16	
Friedewald Training Area	Fulda	104 training	0	0	0	0	4145	1678.73	
McPheeters Barracks	Fulda	104 barracks	1164	1	91	1256	49	19.845	
McPheeters Village Family Hsg	Fulda	104 housing	0	0	0	0	21	8.505	
Ottrau Fwd Storage Site	Fulda	104 other	0	0	0	0	27	10.935	
Bad Kissingen Ammo Facility	Fulda	104 arsenal	0	0	0	0	6	2.43	
Bad Kissingen Training Areas	Fulda	104 training	0	0	0	0	515	208.575	
Reiterswiesen Airfield	Fulda	104 airfield	0	0	0	0	20	8.1	
Reiterseiesen Ammo Storage	Fulda	104 arsenal	0	0	0	0	3	1.215	
Reiterswiesen Qrs Site	Fulda	104 arsenal	0	0	0	0	98	39.69	
Reiterswiesen Training Area	Fulda	104 training	0	0	0	0	738	298.89	
Bimbach CI V Storage Area	Fulda	104 arsenal	0	0	0	0	21	8.505	
Downs Barracks	Fulda	104 barracks	2190	107	538	2835	147	59.535	
Downs Family Hsg	Fulda	104 housing	0	0	0	0	26	10.53	
Fulda Engineer Area	Fulda	104 barracks	0	0	0	0	9	3.645	
Gerlos Ammo Storage Site	Fulda	104 arsenal	0	0	0	0	21	8.505	
Giesel Fwd Storage Site	Fulda	104 arsenal	0	29	0	29	27	10.935	
Lehnerz Range	Fulda	104 training	0	0	0	0	16	6.48	
Sickels Airfield	Fulda	104 airfield	765	8	28	801	182	73.71	
Ulrichstein Billeting Area	Fulda	104 housing	0	0	0	0	7	2.835	
Fulda Closed Totals			4157	145	795	5097	6361	2576.205	
Percentage Reduced		91%				100%	100%		
Alvin York Village Family Hsg	Gießen	104 housing	2	40	23	65	23	9.315	
McArthur Place Family Hsg	Gießen	104 housing	0	0	0	0	10	4.05	
Ray Barracks	Gießen	104 barracks	1502	327	163	1992	188	76.14	
George C Marshall Village Fam Hsg	Gießen	104 housing	0	0	0	0	42	17.01	
Hommertshausen Girl Scout Camp	Gießen	104 rec	0	0	0	0	84	34.02	
John F Dulles Village Family Hsg	Gießen	104 housing	0	33	1	34	22	8.91	
Ayers Kaserne	Gießen	104 barracks	3119	293	281	3693	927	375.435	
Roman Way Village Family Hsg	Gießen	104 housing	10	71	13	94	63	25.515	
Gießen Open Totals			4633	764	481	5878	1359	550.395	
Friedberg Tng & Storage Site	Gießen	104 training	6	0	2	8	9509	3851.15	
Flensburg Fwd Storage Site	Gießen	104 arsenal	0	0	28	28	42	17.01	
Gießen Ammo Area	Gießen	104 arsenal	0	0	0	0	17	6.885	
Gießen CI I Pt	Gießen	104 other	11	12	4	27	7	2.835	
Gießen CI II & IV Depot	Gießen	104 training	0	0	0	0	12	4.86	
Gießen Comm Facility	Gießen	104 commo	45	0	0	45	0	0	
Gießen Community Center	Gießen	104 rec	0	0	00	18	7.29	294.435	
Gießen General Depot*	Gießen	104 depot	3633	306	838	4777	541	219.105	
Gießen Training Areas	Gießen	104 training	0	0	0	0	727	294.435	
Marburg Gen Storage Fac	Gießen	104 arsenal	0	0	0	0	9	3.645	
Pendleton Barracks	Gießen	104 barracks	607	363	98	1068	38	15.39	
Rivers Barracks	Gießen	104 barracks	594	15	10	619	45	18.225	
Rothwestern Tech Ops Facility	Gießen	104 other	17	4	22	43	11	4.455	
Schwarzenborn Radio Relay Site	Gießen	104 commo	0	0	0	0	1	0.405	
Kransberg Facilities	Gießen	104 other	0	0	0	0	4	1.62	
Schloss Kaserne	Gießen	104 barracks	275	0	31	306	33	13.365	
Büren Comm Facility	Gießen	104 commo	134	4	2	140	0	0	
Camp Paul Bloomquist	Gießen	104 other	23	0	0	23	4	1.62	
Herbornseelbach Comm Facility	Gießen	104 commo	213	1	1	215	0	0	
Köterberg Radio Relay Site	Gießen	104 commo	0	0	0	0	2	0.81	
Lindrhof Comm Station	Gießen	104 commo	0	1	1	2	15	6.075	
Mt Meissner Radio Relay Station	Gießen	104 commo	12	0	0	12	11	4.455	
Gießen Closed Totals			5570	706	1037	7313	11046	4473.63	
Percentage Reduced		73%				55%	90%		

Site	Military Community	ASG Type	US Milit.	Personnel			Acres	
				US Civil.	Ger. Civil.	Total	Acres	Hectares
Blink Family Hsg	Norddeutschl.	543 housing	0	48	23	71	40	16.2
Bremerhaven Dock Area	Norddeutschl.	543 other	5	65	63	133	28	11.34
Bremerhaven Hospital	Norddeutschl.	543 hospital	267	100	66	433	9	3.645
Bremerhaven Rto	Norddeutschl.	543 barracks	0	0	0	0	3	1.215
Carl Schurz Kaserne	Norddeutschl.	543 barracks	1474	357	1268	3099	372	150.66
Engemoor Family Hsg	Norddeutschl.	543 housing	0	0	0	0	15	6.075
Lucius D Clay Kaserne	Norddeutschl.	543 barracks	1922	132	832	2886	348	140.94
Osternholz-Scharmbeck Centrum	Norddeutschl.	543 barracks	19	4	141	164	38	15.39
Dörverden Comm Facility	Norddeutschl.	543 commo	0	0	0	0	1	0.405
Dünsen Comm Facility	Norddeutschl.	543 commo	6	0	2	8	1	0.405
Flensburg Comm Facility	Norddeutschl.	543 commo	186	44	56	286	5	2.025
Kellinghusen Comm Facility	Norddeutschl.	543 commo	62	0	2	64	2	0.81
Langendamm Comm Facility	Norddeutschl.	543 commo	0	0	0	0	2	0.81
Sögel Comm Facility	Norddeutschl.	543 barracks	246	12	29	287	13	5.265
Wobeck Electronic Test Facility	Norddeutschl.	543 other	7	0	2	9	29	11.745
<u>Norddeutschland Closed Totals</u>			<u>4194</u>	<u>762</u>	<u>2484</u>	<u>7440</u>	<u>906</u>	<u>366.93</u>
Percentage Reduced		100%				100%	100%	
AAFES Whse & 4 Season Store	Berlin	other	0	0	0	0	5	2.025
AFN Station & APO	Berlin	commo	0	0	0	0	2	0.81
AM Dreipfuhl Family Hsg	Berlin	housing	0	0	0	0	16	6.48
Andrews Barracks	Berlin	barracks	6	0	2	8	109	44.145
Berlin AAFES Garages	Berlin	other	0	0	0	0	1	0.405
Berlin American High School	Berlin	other	0	0	0	0	12	4.86
Berlin Brigade Family Hsg	Berlin	housing	0	0	0	0	83	33.615
Berlin Brigade Sports Ctr	Berlin	rec	0	0	0	0	0	0
Berlin BOQ	Berlin	housing	237	0	0	237	13	5.265
Berlin DEH Compound	Berlin	barracks	0	0	0	0	0	0
Berlin Documents Center	Berlin	barracks	0	0	0	0	3	1.215
Berlin Golf & Country Club	Berlin	rec	0	0	0	0	97	39.285
Berlin Hospital	Berlin	hospital	0	0	0	0	12	4.86
Berlin RTO	Berlin	barracks	0	0	0	0	0	0
Berlin Signal Station	Berlin	commo	0	0	0	0	0	0
Berlin Sup & Svc Div Compound	Berlin	bararcks	0	0	0	0	8	3.24
Berlin S&S Div Peri Subs Whse	Berlin	other	0	0	0	0	4	1.62
Dachsberg Ammo Area	Berlin	arsenal	0	0	0	0	31	12.555
Dahlem House	Berlin	baracks	0	0	0	0	1	0.405
Düppel Family Hsg	Berlin	housing	0	0	0	0	53	21.465
Gen Lucius D Clay Headquarters	Berlin	barracks	3028	3258	23	6309	19	7.695
Harnack House	Berlin	barracks	0	0	0	0	4	1.62
Infantry Motor Pool	Berlin	other	0	0	0	0	21	8.505
Jagen 87 Sig Facility	Berlin	commo	0	0	0	0	52	21.06
Jagen 92 Ammo Area	Berlin	arsenal	0	0	0	0	817	330.885
Jagen Training Area	Berlin	training	0	0	0	0	0	0
Keerans Range	Berlin	training	0	0	0	0	56	22.68
McNair Barracks	Berlin	barracks	0	0	0	0	70	28.35
NCO Club Checkpoint	Berlin	rec	0	0	0	0	2	0.81
Outpost Theater	Berlin	rec	0	0	0	0	4	1.62
Pacelliallee Transmitter Station	Berlin	commo	0	0	0	0	19	7.695
Parks Range	Berlin	training	0	0	0	0	177	71.685
Pückler Family Hsg	Berlin	housing	0	0	0	0	20	8.1
Residential Transient Billets	Berlin	housing	0	0	0	0	46	18.63
Rose Training Area	Berlin	training	0	0	0	0	256	103.68
Sundgaurstr Family Hsg	Berlin	housing	0	0	0	0	13	5.265
T A Roberts School	Berlin	other	0	0	0	0	8	3.24
Tegel Airport	Berlin	other	0	0	0	0	0	0
Teufelsberg Comm Facility	Berlin	commo	0	0	0	0	15	6.075
Truman Plaza	Berlin	barracks	0	0	0	0	14	5.67
Turner Barracks	Berlin	barracks	0	0	0	0	7	2.835
Wannsee Recreation Ctr	Berlin	rec	0	0	0	0	8	3.24
<u>Berlin Closed Totals</u>			<u>3271</u>	<u>3258</u>	<u>25</u>	<u>6554</u>	<u>2078</u>	<u>841.59</u>
Percentage Reduced		100%				100%	100%	

<i>Site</i>	<i>Military</i> <i>Community</i>	<i>ASG Type</i>	<i>US Milit.</i>	<i>Personnel</i>			<i>Total</i>	<i>Acres</i>	
				<i>US Civil.</i>	<i>Ger. Civil.</i>			<i>Acres</i>	<i>Hectares</i>
Chiemgaustr Bil & Admin Area	Munich	barracks	0	0	0	0	15	6.075	
Grünthal Family Hsg	Munich	housing	0	0	0	0	4	1.62	
Harlaching Admin Facility	Munich	barracks	0	0	0	0	1	0.405	
McGraw Kaserne	Munich	barracks	817	1516	713	3046	116	46.98	
Munich AFN Facility	Munich	commo	0	0	0	0	0	0	
Perlacher Forest Family Hsg	Munich	housing	11	5	20	36	242	98.01	
<u>Munich Closed Totals</u>			<u>828</u>	<u>1521</u>	<u>733</u>	<u>3082</u>	<u>378</u>	<u>153.09</u>	
Percentage Reduced		100%				100%	100%		

Notes:

Closed bases are in **blue**.

* See Part II for details on status of these reduced sites.

Status of US Air Force Bases in Germany

Site	Military Community	ASG Type	US Milit.	Personnel			Acres	
				US Civil.	Ger. Civil.	Total	Acres	Hectares
Bitburg Air Base*	Bitburg	airfield	4584	817	1042	6443	1239	501.80
Idenheim Comm Annex	Bitburg	commo	0	0	0	0	57	23.09
Mötsch Ammo Stg Annex	Bitburg	arsenal	0	0	0	0	18	7.29
Prüm Family Hsg Annex	Bitburg	housing	0	0	0	0	20	8.10
Rittersdorf Annex	Bitburg	storage	0	0	0	0	30	12.15
Röhl Annex	Bitburg	storage	0	0	0	0	1	0.41
Sülm Annex	Bitburg	storage	0	0	0	0	10	4.05
Bitburg Closed Totals			4.584	817	1042	6443	1375	55689
Hahn Air Base*	Hahn	airfield	5311	868	678	6857	1251	506.66
Buchenbeuren Waste Annex	Hahn	sewage	0	0	0	0	2	0.81
Hahn Family Housing	Hahn	housing	0	0	0	0	135	54.68
Hahn Water Sys Annex 1	Hahn	sewage	0	0	0	0	1	0.41
Hahn Water Sys Annex 2	Hahn	sewage	0	0	0	0	1	0.41
Hahn Water Sys Annex 3	Hahn	sewage	0	0	0	0	1	0.41
Hahn Water Sys Annex 4	Hahn	sewage	0	0	0	0	2	0.81
Hahn Water Sys Annex 5	Hahn	sewage	0	0	0	0	5	2.03
Hahn Water Sys Annex 6	Hahn	sewage	0	0	0	0	20	8.10
Hudheim Annex	Hahn	storage	0	0	0	0	7	2.84
Kastellaun Family Housing	Hahn	housing	0	0	0	0	6	243
Morbach Ammo Stg Site	Hahn	arsenal	0	0	0	0	362	146.61
Sohren Family Hsg Annex	Hahn	housing	0	0	0	0	35	14.18
Wüschheim Air Base	Hahn	airfield	0	0	0	0	32	12.96
Wüschheim Ammo Stg Annex	Hahn	arsenal	0	0	0	0	62	25.11
Wüschheim Comm Annex	Hahn	commo	0	0	0	0	6	2.43
Wüschheim Comm Annex 2	Hahn	commo	0	0	0	0	3	1.22
Hahn Closed Totals			5311	868	678	6857	1931	782.1
Lindsey Air Base	Lindsey	airfield	2113	453	366	2932	82	33.21
Schierstein Adm Annex	Lindsey	adm	0	0	0	0	4	1.62
Wiesbaden Hospital	Lindsey	hospital	0	0	0	0	19	7.70
Lindsey Closed Totals			2113	453	366	2932	105	42.53
Ramstein Air Base	Ramstein	airfield	9633	3112	2065	14810	3100	1255.50
Bann Comm Annex	Ramstein	commo	0	0	0	0	6	2.43
Börfink Admin Site	Ramstein	adm	0	0	0	0	0	0.00
Copenhagen Family Hsg Site	Ramstein	housing	0	0	0	0	0	0.00
Einseidlerhof Maint Annex	Ramstein	fuel/trans	0	0	0	0	13	5.27
Einseidlerhof Stg Annex	Ramstein	storage	0	0	0	0	27	10.94
Einseidlerköpfe Training Annex	Ramstein	training	0	0	0	0	311	125.96
Kaiserslautern Family Hsg Annex 3	Ramstein	housing	0	0	0	0	12	4.86
Kaiserslautern Family Hsg Annex 4	Ramstein	housing	0	0	0	0	3	1.22
Kaiserslautern Water Sys Annex	Ramstein	adm	0	0	0	0	4	1.62
Kapaun Adm Annex	Ramstein	adm	0	0	0	0	155	62.78
Kindsbach Stg Annex	Ramstein	storage	0	0	0	0	6	2.43
Landstuhl Family Hsg Annex 3	Ramstein	housing	0	0	0	0	52	21.06
Landstuhl Maint Annex	Ramstein	fuel/trans	0	0	0	0	7	2.84
Landstuhl Maint Annex 2	Ramstein	fuel/trans	0	0	0	0	7	2.84
Langerkopf Water Sys Annex	Ramstein	sewage	0	0	0	0	57	23.09
Ramstein Family Hsg Annex	Ramstein	housing	0	0	0	0	0	0.00
Ramstein Stg Annex	Ramstein	storage	0	0	0	0	85	34.43
Siegenberg	Ramstein	misc	0	0	0	0	681	275.81
Vogelweh Family Hsg Annex	Ramstein	housing	0	0	0	0	678	274.59
Ramstein Open Totals			9633	3112	2065	14810	5204	2107.7

<i>Personnel</i> Site	Military Community	ASG Type	Acres			Total	Acres	Hectares
			US Milit.	US Civil.	Ger. Civil.			
Donauüschingen Cont Hop Annex Ramstein		hospital	0	0	0	0	10	4.05
<u>Ramstein Closed Totals</u>			<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>10</u>	<u>4.05</u>
Gateway Gardens Family Hsg Annex	Rhein-Main	housing	0	0	0	0	87	35.24
Langen Terrace Family Hsg Annex	Rhein-Main	housing	0	0	0	0	19	7.70
<u>Rhein-Main Opel Totals</u>			<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>106</u>	<u>42.9</u>
Rhein Main Air Base*	Rhein-Main	airfield	4679	1193	413	6285	794	321.57
<u>Rhein Main Closed Totals</u>			<u>4679</u>	<u>1193</u>	<u>413</u>	<u>6285</u>	<u>794</u>	<u>321.57</u>
Enkenbach Water Sys Annex	Sembach	sewage	0	0	0	0	5	2.03
Hochspeyer Ammo Stg Annex	Sembach	arsenal	0	0	0	0	88	35.64
Kalkar Comm Site	Sembach	commo	0	0	0	0	0	0.00
Neukirchen Water Sys Annex	Sembach	sewage	0	0	0	0	1	0.41
Niedermehlingerhof Water Sys Annex	Sembach	sewage	0	0	0	0	2	0.81
Sembach Base Support Annex	Sembach	misc	0	0	0	0	3	1.22
Mühl Züsch RRL	Sembach (Hahn)	commo	0	0	0	0	3	1.22
<u>Sembach Open Totals</u>			<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>102</u>	<u>41.3</u>
Sembach Air Base*	Sembach	airfield	3125	563	436	4124	584	236.52
Alzey Comm Annex	Sembach	commo	0	0	0	0	6	2.43
Mehlingen Comm Annex	Sembach	commo	0	0	0	0	68	27.54
Neuhemsbach Pol Retail Dist Annex	Sembach	supply	0	0	0	0	7	2.84
Reisenbach Comm Annex	Sembach	commo	0	0	0	0	3	1.22
Rohrbach Waste Annex	Sembach	sewage	0	0	0	0	3	1.22
<u>Sembach Closed Totals</u>			<u>3125</u>	<u>563</u>	<u>436</u>	<u>4124</u>	<u>671</u>	<u>271.8</u>
Spangdahlem Air Base	Spangdahlem	airfield	4608	523	570	5701	1282	519.21
Grosslittgen Stg Annex	Spangdahlem	storage	0	0	0	0	5	2.03
Grosslittgen Water Sys Annex	Spangdahlem	sewage	0	0	0	0	2	0.81
Niederkail Water Sys Annex	Spangdahlem	sewage	0	0	0	0	2	0.81
Spangdahlem Waste Annex	Spangdahlem	sewage	0	0	0	0	3	1.22
Ahlbach Water Sys Annex	Spangdahlem	sewage	0	0	0	0	1	0.41
	(Bitburg)							
Bon Ahin Radio Relay Site	Spangdahlem	commo	0	0	0	0	0	0.00
	(Bitburg)							
Bitburg Family Hsg Annex	Spangdahlem	housing	0	0	0	0	149	60.35
	(Bitburg)							
Bitburg Family Hsg Annex 2	Spangdahlem	housing	0	0	0	0	15	6.08
	(Bitburg)							
Mötsch Water Sys Annex	Spangdahlem	sewage	0	0	0	0	6	2.43
	(Bitburg)							
Oberweis Annex	Spangdahlem	storage	0	0	0	0	105	42.53
	(Bitburg)							
Prüm Air Stations	Spangdahlem	airfield	0	0	0	0	47	19.04
	(Bitburg)							
Prüm Water Sys Annex	Spangdahlem	sewage	0	0	0	0	6	2.43
	(Bitburg)							
<u>Spangdahlem Open Totals</u>			<u>4608</u>	<u>523</u>	<u>570</u>	<u>5701</u>	<u>1623</u>	<u>657.4</u>
Trier Family Hsg Annex	Spangdahlem	housing	0	0	0	0	20	8.10
<u>Spangdahlem Closed Totals</u>			<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>20</u>	<u>8.10</u>
Tempelhof Air Station	Tempelhof	airfield	1104	764	0	1868	506	204.93
Tegel Navigational Aid Annex	Tempelhof	misc	0	0	0	0	2	0.81
<u>Templehof Closed Totals</u>			<u>1104</u>	<u>764</u>	<u>0</u>	<u>1868</u>	<u>508</u>	<u>205.7</u>

<i>Personnel</i> Site	<i>Military</i> Community	<i>ASG Type</i>	<i>Acres</i>				<i>Acres</i>	<i>Hectares</i>
			<i>US Milit.</i>	<i>US Civil.</i>	<i>Ger. Civil.</i>	<i>Total</i>		
Air Bases Closed Before 1991**								
Zweibrücken Air Base	Zweibrücken	airfield	2431	436	275	3142	654	264.87
Zweibrücken Bach Hsg	Zweibrücken	housing	0	0	0	0	n/a	
Zweibrücken Family Hsg	Zweibrücken	housing	0	0	0	0	n/a	
Zweibrücken Family Hsg 2	Zweibrücken	housing	0	0	0	0	n/a	
Zweibrücken Storage Annex	Zweibrücken	storage	0	0	0	0	n/a	
Zweibrücken Closed Totals			2431	436	275	3142	654	264.87
Hessisch Oldendorf Air Station	Hessisch-Oldendorf	airfield	592	56	0	648	27	10.94
Hessisch Oldendorf Rec Annex	Hessisch-Oldendorf	rec	0	0	0	0	n/a	
Hessisch Oldendorf Storage Annex	Hessisch-Oldendorf	storage	0	0	0	0	n/a	
Hessisch Oldendorf Storage Annex 2	Hessisch-Oldendorf	storage	0	0	0	0	n/a	
Schwelentrup Com Annex	Hessisch-Oldendorf	commo	0	0	0	0	n/a	
Hessisch-Oldendorf Closed Totals			592	56	0	648	27	10.94

Notes:

Closed bases are in **blue**.

(Hahn) = Bases in parentheses are the bases of original command, i.e., those which have closed.

* See Part II for details on reduced sites.

** These facilities were not included in the site-type break-down because accurate area information was not available.

Part II

Officially Reduced Sites: Status and Sources

Location / Site	Status
Verified through the 6th ASG	
Stuttgart	
Echterdingen Airfield	56 acres retained, 100 personnel
Kornwesteim Airfield and Training	Reduced to zero
Robinson Barracks	27 acres of housing with 60 positions retained
Verified through the 415th BSB	
Pirmasens	
Lemberg Missile Station and Training	Reduced to zero
Husterhöh Kaserne	1000 personnel retained under command of Kaiserslautern
Zweibrücken	
Oberaürbach Missile Station	17 positions retained
Kaiserslautern	
Army Depot	1346 personnel retained (1225 Germans)
Rhein Ordnance Barracks	1647 personnel retained (212 Germans)
Community Facility, East	12 personnel retained (8 Germans)
Verified through the 293rd BSB	
Mannheim	
Lampertheim Training Area	3,894 acres retained, no associated personnel
Worms	
Thomas Jefferson Housing	Housing retained, no authorized positions
Quirnheim Missile Station	21 acres retained, no associated personnel
Verified through the 100th ASG	
Grafenwöhr	
Pond Barracks	Some administrative offices retained. No authorized positions
Verified through the 53rd ASG	
Baumholder	
Neubrücke Hospital	Some administration offices retained but no authorized positions
Idar Oberstein Family Housing	Reduced to zero
Strassburg Kaserne	Gym, sports field, and some housing retained but no authorized positions
Nahbollenbach Storage Area	Area retained, positions reduced to zero (US owned, contractor operated facility)

Location / Site	Status
<i>Verified through th 104th ASG</i>	
Gießen	
General Depot	Reduced to 1000 mostly German positions
Hanau	
Bernbach Training and Storage Area	Reduced to zero
Lamboy Training Area	Under continued operation. No authorized positions
Hutier Kaserne	Reduced to 852 US military authorized positons
<i>Verified through the 279th BSB</i>	
Bamberg	
Warner Barracks	Stable at 3200 positions (increasing to 4,000 in August 1995). Reduced before 1991 from more than 10,000
<i>Verified through the 98th ASG</i>	
Würzburg	
Faulenberg Kasern	Stable at 1991 levels. Significantly reduced in 1990
<i>Verified through the 233rd BSB</i>	
Darmstadt	
Griesheim Airfield	Airfield closed. One administrative complex with a branch Stars and Stripes office retained
<i>Verified through visual inspection</i>	
Bitburg Air Base	Reduced to a very small storage center. Command transferred to Spangdahlem Air Base (USEUCOM Press Release, 23 February 1995)
Hahn Air Base	Reduced to a small recreational site, zero authorized positions
<i>Verified through USAFE letters, 23 January 1995 and 13 February 1995</i>	
Rhein-Main Air Base	Reduced to 262 US and 413 German positions
Sembach Air Base	Reduced to 256 US an 307 German positions

Part III

Pre-1991 USAREUR Base Closures

Bad Tölz Military Community: 446 Authorized US Positions lost

Bad Tölz Range
Baker Army Airfield
Benediktenwand Training Area
Flint Kaserne
Grotzerholz Training Area
Heigel Training Area
Jachenau Training Area
Kesselkopf Training Area
Sachsenkammerstraße Family Housing

Göppingen Military Community: 4250 Authorized US Positions lost

Bismark Barracks
Cooke Barracks
Göppingen Family Housing
Hardt Kaserne
Mutlangen Training Area
Schwäbisch Gmünd Military Family Housing
Unterbettingen Training Area

Neu-Ulm Military Community: 4100 Authorized US Positions lost

Bollingen Training Area
Bubesheim Training Area
Burlafingen Training Area
Ford Family Housing
Gerlenhofen Training Area
Günzburg Communications Facility
Günzburg Training Area
Kleinkötz Training Area
Leibi Training Area
Leipheim AAFES Gas Station
Ludwigsfeld Training Area
Mähringen Training Area
Nelson Barracks
Neu-Ulm Officers Club
Neu-Ulm Supply Center
Pfullendorf Communications Facility
Reisenburg Training Area
Schwaighofen Storage Area
Strass Training Area
Thalfingen Training Area
Von Steuben Missile Training Station
Vorfeld Family Housing
Wiley Barracks

Sources: Duke, 1989 for employment; Vest, 1994 for sites

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