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*Army Morale, Welfare,
and Recreation Programs
in the Future*

*Maximizing Soldier Benefits
in Times of Austerity*

*Susan Way-Smith, Edward G. Keating,
Peter A. Morrison, Michael T. Childress*

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PREFACE

This report considers the future of Army Morale, Welfare, and Recreation (MWR) programs. Continued budgetary pressures are forcing changes in Army MWR provision. At the same time, times on station for soldiers may be increasing, more spouses are working outside the home, and funds for on-post housing are shrinking. All these factors push toward more provision of MWR services by the off-post private sector. This report develops a costing methodology to compare more accurately the costs of different MWR provision methods. This research was sponsored by the U.S. Army Community and Family Support Center (CFSC) and carried out within RAND's Arroyo Center.

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SUMMARY

The purpose of this study was to examine the ways in which Army Morale, Welfare, and Recreation (MWR) programs are fiscally managed and to develop a decisionmaking model that can assess the relative costs of various MWR provision options. The goal of this research direction is to maximize the benefits soldiers receive from the resources devoted to Army MWR.

THE CURRENT MWR SYSTEM

The Army's MWR system is intended to support combat readiness, recruitment, and retention. A variety of services are provided, ranging from libraries to child care. MWR activities are managed at the installation level, albeit subject to guidelines from major commands (MACOMs) and the Army.

We focused our research on seven MWR activities: gyms, sports, recreation centers, arts and crafts, auto crafts, outdoor recreation, and youth activities. The goal was to choose disparate yet representative activities.

We also focused our research on eight installations: Fort Lewis, Schofield Barracks, Fort Shafter, Fort Knox, Fort Irwin, Fort Bliss, White Sands Missile Range, and Rock Island Arsenal. The goal was to obtain heterogeneity on six dimensions:

- Installation type
- MACOM

- Metropolitan scale
- Cost of living
- Proximity to other military installations
- Military-civilian distribution.

We focused on installations within the United States.

Each of our installations is distinguished or unique on one or more dimensions:

- Fort Lewis is noteworthy for having experimented with MWR integration with other nearby military facilities.
- Schofield Barracks and Fort Shafter have extensive cooperation with local government as well as very high costs of living.
- Fort Knox is a leader in the application of technology to MWR provision.
- Fort Irwin is unique in that it has extensively contracted installation operations and MWR services.
- Fort Bliss is on the forefront of moving toward complete nonappropriated-fund financing of MWR, e.g., Fort Bliss is attempting to self-finance all its MWR activities (other than related capital projects).
- White Sands Missile Range is very isolated, yet it has capitalized on bringing public and private educational institutions onto its facilities.
- Rock Island Arsenal is a test site for combining MWR for military personnel and civilian employees.

This heterogeneity notwithstanding, Army MWR is markedly homogeneous across installations, both in terms of MWR options and how MWR is provided, i.e., by government employees (with the exception of Fort Irwin).

A CHANGING WORLD

There are three major changes occurring that we believe will result in more integration of soldiers into their local communities in the United States. First, times on station are likely to increase as European tours become less common and the Army wants to reduce expenditures on transfers.

Second, more Army spouses are working outside the home, mirroring a societal trend toward increasing female labor force participation.

Third, funding pressures have virtually stopped new construction of on-post housing. Further, current Army housing is aging and maintenance funding is declining. With longer time on station and lower interest rates, it seems more likely that soldiers will buy housing. All these factors suggest more integration of soldiers into their local communities.

At the same time, the Army is facing immediate and long-term budget pressures. Aggregate Army funding is likely to continue to decline, at least in real terms. These budget cuts may disproportionately affect Army MWR funding.

CHOOSING A MODE OF MWR PROVISION

Budgetary challenges make cost-effective MWR provision particularly important. There are a variety of ways MWR services might be provided. Possibilities include:

- *Autonomy.* Provision by government employees (usually the status quo).
- *Regionalization.* Coordination with neighboring Department of Defense (DoD) installations.
- *Local governmental provision, e.g.,* provision by a local park district.

- *Contractual arrangements.* On-post facilities and activities managed by third parties.
- *Sale of assets.* Sale of on-post facilities to private providers.
- *Purchase on the economy.* Purchase of services off-post in the private sector.

Each approach has advantages and disadvantages. But in these days of declining resources, the Army needs to consider whether the alternatives offer the opportunity to reduce costs. In order to discover this, the Army needs a way of identifying and tracking both the direct and indirect costs associated with providing MWR programs. Installations repeatedly argued to us that government employees could generally provide lower-cost and higher-quality service. The "cost" portion of this statement, though, cannot typically be verified, for one key reason: the Army does not track all the costs associated with providing the service.

We believe installations generally underestimate the costs of autonomous MWR provision. For example, depreciation costs are often ignored. Capital costs are not considered. Further, operating and maintenance costs are often underestimated when projects are initially considered. Overhead allocation is misleading. Finally, no rent is attributed to on-post facilities. These conditions tend to understate the costs of providing MWR services, perhaps distorting decisions about the size and appropriate provider of such programs.

To begin to address these cost estimation problems, we present a different approach to track resource use and costs:

- We identify the changes in current activities and potential transition activities that will be required.
- We determine the change in resource requirements generated by the changes in these activities (e.g., appropriated and nonappropriated manpower, equipment, and facilities).
- We calculate costs of changes in resource requirements.

Traditional cost-accounting methods used by both the public and private sector, with their concentration on the reporting of labor, material, and overhead, do not identify all the costs and aspects in-

involved in an activity. Costs of activities also become distorted through these methods' allocations of overhead. The method we present is designed to identify all the costs and savings associated with a change in the provision of an MWR activity. The method is designed for decisionmaking and does not require a complete overhaul of the current accounting system. It is a simple tool that can be used to assess the costs and savings associated with a change. Through the application of this tool, more cost-effective ways of providing MWR can be identified and soldiers can get the maximum benefit from resources devoted to Army MWR.

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INTRODUCTION

There are several key Army changes that affect Morale, Welfare, and Recreation (MWR) programs at installations within the United States: overseas tours are becoming less frequent, soldiers' times on station are likely to increase, more Army spouses are working outside the home, and Army housing is in a long-term decline. All these factors are increasing soldier integration with their civilian communities. At the same time, the Army is facing immediate as well as long-term budget pressures. Funding for Army MWR has declined and is likely to continue to decline.

MWR services can be provided in a variety of ways, ranging from provision by government employees to full reliance on the private sector. Yet decisions about MWR provision options are handicapped by the Army's inability to adequately trace the costs of providing programs. The costs of many on-post, government-provided MWR programs are underestimated.

This report traces the changes we see occurring in the Army that affect MWR. We also discuss a costing procedure we believe might better assess the costs of different approaches to providing MWR to soldiers and their families.

MAJOR FACTORS CHANGING MWR DEMANDS

Among the myriad changes occurring in the Army, three specific developments have the clearest impact on MWR demands. First, the Army is withdrawing many of its forces from Europe and is becoming increasingly a U.S.-based force. The drawdown in Europe affects

stationing patterns. In addition, installation closures in the United States and strong budgetary pressures to reduce the number of relocations will affect stationing patterns. With fewer overseas tours, fewer continental U.S. (CONUS) installations, and pressure to minimize permanent changes of station, it is likely that times on station will increase. Longer times on station may imply that Army households will have housing options that more closely parallel civilian choices, and Army families may become more thoroughly integrated in the civilian community.

Second, more Army spouses are working outside the home. Longer times on station reinforce a broader societal trend of greater female labor force participation. Dual-earner households are now the norm rather than the exception. We expect that spouses working outside the home will increase soldier integration with the civilian community. Even if the spouse is employed on the installation, dual-earner households are more likely to "contract out" household services, e.g., eat more often in restaurants off-post.

Third, the importance and quality of on-post housing is decreasing. The budget pressures imply that little new housing is being built on-post, and current on-post housing is falling into increasing disrepair. An increasing percentage of soldiers may live off-post, or more installations will adopt creative on-post solutions, e.g., privately operated on-post housing.

A growing integration of soldiers into local communities provides an opportunity for more MWR provision off-post and more participation by the private sector in on-post provision. Indeed, a sizable chunk of soldier entertainment and recreation currently occurs off-post in the private sector.

While the Army changes, of course, budget pressures have grown considerably. Army MWR has not been spared budget cuts and can reasonably expect further cutbacks.

In light of these changes and pressures, a variety of creative ideas have been presented and implemented to change on-post MWR provision. Increasing participation by private-sector firms and more businesslike behavior by government providers have been two recurrent themes of these innovations. For example, Total Quality Management programs, commercial sponsorship, and even addi-

tional commercial ventures such as picture framing, recycling, and car rental programs are being initiated to generate additional revenue.¹ Certain other installations have contracted various segments of activities, and have tried arrangements with local government agencies. And, where possible, joint provision and sharing of resources with other services is occurring.

INADEQUATE COST ACCOUNTING

Unfortunately, evaluation of MWR provision options has been hamstrung by an inadequate cost accounting system. The current and future operating costs of specific MWR activities are very difficult to identify and quantify. The current reporting system for MWR programs provides no accurate way of accounting for actual appropriated expenditures that support such programs.² In addition, the accounting for costs of MWR activities is part of the Army's current financial system, which is designed to provide high-level aggregated financial information and not cost information.

Not surprisingly, these problems trickle down to accounting for MWR programs:

- Costs are highly aggregated and not allocated to specific activities.
- The reporting systems bury or distort important cost drivers such as overhead and maintenance costs for individual activities.
- Costing policies and procedures differ among the major commands (MACOMs) and are not consistently followed at the installations.³ For example, depreciation methods and

¹In many cases, however, the Army is constrained in attempts to operate like a business. The key rationale for these constraints is that the Army is not a commercial business and should not be competing with the private sector. As these new revenue-producing activities are added, competition with the private sector may become a serious problem.

²All costs associated with a program need to be visible before an evaluator can make an informed decision about program performance.

³While the format for reporting costs to the Department of the Army is usually followed, we found that the actual costs included and the methods for calculated and allocating them differed significantly across installations.

calculations vary across installations. Not only do depreciation calculations differ, but a great number of other cost calculations vary across installations. Costs of capital are generally ignored.

Overall, the current systems simply do not allow the Army to compare MWR provision options. Decisionmakers cannot assess alternatives without knowing the full resource and cost requirements of an activity. Although revisions in the Army's accounting system are already in progress, it will take a long time before these changes can contribute to effective decisionmaking. But at a time of severe budget reductions, it is crucial for decisionmakers to be able to assess which programs are critical to the installation, which programs could be eliminated with minimal impact on the soldier and his or her family, and which programs might be offered through less-expensive alternatives. The Army needs a simple tool that can be used to assess options in light of the current situation of shrinking resources.

RESEARCH OBJECTIVES AND ORGANIZATION

This report seeks to provide the Army with a framework for assessing options for providing Morale, Welfare, and Recreation programs at installations within the United States.⁴ We explore the future context within which the Army will operate, and how that future may alter or reshape MWR requirements. We also examine alternative delivery approaches the Army might consider and how it might assess those alternatives.

Chapter Two describes the current MWR system and the specific installations and MWR services we focused on. Chapter Three then amplifies on the changes in the Army and society that will have the most impact on MWR demands.

Chapter Four discusses different ways MWR services might be provided, ranging from autonomous provision by government employees to complete reliance on the private sector. Chapter Five outlines the difficulties in choosing among MWR provision options. Chapter Six outlines an approach to costing MWR programs that is detailed

⁴There are a variety of complications associated with installations in foreign countries. This report does not consider MWR at installations outside the United States.

and enables the Army to identify both the direct and indirect costs of providing these activities. Chapter Seven applies this method to two MWR programs at Fort Lewis. Chapter Eight concludes.

THE CURRENT MWR SYSTEM

The Army's MWR system is intended to support combat readiness, recruitment, and retention. The programs aim to achieve a quality of living comparable to that found in the civilian sector. The mix of MWR programs on an Army installation is supposed to be based on the demands of the personnel who work and reside there.

MWR activities are managed by installation commanders within the guidelines provided through each major command (MACOM) and the Army Morale, Welfare, and Recreation Fund (AMWRF). MWR services are currently divided into three categories based on criteria ranging from mission essentiality to the potential for generating revenues. Table 2.1 defines these three categories.

MWR activities are intended primarily for military personnel and their families and for other members of the military community. Eligibility to participate in these programs is prioritized: active-duty soldiers and their families first, followed by retirees, reservists, and then civilians.¹ The installation determines how far down on the priority list it wants to establish local participation.

¹For a complete listing of the patronage priority, see Army Regulation 215-2, *The Management and Operation of Army Morale, Welfare, and Recreation Programs and Nonappropriated Fund Instrumentalities*, Washington, D.C.: Headquarters, Department of the Army, September 1990. Installations with a large civilian population include civilians as eligible participants in these MWR programs. Installations may also have a separate fund for activities focused on the needs of civilian employees. Frequently these funds are generated through vending machine sales or other types of revenue-producing activities.

Table 2.1
MWR Categories and Definitions

Category and Example Activities	Definition
<p>Category A: Mission Sustaining</p> <ul style="list-style-type: none"> • Armed Forces Entertainment • Gymnasiums/physical fitness • Libraries • Parks/picnic areas • Recreation centers • Intramural sports • Common support services 	<p>These activities are considered most essential in meeting the organizational objectives of the Army. They promote the physical and mental well-being of the soldier, a requirement that supports accomplishment of the basic military mission. These activities are supported primarily through appropriated funds.</p>
<p>Category B: Community Support</p> <ul style="list-style-type: none"> • Arts/crafts • Automotive crafts • Child development centers • Outdoor recreation • Sports above intramural • Youth services • Bowling (< 12 lanes) 	<p>These activities satisfy the basic physiological and psychological desires of soldiers and their families. The activities make military installations temporary home towns for a mobile military population. These activities receive appropriated funds and also generate nonappropriated-fund revenues. However, the activities' ability to generate revenues is limited.</p>
<p>Category C: Business Activities</p> <ul style="list-style-type: none"> • Clubs • Guest houses • Bowling centers (> 12 lanes) • Golf courses • Skeet ranges 	<p>These activities are considered less essential from the perspective of the military mission, but desirable as a means of providing recreation activity. Activities in this category have the highest potential for generating revenue. As a result, they receive limited appropriated-fund support. The primary distinguishing characteristic of this category is that the activities are comparable to self-sustaining businesses.</p>

SOURCE: Army Regulation 215-1, *Morale, Welfare, and Recreation*, Washington, D.C.: Headquarters, Department of the Army, Issue Number 16, 1990 update.

The installation also determines the fees it charges to its patrons. It may impose charges for goods or services comparable to what similar off-post commercial establishments charge, or it may charge less. MWR programs on an Army installation receive funding through sales, fees, and charges to authorized patrons, dividends from the

Army and Air Force Exchange System (AAFES) stores and operations, and appropriated funds.²

Each installation has its own Installation Morale, Welfare, and Recreation Fund (IMWRF) that supports most Army installation MWR activities. Revenues generated by MWR programs are pooled into the IMWRF and are allocated to the installation's authorized activities, based on its own priorities.³ Each IMWRF is required to have a one-to-one ratio of cash to debt.⁴

SELECTION OF PROTOTYPE MWR PROGRAMS

As noted, there is a broad range of Army MWR activities. To focus our project, we wanted to examine in depth a subset of programs. Toward that end, we selected seven MWR activities to study. Three of these activities are in Category A (Mission Sustaining). These are gyms, sports, and recreation centers. Four are in Category B (Community Support). These are arts and crafts, automotive crafts, outdoor recreation, and youth services.⁵

We wanted to select a set of activities that spanned a range of participation rates across the active-duty population and their families, activities that are growing (e.g., youth services), and activities that are declining (e.g., recreation centers). Youth services is a growing program because of the "aging" of military children. The demand for youth services also varies across installations based on the programs available in the community and the number of working spouses. For example, latchkey programs are rapidly expanding at installations where there are employment opportunities for spouses in the local

²Appropriated funds are primarily through the military personnel (MPA), operations and maintenance (OMA), and military construction (MCA) appropriations. The revenues from fees are called nonappropriated funds.

³Priorities for programs are to be determined through market analysis, patron surveys, and actual utilization data.

⁴In cases where self-sufficiency is not possible (e.g., at an isolated installation), the MACOM may take dollars from one installation and apply them to the fund at the isolated installation. Each installation fund is required to have a positive balance before depreciation.

⁵We did not select any programs in the Business Activities category because these programs are already being analyzed by the Community and Family Support Center.

community. Recreation centers have been closing at a number of installations. Such facilities may not be needed at installations in urban areas that may offer plentiful similar services. Or, at some installations the traditional recreation center concept has been replaced by better facilities in the barracks. However, isolated installations may still require the services provided by the recreation center.

We also wanted to determine how individual installation characteristics might affect these programs. While programs such as physical fitness and sports have very high participation rates across the Army, arts and crafts program participation varies widely across installations. There may be a number of reasons for this variation, such as program quality, opportunities in the local community, or interest level among the installation population.

Finally, we selected a variety of programs in order to study the costs associated with providing a mix of programs. Simply examining each program in isolation does not give a clear picture of all the indirect costs and support costs associated with the system of programs. Each program is like a product: some costs are unique to providing that product, but some costs are shared. It is important to determine how these costs change when different delivery mechanisms are considered for the mix of programs.

SELECTION OF PROTOTYPE INSTALLATIONS

The installation where the soldier and his or her family find themselves may significantly influence the breadth and intensity of their reliance on support services. For instance, soldiers stationed at rural installations are more likely to utilize Army-provided services than soldiers located at installations near large urban centers.⁶

The contexts of Army installations vary widely, so we need to consider these issues across a broad range. Accordingly, we collected comparative data on forty installations in the United States and chose eight that present meaningful variation on key dimensions. It

⁶See Burnam et al. (1992). RAND research has documented a variety of such relationships, in which contextual characteristics like the installation size, whether it is a "combat installation," and whether it is in a rural location affect usage of Army services.

is because of the variation on these dimensions that these eight installations can be thought of as *prototype installations*. The lessons learned about MWR services and alternative provision methods at these installations should be applicable to other installations as well.

In arriving at the final choices, we identified six dimensions that are key variables in examining MWR activities:

- *Installation type*: Major installations are those with 5,000 or more service members, DoD civilian employees, and/or other tenants. Minor installations have between 1,000 and 5,000 individuals.⁷
- *MACOM*: There are important differences in the way the major commands provide support services. One major difference is the organization. Some MACOMs (e.g., AMC) have sub-MACOM MWR staff in addition to their MACOM staff. The MACOMs differ in their operating rules. As already noted, costing methods differ and so do methods of assessing program performance. Some have mandated break-even results and some have required return-on-investment analysis. Also, the MACOM serves as a proxy for the installation's primary mission (e.g., training, combat, maintenance).
- *Metropolitan scale*: Privatization can be fostered more readily at installations that are accessible to a local metropolitan area and economy. Conversely, privatization may be difficult to achieve at installations in isolated rural locations. The infrastructure, available services, and economic diversity of the community all factor into the installation's ability to consider alternative delivery options.
- *Cost of living*: The private provision of some support services might be less feasible at installations in areas with a high cost of living. The local cost of housing is a key factor. If soldiers are spending a large portion of their income on housing, their disposable income is less and they may have to rely more on the

⁷ARMY BASEOPS PRIMER, prepared by the Base Operations Program Evaluation Group (BASEOPS PEG) Team, Installation Management Division, Directorate of Management, Office of the Chief of Staff, Army, Headquarters, Department of the Army, Washington, D.C., p. 64.

Army's provision of support services. On the other hand, soldiers in high-cost areas get a Variable Housing Allowance (VHA) when they live off-post. In addition, cost-of-living adjustments are provided in some areas (e.g., Hawaii). These adjustments make the provision of MWR services on the installation more costly overall.

- *Proximity to other military installations:* Relatively few Army installations are thought to be sufficiently close to another service's installation to afford a viable opportunity for multiservice provision of support services. Some are close enough, though, and given the potential economies of scale multiservice provision can offer, we wanted to be able to consider this option.
- *Military-civilian distribution:* Civilians tend to use different services than active-duty personnel. Civilians use services that are available to them immediately before, during, and immediately after their workday. They are less likely to use services or participate in activities on the installation at other times. On installations where the dominant population is civilian rather than military, the mix of programs and the participation rates for various MWR programs may differ. Of course, MWR activities are fundamentally targeted toward soldiers and their families.

Table 2.2 shows how the eight selected installations compare on the above dimensions. Collectively, they include both major and minor installations; four different MACOMs; proximity to small, medium and large metropolitan areas; locations both below and above average in cost of living; situations of both high proximity and low proximity to other military installations; and differing distributions of military and civilian populations.

Each installation has adapted in certain ways to its mission, location, and overall population in managing its MWR services. We next review each installation in more depth and its key differentiating characteristics concerning its management of MWR programs.

Fort Lewis

Fort Lewis, a Forces Command (FORSCOM) installation, currently has approximately 15,000 active military personnel. It was scheduled

Table 2.2
Some Characteristics of the Prototype Installations

Installation	Type	MACOM	Metro Area ^a	Cost of Living ^b	Proximity	Mil-Civ ^c
Fort Lewis	Major	FORSCOM	Large	Average	High	Military
Schofield Barracks	Major	USARPAC	Large	Above avg.	High	Military
Fort Shafter	Minor	USARPAC	Large	Above avg.	High	Military
Fort Knox	Major	TRADOC	Large	Below avg.	Low	Military
Fort Irwin	Major	FORSCOM	Small	Average	Low	Military
Fort Bliss	Major	TRADOC	Large	Below avg.	Low	Military
White Sands MR	Major	AMC	Medium	Below avg.	Low	Civilian
Rock Island	Major	AMC	Medium	Average	Low	Civilian

^aWe consider a metropolitan area greater than 500,000 as large, 100,000 to 500,000 as medium, and below 100,000 as small. Metro Area is "large" if either the first or second city's population exceeds 500,000.

^bIf cost of living is estimated to be within five percentage points of the national average, then we categorize it as average. Otherwise, we categorize it as above average or below average.

^cAn installation is classified as "military" if it has more military personnel than civilian personnel and "civilian" otherwise.

to receive the 7th Infantry Division, but that move has been canceled, and it is possible that two heavy brigades will relocate to Lewis sometime during 1994. The actual capacity of Lewis is approximately 25,000 active military. Fort Lewis also oversees the MWR activities of the Yakima training area.

Fort Lewis is close to McChord Air Force Base and also to a major military hospital. A key differentiating factor for Fort Lewis is that it has experimented with regionalization for certain MWR programs. Actual driving time to McChord is approximately 15 minutes. Fort Lewis and McChord have tried a joint venture in operating the salt-water boating and youth service activities. The proximity to the hospital results in Lewis serving a large number of soldiers with exceptional family members (e.g., handicapped children).

Fort Lewis is situated very close to the Washington cities of Tacoma and Olympia. Seattle is about a 30-minute drive. All these communities are economically diverse and offer a number of entertainment

and recreational facilities. Employment opportunities for spouses are fairly promising in the Fort Lewis area. This area is also a prime retirement location for service members. Approximately 16,000 Army retirees live in the area. When the Air Force and Navy retiree population is added, the number is about 40,000.

Schofield Barracks and Fort Shafter

Both Schofield Barracks and Fort Shafter are located on the Hawaiian island of Oahu. Schofield Barracks (which is part of U.S. Army Pacific Command) houses approximately 13,000 active military personnel 15 to 20 miles outside Honolulu. The area between Schofield and Honolulu is fairly rural, and public transportation is very limited. Fort Shafter is the headquarters for the U.S. Army Pacific and is responsible for the 50,000 military and civilian personnel located on all islands. Fort Shafter's military population is about 2,000 active soldiers. Currently, there are no plans for major expansions or force subtractions at either of these installations.

Of Schofield's military personnel, 46 percent are between the ages of 22 and 27 (versus 36 percent in the military as a whole). On the other hand, Fort Shafter's military personnel are disproportionately older and more likely to be married than the military as a whole.

The Marines, Navy, and Air Force all have a major presence in Hawaii. Tripler Army Medical Center is also located on Oahu. As is the case with Fort Lewis, both installations have a large population of exceptional family members. In addition, about 30,000 Army retirees reside on Oahu.

The local economy is heavily dependent on federal spending, tourism, and foreign investment. The focus on tourism means that entertainment and recreational facilities are both diverse and plentiful. The local job market has a very low unemployment rate,⁸ so opportunities for spousal employment are good. The cost of living is exceptionally high in Hawaii, and individuals stationed there receive a 22 percent cost-of-living adjustment. Hawaii is also known for its extensive and high-quality vocational education system, its focus on

⁸See Appendix A, Table A.4.

youth services, and medical programs. Schofield Barracks and Fort Shafter have coordinated extensively with Hawaii's after-school programs. This extensive cooperation with local government is an important differentiating factor for these installations.

Fort Knox

Fort Knox is the home of the Armor Center, and it is a major Training and Doctrine Command (TRADOC) training facility. Approximately 14,000 active military are stationed at Fort Knox. It has the capacity for about 20,000 troops. Since it is a training installation, a large number of soldiers rotate in and out of Knox on a regular basis. One recent TRADOC strategy has been to reduce the length of training in order to avoid permanent change-of-station moves. This means that there may be more and more unaccompanied soldiers spending time at Knox. One might expect relatively more usage of MWR facilities like gyms and less of family-driven facilities like child care as a result of this increase in the number of unaccompanied soldiers at Knox.

Fort Knox is a leader in the application of technology, and MWR programs have benefited from this focus. Knox has implemented an automated system, Rec Trac, which captures important family and demographic information. The system also assists in scheduling and other functions.

Louisville, Kentucky, the closest major metropolitan area, is about 35 miles from Fort Knox. Smaller nearby communities are Radcliff (about 2 miles from Knox) and Elizabethtown (15 miles from Knox). Radcliff is very rural and Elizabethtown has some minor manufacturing. However, overall the local economy is fairly restricted to farming and servicing the installation. About 6,600 Army retirees reside in the 50-mile radius surrounding Knox.

Fort Irwin

Fort Irwin, a FORSCOM installation, is the National Training Center and is located 37 miles from Barstow, California. Fort Irwin is designated by regulation as an isolated installation. Currently, about 4,500 active military are stationed there. It is expected that an additional 300 active military will be assigned to Irwin by 1997. Personnel

stationed at Irwin are eligible for the Los Angeles cost-of-living adjustment.

Twelve times per year, units rotate to Irwin for a 28-day training exercise. Each rotation brings in about 4,000 soldiers. These rotations provide for a different work schedule for those permanently assigned to the installation. Every month, there is a four-day break.

Barstow has a population of about 21,000. The foundation of its economy is defense. The Marine Corps logistics base located in Barstow is a major employer, as are the extensive mining operations that surround the community. A major commissary and post exchange at the Marine base is offered to Irwin soldiers. The area has attracted few retirees.

Irwin is unique in that it has extensively contracted installation operations and MWR services and has been on a contract basis since it was reactivated in 1981. Functions that are contracted at Irwin include maintenance and repair, minor construction, housing and billeting management, supply, maintenance and transportation services, and MWR. There is one contractor who employs about three subcontractors for all these services under a cost-plus arrangement. The contractor extensively employs Army spouses.

Fort Bliss

Fort Bliss is located in the city of El Paso, Texas, the fourth-largest city in Texas. El Paso is economically diverse, and it houses a large branch of the University of Texas. We were told that employment opportunities for spouses in El Paso can be limited for those who do not speak Spanish. Fort Bliss has an active-duty population of almost 20,000, and it is the home of the Air Defense Artillery School and is a TRADOC installation. No major additions or subtractions are planned for Bliss.

Fort Bliss has its own in-house research unit that develops and executes market research studies.⁹ Fort Bliss is also moving toward a complete nonappropriated-fund financing approach for MWR. Fort

⁹Some other installations have marketing departments. However, what differentiates Bliss is the extent of the research and its use in planning.

Bliss's MWR program has been very aggressive in attempting to expand its purview; e.g., when we visited, it was endeavoring to take over publishing of the on-post newspaper. It is not clear that Fort Bliss is fairly or fully tabulating the costs of its operations as compared to off-post private providers.

William Beaumont Army Medical Center draws retirees into the area. There are approximately 40,000 retirees located in the surrounding communities. Fort Bliss is 50 miles from White Sands Missile Range, and Bliss training areas are adjacent to White Sands. There is minimal coordination between Fort Bliss, White Sands, and Holloman Air Force Base.

White Sands Missile Range

White Sands Missile Range encompasses a vast amount of mostly empty land. Territorially, it is the largest military installation in the world. White Sands is an Army Materiel Command (AMC) installation. As is the case with Fort Irwin, White Sands is designated by regulation as an isolated installation. It is located 26 miles from Las Cruces, New Mexico, 48 miles from Alamogordo, New Mexico, and 50 miles from El Paso. It is the Department of Defense's major missile testing site. With such expansive land, it is generally forecasted that White Sands may grow as a result of realignments. However, there is some uncertainty about this growth. The closest town, Las Cruces, has a population of 62,000 and is the home of New Mexico State University. The labor market surrounding White Sands (Otero and Dona Ana counties) exhibits high (10 to 12 percent) unemployment.

White Sands is isolated, yet it has capitalized on bringing public and private educational institutions onto its facility. Not only does it coordinate with local institutions, but universities across the country offer courses for both civilians and military.

There are approximately 1,000 active military assigned to the installation. Over 800 personnel are Army, the remainder is split between the Navy and Air Force. However, there are over 3,600 DoD-employed civilians at the installation as well as over 2,200 "others," which includes full-time contract support, nonappropriated-fund employees, and foreign nationals.

Rock Island Arsenal

The Rock Island Arsenal (an AMC installation) is located in the center of the Quad Cities (Rock Island and Moline, Illinois, and Bettendorf and Davenport, Iowa) which have a population of over 400,000. There are about 300 military assigned to Rock Island and over 5,600 civilians. The installation is a test site for combining both the IMWRF and the civilian welfare fund. Civilians participate in all the same programs and pay the same fee as military for the majority of programs.

Rock Island's military personnel are disproportionately older. Rock Island's average soldier is 35.7 versus an Army-wide average of 27.9.

The installation was scheduled to assume a subcommand of AMC. That was canceled, however, and the installation is looking for other tenants to occupy its facilities. The key differentiating factor at Rock Island is its sophistication at calculating and capturing costs.

The local economy is relatively diverse. Major manufacturers are located in the surrounding areas (e.g., John Deere, Alcoa, Case), and there is also a large number of postsecondary educational institutions. There are about 20,000 Army retirees in the Quad Cities area.

MWR HOMOGENEITY

As described above, our prototype installations vary on a variety of dimensions, e.g., size, MACOM, location. One would be hard-pressed, for example, to exaggerate the differences between White Sands Missile Range and Fort Shafter. Yet we were struck by the marked similarities in MWR operations at the prototype installations. Essentially the same activities are offered at every installation. Indeed, in many cases, building designs are exactly the same from installation to installation.

There is also homogeneity in terms of how MWR is provided. With the exception of Fort Irwin, government employees provided MWR services, though some installations have proportionally more non-appropriated-fund employees than others have. There appears to have been a conscious effort to create MWR homogeneity across installations even if their needs differ, e.g., some installations have

more off-post options than others. Homogeneity in MWR approaches would appear to be part of the Army culture and tradition.

At the same time, though, we hypothesize that problems with MWR cost accounting problems lead almost every installation to the same basic solution, i.e., MWR provision by government employees. Even if one insists on homogeneity of MWR services, our belief is that the optimal solution may be characterized by provision by government employees in some places, but other approaches, e.g., contracting, in others. Chapters Four and Five elaborate on this point. Next, however, Chapter Three discusses some changes in the world that we believe will impact Army MWR.

The first part of this chapter focuses on three changes in the Army that imply greater integration of soldiers into their local communities and consequently less need for on-post, government-provided MWR services. First, a greater percentage of the force will be U.S.-based and transfers may be less frequent. Second, Army spouses are increasingly likely to work outside the home. Third, Army housing is deteriorating.

The chapter concludes by noting the growing resource and budget challenges that have a growing negative effect on Army MWR programs.

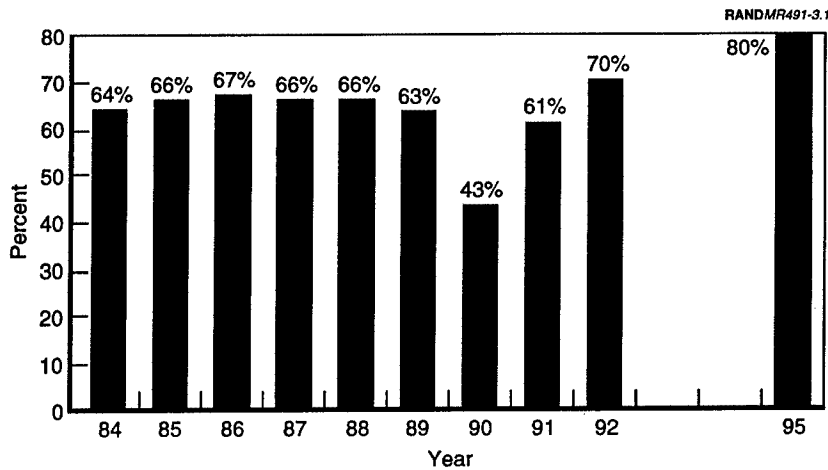
Appendix B of this document discusses other changes in the Army that we think will have less marked an impact on Army MWR.

IMPORTANT CHANGES IN THE ARMY

Fewer European Tours, Longer Stays at Installations

The Army is becoming increasingly a U.S.-based force as it withdraws many of its forces from Europe. This trend is reflected in Figure 3.1. During the 1980s, it was typical for about two-thirds of Army personnel to be stationed in the United States. However, by 1995 it is likely that 80 percent or more will be stationed in the United States.

With an increasing percentage of soldiers stationed in the United States, the Army may increase the typical time on station beyond three years. Also, since transfers (Permanent Changes of Station (PCS) in Army parlance) are expensive, there are strong budgetary



NOTE: Data for 1984–1992 are actual. Data for 1993 and 1994 were not available. 1995 is a projection.

SOURCES: *Selected Manpower Statistics*, Department of Defense, various years; National Defense Research Institute (1992).

Figure 3.1—Active Army Personnel Stationed in the United States as a Percentage of Total Army Personnel

pressures to extend time on station and thereby keep transfers to a minimum. Longer time on station may foster greater integration of military personnel into the community than what currently exists.

More Spouses Working Outside the Home

Somewhat over half of Army female spouses are in the labor force—that is, they are either employed or seeking work. Labor force participation is comparatively lower among spouses with preschool-age children and higher among those whose youngest child is a teenager. Also, participation is substantially higher among spouses with more years of schooling.¹

In the mostly CONUS-based Army, spouses will increasingly reflect civilian workforce trends, notably (1) the continuing influx of

¹Morrison et al. (1989), pp. 23–32.

younger generations of women and (2) more workers adopting non-traditional schedules in response to changes in family responsibilities and in the economy. Table 3.1 is a comparison across generations, and it provides clear evidence of the sharply increasing labor force participation of women. Among women between the ages of 20 and 54, roughly 70 to 75 percent participated in the labor force as of 1990. These levels are substantially above the levels of 1975 and are projected to be five to ten percentage points higher by 2005.²

Army spouses, like the wives of civilians, have joined the workforce in growing numbers, making the dual-earner family now the norm rather than the exception it once was. Furthermore, this sharp influx in recent years has fostered delayed childbearing in the civilian population, and it has gradually reshaped the traditional division of labor between spouses. Here, too, parallel developments are visible in Army families. The traditional full-time homemaker is no longer as common a female occupation. Instead, homemaking's various functions—meal preparation, child care, home repair and mainte-

Table 3.1
Civilian Labor Force Participation Rates
for Women, 1975 and 1990,
and Projected to 2005

Age Group	Participation Rate (percent)		
	1975	1990	2005
16 to 19	49.1	51.8	54.3
20 to 24	64.1	71.6	75.3
25 to 34	54.9	73.6	79.7
35 to 44	55.8	76.5	85.3
45 to 54	54.6	71.2	81.5
55 to 64	40.9	45.3	54.3
65 years and over	8.2	8.7	8.8
Total	46.3	57.5	63.0

SOURCE: Bureau of Labor Statistics.

²It should be noted that the Surveys of Army Families (SAF) I and II show no significant increase in spouses working outside the home. We expect, however, an increase to be forthcoming, emulating civilian female labor force participation patterns.

nance—are fragmented and “contracted out” to commercial providers. Such steps increase integration with the off-post economy.

To the extent more Army spouses work outside the home in the local economy, we expect more Army personnel to be integrated into the local community.

The Decline of Army Housing

Army family housing is now at a critical juncture. Approximately 37 percent of Army housing demand is satisfied by Army-controlled housing. And those that live in Army units are usually housed in quarters that were built between 1957 and 1967. About 76 percent of the Army’s family housing is from 25 to 35 years old. Approximately 59 percent of these housing units require complete revitalization, 18 percent need major repairs, and 23 percent need to be demolished or replaced.³

The estimated cost to revitalize the current backlog and to replace existing quarters is about \$570 million each fiscal year between 1992 and 2001.⁴ In addition to these housing maintenance costs, there are frequently unexpected housing-related costs associated with environmental concerns. These environmental concerns include immediate remediation for such items as lead-based paint, lead in drinking water, asbestos, and radon.

The cost of maintaining the current inventory of Army housing is extremely high. The bulk of the family housing appropriation is for the operation and maintenance of the current inventory. There is some limited construction planned for FY 1994. This construction is for 433 additional family housing units and 750 replacement units. Table 3.2 shows the distribution of funds for family housing, and it is clear that the bulk (approximately 65 percent) of the family housing appropriation funds consistently goes toward maintenance and repair.

³Department of the Army, U.S. Army Engineering and Housing Support Center, *Strategic Course of Action for Housing Managers*, Fort Belvoir, VA, 1993.

⁴*Ibid.*

Table 3.2

Army Family Housing Appropriation (\$ in millions)

Activity	FY 1992	FY 1993	FY 1994
Construction	\$175	\$160	\$218
Maintenance	\$1041	\$1006	\$857
Leasing	\$393	\$358	\$268
Total	\$1609	\$1524	\$1343

SOURCE: Army Budget Fiscal Year 1994.

The family housing appropriation declined by over 16 percent during this period. It is likely that this appropriation will continue to decline or, at best, remain static. However, the housing will continue to age and require more and more maintenance.⁵ In the not-too-distant future, the Army must make a fundamental policy decision about this aging housing: either to categorize it as inadequate and look even more toward the private sector to provide housing, or to mandate that soldiers occupy these facilities as their living quarters. The latter alternative has significant implications for retention.

For single soldiers, the Army has instituted a multiyear plan called the Whole Barracks Renewal Program. This program is designed to improve living conditions for single soldiers. Approximately \$265 million is budgeted for this program in FY 1994. It provides for living conditions that more closely parallel apartment living in the civilian sector. In renewed barracks, single soldiers now have more room for such amenities as televisions, stereos, microwaves, etc. The result is that the new quarters enable the single soldier to have entertainment options in his or her immediate living area.

However, the Army military construction appropriation that includes the funds for the barracks renewal program is highly variable. Between FY 1992 and FY 1993, the appropriation dropped by over 50 percent. The budget for FY 1994 remains very low, and there is much uncertainty about installations' future requirements following the

⁵Housing officials note that on-post housing waiting lists are as long or longer than ever. Up to this point, the degradation of this housing has been offset by the soldiers' perceptions of the economic value of living on-post. However, there may come a point where the degradation overwhelms the perceived economic value.

Base Realignment and Closure Commission's decisions. In the case of single soldiers, there may also be an increasing reliance on private-sector provision of quarters.

We expect that soldiers living off-post will increasingly choose to purchase housing. There are several reasons for this expectation. First, with increasing tour lengths, it will be easier to justify the considerable transactions costs involved with purchasing a home (e.g., realtors, closing costs, etc.). Second, the 1995 Base Realignment and Closure (BRAC) decisions will further reduce the number of installations a given soldier may be assigned to. For example, a soldier with a given specialty might perform that specialty at any one of three CONUS installations. If that soldier is sent overseas for a tour (which is decreasingly likely), there may be only a 30 percent chance he or she will return to the original installation. When the number of CONUS installations falls, the odds of returning to the original installation increase. Consequently, a soldier may be more willing to buy housing and rent it out while on another tour, with the expectation of returning to the same housing after the tour.

The federal income tax system also provides strong incentives for soldiers to purchase housing. Mortgage interest payments are tax deductible. There are no taxes on capital gains for housing (provided the proceeds are rolled over into other housing or the gains are less than \$125,000 and the seller is 55 or older). These tax advantages are important and valuable, particularly in an era of low interest rates and higher federal income taxes. The higher the federal and state marginal tax rate, the more valuable the preferential treatment afforded housing purchases.

In short, we think more and more soldiers will be living off-post and hence will be more integrated into the local community. Combined with fewer transfers and more working spouses, we predict a decline in the utilization of on-post, government-provided MWR services.

RESOURCE AND BUDGET CHALLENGES

Shrinking resources present an immediate and central challenge to Army MWR. The Army will not have all the resources it wants in the

future, and it must continually balance scarce resource dollars for MWR programs versus the training and materiel needed for success on the battlefield and the protection of soldiers' lives.

The original proposed Army FY 1994 budget was \$64.4 billion. However, during the March 1993 budget adjustment, an additional \$3.7 billion dollars was taken from the Army's 1994 budget. In June 1993, the Pentagon announced that the outlay ceilings, established by Congress in the Budget Resolution, may be some \$5 billion below the outlays associated with the FY 1994 Pentagon budget. This means that budget authority needs to be reduced in an amount sufficient to reduce outlays. One ready way to recoup outlays is to tap appropriations with large percentages of immediate outlays. Those appropriations usually involve personnel and operations and maintenance, and much of the authorized funding for MWR programs comes from the operations and maintenance appropriation (OMA).

MWR programs will face intense competition for both current and future OMA dollars. New and unexpected costs are surfacing (because of the transition and downsizing) that were not foreseen and not accommodated in recent budgets. These costs include up-front transition costs of realignments and closures and increasing environmental clean-up costs.

Although many MWR programs are also funded through other means, they too are receiving fewer dollars. Army-Air Force Exchange System (AAFES) dividends are projected to decline due to increased competition from the private sector, accelerated depreciation from installation closures, and reductions in force structure. Cash generated from activities declined 11.5 percent from FY 1990 to FY 1991 and is expected to drop much further through FY 1996.

Not only are MWR activities experiencing direct funding shrinkages generally, there are also resource reductions that are occurring more locally. MACOM and installation commanders are finding it necessary to use fungible ("unfenced") appropriated MWR funds for other mission-essential activities, which are also underfunded. In addition, the profits generated from the Army's business and nonappro-

appropriated-fund (NAF) activities are being used to support activities that have normally been funded through appropriations.⁶

⁶In the past, there was a practice to reimburse the NAF funds used for appropriated activities. This is no longer allowed.

POSSIBLE MODES OF MWR PROVISION

This chapter outlines different ways MWR services might be provided, ranging from autonomous government provision to privatization. Faced with shrinking resources, the Army should consider ways to provide MWR services that may be more cost-effective. Below, we consider the benefits and liabilities of three general options:

- *Autonomy*, whereby the Army continues to deliver the service using the installation's personnel and resources.¹
- *Regionalization* (or purpling), which refers to coordinating the provision of a resource with other military or DoD installations in a region.
- *Nonmilitary provision*, whereby an entity other than the military provides the service (though the military may still pay for the service). We distinguish three types of nonmilitary provision. These are local governmental provision, privatization (contracting and sale of assets), and purchases on the economy.

The diversity of the local economy, housing availability and affordability, geographic centrality/isolation, and lastly the particular demographic characteristics of the personnel being served are critical factors for the viability of alternatives. All these factors vary by installation, and the particular combination found at a given installation

¹For decisionmaking purposes, the current method of providing MWR is the baseline. The Army may want to consider continued provision of the service while improving upon the current method. This improved-delivery approach is an alternative and is compared to the current method.

may enhance or detract from the feasibility of implementing any of these options.

AUTONOMY

The important aspect of autonomy is determining the actual costs in providing the MWR service. Comparisons with other approaches are not feasible unless the full costs of Army provision can be gauged.

Benefits. The key benefit of autonomy is the continued control over the specific programs and assets of MWR. Flexibility is a key characteristic of continued control. Installations can now use facilities for purposes other than MWR (e.g., commanders using the club for Army business), they can shift resources from one program to another, and they can respond directly to customer complaints and requests.

Autonomous provision also provides control over specific programs offered to soldiers. Soldiers can demand goods or services that military leaders may regard as inappropriate. (One ready example is the outskirts of installations, which are often dotted with bars, pawn shops, gun shops, etc.) Inevitably, the private sector meets certain types of demand soldiers have. If even more demands were filled by the private sector, such enterprises might expand further, thereby raising a key issue: Shall the military leadership let soldiers purchase what they wish? Or are there compelling arguments that override the rights of soldiers as consumers to demand what they wish?

In addition, continued autonomous provision provides for the practice of preferential hiring of military spouses. In areas where unemployment is high or in situations where spouses, due to the time on station, have limited employment prospects, this is a significant benefit to the soldier. Another benefit of autonomy is the control of quality of services. A final benefit is that continued autonomy does not put at risk any national security considerations.

Liabilities. There are also some major limitations of continued autonomous provision. The inability of the Army to provide a broader range of services without incurring major costs is a significant liability. The private sector has a much broader range of services, in gen-

eral, to offer at potentially a much lower cost. A lower cost results because the Army would have to invest in infrastructure to support a large range of services. In addition, the private sector has much less restrictive personnel practices, which both reduces the cost and facilitates operations.²

REGIONALIZATION

Regionalization (or purpling) is being tried at a number of locations for a variety of activities. However, the same problem arises with regionalization as with autonomy. Unless the full costs are gauged, it is not possible to determine whether this approach is less expensive.

Benefits. Many of the same benefits exist with regionalization that also exist with autonomous provision. National security risks are not at issue. The services together continue to have control over the type, quality, use, and mix of programs, though no one service would have full control. Preferential hiring of spouses is a practice that can continue. The additional benefit to regionalization is that even as the services have continued control over MWR assets, fewer resources may be required. There may be economies of scale available when the several branches of the military jointly provide services.

Liabilities. While economies of scale may be available, there are several cases in which joint provision resulted in higher costs.³ The reason for this result is that the services virtually maintained and added to the same organizational structures. There is frequently no attendant decrease in overhead.⁴

An additional liability is that the cultures of the services and the demands of the service members are very different. For example, the

²There are a vast number of restrictive personnel practices in the Army, including one, bumping rights, that is in full force during this period of downsizing. Bumping rights allow senior employees without the necessary skills to replace a junior person with the requisite skills. Many locations noted that this was a real problem because the senior employee lacked expertise but retained his or her higher rate of pay.

³See Massey (1983).

⁴In Hawaii, housing is also administered jointly by the services. While the Army is the executive agent, the other services maintain extensive staff to administer their individual programs.

operating rules and regulations are different (e.g., fees are minimal in the Air Force), and this could prove to be a real impediment in coordinating programs.

NONMILITARY PROVISION

Nonmilitary provision refers to the provision of goods and services by the private sector (privatization) or a local government. There are several modes of privatization. In contracting, the military arranges for private provision of a service for a limited duration. A stronger version of privatization would be the sale of government assets to the private sector.⁵ A final variant would be soldiers simply purchasing goods and services in the private sector with reimbursement from the military.

Contracting Privatization

Contracting privatization occurs when a private-sector firm operates an installation's on-post MWR facilities, perhaps as a result of winning an A-76 competition. Fort Irwin is at the forefront in this area.

Benefits. Contractor-operated MWR may prove to be more flexible, innovative, and cost-effective than MWR provision by government employees. Already, on-post cafeterias on numerous installations are operated by contractors. The government, however, retains certain controls, e.g., what goods and services are provided. Contracts may also contain provision for military control in emergencies.

Liabilities. A heavily regulated contractor may be no better than government employees, particularly if the contractor becomes a monopolist. Further, it may be difficult for other contractors or government employees to compete with an established contractor when a contract expires. As a result, a contractor may attempt to "buy in," e.g., bid very low on an initial contract in expectation of getting a better deal later. One might also envision problems if a contractor

⁵In some cases, such sales are not feasible. A 99-year lease is a close substitute.

threatens or declares bankruptcy. An installation should be very reluctant to bail out a failing contractor. A contractor bailout can create a dangerous precedent, providing bad incentives to other contractors.

If contracting is to be used, we recommend great care in writing contracts. The benefits of contracting could be lost if, for example, floors are put on the number of contractor employees or the contractor has to provide specific types of services. Also, monopoly arrangements should be avoided. Installations should not grant contractors monopoly rights to provide specific goods and services on-post.

Selling On-Post Assets

This form of privatization would involve selling or leasing an on-post MWR asset (e.g., a bowling alley) to a private firm. We understand there may currently be difficult administrative obstacles to such maneuvers. However, such obstacles can be lessened or removed so that this option may be fully considered.

Benefits. Sale of an on-post asset would yield immediate cash and save operating costs over time as well as remove an issue from future concern. Further, there would be no reduction in entertainment options for military personnel. Indeed, we might expect a private owner to introduce a variety of creative improvements.

Liabilities. Control by military personnel would be reduced. A truly privately owned facility within a post could do whatever it wished. Provisions would have to be made for emergencies. It would also be important to treat this facility fairly compared to off-post competitors, e.g., it should pay property taxes to the installation or local community for fire service, sewers, etc. It serves no one's interests (except the purchaser's) to set up a favored, on-post monopolist.⁶

⁶We understand this option is well outside current regulations. We think, however, that in these times of fiscal austerity it deserves consideration.

Purchases on the Economy

A final option that has occurred in some places for some MWR services is to end on-post provision of a good or service and let personnel purchase what they wish off-post.

Benefits. This option could save considerable money as well as remove an issue from military consideration. Closing an on-post facility could also create more room for other uses. Also, soldiers would be truly sovereign consumers, purchasing exactly what they wish.

Leaving MWR provision entirely to the private sector would reduce administrative burden. It can be hard to induce government employees to behave optimally and there are challenges, as discussed above, in writing effective contracts with private-sector contractors. An entire set of administrative issues and questions would be circumvented if MWR provision were left entirely to the private sector.

Liabilities. Clearly, personnel could be distressed by the removal of on-post options. Such a move would also create more market power for off-post providers. Monopolization figures to be much more of a problem in smaller off-post communities.

In theory, it is more efficient to compensate personnel in cash rather than in kind (e.g., subsidized MWR). In reality, compensation likely wouldn't be increased to offset reduced on-post MWR, so purchasers of services would be dissatisfied. Of course, even if compensation were increased to offset reduced MWR, frequent users of MWR services would be worse off, especially if their preferred services would be far away.

As we have seen, each option for MWR provision has advantages and disadvantages. In addition, it is critical to identify the direct and indirect costs associated with the provision of MWR services. Unfortunately, it is very difficult to compare MWR provision options. The next chapter outlines these difficulties.

PROBLEMS WITH CHOOSING A PROVISION MODE

As we have seen, there are a variety of MWR provision options the Army might consider. Unfortunately, consideration of different options is difficult, for a number of reasons which we will now discuss.

DETERMINING MWR DEMAND AND UTILIZATION

At present, there is no systematic way of determining current usage of or the demand for Army MWR services. "Demand" refers here to how usage would vary if fees for such services varied. The techniques used by installations to determine demand and current usage range from discussions to relatively sophisticated market surveys. Most installations keep sign-in sheets for various services to informally measure utilization. These sign-in sheets are then tallied to provide customer counts and time of use. However, it is not generally analyzed whether persons use the facilities repeatedly or whether many customers are using the services. Further, the sign-in sheets omit important demographic information about the customers (e.g., rank, family member, active or reserve, age, etc.).

Installations also survey their populations to gauge the level of satisfaction with the various services, how these services might be improved, and what other programs might be added.¹ Some installa-

¹Army installations are required to conduct assessments of MWR program needs every three years (AR 215-1). The Triennial Needs Assessment constitutes the foundation of the Installation Five-Year MWR program plan that is supposed to establish program goals, objectives, priorities, and allocation of resources. However, many (if not most)

tions do develop their own surveys that query importance of programs and frequency of use. However, we did not find a consistent effort to use the results on importance or utilization of services in planning. Generally, the focus was on the quality ratings of the services. Certainly it is important to know the level of satisfaction with services, but in a period of shrinking resources it is perhaps more critical to focus on which programs are important to particular populations and whether the programs could continue but with higher fees.

All installations should be using surveys that probe demand (e.g., importance, utilization, and willingness to pay).² A survey of a representative sample of the installation population can provide needed market information. From the Army's perspective, a standard survey would highlight, in general, which programs are most in demand and which are less so. From an installation perspective, such a survey would allow installations with similar characteristics to benefit from one another's experiences.

Recently, some FORSCOM and TRADOC installations have fielded a standard survey, the *Leisure Needs Survey*, that includes questions on the importance of programs, utilization, and willingness to pay higher fees. The results of that survey provide valuable planning and market information for these installations. However, the use of surveys carries two important caveats. First, high response rates are needed to guard against biased results.³ Second, the surveys must be repeated and the results used. Quantified measures of demand can inform installation commanders of how MWR demands are changing as broader societal changes influence the Army.

ACCOUNTING FOR MWR PROGRAM COSTS

The costs of MWR programs and activities are not all fully visible to decisionmakers. But effective management of both the MWR func-

clude questions that can provide appropriate measurements of demand and utilization.

²Surveys are also better indicators of use than the current tallies used by the installations.

³Some surveys we saw had response rates of less than 35 percent. This level of response poses a serious risk of bias.

tion and the Installation Morale, Welfare, and Recreation Fund (IMWRF) requires an accurate delineation of costs. Further, even current, inadequate accounting procedures are showing that many IMWRFs are losing money.⁴

General delineation of expenses and revenue is available through the income statements and balance sheets that installations prepare. However, the general categories, the items included in these categories, and the way the expenses and revenues are calculated lack consistency across installations, which obfuscates the necessary analysis of activities, particularly in a time of major resource reductions.

The first category of costs that is not visible to decisionmakers is appropriated-fund expenditures. Resources that are supplied by appropriated funds (e.g., labor) and their attendant costs need to be included in the cost of providing an activity. If appropriated costs and nonappropriated costs are not clearly distinguished, incorrect inferences can be drawn about the true cost of operating a program. For example, if mission-sustaining facilities such as gyms (and in some cases swimming pools) are also receiving funds from nonappropriated revenues, higher-level decisionmakers will be led to underestimate the true costs of training soldiers for combat.

The second category of costs not visible to decisionmakers is depreciation. The treatment of MWR depreciation is a very serious issue. Depreciation calculations differ across installations for the same type of assets. Also, depreciation is calculated at the installation but then largely ignored. At Fort Bliss, for example, we found a policy that imposed a cap on MWR net income before depreciation. The cap was below the installation's MWR annual depreciation, which means that Fort Bliss systematically "burns down" its MWR assets over time. Of course, the installation can always request capital expenditure dollars through the project validation assessment process. But from an Army perspective, other projects at other installations may not be funded because assets need to be rebuilt at an installation that was purposely not covering its costs. While it is true that many of these

⁴Half of the installations we selected for study were losing money—even before depreciation was considered.

assets are sunk costs, they still need to cover their expenses (including depreciation) unless they are never going to be replaced.

Costs of capital are routinely ignored even in the rare cases where depreciation is considered.

Private-sector providers need to recover their capital expenses; ignoring depreciation and capital costs strongly tilts decisions toward government provision.

Future operating and maintenance costs are not sufficiently visible when project proposals are initially evaluated. Projects are approved, but their needs for operating and support resources are frequently underestimated. When budgets are reduced, the ability to operate these projects is impaired. Some installations reported that they lacked any resources to operate relatively new facilities.

Another category of cost problems is overhead. Installations differ in how they determine which departments are overhead. In one case, we found that the financial management group was not considered an overhead department, although at most of the other installations it was. Pooling overhead makes it difficult to determine the actual resources (and costs) associated with the activities and programs. In addition, the actual costs of overhead were calculated differently, depending on the MACOM. The most reasonable approach used to allocate overhead was at AMC installations.⁵

A final area of cost that is currently not included is the cost of land (rent) for MWR facilities. Again, this is a short-term versus long-term issue. In the short run, the land can be perceived as free. However, there are other long-run opportunities for this land, and this cost needs to be included because decisionmakers should know the value of other opportunities they are forgoing. These opportunities include not only other Army activities but possibly the lease or sale of the land. In addition, if the Department of Defense continues to move toward unit costing, land (rent) will eventually be included as an expense.

⁵AMC has a history of experience with unit costing. Its methods of allocating MWR overhead could be considered as a template for all installations. We discuss this further in Chapter Six.

Decisionmakers searching for alternatives that consume fewer resources need to be able to look at the resource requirements and their attendant costs of current activities and compare them to potential alternatives. The current systems do not easily allow this type of comparison. In addition, costs need to be considered not only from the installation's perspective, but from a total Army perspective. With the current treatment of depreciation and other ignored costs, some installations are benefiting at a potentially huge cost to the Army. The Army, at least in the short run, needs a way to identify activity costs and the resulting costs or savings of changes in the way MWR activities are provided.

IDENTIFYING THE COSTS OF MWR PROGRAMS

To help improve MWR provision choices, we provide a decisionmaking method for installations to use in assessing the costs of MWR provision. This method differs from existing MWR methods in three ways: (1) it focuses on detailed tracking of actual sources and uses of resources rather than general expenditures, (2) it examines transition costs that are required to implement an alternative, and (3) it focuses on the changes in costs that result when an installation seeks to determine whether an alternative method of delivery of MWR services is cost-effective.¹ The method details the resources and their costs in order for the Army to effectively compare alternative proposals. This method could also be used to assess cost increases associated with a new MWR program added to the mix of services already at the installation. The method is a series of simple templates that help identify costs or savings. The method does not require a complete overhaul of the Army's existing cost accounting system. It is an "off-line" tool that can help the Army make more cost-effective decisions about MWR provision.

Installations repeatedly informed us that they could generally provide lower-cost and higher-quality service. The "cost" portion of this statement, though, cannot typically be verified, for one key reason—the Army does not track all the costs of providing the service. We

¹We adapted this methodology from another application. The full description of the method is provided in Way-Smith (1992), which studies training. Many of the costing problems faced in changing training parallel the cost issues in MWR. Not all costs are visible, and as a result the Army's costs for providing these services are frequently underestimated—particularly in the long run.

therefore recommend the following detailed approach to track resource use and costs:

1. Identify the potential changes in current activities and potential transition costs that will be required.
2. Determine the change in resource requirements generated by the changes in these activities (e.g., appropriated and nonappropriated manpower, equipment, and facilities).
3. Calculate the costs of changes in resource requirements.

DEFINITION AND SPECIFICATION OF THE CURRENT DELIVERY MODE AND ACTIVITIES

The first (and most important) step is the thorough definition of the changes in programs that will result when an alternative is implemented. This step also requires identifying any assumptions that need to be made concerning delivery, support, or transition activities. Assumptions must be made explicit if the decisionmaker is to understand the extent and limitations of the analysis.

It is helpful to distinguish two types of activities for providing MWR services: first, the direct delivery of the service, and second, all the support activities associated with providing service. Delivery activities represent the direct costs, and support activities represent the majority of indirect costs. See Table 6.1 for more detailed definitions.

Some activities can be eliminated when implementing an alternative that uses alternative providers. Some transition activities will also be

Table 6.1
Activity Definitions

Activity	Definition
Delivery	Direct activities, functions, and tasks involved in providing the service or program. Such things as sales (customer service), instruction, or production would be included.
Support	Activities, functions, and tasks to manage the delivery of MWR services. Activities included in support would be maintenance, supervision, and distribution.

required. For example, if facilities are to be renovated for another use or removed from use, additional maintenance work is required. Finally, many support activities may remain, but in reduced form or having been transferred to other organizations. There are four fundamental types of change: activity/resource increases, activity/resource decreases, transfers to other organizations, and transfers from/to excess capacity. Table 6.2 details these changes.

Support activities are the most difficult activities to track, and yet they frequently account for a large portion of the costs associated with MWR delivery. A basic requirement to determine these costs is the functional relationship between the MWR programs and the support functions. Many installations do not account for all the in-

Table 6.2
Definition of Changes in Activities

Category	Definition
Targeted organizations' activity/resource increase	The addition of activities or resources to a targeted organization. Increases can occur in activities or resources as a result of adding a new service or changing a service.
Targeted organizations' activity/resource decrease	The subtraction of activities or resources from the targeted organizations. Subtractions can occur when services are eliminated or scaled back.
Activity/resource transfer from/to other organizations	The addition or subtraction of activities/resources from indirectly affected other organizations. Indirectly affected organizations may be other MWR programs or any other organizations not directly targeted for change.
Activity/resource transfer from/to excess capacity	The addition to or subtraction of activities or resources from the inventory of excess resources. A change in an MWR service may reduce the need for certain equipment, but this equipment may simply be transferred to excess inventory.
Net change	Activities or resources added to or subtracted from the total Army pool of assets. The net change can be calculated by totaling the changes in the other four categories.

stallation support activities that are required to provide MWR services. However, AMC has made major progress in identifying workload factors (e.g., manhours, utility costs per square foot) associated with specific activities. We have adapted AMC's approach to assigning support activities to MWR programs. Table 6.3 is a comprehensive listing of support activities required for MWR services.²

Most support activities will not be eliminated when a single MWR program is eliminated, but some will experience a reduction in workload, and some support activities in the installation's Directorate of Personnel and Community Activities (DPCA) may be eliminated.³ Also listed in Table 6.3 are the major activity workload factors that determine how much of a support activity may be affected by a change. We recommend using these factors rather than a simple rule of thumb for determining the support activities required.⁴

Once all the activity changes and the key organizations affected are identified, we then document the changes in resources. The resource analysis uses the results from the activity analysis and traces the resource changes. Figure 6.1 illustrates how the activity analysis provides the foundation for the resource analysis.

RESOURCE CHANGES

Our first step is to summarize the activity changes. To do this, we list the changes in a way that enables us to estimate whether they are one-time or recurring. Table 6.4 is an example of how changes would be accumulated.

²Not all of these activities are relevant to all installations.

³Several installations had different names for their MWR directorate. We use the DPCA title for identifying the installations' directorates that manage MWR.

⁴Frequently, direct labor to indirect labor ratios are used to determine overhead or support costs. In a period of rapid change, tracking the actual activities gives a better perspective on the effect of a change for support activities.

Table 6.3
MWR Support Activities

Support Activities	Major Workload Factors
Real property maintenance	
Administrative space	Square feet assigned
Production space (e.g., framing)	Square feet assigned
Storage space	Square feet assigned
Roads/grounds	Equivalent staff/installation population
DPCA management	PRD/TDA assignments (appropriated and non-appropriated employees)
Environment	Equivalent staff/installation population
Administrative services	
General administration	Equivalent staff/installation population
Records	Equivalent staff/installation population
Publications/printing	Number of publications/forms printed
Civilian personnel and EEO	Equivalent staff/installation population
ADP	Equivalent staff/installation population
MWR research	Equivalent studies
MWR marketing	Equivalent advertising/MWR advertising
DPCA financial management	Equivalent NAF/total NAF
Engineering	
Property repair and maintenance	Square feet assigned
Construction	Programmed construction
Automation	Number of contracts
Utilities	Square feet assigned
Special staff	Installation/student population
Installation management	Equivalent staff/installation population
Equipment maintenance	Equipment utilization (e.g., miles, hours) and age
Transportation	Movements and relocations
Procurement/contracting	New orders, contracts
Army continuing education	Continuing education courses
Personnel support	Installation population
Resource management	Installation assets (including manpower)

NOTE: Many of the workload factors presented here are adapted from AMC's assessment of support services. Manpower was the most significant slice of expenditures for the majority of MWR support activities.

RANDMR491-6.1

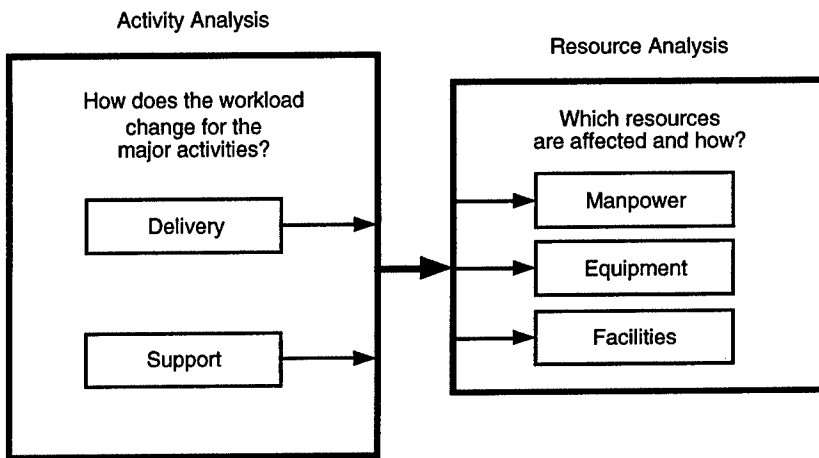


Figure 6.1—Translating Activity Changes into Resource Changes

Table 6.4
Catalogue of Activity Changes

Activity/Workload Changes	Type of Activity	
	One-Time/Transition?	Recurring?
Delivery Sales Customer service Instruction Production		
Support RPMA Equipment maintenance Marketing research Marketing DPCA/ADPCA Financial management Transportation		

In the resource analysis, we focus on the specific number and type of one-time and recurring changes for manpower, equipment, and facilities. Table 6.5 defines these resources, and we use available resourcing information and factors to determine the changes in resources.

Once we have identified all the resource changes for each alternative, we summarize them and the type of change they represent: one-time and/or recurring. We then calculate the costs for these alternatives.

COST ANALYSIS

Table 6.6 is the general format for the summary of cost changes and accumulates the entries in the balance sheets.

To determine the costs of these changes we use the general equation

$$\text{cost} = \text{cost factor} \times \text{resource change}.$$

Table 6.5
Resources

Development/Delivery/Support Resources	Definition
Manpower Changes in quantity Changes in type	The number and type of personnel that comprise the program or organization, including the distinction between nonappropriated-fund and appropriated-fund employees. Other distinctions may also include job classification, grade level, and years of service.
Equipment/materiel/supplies Changes in quantity Changes in type	The number and type of equipment, materiel, and supplies changes in an program's or organization's equipment inventory, including trucks, spare parts, fuel, etc.
Facilities Changes in quantity Changes in type	Changes in a program's or organization's facility quantity and type—such as production facilities (print shops, ceramic areas, classrooms, or other facilities) required by the program or organization to perform its function.

Table 6.6
Catalogue of Cost-Causing Changes

Type of Change	Basis for Estimate of Cost or Savings	Type of Cost	
		Nonrecurring	Recurring
Delivery and support resource changes			
Manpower			
Appropriated			
Nonappropriated			
Equipment/materiel/supplies			
Appropriated			
Nonappropriated			
Facilities			

Table 6.7 is the general cost template that we designed for MWR analysis. It is built on the premise that the resource implications of any given change will determine the cost of that change. The columns of the template are the resource factors and include the amount and type of resource change. The column "Activity Level" refers to specific changes in equipment utilization rates and facility utilization rates. The rows of the template are the cost elements.

Table 6.7 is the cost template we use for developing the specific cost models for the alternatives. To use the template, first we examine the first row under nonrecurring costs. This is civilian personnel cost, and under this category are acquisition, initial training, separation, and transfer.

The template is a planning tool and checklist to ensure that important cost and resource factors are considered in the analysis. The template also serves an important function in showing the factors that need to enter into the actual calculation of costs.

In providing MWR services, the Army draws on its resources in various direct and indirect ways that obscure all the connections between total resource use and the benefits derived from this use. To sort out and begin to quantify these connections, we recommend using this framework for recognizing the full extent of resources used in the provision of MWR services.

Table 6.7—continued

Costs	Resource Factors						
	Activity Level	Manning		Equipment		Facilities	
		Amount	Type	Amount	Type	Amount	Type
Recurring costs							
Civilian personnel cost (appropriated and non)							
Replacement acquisition							
Replacement training							
Pay and allowances							
Military personnel cost							
Replacement training							
Fuel, oil, etc. (POL)							
Replenishment spares							
Ammunition							
Equipment maintenance							
Equipment depreciation							
Distribution							
Reproduction							
Facility depreciation							
Facility maintenance							

AN APPLICATION OF COSTING MWR

In this chapter we apply our costing method to arts and crafts and auto crafts at Fort Lewis. We selected Fort Lewis as our example for two major reasons. First, the characteristics of Fort Lewis make it feasible for the installation to consider several modes of MWR provision (e.g., regionalization and nongovernment provision options). Second, many of the existing MWR programs at Fort Lewis are not covering their costs.¹ Here, we will focus only on the costs of these MWR programs and the savings that would accrue from their elimination. We do not undertake a fuller analysis that would consider, for example, the cost of providing such services by alternative means. However, our approach may be applied to estimate the costs of alternative delivery methods. More generally, this chapter is valuable in illustrating procedures that ensure policymakers understand the true costs of current and prospective programs.

In this application of our costing method we consider three basic questions:

- What costs need to be included?
- Whose costs need to be considered?
- To what are we comparing costs?

¹We are not suggesting that the programs we examine are candidates for alternative modes of delivery. We are suggesting that the method for identifying costs be used to determine whether alternative modes of delivery are less expensive while still meeting the requirements of the Army.

The response to the first question is that all direct and nondirect costs that are identifiable need to be considered. In addition, both current and future costs to maintain the programs need to be included (e.g., planned future capital expenditures).²

The response to the second question is that the Army's costs need to be considered in this analysis. It is not sufficient to consider only Fort Lewis costs, because other organizations and installations are affected by the cost consequences at Fort Lewis. For example, if activities are not breaking even, other installations' revenues may have to support these losing activities at Fort Lewis through the reallocation of MWR budgets. In addition, if activities cannot cover their depreciation costs, capital projects may be required to insure the continued viability of the assets. In this case, because capital is limited, other installations' projects may have to be forgone.

The final question is answered in this application by considering the costs of these programs compared to their complete elimination at Fort Lewis. By assessing the costs and savings of eliminating these programs, the installation can then add back any additional costs required by alternative modes of delivery such as joint provision or privatization.

THE CONTEXT OF FORT LEWIS

Fort Lewis currently has housing capacity for approximately 20 percent of the soldiers stationed there. The remaining 80 percent live in the surrounding communities, and the majority of these soldiers and their families are within a 30-minute drive to the installation. Off-post competition was identified as a problem in the most recent *Leisure Needs Survey* for several of the MWR programs.

²Many of the costs that need to be included in the analysis were not available at Fort Lewis. However, many of the specific resources required were identified. As a result, we have attempted to apply costs to these resources. Our costs are only estimates and should be considered within a range of probabilities.

CURRENT DELIVERY MODE AND ACTIVITIES FOR ARTS/CRAFTS AND AUTO CRAFTS

In this analysis, we focus on two programs at Fort Lewis that are currently not covering their costs—arts and crafts and auto crafts. Each program lost more than \$100,000 during FY 1993.

According to the *Leisure Needs Survey* conducted in 1992, the arts and crafts activities were determined to have average usage, but below-average quality of facilities. The auto craft activity was determined to have average use and average quality of facilities. Both activities were identified as having off-post competition. In addition, appropriated funding for both activities is being withdrawn. Most personnel are nonappropriated civilians. Only one appropriated position was authorized during FY 1993 for the arts and crafts activity. This is another reason to examine these activities and their costs.

The arts and crafts program offers photography, jewelry design, lapidary, pottery, ceramics, and matting and framing. Resale support is also provided in all these activity areas. Arts and crafts activities are offered at the Yakima training facility. The auto crafts complex consists of engine repair, paint booths, and diagnostic equipment.

In assessing the changes in activities that will be required if both programs are eliminated, we will need to make some assumptions. Our assumptions in this case will be very conservative (e.g., the potential for minimal savings in the elimination of these activities). Our assumptions are:

- All nonappropriated and appropriated positions will be eliminated with the elimination of these activities. This includes the one appropriated position for the program director.
- Material and supply costs will be eliminated for these activities.
- Equipment will be sold at 10 percent of its current value.
- Facilities will be vacated, but maintenance will continue.
- No additional overhead or general and administrative personnel will be eliminated.

Table 7.1 lists the activity changes that result from the elimination of the arts and crafts and auto crafts programs from the Fort Lewis MWR activity portfolio.

All instruction, sales, and resale activities are eliminated, which represents an overall reduction in activities on the installation. Direct supervision of arts and crafts employees is eliminated, and so is the requisite equipment maintenance. The only activity that is transferred is facility maintenance, which represents no change in current activity levels. There is one activity added, which is facility cleanup. The auto shop has environmental disposal activities that must be executed in transitioning its facilities. Once all the activity changes are identified, we then document the changes in resources. The resource analysis uses the results from the activity analysis and traces the resource changes.

Table 7.1
Activity Balance Sheet

Activities/ Resources	Targeted Organizations		Other Organizations		Excess Capacity		Net Change
	Increase	Decrease	Transfer From	To	Transfer From	To	
Delivery							
Instruction		X					-
Sales		X					-
Customer services		X					-
Production		X					-
Purchasing		X					-
Resale		X					-
Support							
Supervision		X					-
Equipment mtce		X					-
Publicity		X					-
Facility cleanup	X						+
Facility mtce		X		X			0

RESOURCE ANALYSIS

Our first step in the resource analysis is to summarize the activity balance sheet. Table 7.2 catalogues the changes and denotes whether they are one-time/transition activities or recurring changes in activities. We enter our initial estimates as to the one-time or recurring nature of the activities in the column "Type of Activity." As the table shows, an activity can involve both transition and recurring cost changes.

In the resource analysis, we focus on the specific number and type of one-time and recurring changes for manpower, equipment, and facilities. Table 7.3 summarizes the changes and whether they are one-time or recurring costs.

Once we have identified all the resource changes we can then calculate the costs.

COST ANALYSIS

Our cost analysis is built on the premise that the resource implications of any given change will determine the cost of that change.

Table 7.2
Catalogue of Activity Changes

Activity/Workload Changes	Type of Activity	
	One-Time/Transition	Recurring
Delivery		
Sales	X	X
Customer service	X	X
Instruction	X	X
Production	X	X
Support		
RPMA		X
Equipment maintenance and replacement	X	X
Marketing research		X
Publicity		
Facility environmental cleanup	X	
Facility renovation	X	

Table 7.3
Resource Balance Sheet

	Targeted Organizations		Other Organizations Transfer From or To Other Organizations	Excess Capacity Transfer From or To Excess Capacity	Net Change	O.T./Rec.
	Decrease	Increase				
Manpower						
Appropriated						
—Military					-1 GS 12	O.T./Rec.
—Civilian					18 NAF	O.T./Rec.
Nonappropriated					-73 items	O.T./Rec.
Equipment						
Facilities			3 buildings		-3	O.T./Rec.

Table 7.4 indicates that Fort Lewis could conservatively save approximately \$111,700 per year if it decided to eliminate these two programs. These recurring savings are adjusted for the loss of revenues and the one-time facility cleanup required. In addition, a number of capital projects are planned for these two activities. While these are only planned expenditures, they represent the requirement that facilities must be maintained and upgraded. The nonrecurring costs represent severance and termination costs associated with eliminating the manpower. If simply nonrecurring costs were used to calculate a breakeven, the decision to eliminate these programs could pay for itself in just over one year. The Army could use these costs and savings as a benchmark when evaluating the costs of alternative provision.

SUMMARY

This chapter has outlined the cost savings that would accrue from the elimination of arts and crafts and auto crafts at Fort Lewis. We are not, at this point, arguing for such eliminations. Rather, this exercise illustrates a costing methodology. It is inherently valuable to know the costs of providing MWR services on a post. The Army should understand the costs of the services it provides. We believe

Table 7.4

Summary of Recurring and Nonrecurring (Costs) and Savings

Elimination of Arts/Crafts and Auto Crafts	
Recurring (costs) and savings	
Manpower	\$500,000
Equipment	\$180,000
Facilities	(\$100,000)
Sales/revenue loss	(\$468,300)
Nonrecurring (costs) and savings	
Manpower	(\$90,000)
Equipment	\$16,500 ^a
Facilities	\$252,000 ^b

^a\$16,500 is planned expenditures for new equipment.

^b\$252,000 is planned expenditures for facility renovations.

this type of analysis can identify big-ticket cost drivers within an installation's overhead.

Further, such cost information would be a valuable component of a larger analysis. For instance, one could consider off-post MWR options, e.g., contracting with an off-post provider, giving soldiers vouchers for off-post providers, or simply increasing soldier compensation to offset the on-post service reduction. A better knowledge of costs and a simple costing tool will improve choices among such options.

An important practical question is how much effort it would take for installation personnel to undertake a cost-accounting effort of this sort for all their MWR services. Although our study did not explicitly address this issue, we estimate that a few experienced people could undertake such an exercise within two months for all the MWR services at an installation. Presumably there would be a considerable learning curve, and the level of effort required would decrease over time. Further, we note that government accounting changes are pushing installations toward this sort of analysis in any case. Unit costing approaches (e.g., DBOF) consider many of the issues we have discussed. Detailed cost analysis may well become commonplace on all Army installations.

CONCLUSION

This project has afforded us an interesting opportunity to visit a diverse set of Army installations. It has been a pleasure learning about how these installations contribute to national defense and meeting some of the people who work there. These visits have contributed immeasurably to our thoughts as to how the Army might obtain the maximum possible return from the money it invests in MWR.

As described above, we purposely examined installations with diverse characteristics, e.g., size, location, mission. All of our installations were in the United States, yet our prototype installations varied on innumerable dimensions.

But even though they show great diversity, there is pronounced homogeneity in the Army MWR programs at these installations, in terms of both the services provided and the method of provision. The marked exception to this homogeneity is Fort Irwin, where a contractor operates MWR services. No other installation we visited had anything like the degree of private-sector participation we observed at Fort Irwin.

This fact puzzled us. We hypothesize that private-sector provision of MWR services would be most appropriate at installations in urban areas. For example, soldiers are least likely to encounter monopolistic private-sector providers in highly populated areas. Relying on the private sector would seem most dicey in isolated areas where there are few firms to compete.

Fort Lewis and Fort Bliss are located in large metropolitan areas, yet we found overtly negative attitudes toward private-sector MWR pro-

vision at these installations. Indeed, when we visited, personnel at Fort Bliss told us about their plans to enter the newspaper publishing business. The venture wouldn't directly provide MWR services to soldiers but was designed to be a "cash cow" for MWR operations.

This idea frankly does not seem reasonable to us. El Paso is the fourth-largest city in Texas. Perusal of the El Paso phone book revealed a large number of publishing-related companies in the city. Newspaper publishing would appear to be a fairly competitive industry. How could it seem reasonable for government employees to enter this industry (putting aside the fact that it has nothing directly to do with MWR)?

The answer to this question, we ultimately concluded, lies in the chronic underestimation of the costs of providing MWR and other services by government employees. For example, depreciation is ignored and capital costs are not calculated. Overhead allocation distorts costs, and land costs are never considered.

We are concerned, therefore, that Army spending on MWR is being misallocated. Our hypothesis is that a fuller examination of the costs of different provision options would result in a greater heterogeneity of approaches. For instance, it may end up being optimal to have government employees or contractors directly provide MWR services at isolated installations while soldiers in large urban areas might simply be given extra cash and allowed to procure whatever MWR services they wish on the private economy.

Of course, there are strong historical and cultural traditions inside the Army favoring autonomous provision of homogeneous MWR. We are not opposed to tradition per se, but we do hope the costs of continuing this tradition are fully understood. Our suspicion is that there has been little incentive to scrutinize how MWR is provided as long as funding has been comparatively plentiful.

In today's fiscal environment (and tomorrow's, which could be even harsher), we believe the issue of how Army MWR resources are allocated should be completely revisited, absent preconceptions or constraints. This report is meant as a first step in this direction. We noted the bevy of changes affecting Army MWR, including the growing scarcity of funding. We then described the underestimation of the costs of government provision of MWR. We also noted some

other ways MWR might be provided. Finally, we sketched a new approach to better estimate the costs of different provision methods. We believe the moderate effort involved with such an approach would be justified in terms of cost savings from better MWR decisionmaking.

Considerable further work remains. It is our hope, however, that this effort provides some small push toward maximizing soldier happiness resulting from whatever resources are allocated to Army MWR.

INSTALLATION DEMOGRAPHIC DIFFERENCES

The installations we selected show important variation in terms of the individuals who are stationed there. Table A.1 shows that the distributions for age, years of service, percent male, junior enlisted, percent single, and high school graduates range from below average to above average across installations.

Demographic differences are potentially important because they could affect both the overall *use* of soldier support services and the

Table A.1

Some Individual Characteristics of Soldiers at the Prototype Installations

Installation	Age	Years of Service	Male	E-4 & Below	Single	H.S. Grad
Fort Lewis	27.6	6.8	90%	56%	40%	78%
Schofield Barracks	27.0	6.4	94	58	41	79
Fort Shafter	31.4	10.2	83	37	25	69
Fort Knox	27.3	6.8	94	56	41	79
Fort Irwin	27.4	6.8	95	58	45	78
White Sands	28.6	7.7	88	56	38	72
Rock Island Arsenal	35.7	14.5	93	11	15	53
Army average	27.9	7.6	89	51	39	77

SOURCE: Active Duty Military Master File and Loss Edit File.

intensity (i.e., frequency) of individual use.¹ We have already discussed how increasing stateside stationing and tour lengths could affect the provision of support services. Other research indicates that individual (demographic) characteristics also have an important impact. For example, this research reveals many statistically significant relationships between the use and rate of use of Army services and individual characteristics like age, sex, race, education, number of dependents, and paygrade.²

This research has found that the use and rate of use of Army gyms is lower for older personnel, higher for males, and higher for those with more education.³ It has also found that a soldier's rank can be an important predictor of the use and rate of use of some Army services. We next consider the implications or differences in individual characteristics for personnel at each of our selected installations.

The most noteworthy differences are in the age distributions of these populations, shown in Table A.2.

At Schofield, for example, 46 percent of personnel are concentrated in the 22-27 age range, a stage at which many soldiers first establish

Table A.2
Age Distribution of Current Force

Location	≤ 21 Years	22-23 Years	24-27 Years	28-34 Years	≥ 35 Years	Total
Fort Irwin	17.0%	19.1%	24.1%	23.3%	16.5%	100%
Fort Knox	23.9	14.5	20.2	24.6	16.8	100
Fort Lewis	16.6	18.2	25.4	23.4	16.3	100
Schofield	16.4	19.0	27.4	23.7	13.4	100
Fort Shafter	7.3	11.8	20.5	26.4	34.2	100
Rock Island	1.8	4.3	9.7	26.0	58.2	100
Fort Bliss	25.0	12.2	22.4	25.1	15.3	100
White Sands	16.4	17.5	22.2	21.3	22.6	100
Total Army	21.5	14.2	21.4	23.1	19.8	100

SOURCE: Active Duty Military Master File and Loss Edit File.

¹See Burnam et. al. (1992), p. 52.

²Ibid., see Table I.1, "Regression Results for Use of Army Services," p. 196.

³Ibid. These coefficients are significant at $p < 0.001$.

families and become new parents. Personnel aged 35 and older constitute only 13 percent. At Fort Shafter and Rock Island, by contrast, personnel are disproportionately concentrated in older ages, especially 35 and above, a stage at which many Army families contend with teenage children and aging parents.

Such cross-installation differences are noteworthy in view of the civilian trend toward delayed family formation. (For example, 49 percent of civilian men aged 25–29 have yet to marry, compared with only 33 percent of their same-aged counterparts in 1980; first births also are occurring at later ages than in the recent past.) The delay in family formation could have implications for the future Army. Absent other changes, it is reasonable to anticipate that today's soldiers in their early 20s will tend to form and build families on a somewhat later schedule than their same-age counterparts did in the past. If so, a future force with an age distribution identical to today's force would have a slightly lower ratio of dependents to personnel.

As for the future force, any shifts in age structure—upward or downward—would modify the ratio and distribution of dependents in a fashion that is apparent now in cross-sectional comparisons among existing installations (see Table A.3). These comparisons show the actual range of variation that is associated with different age structures.

At Fort Lewis or Schofield Barracks, for example, 40–41 percent of personnel are unmarried; at Fort Shafter or Rock Island, by contrast, only 15–25 percent remain unmarried. The moderately older age structures at the latter two installations are associated with more dependents on average. Comparatively few personnel at Fort Shafter and Rock Island have never been married, and proportionally more have four or more dependents.

These cross-installation differences suggest what could evolve over time if the Army's age structure changed markedly. Their immediate significance, however, is what these profiles of installations and their surrounding contexts suggest about existing MWR demands. The present-day comparisons among installations underscore the diversity across them. At some, the personnel population is skewed age-wise (like the Army as a whole) toward the youthful 20s, when

Table A.3
 Marital Status and Distribution by Number of Dependents

Location	% Never Married		1		2		3		4		5	
	Dependent	Dependent	Dependent	Dependent	Dependent	Dependent	Dependent	Dependent	Dependent	Dependent	Dependent	Dependent
Fort Irwin	44.8%	46.6%	16.4%	14.6%	13.9%	8.5%						
Fort Knox	41.1	43.1	15.1	15.5	15.9	10.5						
Fort Lewis	40.4	43.1	18.4	18.4	14.3	8.4						
Schofield	40.9	42.0	17.6	15.7	15.5	9.2						
Fort Shafter	25.3	28.6	18.3	17.5	21.4	14.3						
Rock Island	14.5	15.8	15.7	20.0	30.3	18.2						
White Sands	38.2	42.0	16.7	17.1	14.1	10.0						
Total Army	38.8	41.0	17.3	15.7	16.1	9.8						

SOURCE: Active Duty Military Master File and Loss Edit File.

families first get established and may rely on child development centers. At certain others, by contrast, the bulk of that population is 28 and older, when a broad spectrum of demands emerge that youth services can meet.

UNEMPLOYMENT AND HOUSING DIFFERENCES

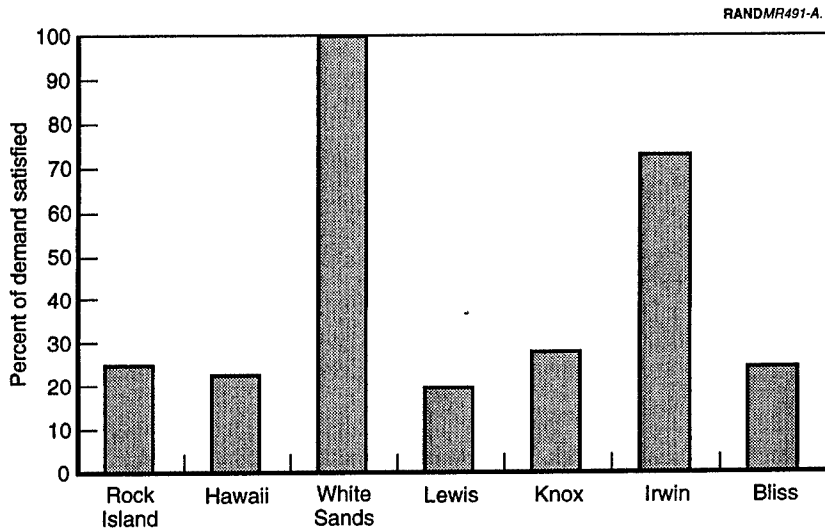
To further examine the surrounding civilian context, we rely on measures of female employment status and civilian housing costs based on 1990 census data. Our interests here center on, respectively, the availability of employment opportunities for Army female spouses and the affordability of off-post rental housing.

For examining the population of personnel stationed at the installation, we refer to measures of age distribution, marital status, and number of dependents. Our interests here center on the varying concentrations of personnel within the ages at which families get established, add young dependents, and generate demands associated with children and adolescents.

Army Housing and Civilian Housing Costs

Housing is central to Army families' well-being, both economically and in terms of location. Whether on-post or off-post, housing can isolate families from day-to-day necessities, or it can afford them ready access. The Army housing supply continues to significantly lag demand at most installations. Availability of on-post houses varies considerably among our selected installations. Figure A.1 highlights this variance.

As we noted previously, plans for additional housing are limited. Only 213 units are to be constructed at Schofield Barracks, which will raise this installation's demand satisfaction by only a few percentage points. However, the additional 220 units planned for Fort Irwin should enable this installation to meet 100 percent of its housing demand. The remaining installations face the problem of maintaining the existing housing stock. In addition, for Fort Lewis, housing becomes an even greater issue due to its return to a higher population level with no additional housing.



SOURCE: Department of the Army, U.S. Army Engineering and Housing Support Center (1993).

Figure A.1—Current Housing Demand Satisfied

Affordable housing is rarely abundant in any community, and in some communities it is scarce or virtually nonexistent (excluding slum housing). Of our installations, Fort Shafter has the most expensive housing (Honolulu County).

Employment Opportunities

Opportunities for female Army spouses to find gainful employment are limited in the labor markets surrounding several installations. Table A.4 illustrates these local labor markets.

The labor market surrounding White Sands (Otero and Dona Ana counties), for example, exhibits high (10 percent to 12 percent) unemployment. The area surrounding Fort Lewis, by contrast, is more promising: nearby Tacoma (and Pierce County as a whole) registers 7.0 to 7.1 percent unemployment, and neighboring Thurston County registers 6.3 percent. Honolulu exhibits a very tight labor market, implying ample employment opportunities for spouses at Fort Shafter.

Table A.4
Employment Opportunities: 1990

Installation and Surrounding Area	Unemployment Rate (women 16+)
Fort Irwin	
Barstow City	8.0%
Victorville City	12.5
Apple Valley Town	9.0
Fort Knox	
Hardin County	11.0
Meade County	13.7
Bullitt County	7.3
Louisville City	7.5
Pleasure Ridge Park	6.6
Fort Lewis	
Pierce County	7.0
Tacoma City	7.1
Lakewood	10.3
Thurston County	6.3
Fort Shafter/Schofield Barracks	
Honolulu County	3.3
Rock Island Arsenal	
Rock Island County	
Moline City	6.3
Rock Island City	7.0
Davenport City	5.5
White Sands	
Dona Ana County	9.9
Las Cruces City	9.6
Otero County	11.9

SOURCE: 1990 Census of Population and Housing.

NOTE: Unemployment rate refers to civilian labor force.

The local unemployment rate furnishes only a rough barometer of job opportunities for female spouses. Comparisons among areas indicate how the earning capacity of Army families can depend on where they are stationed. Spouses who seek employment may find it difficult to find a job locally that is sufficiently remunerative to offset, say, the family's additional costs for child care.

OTHER DEMOGRAPHIC CHANGES IN THE ARMY

We considered a variety of other changes that are occurring in the Army. In this appendix we discuss some changes we considered, but ultimately concluded were not of paramount importance to the future of Army MWR.

FORCE STRUCTURE CHANGES

Over the last several years, the Army has significantly reduced its force structure and personnel. In 1990 the Army had 18 active divisions. Though the ultimate conclusion is unclear, it seems reasonable to think there may be only 9 or 10 divisions by the late 1990s. Both force structure and personnel will soon approach levels that are unprecedented in the modern era. It is important to note, however, that the downsizing will largely come through troop departures from Europe and base closure, rather than reducing average population on remaining installations.

However, the Army is not just downsizing, it is downsizing selectively. While the Army will ostensibly attempt to maintain the relationship between officer and enlisted strengths that existed in 1990,¹ it is clearly engaging in selective downsizing with regard to personnel. In particular, the Army appears to be planning to reduce personnel in the TDA (e.g., garrison and depot troops) part of the

¹*Defense Force Management: Status of Military Force Downsizing*, General Accounting Office, GAO/T-NSIAD-92-20, March 1992, pp. 4-5.

Army more extensively than in the TOE (combat, combat support, and combat service support) part of the Army.

Selective downsizing could have important implications because TOE and TDA soldiers have different demographic characteristics. Some of these differences are reflected in Table B.1.² The average TOE soldier is three years younger than the average TDA soldier, is more likely to be in a junior paygrade, has slightly fewer dependents, is more likely to be single, and is more likely to be male.³

In peacetime, the average age of soldiers could change slightly, depending on the TOE-TDA distribution of personnel. However, our analyses indicate that even major shifts, say from 50 percent to 80 percent of soldiers in TOE slots, would lower the average age by only one year (from 28.6 to 27.6). It is possible that under transition to war or wartime conditions, the percentage of TDA personnel could increase, thereby affecting the average age of Army personnel.

Table B.1
Some Differences Between the Average TOE and TDA Soldier

Category	Age	E-4 or below (%)	Dependents	Single (%)	Male (%)
TOE	27.2	58	2.3	42	91
Combat	26.1	61	2.1	49	100
CS	26.8	60	2.3	43	93
CSS	27.9	58	2.3	38	81
TDA	30.2	41	2.6	34	85

SOURCE: Active Duty Military Master File and Loss Edit File.

NOTE: Combat, combat support (CS), and combat service support (CSS) units comprise the TOE portion of the Army.

²The demographic characteristics of Army personnel are obtained from the Active Duty Military Master and Loss Edit file.

³The percentage of males in the TOE part of the Army could decline if females are introduced to combat Military Occupational Specialties (MOSs) in large numbers.

FAMILY TRANSFORMATIONS

Families traditionally were established through marriage and within a traditional age range (early 20s). Both traditions, however, are in flux, and Army families are not immune to the changes that have ensued.

With respect to family formation, civilian families today are profoundly different from those of past generations. Now, over one of every four children is born to an unmarried woman. More generally, barely three of every ten adolescents will have lived in a continuously intact family through all 18 years of their youth.

The paths leading children into single-parent families are distinctly different for blacks and whites. The majority of black children are born into them, whereas the majority of white children get there as a result of marital disruption. In 1988, for example, 54 percent of all black children living with one parent had been born to a mother who was never married, whereas 72 percent of all white children had entered that state because their parents separated or divorced.

With respect to the timing of family formation, the vast majority of Army personnel are (or have been) married by their late 20s. This early pattern of Army family formation persists, even though civilians have been marrying at progressively later ages in recent decades. In 1985, the median civilian age at first marriage⁴ was 25.5 for men and 23.3 for women. Among Army personnel, the corresponding median ages in the mid-1980s were 20.7 for men and 20.4 for women. By 1992, the median civilian age at first marriage had risen one full year—to 26.5 for men and 24.4 for women. In all likelihood, Army personnel as well now marry later, although we have no current data to ascertain how much later.

There are several possible explanations of why people who have served in the Army are observed to have married earlier than their civilian counterparts:

⁴The median age at first marriage is the age dividing the married population equally between half who married younger and half who married older.

- Certain population subgroups—e.g., persons with no more than a high-school-level education—inclined toward early marriage may have been disproportionately represented within the Army.
- The Army may have attracted persons with distinct backgrounds and values conducive to early family formation.
- Initial Army experience may have accelerated family formation. When first enlisting, the prospect of a prolonged separation from a fiancée may precipitate a marriage earlier than it would otherwise have taken place.
- There are distinct advantages to being married while in the Army, e.g., an opportunity to leave barracks housing.

Whatever the explanation of past patterns, many soldiers do in fact marry during their first term, sustaining the need for family-support services. If civilian trends are any guide, the timing of soldiers' marriages may shift upward in age, possibly as much as a year. If a later pattern of Army family formation does emerge, it might introduce slight modifications in service demands (e.g., child care, youth services) and housing demands.

In short, there are a variety of demographic changes occurring in the Army. However, it is not clear they will have enormous impacts on MWR demands. For instance, reduced force structure will largely be accommodated through closure of European and some CONUS installations. Force reduction will not greatly affect installations that remain open. Further, it is not clear the fairly subtle changes in the age and marital patterns in the Army will have a large impact on the demand for MWR services.

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