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In this issue:

Master planning and military construction

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Occupants of the housing in the upper floors are within easy walking distance of the retail stores on first floor of this mixed-use complex at Fort Belvoir, Va. Photo by Jeff Springer

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Master planning – the essential process to manage change

by Maj. Gen. Merdith W.B. Temple

This issue of the *Public Works Digest* is the second annual edition focused on master planning for Army installations. The timing is perfect to address the importance of planning in meeting the Army's most immediate mission requirements and to ensure that our Army's installations are being developed in a smart, sustainable way that preserves long-term military capabilities.

Over the past year, the Army and the U.S. Army Corps of Engineers have been implementing a huge construction program supporting various stationing initiatives worldwide. Our challenge is to rapidly provide facilities for new units scheduled to arrive at many of our installations in a short time period. We are getting there through innovative use of design-build and standardized programming and design techniques to deliver mission facilities quicker in close partnership with the Assistant Chief of Staff for Installation Management and Installation Management Command.

In our haste to deliver these facilities, we have had to think about impacts of development on the long-range military capabilities of our installations. Are we creating sprawling design solutions that are not sustainable, that do not consider the environmental and health impacts to the community, and that are not compatible with modern urban planning? Addressing these issues under tight timelines is the planning challenge facing us today. Together, USACE, ACSIM and IMCOM are meeting these challenges.

We know that master planning is not a hindrance to project execution, but it is a force multiplier. A comprehensive planning process is the catalyst for a vibrant construction program that meets mission needs, takes best advantage of available real estate and ensures that development occurs in concert with environmental considerations, including the National Environmental Policy Act. This process achieves goals of sustainable development and creates

Maj. Gen. Merdith W.B. Temple
Photo by F.T. Eyre

quality neighborhoods that are walkable and are great places to work, live and play.

Effective planning does not delay projects but enhances project execution. It embraces a process framed around an installation-developed vision for real property development and associated planning principles, and a focused area development strategy that meets sound planning principles. It is collaborative and coordinated with all stakeholders involved in planning decisions.

Finally, while the process is holistic and identifies all the ways to meet specific planning requirements, it also helps meet both immediate timelines and also longer-range needs in a well-designed neighborhood. It also ensures sustainability and total asset management principles are considered.

Many installations are embracing this process and setting the standard for good planning for present and future generations. Fort Lewis, Wash., provides one good example among many. Col. Cynthia Murphy, the garrison commander, Steve Glover, the master planner, and the USACE Seattle District are leading the Fort Lewis Military Community in an update of its real property master plan.

They have a collaborative installation visioning process that has defined a real property master-planning vision and created a set of planning principles to guide Fort Lewis development. They also developed a planning strategy to achieve these principles. The strategy is focused on targeted development that is sustainable, facilitates use of mass transit and is mixed-use in nature to meet present-day and future stationing actions. Planning has supported Family quality of life through good Residential Communities Initiative housing integration and construction. Each area of the post will have its own area development plan.

The Fort Lewis team recently completed most of the visioning activities. Currently, the team is engaged in putting together area development plans and working with USACE, the RCI contractor, the Army and Air Force Exchange Service and the Defense Commissary Agency to see how they can adjust ongoing projects to help achieve Fort Lewis's vision.

This work, done in only four months, achieves well-thought-out solutions that are cost effective and is indicative of the speedy planning necessary in today's fast-paced environment. As a result, Fort Lewis is prepared to meet today's facility challenges, unforeseen future stationing missions or new weapons fielding needs. The installation can be assured that development will meet mission requirements and still achieve the established vision and planning principles. The lesson Fort Lewis can teach us is that a comprehensive master planning process, championed by installation leadership and framed around focused area development, can result in a community that manages change effectively.

Successful planning principles include:

- *Promote installation leadership involvement in planning.* Garrison commanders have the responsibility to champion real ➤

Acronyms and Abbreviations:	
ACSIM	Assistant Chief of Staff for Installation Management
IMCOM	Installation Management Command
NEPA	National Environmental Policy Act
RCI	Residential Communities Initiative
USACE	U.S. Army Corps of Engineers

What is a real property master plan?

by Brig. Gen. Dennis E. Rogers

A master plan is a collection of goals and documented strategies to achieve the installation vision. The real property master plan, a subset of the master plan, provides direction for the future short- and long- range development of facilities on an Army installation.

The RPMP is an integrated document made up of five distinct but related components:

- The RPMP digest — encapsulates the essence of the RPMP. As the installation's general plan, it is the over-arching component of the RPMP and guides the entire scope of the plan.
- The long-range component — contains focused, detailed planning strategies that guide the long-range use of land and facilities on the installation. It is a broad-based area analysis of the entire site projected over a period of 20 (to 50) years.
- The installation design guide — prescribes the urban design character of the site.
- The capital investment strategy — contains the holistic set of actions needed to create the real property vision. It focuses on strategies to integrate current demands with long-term facility needs, based on assessments of excesses and deficits.
- The short-range component — marks the transition from planning to programming and provides a list of projects planned over the next five to seven years.

Brig. Gen. Dennis E. Rogers
Photo by Monica King

In recent years, our facilities-planning efforts have been focused on portions of our installations to address the myriad of top-driven initiatives. This has led to a less-than-holistic approach to facilities planning, which has resulted in well-planned "islands" within many of our installations and in ➤

Acronyms and Abbreviations:	
IMCOM	Installation Management Command
RPMP	real property master plan

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property master planning. Each garrison commander attends the Garrison Pre-Command Course, which includes a six-hour real property master planning overview. It is imperative that, after they arrive at their installations, we are prepared to support them with sound planning programs that help them achieve their installations' visions for real property development.

- *Use area development plans for focused planning efforts.* Area development plans are, basically, mini-master plans that enable an installation to complete a comprehensive planning process that is NEPA-compliant and sustainable, resulting in a holistic set of requirements sited in a well-planned community.
- *Maintain installation planning capabilities.* Each garrison has a Master Planning Office with responsibility to implement the installation's master planning program. Installations need to ensure these offices are staffed with trained professionals knowledgeable in the practice of planning and that their planners attend Army and professional training classes and workshops to keep their skills current.

To work with IMCOM, I have encouraged USACE major subordinate commands to maintain a complete suite of capabilities needed to support installation planning needs. These services include:

- Developing a vision;
- Preparing real property master planning digests, area development plans, space utilization studies, infrastructure assessments and other planning studies;
- Facilitating planning charettes;
- Conducting requirements analyses; and
- Providing Geographical Information System, Building Information Modeling and other master planning visualization support.

Your supporting districts are prepared to meet your planning requirements in a consistent, professional manner. They also have at their disposal USACE support teams from the Installation Support Center of Expertise at the Engineering and Support Center, Huntsville, Ala., and the Engineer Research and Development Center laboratories at Vicksburg, Miss., Champagne, Ill., and Hanover, N.H. These supplemental teams can provide focused planning support to address unique planning approaches to sustainable development, stationing analyses, environmental impact assessments, utility and infrastructure analyses, Building Information Modeling and geospatial information systems.

Our installations are invaluable assets for our Army, and our installation master planning must take a holistic approach, which includes a balance of operational, constructability, environmental, remediation and real-estate use considerations.

Our challenge is to ensure we have the infrastructure and facilities available to meet mission needs through appropriate, sustainable master planning. An effective master planning program makes sure our installations will remain relevant for the Army's next generation.

Maj. Gen. Merdith W. B. Temple is director of Military Programs, U.S. Army Corps of Engineers.

Why a real property master plan?

by Gregory Brewer

Garrison commanders are charged with stewardship of the installations under their command. They sign for them and are entrusted with the careful and responsible management of them. They are running small cities with the people, real property and services in support of assigned Army missions — a formidable task. One tool that can assist them is the installation real property master plan.

The RPMP provides a backward look, the current situation and a future look at the installation. It reveals the installation assets and capabilities, better known as installation carrying capacity, as well as a future look, better known as the "commander's vision."

With the current turmoil in the Army, brought about by Base Realignment and Closure 2005, Grow the Army, Army Modular Force and Global Defense Posture Realignment, this future look is very important.

The Army Campaign Plan is the Army's primary document that directs planning and execution of Army operations and Army Transformation within the context of ongoing strategic commitments. It provides guidance directly dealing with Army readiness, which to the garrison commander, translates into providing a quality installation, enhancing the installation's ability to project power and support the Soldier and Family while divesting of Cold War infrastructure and investing in standardized but adaptable infrastructure for the future.

What provides the blueprint for doing this? The RPMP. It becomes the keystone for installation strategic planning because it summarizes the development of the installation and relates mission planning, environmental planning and quality-of-life initiatives planning.

The RPMP integrates installation information. Graphic courtesy of Office of the Assistant Chief of Staff fro Installation Management

So, what is the RPMP? It is a holistic view of the installation. It relates mission to the use of facilities and land, and the juxtaposition of mission locations. It provides important management data about those facilities and land such as current occupant, utilization and utilization rate, age, maintenance factors, condition, square footage or acreage, improvement and dollars spent on the facility or land. It shows important land encumbrances and physical features such as natural and cultural attributes, threatened and endangered species habitats, topography, noise contours, water and wetlands, etc.

This information helps garrison commanders visualize the impacts of decisions made on current and future use of installation real property. It makes them better stewards of real property in support of Army mission accomplishment. RPMP ➤

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missing the overall, holistic plan.

It is now time to return to the precepts of real property master planning. We have begun to address this issue with the development of real property master plan digests for multiple locations. This approach will assist the installation in re-addressing its vision, which should provide the cornerstone for the development of all of the master plans, including the RPMP.

The initial step has been taken on this road. Headquarters, Installation Management Command has funded the development of 25 real property master plan digests. These documents are an executive-level portrayal of the installation vision and the attendant plans in place to realize that vision.

The Assistant Chief of Staff for Installation Management has also tasked the IMCOM regions to identify their strategy in developing their installation master plans to address the long-range vision.

Our expectation is that, at the end of 2008, we will have:

- completed real property master plan digests at 25 of our installations;
- developed area development guides for multiple installations addressing all the projects in the Future Year Defense Plan;
- started validating our Military Construction projects identified in the upcoming Program Objective Memorandum build by conducting planning charrettes where needed; and
- identified the real property master planning components that need addressing to continue the holistic approach to the real property master planning of our installations.

Also in 2008, we expect to have the Army Space and Planning Manual completed. The manual will provide a tool for our facilities planners of all organizations to better identify Army criteria.

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information allows garrison commanders to better react to the changes occurring as a result of BRAC, GTA, AMF and GDPR.

The RPMP is also the garrison commander's membership card to nearby communities. No longer can an installation consider itself an island unto itself. Installations are an integral part of the surrounding communities and must partner with them.

The RPMP is the perfect tool to explain what an installation is doing and how it will develop in the future. It can clearly show the interaction between an installation and its surrounding communities' activities and planning that are separated merely by the fence line.

An Army installation is generally an economic benefit to adjacent communities but can also be a competitor for resources. Encroachment is frequently a problem. The RPMP helps show this. It is the installation's development plan comparable to the surrounding communities' development plans. By sharing the RPMP with its neighboring communities, the installation can become a valued partner and can create a two-way discussion to resolve issues and concerns.

The RPMP also provides a sustainable view of the installation. Land and resources are limited. Because the RPMP is an integrated document with information from many other plans and sources, it can focus planning of the built environment from a life-cycle cost basis in an environmentally and energy-efficient manner.

The RPMP assumes that the installation must remain viable now and in the future. That is the only way mission readiness can be sustained. But, at the same time, care must be taken not to abuse or over extend the use of resources today that may be required in the future. That care is the theme behind sustainability and leads to concepts in real property master planning such as multi-use development, reuse or adaptation of existing real property, extensive recycling programs, water conservation, the use of "nature" in installation and facility designs, and, equally important, critical infrastructure risk management.

As George Carellas of the Office of Assistant Secretary of the Army for Installations and Environment said, "The actions we take today will ultimately determine the success of tomorrow's Soldiers." With that thought in mind, sustainable planning is necessary and therefore integral to the RPMP.

Perhaps the most important use of the RPMP is as an expression of the installation development vision. It is the meshing of installation missions and community functions now and in the future. It is the picture that depicts maximized use of the future installation.

The vision may not show a continuation of current missions but rather something new that better suits the location, real property and surrounding community environment for that installation. The vision may recommend new land uses and mission relationships. The relationship with and reliance on surrounding communities may change; however, the installation vision must be long lasting and executable.

The RPMP vision can be tweaked to reflect the current garrison commander's ideas, but must always reflect installation development over a 20- to 50-year horizon. It has been said that if you don't know where you are going, any road can get you there. Likewise, if there is no RPMP vision, the installation will have no future and may not remain a viable asset for the Army.

So, what are the roles of the garrison commander? The commander is the installation visionary. By virtue of the position, he or she is generally aware of changes that are occurring to Army organization or missions and can translate that into appropriate development for the installation. The garrison commander is the champion for the installation RPMP and, therefore, must ensure that the RPMP and associated other plans and data bases are prepared and maintained. The garrison commander must ensure the RPMP reflects the requirements of all stakeholders and their future interests. But most of all, as the steward of the installation, the garrison commander should realize the importance of the RPMP as a management tool and the installation master planner as a critical asset and the valued information provided by both.

One final point about the RPMP, though made up of five parts, it is not a document that should sit on the shelf. Planning is a continuous process, which makes the RPMP a living document. It will change with each successive garrison commander, but it should always provide the guiding vision for future development.

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Acronyms and Abbreviations	
AMF	Army Modular Force
BRAC	Base Realignment and Closure
GDPR	Global Defense Posture Realignment
GTA	Grow the Army
RPMP	real property master plan

Role of National Environmental Policy Act in master planning

by Jeff Springer

Better decision making. It's the connection between the Army's master planning process and the National Environmental Policy Act.

Both the master-planning and NEPA processes require the identification of goals and objectives, and analysis of alternative courses of action to achieve those goals. With the similarities between the two processes and by working together, the master planner and NEPA practitioner can help simplify the NEPA process and lead to improved results.

The master-planning process begins with the commander's vision, and then the planner acquires and analyzes a broad spectrum of planning data from sources such as the Real Property Planning and Analysis System and the Army Stationing and Installation Plan. In addition, installations have an extensive inventory of environmental data that can contribute to the master planning process.

These resources include the natural and cultural resource management plans, the storm-water management plan, noise contours, wetlands inventories, identified contamination sites and a wide array of environmental permits. NEPA practitioners will collect and analyze much of the same data for almost every analysis they conduct.

The goals and objectives are fundamental elements of the installation's real property master plan. They generate specific actions that support the commander's vision, and that process leads to formulating alternative courses of action for the master plan.

The NEPA process begins by identifying the purpose, need and reasonable alternatives for implementing a proposed action. In this case, the proposed action is to implement the master plan. The purpose statement articulates goals and objectives that the installation intends to fulfill by taking action. These goals can come from the installation's strategic plan or real property master plan.

Acronyms and Abbreviations	
CFR	Code of Federal Regulations
NEPA	National Environmental Policy Act
VEC	valued environmental component

"Eliminate 95 percent of energy-inefficient and high-maintenance buildings by fiscal year 2012" would be an example of a goal that would translate into the purpose statement of a NEPA document.

The "need" is a discussion of existing conditions that need to be changed, problems that require a remedy or policies that need to be implemented. In this example, the need would discuss energy and maintenance costs of the facilities and their impact on the installation's budget, as well as the quality of life for their occupants.

Key components of both processes are identifying and evaluating alternative courses of action. When evaluating alternatives, the NEPA practitioner considers several factors, known as valued environmental components. VECs include energy, land use, hazardous materials or waste, threatened and endangered species, air quality, wetlands, socioeconomics, airspace, cultural resources, noise, soil erosion, water resources, facilities, and traffic and transportation.

The Army's *NEPA Analysis Guidance Manual* (May 2007) provides the NEPA practitioner the tools to properly identify and evaluate VECs, including the direct, indirect and cumulative effects from implementing the proposed action and identifying alternatives.

When evaluating alternatives, the master planner considers a broad range of factors, such as compatibility with adjacent land uses, suitability of the land itself and accessibility. Some of the factors master planners include in their evaluations include many of the VECs used by the NEPA practitioners.

By working together and including the NEPA practitioner's VECs, the master planner can include a broader spectrum of factors in the decision-making process, which will simplify the NEPA process and could lead to better land-use decisions and planning.

There are other tools available to the master planner and NEPA practitioner that can help simplify the NEPA process — for the benefit of everyone involved. An initiative by the Environmental Planning Support Branch at the U.S. Army Environmental Command has recently put into practice concepts endorsed more than two decades ago in the federal regulations governing NEPA.

> *"Emphasizing the portions of the environmental impact statement that are useful to decisionmakers and the public … and reducing emphasis on background material."*
>
> 40 CFR 1500.4

The concept behind focused NEPA is to save time and money. NEPA regulations do not require preparing encyclopedia-sized documents and addressing every element of the study to the same level of scrutiny. *(See box, 40 CFR 1500.4)* The intent — and result — of a focused approach to NEPA is a more streamlined process. It takes less time, identifies issues that require attention and analysis, and, by starting the process early, gives stakeholders sufficient time to find effective solutions to potential problems.

The scoping process is the first and most important step in the focused NEPA approach and should automatically be the first step in every action undergoing analysis under NEPA. It is important to recognize that scoping is a process, not an event or a meeting.

Scoping is the process for determining the range of environmental analysis needed. Although Title 40 Code of Federal Regulations 1500-1508 discusses scoping ➤

Mixed-use development generates vibrant, livable communities

by Andrea Wohlfeld Kuhn

What if you could live, work and play without having to get into your car? Throughout the country, new communities are being designed and older ones are undergoing revitalization to embrace what is called "mixed-use development," "new urbanism" or "traditional neighborhood development."

Regardless of the terminology, the intent is the same — creation of communities that have a sense of place, that promote livability, quality of life and protection of the environment.

This goal is achieved by integrating a variety of uses rather than separating them into housing areas, eating establishments and shopping areas, to name a few. Interconnectivity plays a key role in creating mixed-use developments. Rather than segregate uses, as traditional zoning practices dictate, mixed-use development purposely consolidates multiple uses, such as retail, office, commercial and residential.

Why not take our cue from popular "town centers" that have sprung up all over the country in recent years and that have existed in Europe for centuries?

Current research indicates that most people would rather live in a small town rather than a large city or a suburban environment. Most appealing are the convenience of neighborhood stores, the safety of a well-defined area where people know each other, the local availability of goods and services and recreational amenities, and the overall sense of belonging.

These concepts take on even more significance if we use them to meet the chief of staff of the Army's four imperatives:

1. Sustain Soldiers, Families and civilians;
2. Prepare Soldiers for success in current operations;
3. Reset to restore readiness and depth for future operations;
4. Transform to meet the demands of the 21st century.

These goals and those of our Soldiers and Families can be met by changing the way we plan our installations. Mixed-use developments can provide several benefits.

Quality of life, health

These concepts are of particular relevance in sustaining the military community, including Soldiers and their Families. While monetary bonuses provide an immediate incentive to encourage enlistment or recruitment, a critical factor relating to service longevity is the quality of life Soldiers and their Families experience when they live on military installations.

Satisfaction with quality of life results in reenlistments and continued service. Living environments — housing, services, eating establishments, shopping centers, rec- ➤

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largely in the context of preparing an environmental impact statement, there actually is a scoping element associated with each type of NEPA analysis.

> *"Agencies shall reduce delay by using the scoping process for an early identification of what are and what are not the real issues."*
>
> 40 CFR 1500.5

Scoping is a key tool to help focus the analysis on issues important to the proponent, the public or other stakeholders, and prevent redundancy and excess bulk in documents. It streamlines the NEPA process by limiting the range of analysis to only those issues that are significant. This tool also ensures that a full range of action alternatives is explored and that all potential impacts are identified at the beginning of the planning process.

Scoping helps ensure that real problems are identified early and properly studied, that issues that are of no concern do not consume time and effort and that the draft NEPA document when first made public is balanced and thorough. Scoping does not create problems that did not already exist; it ensures that problems that would have been raised anyway are identified early in the process.

During scoping, installation staff subject matter experts and stakeholders review the proposed action, identify key and important issues for analysis and develop alternatives to the proposed action to be fully considered in the NEPA analysis. Also during scoping, with available data on hand, participants review the potential effects of the proposed action and each alternative on each of the VECs.

This review serves as the preliminary basis for the focused approach to the NEPA analysis. Each VEC then receives the level of analysis in the NEPA document commensurate to the potential effect. As the analysis proceeds the level of detail provided in the NEPA analysis can change if the potential effect on a VEC differs from the preliminary estimate.

The master-planning and NEPA processes have a number of similarities, and those similarities can be valuable tools to help simplify the NEPA process and strengthen the decision-making process. Implementing NEPA can be simplified and streamlined by early consideration of NEPA in the planning process and focusing the effort on the important factors that could be affected by the proposed action.

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reational amenities, etc. — that are planned appropriately can increase satisfaction with on-post quality of life.

Availability of goods and services within walking distance adds to convenience for residents and provides health benefits as well. Americans have become more sedentary over time, in large part because communities, including Army installations, are designed around automobile access, rather than with the pedestrian in mind.

Changing demographics are a key factor to keep in mind as master planners plan and design the delivery of these services. Now that more than 60 percent of Army service members are married, master planners must change the way they plan installations to be able to meet the changing needs of Soldiers and Families.

Many Families have dual-career military members, and both may be deployed or have overlapping deployments. Thus, quality-of-life factors become increasingly important to the well being of service members and their Families.

With retail shops at ground level and residential units above, Fort Belvoir's Town Center demonstrates mixed-use development. Photo by Marny Malin

Land use, environmental constraints

Military base development is becoming increasingly constrained by limited land availability; environmental, energy and security constraints; encroachment issues; and limited funding. Master planners can no longer simply identify empty, available parcels of land and then fit proposed developments into these parcels.

A more holistic approach to planning is necessary, with thorough consideration of each of those factors. Environmental constraints — such as limited natural resources, including air and water — and the need to conserve energy can actually help define and encourage mixed-use development.

More compact development complements the natural environment or topography and creates more usable open space, which can, in turn, be used for recreational purposes for an entire community. The effect will be fewer automobile trips, which will result in decreased auto emissions, better air quality and decreased requirements for parking lots and other impervious surfaces.

Sense of community

Mixed-use development can be designed to provide necessary goods and services and to create a small town atmosphere with the positive attributes that so many people desire. Incorporating elements of local architectural design elements heightens the sense of community.

The newly constructed "main street" at Fort Belvoir, Va., with retail shops at ground level and residential units above, has proven extremely popular with installation residents. The mixed uses compliment each other while meeting the needs of the residents. Nearby are new townhouses that reflect the traditional architectural style of the local area. Residents have noted that the design, which incorporates common recreational areas, provides the sense of community they seek.

In conclusion, as master planners transform installations to meet the changing needs of Soldiers and Families and proceed with a greater awareness of their environmental stewardship responsibilities, they can use the concepts of mixed-use development to create more vibrant communities and offer more secure, convenient and livable neighborhoods with a multitude of benefits that meet the overall goals of the Army.

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Make the connection between master planning, public health

by Jeff Springer

Data shows that Americans use their cars for 66 percent of all trips up to a mile, and for 89 percent of their trips between one- and two-miles long. Increasingly, indications are that people would like to walk or bicycle for routine trips to the store, library or school, but they find long distances and often inadequate infrastructure discouraging.

The increasing dependence on cars is reducing levels of physical activity and is a contributing factor to the rising number of obese and overweight citizens in the United States. Lack of physical activity is a factor that contributes to obesity and overweight. More and more, researchers connect features of the built environment to levels of physical activity.

Actually, elements of the built environment, the realm of the master planners, can promote physical activity — and public health.

The percentage of obese American adults doubled in the 20-year period ending in 2005, resulting in 30 percent of American adults over the age of 20 being classified as obese. More than nine million, or about 15 percent, of children in the United States are obese. Over a two-decade period from 1980 to 1999, the obesity rate doubled among children 6 to 11 and almost tripled for adolescents.

Being overweight or obese increases the risk of many diseases and health conditions, including coronary heart disease, diabetes, osteoarthritis, stroke, hypertension and some cancers. The estimated 300,000 deaths per year attributed to obesity and associated illnesses are the second leading cause of preventable death in the United States.

There are three factors of the built environment that affect levels of physical activity for both recreational and utilitarian purposes: connectivity, land use and infrastructure. Each of these elements of the built environment influences transportation choices — whether we walk or drive to our destination.

Connectivity

High connectivity reduces the distance between the origin and destination of a trip. A community with high connectivity is characterized by short block lengths and a high percentage of four-way intersections. Higher connectivity increases the opportunity for walking because travel distances are shorter.

The lack of connectivity of the hierarchal street network artificially increases the distance between origin and destination and, in many instances, limits the route to one choice. The hierarchal network also collects increasing volumes of traffic onto neighborhood streets, which contributes to people's aversion to walking or cycling.

Mixed land use

The concept of mixed-use development generally addresses those uses that have benign influences on surrounding uses. Retail and residential are commonly linked together, for example.

Mixing land uses can be measured on several spatial levels: site, neighborhood or employment center. Fort Belvoir, Va., applied the concept on both the site and neighborhood levels. Residential and retail share the same buildings, and more family housing is located within a two-block walk. Mixing these compatible land uses not only increases the opportunities for people to walk or bicycle to the store, coffee shop or restaurant, but it also reduces traffic congestion and parking demand.

A judicious mixing of compatible land uses, such as residential-retail or commercial-retail, colocates businesses with potential customers and creates opportunities for people to walk or bicycle for utilitarian purposes. An employee can walk to lunch, pick up his or her dry cleaning or rent a DVD. The absence of mixed compatible land uses creates additional automobile trips and, accordingly, increased demand for parking at each land-use type. ➤

Six-foot wide sidewalks, a buffer zone of equal width and shade trees help make this community walkable. Photo by Jeff Springer

Garrison commanders prepare for planning challenge

by Jerry Zekert

Serving as a garrison commander is one of toughest jobs in the U.S. Army. You are responsible for all installation operations and ensuring these services are provided in the best and most efficient manner. Further, the garrison commander is the installation's leader for planning. The commander must lead and challenge the installation community to not only consider day-to-day operations but but also long-term cumulative planning factors such that installations can support the future Army.

To prepare garrison commanders for this responsibility, they must attend the four-week Pre-Command Course held at the Army Management Staff College at Fort Belvoir, Va. This course immerses then into all aspects of installation management. They hear from the Army's leading experts on various aspects of base operations as well as from the commander of the Installation Management Command with his guidance.

One of the garrison commander's prime roles is as the champion real property master planning. Championing means ensuring that the installation is guided with sound planning principles integrated into a vision for real property development and that all development follows these principles in a holistic manner.

Students in a Pre-Command Course work through a master planning exercise. Photo by Jerry Zekert

During the Pre-Command Course, garrison commanders are provided more than six hours of planning training. Greg Brewer, the Office of the Assistant Chief of Staff master planner, along with this article's author present a two-hour overview of Army real property master planning. The instruction encompasses planning principles, roles and responsibilities, planning considerations, staff professional development and the components of the installation real property master plan and area development planning. ➤

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Infrastructure

Pedestrians have a justifiable fear of moving traffic. Someone struck by a car moving at 20 mph has a 95 percent chance of survival; at 30 mph, it reduces to 55 percent, and at 40 mph, the chance of survival drops to 15 percent.

Several design features in a residential neighborhood can promote walking. A 6-foot-wide sidewalk is wide enough for two adults to walk abreast. Sidewalks that are separated from moving traffic by a 6-foot buffer area, regularly spaced trees and parallel-parked cars provide both a perceived and actual barrier to moving traffic. In addition, the trees' canopy provides shade during sunny summer days.

Other features that promote walking are a completely obstruction-free route, and ramps and detectable warnings for the physically and visually impaired. Appropriate incorporation of traffic calming helps control both the volume and speed of traffic.

The Federal Highway Administration has published a number of documents that can be valuable resources for planning effective pedestrian and bicycle systems. A wide range of policy, design and education resources are available online at *http://www.walkinginfo.org/*.

A walkable community is characterized by a combination of high connectivity, mixed land use and well-designed infrastructure. Intuitively, the ideal conditions combine all three of these elements.

The highly connected neighborhood with pleasant and safe conditions and mixed land uses provides a wide diversity of destinations within walking or cycling distance. People living in these settings make walking and cycling a routine part of their daily lives. These conditions have been demonstrated to reduce the requirement for parking, reduce automobile use and increase levels of physical activity, which enhances public health.

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DoD sends team to China to assist with planning

by Jerry Zekert

Last year, the U.S. Office of the Secretary of Defense and the People's Libration Army of China jointly sponsored a team of U.S. experts in the areas of master planning, environmental assessment, design and construction of military facilities. The team was tasked to assist the People's Liberation Army's General Logistics Department in its challenge to plan, design and construct a sustainable training academy for 20,000 military personnel to be built in 2010 in Chongqing.

The workshop's goals were to: 1) Advise Chinese military officials on how sustainable development and environmental considerations can be imbedded into a facility construction program; and 2) how to apply these processes for the new General Logistics Department Academy.

China, like many other nations, is embracing sustainable development and environmental stewardship in planning and construction throughout the country. Also, China's military leadership has advised its armed forces that their installations must be well planned, embrace sustainable development and avoid negative environmental effects.

The U.S. delegation included a multi-faceted set of experts. They came from industry, the Army, the Air Force and academia to address urban and area development planning, sustainable development planning and environment impact considerations.

The combined Chinese and American planning team acknowledged that the foundation to a solid facility development program that considers environmental impact and is sustainable is a comprehensive master planning process. With this realization as a basis, the larger group broke into three working teams.

On the Planning Team, Stan Gross of the Air Force Center for Engineering and Environment and this article's author, from Headquarters, U.S. Army Corps of Engineers, facilitated a planning charrette. The team drafted an initial concept for the academy, ensuring all planning principles were considered.

On the Sustainability Team, Laura Shaw of AFCEE, Harry Goradia of Headquarter, USACE, and Rich Schneider of the Corps' Construction Engineering Research Laboratory facilitated discussions on commercially available tools, Chinese standards and ways to incorporate best features in design and construction.

The third team comprised representatives of academia and contractors including Brian Szusler of the University of Hawaii, and Patrick Wooliever and Dan Barone of Tetra-Tec. It developed a set of protocols to ensure environmental impact considerations are truly considered and followed in the planning process.

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Acronyms and Abbreviations	
AFCEE	Air Force Center for Engineering and Environment
DoD	Department of Defense
USACE	U.S. Army Corps of Engineers

The Chinese army's proposed new General Logistics Department Academy. Graphic courtesy of the People's Liberation Army of China

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After the lecture, the class participates in a four-hour planning collaborative exercise. Using models, students formulate a vision, define planning principles and create an area development plan. Anyone who would like a copy of the presentation may contact this article's POC.

The master planning section is one of the students' favorites. They truly are excited about planning.

Installations need to harness this excitement when new garrison commanders arrive fresh from the Pre-Command Course. The bottom line is, if the garrison commander is the ultimate champion for planning and is excited about planning, the installation can only benefit from supporting his goals to revitalize the program.

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Master planning GIS tools planned for Army Mapper

by Joshua Delmonico

Army Regulation 210-20, *Real Property Master Planning for Army Installations*, requires the use of geographic information systems in master planning. Many installations leverage GIS to:

- develop, visualize and examine data such as boundaries, roads, buildings and range operations;
- perform sketch planning for future projects and development plan evaluation; and
- deliver electronic master plans.

To improve the accessibility of GIS for master planning, Office of the Assistant Chief of Staff for Installation Management and Installation Management Command master planners are collaborating with the Installation Geospatial Information and Services Program to define requirements for GIS tools. As part of the requirements definition process, IGI&S has identified more than a dozen installation-developed master planning GIS tools that will be analyzed for Armywide usability. Consolidated tools will be centrally developed and made available via Army Mapper, the Army's new enterprise GIS, by December.

Acronyms and Abbreviations	
GIS	geographic information systems
IGI&S	Installation Geospatial Information and Services

Currently, Army Mapper includes:

- a Web Map Viewer with basic viewing and querying of common data;
- remote access to commercial GIS and computer-aided drafting and design software with advanced viewing, querying, data management and mapping capabilities; and
- a secure data repository with integrated geospatial data from installations, field operating agencies and commercial sources.

Data integration is ongoing, with new data added as it is received or developed through centralized efforts.

The IGI&S Program is working with other functional areas such as environmental, real property and the Sustainable Range Program to improve GIS services and capabilities for garrisons. For more information on IGI&S Program efforts and to access Army Mapper, visit the Army Knowledge Online portal at: *https://www.us.army.mil/suite/page/392069*.

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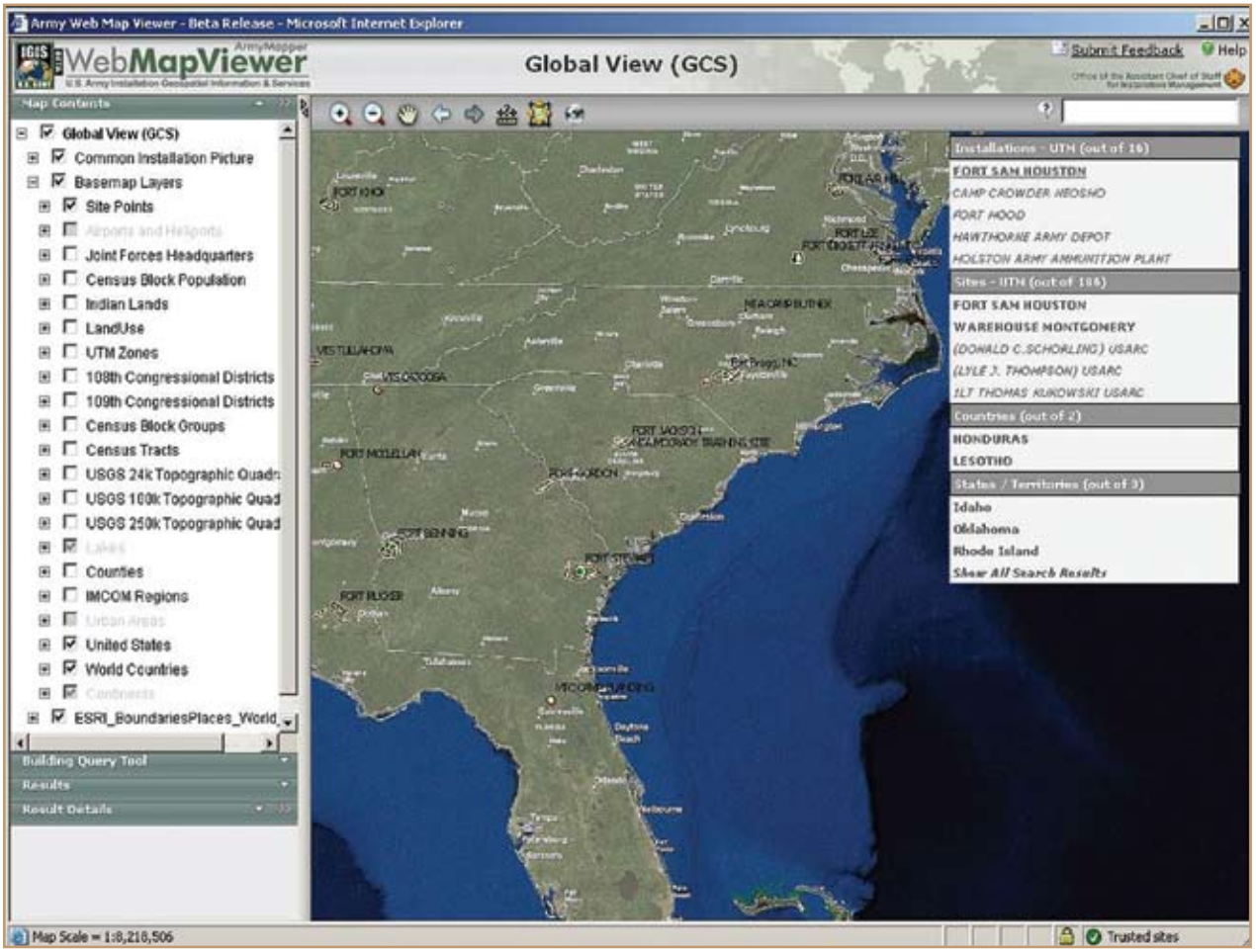

Screen capture of Army Mapper Web Map Viewer

Fort Hood plans sustainability into construction

by Christine Luciano and Jerry Paruzinski

The unprecedented pace of the Army's strategic plan — driven by the Global War on Terrorism and the Army Modular Force, Global Defense Posture Realignment and Base Realignment and Closure initiatives — demands a change in the established master planning mindset. Fort Hood, Texas, is developing and implementing long-term sustainable planning into training lands, military construction and its day-to-day operations.

Sustainability requires a team effort. Fort Hood's Directorate of Public Works Real Property Planning Division works with Engineering, Environmental and other pertinent parties to assure the principles of sustainability are incorporated into the planning, design and execution processes for new construction.

Training lands

Collaborative efforts by Fort Hood's DPW master planners, range control, the integrated training area management coordinator and Natural Resources Conservation Service personnel have ensured several projects improve training capabilities while minimizing the impact to training areas. Training lands are constantly evolving and being upgraded because of the increased training requirement at Fort Hood

To better support the mission training requirements, the DPW master planners, ITAM and range control personnel are maximizing the use of available training lands. At the same time, they are reducing the amount of erosion and improving traffic ability to give the maneuver commanders more terrain on which to train.

In 1992, NRCS and Fort Hood implemented some best management practices to decrease soil erosion in training maneuver areas. In 2000, the Fort Hood erosion rate was evaluated at more than 33 tons per acre per year. At that time, NRCS and Fort Hood ITAM established the goal of reducing soil erosion to five tons per acre per year through best management practices such as the gully plug program.

Acronyms and Abbreviations	
DPW	Directorate of Public Works
ITAM	Integrated Training Area Management
LEED	Leadership in Energy and Environmental Design
LEED-NC	Leadership in Energy and Environmental Design-New Construction
NRCS	Natural Resources Conservation Service

The gully plugs, which are rock structures, capture a majority of the sediment throughout the training areas and serve like bridges for tanks and other vehicles. Photo courtesy of Christine Luciano

The gully plug program is an initiative that reduces the amount of sedimentation transported to and deposited in waterways. When it rains, disturbed soil washes into creeks on Fort Hood. The gully plugs, which are rock structures, capture a majority of the sediment throughout the training areas. The result is less sedimentation entering major waterways.

The gully plugs also serve in a bridge-like capacity for tanks and other vehicles in the training area. When vehicles cross the drainages using the gully plugs, there is less sediment and stream disturbance. Soldier safety is also increased because vehicles are not subject to unimproved surfaces.

In 2007, the NRCS conducted a range and training land assessment, which examined the level of soil erosion occurring in installation heavy maneuver areas. The assessment showed an increase in western training area activities but a marked decrease in the overall soil erosion.

By implementing conservation and sustainable practices, the soil loss rate was reduced from 33 tons to 4.4 tons per acre per year, which means more areas can be maintained to support mission training.

Job Order Contracts

Fort Hood also incorporates sustainable practices for high-performance construction. As part of the Army's commitment to sustainable design and development, Military Construction projects will achieve the Silver level of Leadership in Energy and Environmental Design-New Construction.

Fort Hood is coordinating with Cadence, a Job Order Contractor, to build a LEED-certified administrative facility under the $750,000 garrison authorization for new construction. Fort Hood plans to use this facility as a template to streamline LEED into future projects.

"The goal is to conform to industry standards [using] environmental materials to construct a pre-engineered metal facility that is sustainable," Ron Garner, the Cadence program manager, said.

One of the challenges DPW has encountered is ensuring that LEED requirements are also communicated to subcontractors. Education and resources are provided to DPW and contractors by Jennifer Rawlings, Fort Hood's LEED-accredited pollution prevention coordinator.

"Although we can include certain requirements in the scope of work and specifications, tracking the documentation to meet LEED certification is difficult," Rawlings said. "To overcome these challenges, we conduct weekly meetings ➤

Update Korea: U.S. bases undergoing massive change

by Joe Campbell

The U.S. Army Corps of Engineers, Far East District hit the ground running for fiscal year 2008 with more than $1.2 billion in projects underway and nearly $4 billion more scheduled to begin within the next four years. From the Demilitarized Zone to the southern coast of Korea, FED's team continues to work to improve the quality of life for U.S. personnel through Military Construction, nonappropriated funds and host nation-funded projects.

Spearheading the efforts is the Korea Relocation Project Office. This office oversees the new construction at U.S. Army Garrison Humphreys, an installation about 40 miles southwest of Seoul that is slated to become home for the majority of U.S. Forces Korea by 2012.

The joint-funded project will cost about $8 billion and is expected to triple the size of the installation in support of an estimated 44,000 personnel. The project calls for the construction of 600 buildings, roads, utility infrastructure and an 18-hole golf course that will serve to mitigate the effects of flooding during Korea's monsoon season on the garrison's low lying terrain.

Although it may seem routine to design and build new facilities, USAG Humphreys poses a unique challenge as the expansion is being constructed on a 2,328 acre parcel of low-lying, flood-prone land that sits near the Ansang River. More than 11 million cubic tons of fill are required to raise the site about 10 feet to acceptable flood levels. The engineering challenge is to fill the parcel, allow it to consolidate and begin construction within four to six months. *(Editor's note: See article on page 18.)*

While USAG Humphreys will be the largest U.S. Army base in Korea, other installations will also see significant changes. Consolidated training areas close to the Demilitarized Zone have undergone major infrastructure changes to enhance the readiness of U.S. Forces Korea.

At Warrior Base, work is near completion on a barracks, headquarters and latrine facility that will provide support to thousands of Soldiers who train there and at nearby Rodriguez Range. At Kunsan Air Base, in the southwest corner of the peninsula, new barracks are underway.

Elsewhere, improvements at Chinhae Naval Base and Camp Mujak at Pohang enhance the quality of life for the Marines and sailors serving with U.S. Forces Korea.

The magnitude, scope and challenges of the Korea Relocation Project, afford FED unique opportunities for engineers to be part of the largest project in the history of the U.S. Army Corps of Engineers. Many positions are currently announced. For information, go to *http://www.pof.usace.army.mil.*

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Acronyms and Abbreviations	
FED	Far East District
USAG	U.S. Army Garrison

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with the project manger, quality control manager and subcontractors to ensure LEED techniques are implemented.

"A key to success has been communication and education to ensure everyone understands what they need to do to achieve LEED," she added.

The administrative facility under construction will achieve the Silver level of LEED-NC. It is scheduled for completion in March. The facility is being constructed of recycled steel and metal and will feature walls built with a structural insulated panel made out of compressed straw and oriented strand board. The interior will include recycled carpet tile, recycled gypsum panels, low volatile organic compound paints and adhesives, low-flow toilets and sinks, and other products manufactured within the 500-mile requirement.

The sustainable site does not encroach on any wetlands, waterways or endangered species habitat. To continue protecting and restoring habitat and maximize open space, a green zone will be created that is equivalent to the building footprint. Five thousand square feet of native and drought resistant vegetation will be planted adjacent to the facility. Bicycle racks will be provided along with preferred parking for Soldiers who drive low-emitting and fuel-efficient vehicles such as motorcycles, hybrids and ethanol 85 vehicles.

"From this project, Fort Hood will learn how to better implement the Army's environmental strategies and goals," Rawlings said. "This will improve the quality of life for our Soldiers, civilians, Families and communities, and, in turn, support the mission readiness at Fort Hood."

Sustainability

The rapid pace of transformation in the Army is forcing an even faster pace in planning. A multidisciplinary team carefully considers requirements and designs to achieve sustainability and the Silver level of LEED-NC.

"Even on a shortened schedule we are able to plan for the initial and future development phases," said Randall Covington, Master Planning Division. "By planning ahead, we limit the impact projects have on the environment and mission requirements. By considering all aspects of sustainability, Fort Hood will continue to plan, design and construct projects that promote sustainability and improve operational readiness."

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Update Iraq: Gulf Region Division marks four years

by Grant Sattler

The U.S. Army Corps of Engineers marked its fourth year of executing reconstruction projects across Iraq Jan. 25, the anniversary of the activation of the Gulf Region Division.

Iraq's infrastructure continues to improve, and U.S. assistance projects are rebuilding vital public service facilities, supporting the emergence of democracy and establishing a foundation for a strong economy.

At a cost of $13.4 billion, in a building program the size of which has not been seen since the reconstruction of central Europe under the post-World War II Marshall Plan, USACE is jump-starting reconstruction with critical repairs and improvement projects in oil, electricity, potable water and sewerage; much needed facilities for healthcare, education, governance and security; and transportation improvements for roads, railways, bridges and air and sea ports.

The Iraq national infrastructure — devastated by 25 years of neglect and underfunding by the regime of Saddam Hussein, years of war, international sanctions and a costly insurgency — is being rebuilt in an environment where insurgents, criminal elements and Al Qaeda terrorists do not want to see the popularly elected Iraqi government succeed. Reconstruction efforts, in concert with greater security won by Iraqi and Coalition forces, are vital to Iraq's progress.

Activated Jan. 25, 2004, GRD and its three subordinate districts in the south, center and north of the country are providing engineering, program and project management, and logistical services in support of civil and military construction throughout Iraq. GRD unified and built on the momentum of separate USACE and other government elements that had served in Iraq since the start of the war.

Acronyms and Abbreviations	
GRD	Gulf Region Division
IRRF	Iraq Relief and Reconstruction Fund
USACE	U.S. Army Corps of Engineers

Workers at the Basrah Children's Hospital project lay down ceramic tiles. Some 800 people are employed by the project, which is scheduled to be complete by July. Photo by Betsy Weiner

USACE has completed more than 4,465 projects costing $8.4 billion and work continues on more than 500 additional projects worth more than $2.1 billion. Work is funded by the Iraq Relief and Reconstruction Fund, Development Fund for Iraq, Commander's Emergency Response Program, Economic Support Fund and Iraq Security Forces Fund.

The reconstruction of the national infrastructure is estimated to require more than $100 billion. U.S. funds are only a part of the broader effort, which will be continued with Iraq's own enormous human and capital resources and the support of other donor nations.

Electricity – The World Bank 2004 estimate to rebuild the electrical system is $20 billion. With a U.S. IRRF funding allocation of $4.3 billion, USACE has achieved program goals for providing more power more equitably across Iraq through key infrastructure improvement in electrical generation, transmission and distribution. Peak daily power generated has exceeded the pre-war level of 4,300 megawatts and is exceeding 9,500 megawatts as more generation is brought on line.

Oil – Work in the oil sector carried out by USACE at a cost of $1.7 billion has ensured the Iraqi oil industry has: the capacity to produce three million barrels per day of oil, natural gas production capacity of 800 million standard cubic feet per day and liquefied petroleum gas production of 3,000 metric tons per day to meet domestic need. Projects included key repairs at refineries and gas-oil separation plants, repairing pipelines, reworking oil wells and overhauling the Al Basrah Oil Terminal offshore in the Arabian Gulf.

The Coalition Provisional Authority estimate to rebuild the oil infrastructure in Iraq was $8 billion. The remaining shortfall is being addressed by the Iraqi Ministry of Oil, the South Oil Company and the North Oil Company.

Water – In the water sector, the goal of 1.1 million cubic meters per day of potable water as the GRD portion set by the IRRF has almost been reached. An estimated 3.8 million more Iraqis have access to potable water than did before the start of the program. USACE projects range from multi-million dollar water treatment plants, like those completed at Erbil and Nasiriyah, to compact water units provided to rural communities.

Across Iraq, 908 water projects are improving living conditions for Iraqis. ➤

The Al-Amarah substation outdoor switchyard is where all the circuits come together and split to different directions in the country. USACE photo

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Currently 718 of the projects have been completed. They range from new wastewater treatment plants, such as the $78 million Phase II of the Fallujah Wastewater System project, to rehabilitation of pre-existing facilities and lift stations.

Facilities and transportation – In the facilities and transportation sector, major programs include: buildings, health and education; security and justice; transportation and communications; and infrastructure security.

GRD has completed 33 of 53 planned hospital renovation projects that focus on children and maternity care; another 14 are ongoing. Two are new hospitals in Basrah and Maysan. The Basrah Children's Hospital, expected to be completed in a year, is a pediatric oncology specialty hospital and will be the first new hospital built in the country since the 1980s.

More than 140 new primary healthcare clinics are being completed across the country and turned over to the Iraqi Ministry of Health. The clinics are smaller than traditional hospitals, but they can serve 300 patients a day, providing much needed medical treatment for underserviced populations in rural and urban areas.

GRD has completed 1,081 school renovation, expansion and new construction projects affecting an estimated 324,000 students. Before reconstruction started, many schools had dirt floors. The new facilities, with potable water, desks, blackboards and play areas outside, give Iraq's children clean and safe places to learn.

Transportation projects include 607 kilometers of roads, five bridges, renovation of 104 railroad facilities, 25 aviation projects and eight projects at the port of Umm Qasr.

Security and justice projects include the completed construction of 155 border posts and 13 point-of-entry facilities, and completion of 96 fire station and 38 courthouse projects. Construction and rehabilitation of additional correctional facilities is providing 8,000 added beds and improved conditions for a crowded prison system.

Communications projects include 33 post offices and the on going construction of the Al Mamoon switch building in Baghdad.

Operation and maintenance – While the steel, bricks and mortar part of reconstruction is important, it is not the entire story. Every bit as important in meeting the needs of Iraqi society are the operations, management, maintenance and sustainment policies that allow the physical infrastructure to meet the needs of the people for decades to come.

The USACE Sustainment and Technical Capacity Program is designed to develop the capacity of Iraqis at plant and facility levels. The $345 million Economic Support Fund program trains employees to provision materiel necessary to operate facilities, properly use and maintain equipment, and to manage operation and maintenance training.

Effects of the capacity development projects include: 470 contracts totaling more than $200 million awarded to Iraqi business women; monthly web-based training for Iraqi engineers focusing on project management skills, masonry and fundamentals of design; more than $33 million in electrical sustainment with safety equipment, cranes and other tools to build system reliability; and operations and maintenance training for more than 690 Ministry of Water Resources employees.

Logistics – GRD Logistics manages the receipt, transportation and distribution of $12 billion worth of material and equipment to support reconstruction and security. It provides items ranging from hospital beds, laboratory equipment, office furnishings and computers to weapons, ammunition and uniforms for Iraqi police and army units.

GRD Logistics has processed almost 24,000 customs exemptions and tracked more than 16,000 materiel convoys since August 2004. More than 35,000 vehicles, 510,000 weapons, 447 million rounds of ammunition, 3.4 million sets of individual body armor and helmets, and 947,000 uniforms have been delivered.

GRD is supported by the 35,000 Department of the Army civilians and Soldiers in USACE's divisions, districts, centers and laboratories. The GRD team in Iraq includes Soldiers, sailors, airmen and Marines, USACE civilians and government civilians from other agencies, contractors and Iraqi associates, all of whom have a common purpose: to complete the reconstruction mission in Iraq and assist the Iraqi government in assuming full responsibility for its national infrastructure.

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Engineering rice paddies into prime real estate at Humphreys

by Doug Bliss

The Yongsan Relocation Program centers on the major realignment and consolidation of U.S. Army missions and facilities in Areas I and II in the Republic of Korea. They are being moved to an enlarged U.S. Army Garrison Humphreys near Pyongtaek.

When the transformation is complete, USAG Humphreys will be the premier U.S. Army installation in Korea, home to more than 44,000 military members, civilian workers and Family members. For Humphreys to accommodate these new facilities and effectively triple its current on-post population, a 2,328-acre parcel of land was acquired immediately west of the current garrison boundary.

So where's the engineering challenge? There are many, not the least being that the new land consists of low-lying rice paddies subject to flooding from the nearby Ansang River.

Large portions of the land must be significantly raised with soil to levels above current ground elevation for flood protection, with a maximum fill thickness of around 6.5 meters. The job requires moving about 11 million cubic meters of soil to the site. Expressed in visual terms, that's about 50 Yankee Stadiums filled to the upper seat level with soil that has been properly compacted in controlled earthwork operations.

The U.S. Army Corps of Engineers, Far East District's geotechnical engineers working on the Humphreys land development project have been concerned with the considerable ground settlement, up to 76 centimeters — about 30 inches — that is expected from the weight of new soil being placed on top of thick deposits of weak and compressible soil below the rice paddies. Also, settlement of the ground would take up four years to complete if special ground improvement methods are not used.

Acronyms and Abbreviations	
PVD	prefabricated vertical drains
USAG	U.S. Army Garrison

Far East District employees and local Korean contractors fill and compress new soil at Parcel 1, USAG Humphreys. Photo courtesy of USAG Humphreys

Why would the settlement take so long to occur? It's all a matter of how fast water in the soil can escape as it is compressed under load. Water is basically an incompressible material. If the space between soil particles is filled with water, as it is at Humphreys, which has a high groundwater table, then the soil can only be compressed if water can escape from the soil.

To illustrate, imagine you are walking along a sandy beach at the water's edge. Your feet easily compress the sand, and you can see water rising up within your footprint depressions. The sand quickly compresses because sand has very large pore spaces that let the water quickly escape under your foot pressure. And the heavier the person, the greater the settlement.

The soil below the Humphreys rice paddies, however, is very fine-grained clay and silt. It is relatively impermeable, so groundwater does not easily escape from the soil when it is put under pressure. The construction of new facilities such as buildings, roads and utilities on the developed land cannot be delayed four years while the ground naturally settles, so a means of expediting ground settlement had to be found.

The solution is to install prefabricated vertical drains through the compressible soil and then place the engineered fill to the height required for flood protection. PVD are fabricated strips of highly permeable geotextile material that are pushed into the ground, allowing a vertical path for water to escape from the soil. Installed on a close rectangular spacing, PVD provide an effective mechanism for expediting settlement in clay and silt.

The ground will be overfilled to an additional height equivalent to the expected ground settlement, so that when settlement has been completed, the ground will be at the right elevation levels per design. Applying a greater thickness of soil over the ground will also cause the ground to settle more quickly. The underling objective of ground improvement at Humphreys is to push water out of the soil at an increased rate, allowing settlement to be completed to an acceptable residual amount in an estimated six months.

PVD installation has almost been ➤

Fort Campbell uses historic district to expand

by Sally P. Castleman, Rick Lotz and Jim Duttweiler

As a result of the Army's modular force transformation in 2004, Fort Campbell, Ky., was the recipient of a new 3,200-troop light Infantry Brigade Combat Team, a fourth BCT. The Fort Campbell Master Plan — which had been focused on the old division organization with smaller infantry brigades, a division artillery, division support command and associated separate units — had to transform to brigade-centric area development plans.

Growth due to transformation required the creation of a new brigade area. The typical master planner conundrum existed: where do we site a new complex to house a BCT, and how do we make it happen in a relatively short amount of time?

Barracks and unit operations facilities projects to replace the Korean War-era footprint had been sited in an area in the northern section of the installation. The projects involved a phased, tear-down and build-back strategy in an already heavily populated section of the post.

During the semiannual Real Property Planning Board meeting in March 2005, the senior mission commander, Maj. Gen. Thomas Turner, commanding general of the 101st Airborne Division (Air Assault), directed Public Works and the master planners to investigate siting the brigade complex in a 640-acre plat, part of a 2,500 acre underdeveloped area of the installation known as Clarksville Base.

The Navy built Clarksville Base, starting in the 1940s, as a special weapons storage site, including atomic weapon components. Formerly a classified activity, the area ceased operations in the late 1960s and has since been declassified.

As a result of these Cold War activities, Fort Campbell and the Tennessee State Historic Preservation Office had agreed that the area was a potential historic district, and the installation had given little thought to development. Construction of a BCT complex on this site would require significant coordination and cooperation with the SHPO and other interested parties, including more than 20 Native American tribes.

Parallel planning along programming, environmental and site planning avenues began at once. Approval from the Assistant Chief of Staff for Installation Management was needed to relocate this $200 million, four-phased Military Construction project just six months prior to the start of fiscal year 2006, the year of execution for the first phase.

The U.S. Army Corps of Engineer's Louisville District and Huntsville Installation Support Center of Expertise reworked the cost estimates and programming documents in record time. Fort Campbell and the Corps were convinced that by using MILCON Transformation methods, a new greenfield brigade complex could be constructed with no increase in existing programmed amounts.

"Greenfield" is a term used to describe a piece of undeveloped land with no infrastructure in place. In contrast, a brownfield is an area that has previously been developed, such as a paved lot or the site of a demolished building.

An extensive environmental assessment had to be conducted for the site. The assessment included negotiations with the SHPO to generate agreements to build in the historic district and follow-on with the appropriate additional environmental documentation. ➤

Acronyms and Abbreviations	
ACSIM	Assistant Chief of Staff for Installation Management
A-E	architectural-engineering
BCT	Brigade Combat Team
MILCON	Military Construction
SHPO	State Historic Preservation Office

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completed and landfilling is progressing at Parcel 1. Parcel 1 is the first 205 acres to be filled out of the total 2,328-acre land development project. On Parcel 1, driving piles for building foundations will start two months after fill operations have finished. The most settlement-sensitive structures — pavements, sidewalks, drainage features and underground utilities — will start from six to 12 months after landfilling has been completed, to be confirmed by the Far East District through periodic settlement monitoring.

The next area to be landfilled will be Parcel K, a 110-acre section of land immediately adjoining Parcel 1. Parcel K has similar ground improvement requirements — PVD and additional filling — as Parcel 1. The last 2,007 acres, Parcel 2, to be developed is still under geotechnical investigation by the Far East District, with ground improvement requirements yet to be determined.

Quality construction truly starts from the bottom up. For the Yongsan Relocation Program, that means ensuring that soft ground conditions are fully investigated and analyzed during design, and appropriate technologies are implemented in construction to mitigate facility damage and maintenance problems from excessive ground settlement.

Years from now, it is likely that most residents and the military-civilian work force at Humphreys will not realize the significant level of engineering effort expended to successfully develop the land. However, future communities will continue to benefit from the prudent and professional engineering decisions and actions taken to turn flood-prone rice paddies into prime real estate at USAG Humphreys.

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The first step involved ensuring that it was feasible. Initial environmental reviews of the areas indicated no probable significant impact, and discussions with the SHPO were positive as well. In just three months, ACSIM was convinced of the viability of constructing on the site, and the Corps was given direction to plan for construction at Clarksville Base.

The environmental assessment was kicked off in September 2005 and completed six months later with a "Finding Of No Significant Impact." Fort Campbell entered into an agreement with the SHPO that has resulted in documenting facilities since demolished and includes plans for interpretative sites and displays at Clarksville Base and in the post museum.

With environmental actions in progress, the master planners and the Corps engaged an architectural-engineering firm to develop a master plan for the new complex area. Criteria included providing a campus-like environment; laying out the facilities and roadways to maximize the new, evolving BCT concept of required operational coordination between a company and its equipment; and allowing for future growth.

Three possible solutions were developed by the A-E firm. These conceptual layouts were presented to a team that included the master planners, the Corps, BCT representatives and Fort Campbell's garrison commander. After intense scrutiny and sometimes loud discussion, the team selected a combination of two of the alternatives to develop as the final master plan for the area.

The plan incorporates a campus-like layout that promotes walking to and from the various facility groups, such as barracks and dining facility, company operations and tactical equipment maintenance facility, and administrative headquarters. It also includes associated community facilities, like a chapel, medical-dental clinic, a physical fitness center and a mini-mall close to the brigade complex. A future growth area is also available for potentially moving another BCT out of the crowded main cantonment area or to accommodate Grow The Army initiatives.

The planned work includes installation of utility and road infrastructure to support the new facilities. Primary consideration was given to retention of existing natural and cultural features, including natural topography, forested areas and historically significant buildings, as well as some of the original underground ammunition storage bunkers.

Army Force Transformation presented a unique opportunity to transform Fort Campbell and expand into an area previously unconsidered. A total team effort was required to make this a reality. The Corps' Louisville and Huntsville offices were instrumental. ACSIM gave incredible flexibility and support in relocating $200 million in Military Construction, Army projects on the verge of execution. And tremendous cooperation and support was received from the state and federal environmental and historic property agencies.

The result is a quality complex that will better serve Soldiers than what could have otherwise been accomplished. The outcome gives Fort Campbell greater flexibility to support the Army.

The first two phases of the new 2nd Brigade complex are now under construction, and Soldiers of 101st Airborne Division's Strike Brigade are anticipating occupying their new facilities. This complex displays on a daily basis the versatility and adaptability of Fort Campbell to the Army's ever-changing mission requirements.

Barracks for the 2nd BCT are under construction in a historic district at Fort Campbell, Ky. Photo courtesy of Fort Campbell DPW

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Makeover: historic buildings to serve as new IMCOM-West home

by Elaine Wilson

A $20 million-plus renovation project to makeover two historic buildings is underway at Fort Sam Houston, Texas. Both buildings, which have been vacant since 1993, will serve as the new home of Installation Management Command, West Region. The command is currently housed in Building 1000 with U.S. Army South.

The U.S. Army Corps of Engineers is managing the $5 million project on Building 2001, with a $16 million renovation on Building 2000 soon to follow.

"The IMCOM relocation will free up space for U.S. Army South," said Irwin Stuart of the Directorate of Public Works. "USARSO will grow in upcoming years due to Army Modular Force changes, and the move is in preparation for that."

The massive renovation efforts include the repair or replacement of the porch decking, railings and columns, interior and exterior stairways, electrical wiring and plumbing, interior and exterior lighting fixtures, and plaster ceilings. Bathroom repairs involve new fixtures and configurations that are Americans with Disabilities Act compliant.

Outside, contractors are razing one road and constructing another nearby. The existing road runs too close to the buildings, a violation of today's antiterrorism and force protection regulations.

"Regulations and safety requirements have changed over the years, and we want to make sure the 300-plus people moving in have a safe and healthy environment," Stuart said.

The buildings were vacated more than a decade ago due to failing mechanical and electrical systems and have remained dormant ever since. Until then, the buildings had an illustrious career as the first hospital at Fort Sam Houston. Building 2000 was built in the 1890s, and Building 2001 was added as a support area for the main hospital building in 1917. In 1929, the hospital moved, and administrative offices took over. That situation lasted until 1993.

But with the coming influx of Base Realignment and Closure, AMF and Grow the Force personnel, the U.S. Army Garrison Fort Sam Houston is making the most of all its assets, however old they may be.

"Both buildings are eligible to be listed in the National Register of Historic Places," Stuart said. They also are part of the National Landmark District.

Gilbert Viera and Willie Garcia from RKJ Construction of Lampasas, Texas, remove concrete from the back of Building 2001. The building, along with adjacent Building 2000, will serve as the home of Installation Management Command, West Region. Photo by Elaine Wilson

Renovating historic buildings can present some unique challenges, as Stuart knows from past experience at Fort Sam Houston.

"We have guidelines on everything from the color of exterior paint we can use to the types of windows we can install," he said.

The guidelines are necessary to maintain the integrity of the structures, which are both significant structures architecturally and historically, according to Sue Ann Pemberton, Fort Sam Houston historic architect.

"Historically, they exemplify the medical mission of the post," Pemberton said.

From an architectural standpoint, Pemberton pointed out that the big verandas on the buildings, which shade windows and allow ventilation, were important features for a hospital of that time.

The contractors are renovating the historic buildings to today's standards. Another architectural feature, the load-bearing brick construction of the buildings, created thick walls and thermal comfort but also add to the challenge of incorporating antiterrorism and force protection.

"The challenge is to reinforce unreinforced masonry structure so it complies with 2007 standards," she said. "The buildings cannot be replicated.

"It's important to maintain the integrity of these buildings and the integrity of the post," said Pemberton, who routinely works with several local historic commissions and societies, the city of San Antonio and the Texas Historical Commission to ensure Fort Sam Houston is historically compliant.

"Our goal is to complete these projects on time with minimal disruption or inconvenience to people living or working nearby," Stuart said.

The Building 2001 project started Aug. 9 and is slated for completion in about 18 months. The work on Building 2000 is in the demolition phase. Building 2000 will take about two years to complete.

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Acronyms and Abbreviations	
AMF	Army Modular Force
IMCOM	Installation Management Command
USARSO	U.S. Army South

Fort Bragg constructs building using shipping containers

by Erin McDermott

After merely seven months of planning and three months of construction, Fort Bragg, N.C., celebrated the landmark completion of its first steel shipping container building. The two-story, 4,322 square-foot container building is the 249th Engineers Company Operations Building and houses two company detachments.

The U.S. Army Corps of Engineers began construction last July, and the building was completed in November — a total construction time of only 110 days. The building is the first multi-story commercial structure of its kind in the United States.

Greg Bean, the director of Public Works attributed the project's success to a combination of hard work, extensive collaboration and a willingness to consider innovative — perhaps even radical — solutions for Fort Bragg's needs.

"I was intrigued by and, admittedly skeptical of, the initial concept of reusing shipping containers for general construction purposes," he said. "However, I began to wholly embrace the idea as I witnessed first hand how quickly such a facility could be constructed and the quality of the final product."

At first, the project encountered complications. The original contractor had difficulties creating a design that met the necessary specifications, according to Nathaniel Hermann, the Corps' resident engineer and the project champion,

"Their proposed standard construction solution was going to be a single-story well under the requested 5,000 square feet, so our field office began attempting to help them locate a good solution," he recalled.

Then, Ken Gray, the Fort Bragg area engineer, urged Hermann and Jim Gehle, a fellow resident engineer, to consider a modular alternative. Typical modular construction is built at an off-site factory and later relocated to the build site in order to minimize construction time and maximize site space and efficiency. The basic structure, which often consists of sections, or "modules," arrives complete with pre-installed mechanical, electrical and plumbing systems, thus saving significant time and labor costs.

At Gray's recommendation, the Corps entered into discussions with modular manufacturers. Ultimately, SG Blocks, a Missouri firm, was chosen as one of the principal subcontractors to the Clement Group of Montgomery, Ala., for the turnkey project.

Built to last

The new facility is constructed of 12 used, 14-gauge steel shipping containers commonly called "40-foot Hi-Cubes." Each of the durable containers measures 9 feet 6 inches high, 8 feet wide and 40 feet long. Each module weighs about 8,500 pounds, is built to hold an impressive 50,000 pounds and is capable of withstanding the weight of eight like-sized containers stacked on top of it.

"To put it in comparison, a standard office building is normally built to support 60 pounds per square foot, and if you design it to support a heavy load — as you would, for example, a record storage facility — it'd be about 100 pounds per square foot," Hermann said. "This building is built to withstand about 160 pounds — almost double that amount."

Its durable design characteristics do not end there. The container floors are supported by a grid of C-shaped steel channels spaced 12 inches apart and covered by a 1 1/8-inch layer of marine-grade plywood. The joints and foundation are welded together to further reinforce the container's structural durability.

The container housing's resilient design was first introduced to the United States ➤

Fort Bragg's container building comprises 12 used 14-gauge steel shipping containers, each of which measures 9 feet 6 inches high by 8 feet wide by 40 feet long and weighs about 8,500 pounds. Photos by Erin McDermott.

Despite an exterior identical to standard military construction, the two-story, 4,322 square-foot container building's sturdy steel frame boasts superior resistance to damage by wind, fire, mold and moisture.

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in Charleston, S.C., where it continues to gain popularity in the residential market due to its superior hurricane and wind resistance. However, one doesn't have to live on the coast to appreciate the design benefits. Container buildings' durable steel frames are expected to help save homeowners and businesses thousands of dollars on long-term maintenance costs and by preventing potential damages from not only wind, but fire, moisture and other damaging elements.

"It's highly unlikely that the structure of these buildings will rot or get moisture damage, and they're less likely to grow mold or mildew," Hermann explained. "They're stronger, longer-lasting buildings that are substantially less susceptible to moisture, wind and other elements."

Modular design offers a number of advantages from a construction standpoint as well. In the face of upcoming expansion initiatives, modular construction could offer some relief as Fort Bragg strives to meet its rapidly expanding infrastructure needs.

"With construction on Fort Bragg ramping up from $150 million to $250 million a year, we need to get more stuff done off site because we don't have the workforce here to do it," Gray said. "We're expecting a significant increase in the amount of construction in the foreseeable future, and we've already tapped out our available subcontractor base."

One solution is to do more construction off site in factories like those that manufacture modular homes, where they rough in the walls, electrical, mechanical and plumbing before shipping it to the site, Gehle said.

"If you build something off site and ship it in, that not only speeds up construction but eases the burden on our limited number of workers on Fort Bragg," he said.

Fitting in

While its structure differs from standard military construction in many aspects, Fort Bragg's newest building conforms where it counts. With an exterior appearance designed to meet the installation's specifications, the building blends with its surroundings.

"The containers are basically used as a structural building block, and all interior and exterior construction is standard commercial construction, so you end up with what you would normally expect on the inside, only with a much stronger structure," Gehle said.

The building also boasts the longevity necessary to meet the Army's 50-year structural life-cycle requirement for all standard construction.

In addition, at under $750,000, the building has a price tag comparable to that of standard construction on Fort Bragg. Materials costs are minimized by purchasing used containers.

About 250,000 containers used to bring foreign goods into U.S. seaports are left there as surplus as a result of trade imbalances. New containers typically cost about $4,500, but used ones can be bought at less than half the price.

"As construction costs continue to climb, it is becoming increasingly difficult to build decent-sized structures under the $750,000 limit for minor construction" said Rob Harris, chief of the Engineering Division, Directorate of Public Works, "Innovative solutions that reduce material costs and construction time, such as recycling shipping containers, will have to be the answer. Since there is, theoretically, little to limit the applicability of stacked containers, they can also be part of the innovation solution-set for MILCON [Military Construction] Transformation."

The building cost is about $150 per square foot. However, Harris predicted this cost will decrease as contractors become more familiar with constructing container buildings.

Model of sustainability

Apart from being a sound economic investment, shipping container construction offers a number of advantages from an environmental standpoint. Converting used shipping containers into buildings may present much-needed solutions to the growing national problems of rising construction and materials costs, diminishing virgin steel resources, widespread deforestation of timber for construction purposes and the growing excess of abandoned shipping containers at U.S. seaports.

The process also uses steel in its most conversion-efficient form and preserves energy that would've otherwise been expended in the construction of new materials. SG Blocks calls this practice "value-cycling," which it defines as finding an alternate use for an end-of-life product that does not require a significant amount of new energy or resources to convert.

Melting down an 8,000-pound steel shipping container expends 8,000 kilowatt hours of energy, according to David Cross, SG Blocks' business development officer,. However, it takes only 5 percent of that amount, 400 kwh, to modify the container to be used as a building block for construction.

"We didn't send containers back as scrap metal — to melt it down somewhere else and look away from what we're putting in the atmosphere," Cross said. "We did the work here, and the work wasn't in carbon footprint or electrical energy, it was in human energy, and that means we put people to work; we create jobs."

Key players

SG Blocks, which supplied the modified shipping containers, is a national leader in the development of container buildings and other green technology applications. Its partners were fellow Missouri-based companies Alberici Constructors, Inc. and the Lawrence Group, as well as ConGlobal Industries of Memphis, Tenn.

The resulting consortium created a prototype for Fort Bragg that merged aspects of both form and function, introducing to the mainstream U.S. commercial construction world a concept that had previously been spotlighted solely for its eccentric architectural appeal. Many architects ➤

Acronyms and Abbreviations	
Kwh	kilowatt hours
MILCON	Military Construction

National Training Center adds 'Iraqi village' to its facilities

by Daniel J. Calderón

Not too many people would expect to see an Iraqi village in the middle of the Mojave Desert — especially on an active U.S. Army post. However, on Fort Irwin, Calif., sits a simulated Iraqi village built by the U.S. Army Corps of Engineers' Los Angeles District.

"This falls into the lane of Military Construction but with a little different twist," said Col. Thomas H. Magness IV, commander of the L.A. District. "The Joint IED [improvised explosive device] Defeat Organization has asked us to create a training environment that will allow them to test some new technology that will help defeat these roadside bombs."

The village, known by the Iraqi name Medina Wasl, will ultimately have 13 buildings. The Corps awarded the contract for the project in August 2006. Construction for Medina Wasl began in February 2007. The first phase is scheduled for completion this February, and the second phase should be done in April.

The village simulates a developed section of Baghdad, complete with shops, apartments and light industrial areas. Soldiers who use the village can better train for situations they are likely to encounter during an Iraqi deployment. The training environment mentioned by Magness consists of buildings designed and built to Iraqi construction standards.

About 5,000 Soldiers per month use the National Training Center facilities, according to post officials. There are 10 rotations a year at the NTC. Each rotation consists of a week preparing equipment, two weeks of training and then a week for redeploying equipment and personnel back to home station. The villages being built by the Corps will be an improvement for the Soldiers ➤

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have used containers for one-of-a-kind showpiece structures.

"But those constructions in and of themselves aren't an industry," Cross said. "That's architecture for art's sake."

On Fort Bragg's side, Hermann and Gehle were in charge of supervising construction and administering the contract. Both men credit Harris as the driving force behind the project's success. Harris's division managed the project's funding and prepared the scoping package.

"Rob Harris enthusiastically supported these innovative construction techniques," Hermann said. "If he hadn't encouraged this project to happen, it wouldn't have occurred."

The Corps and the 249th were persistent in ensuring that all military-specific requirements and building codes were met to set the standard for similar projects in the future.

"The Corps never looked the other way when it came to the building's construction," Cross said. "They pulled every code out of their manuals they could find and asked, 'How does it meet this?' They really put the system through its paces, and we're the better for it, and I think the American taxpayers and the consumers in the future will be the better for it, as well."

Building Fort Bragg's future

A lot of people have experimented with using shipping containers for residential buildings, and the military has used them overseas in downrange tactical situations, such as Iraq and Afghanistan and during the first Gulf War. But nobody in the United States has put brick and an exterior insulated finishing system on the outside and completely finished the inside to effectively use them as an integral building component.

The container building's innovative inter-modal design is one of many currently being proposed for the installation. Hermann hopes this early success will serve as a prototype for future development and usher in a new era of forward-thinking sustainable design solutions.

"We're looking at future projects utilizing these technologies, and not necessarily using just containers," Hermann added. "The British call these innovative techniques 'modern methods of construction,' and it could be wood modular, or steel modular or containers. We're looking at what people are doing in Europe and Japan and trying to bring some of those techniques here."

U.S. infrastructure uses about one-third of all energy, water and materials in the nation and generates a similar percentage of the nation's pollution, according to the U.S. Green Building Council. These statistics demonstrate that buildings have an enormous impact on our society, environment and general health and well-being and, as such, must be managed in the most resource-efficient and environmentally responsible way.

With more than $2 billion in new construction slated to occur on Fort Bragg over the next four years as a result of Base Realignment and Closure, Grow the Force and other initiatives, all signs indicate that the installation stands at a critical brink in its development. Fort Bragg faces choices today that will affect generations of Soldiers to come. Now is the time to usher in a new era of explorative and forward-thinking sustainable design and development solutions.

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who train at NTC.

"When we first had the villages, we bought sheds from Shed World," said John Wagstaffe, Fort Irwin public affairs officer. "Although not terribly realistic, it was a beginning. Then we moved to long shipping containers. This was followed by putting stone siding on the shipping containers. At each step the villages took on a more realistic look."

The buildings are not the only way the NTC approximates Iraq for Soldiers' training. Actors and role players portray an assortment of Iraqi villagers, adding to the realism of the simulation and allowing the NTC to better replicate the "sounds and smells" of Iraq.

"The footprint for the village came from actual satellite imagery of Baghdad," said Capt. Seth Henson, acting resident engineer at For Irwin. "The L.A. district worked with [the Corps' Engineer Research and Development Center] to ensure the construction design was authentic to Iraqi standards.

"Parsons, the contractor, has extensive experience building in Iraq," Henson continued. "They contacted their experts in Iraq. They had their people bring back samples from Iraq to make sure we matched what we were building."

The JIEDDO can use the unique construction in order to better understand how developing technology can be used to defeat the IEDs currently being used in Iraq. The JIEDDO was created in October 2003 by the Army chief of staff to organize Army efforts to eliminate IED threats, recommend best available responses to commanders and coordinate testing, development and fielding of selected devices and technology.

"When completed, the village will serve two primary purposes for JIEDDO," said Christine DeVries, JIEDDO public affairs officer. "First, it is a training venue for counter-IED, search, escalation of force, cultural awareness and combat patrol training and will be used up to 200 days per year by Soldiers preparing for deployment. Second, because of the realistic Iraqi construction techniques and materials, it will serve as a testing platform for counter-IED technologies that are being investigated for use."

Contractors build up the outer walls of a simulated Iraqi village on Fort Irwin, Calif. The village was designed and built to Iraqi standards, except supports, which were built to withstand the seismic activity in the area. Photo by Daniel J. Calderón

Even with the attention to detail given by the Corps and the contractors, not everything will be just like Iraq. Henson said the construction materials and basic style will emulate Iraqi techniques. However, because Fort Irwin is on seismically-active land, the buildings needed some stabilization.

"We're in a Seismic Zone Four here in Fort Irwin. That's the highest level," said Randi Elder, project manager. "For the Iraqi village, even though we're simulating the Iraqi construction, we still have some reinforced columns in the corners because of the liability issues that we have."

One of the main issues involved safety. The Corps has taken steps to ensure the safety of contractors on the work site

"We're doing very well with safety," Elder said. "The contractors we have out here are excellent. We always have pre-construction meetings to discuss safety and environmental concerns."

They have completed more than 186 days on the job without a safety issue or lost-time accident., Henson said.

Fort Irwin Soldiers plan to get much use out of the new village when it is complete. Currently, they are training at another facility on base.

"The villages are critical to giving soon-to-deploy Soldiers training in how to fight both the kinetic and nonkinetic battle in Iraq or Afghanistan," Wagstaffe said. "It is the next best thing to actually training in Iraq or Afghanistan. We learned long ago when the NTC was founded that you must train as you will fight with realism in every aspect of the training."

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Acronyms and Abbreviations	
IED	improvised explosive device
JIEDDO	Joint IED Defeat Organization
NTC	National Training Center

DoD, Army make fighting corrosion a priority

by Susan Drozdz

Corrosion costs the Department of Defense an estimated $1.8 billion annually for facilities alone, not counting its negative impacts on mission readiness and quality of life. DoD is actively responding to this problem through its Corrosion Prevention and Control Program.

DoD and the Army proactively incorporate CPC into the entire facility life cycle, from planning through long-term maintenance and repair. DoD CPC policy is implemented in the revision of Army Regulation 420-1, *Army Facilities Management*, which became effective Dec. 2. Also, Department of Defense Instruction 5000.rr, *Prevention and Mitigation of Corrosion on DoD Military Equipment and Infrastructure*, is in the final coordination phase and will be published soon.

AR 420-1

Army policy for CPC is defined in paragraphs 2-32 and 2-33. These paragraphs form the basis for the Army's long-term strategy to minimize the effects of corrosion on Army facilities and equipment. The goals of Army CPC policy are to ensure that Army building projects incorporate CPC measures — such as material selection, paints and coatings, cathodic protection or corrosion inhibitors — into every facility's life cycle, including design, construction, operations and maintenance.

CPC must be considered for all construction, repair and maintenance projects. In addition, for all projects programmed at $5 million or more, the design agent is responsible for establishing a corrosion prevention advisory team and a contractor corrosion team to address corrosion issues from the project's inception.

Each region and garrison is required to appoint a corrosion program manager who will, as a minimum, be trained either through the U.S. Army Corps of Engineers' Proponent Sponsored Engineer Corps Training, usually referred to as "PROSPECT," Corrosion Course or the Basic Corrosion Course offered by the National Association of Corrosion Engineers.

Information on the PROSPECT Corrosion Control Course, Control No. 090, is available at the USACE Learning Center web site, *pdsc.usace.army.mil*. Go to the NACE web site, *www.nace.org*, for information on the Basic Corrosion Course and many other courses offered by NACE.

The use of corrosion resistant materials, high performance coatings and cathodic protection can prevent failures on systems such as chillers. Photo by Susan Drozdz

Further guidance on implementing an effective CPC program is available in the *DoD Corrosion Prevention and Control Planning Guidebook*, available at *http://www.corrdefense.org*. Through these efforts, the Army will build and maintain facilities that are designed to reduce the cost and impact of corrosion.

DoDI 5000.rr

DoDI 5000.rr, scheduled for release in early 2008, will require DoD components to address CPC issues for facilities and other infrastructure, weapons systems and platforms, vehicles and munitions. Like AR 420-1, it also will establish policy for implementing CPC technologies and methods for the entire life cycle of DoD assets. All infrastructure sustainment, restoration, modernization and new construction projects will include a formal CPC planning and review process.

This new DoD guidance also will require each military service to establish and maintain procedures for collecting data on the results of the CPC projects, including implementation costs and estimated cost avoidance. The services will use the data to measure the effectiveness of CPC efforts against metrics and milestones to be established.

With the initiatives outlined in AR 420-1 and DoDI 5000.rr, the Army and the DoD have made effective corrosion prevention and control a greater priority than ever before. As CPC becomes part of the entire life cycle of DoD assets and trained Corrosion Program managers and Corrosion Prevention Advisory Teams are established, the impact and cost of corrosion will begin to be brought under control.

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Acronyms and Abbreviations	
AR	Army Regulation
CPC	Corrosion Prevention and Control
DoD	Department of Defense
DoDI	Department of Defense Instruction
NACE	National Association of Corrosion Engineers
PROSPECT	Proponent Sponsored Engineer Corps Training
USACE	U.S. Army Corps of Engineers

Army dams: serious responsibility, real consequences

by Mike Dean

Of the 213 dams currently in the Army inventory, 57 are classified as "high-hazard" or "significant-hazard" dams. A dam is categorized as high-hazard if its failure will cause loss of human life. Failure of a significant-hazard dam will produce economic loss and/or environmental damage, but human deaths are not expected.

The inventory, inspection, maintenance and repair of dams is governed by public law. The laws carry severe penalties for those who do not abide by them. In 1992, the assistant chief of engineers of the U.S. Army Corps of Engineers, who was in charge of dam safety at the time, sent a memorandum to all major commanders and installation commanders advising that they could be held liable, as operators or owners of dams, for any legal claims, obligations or liabilities resulting from the failure of a dam, especially if the commander in question had not ensured that all legal and safety requirements had been met.

This advice was based on a legal determination made at that time. Garrison commanders are considered the owners of the dams and bridges under their control. The garrison commander is legally liable and subject to possible personal litigation if it is considered that he or she broke the law by not managing the dams as required.

Commanders could be responsible for obtaining and paying for their own lawyers if litigation is brought, and they could be made to personally pay for any damages awarded by the court.

When the Office of the Assistant Chief of Staff for Installation Management was formed in 1993, it became the Army Dam Safety Program manager. The program covers dams that are either on Army garrisons or controlled by Army garrisons. The program is governed by Public Law 92-367, as amended by Public Law 104-303, the National Dam Safety Program Act. Guidance and policy are set forth in AR 420-1, *Army Facilities Management*, Chapter 7, Transportation Infrastructure and Dams.

Acronyms and Abbreviations	
EAP	emergency action plan
ERDC	Engineering Research and Development Center
FEMA	Federal Emergency Management Agency
IMCOM	Installation Management Command
TADS	Training Aids for Dam Safety
USACE	U.S. Army Corps of Engineers

A tree grows out of the face of an Army dam, one of the factors that make it a high-hazard dam. Photo by Mike Dean

The Army reports to the Federal Emergency Management Agency every two years on its dams, their condition, worker training, and repair and maintenance performed. The general policy is to periodically assess the condition of all dams, establish work plans and develop maintenance strategies to make best use of available maintenance funds. The life and health safety of downstream populations is a key consideration in the maintenance of dams.

Having no funds does not relieve the garrison commander of responsibility if the required funds have not been properly requested. The commander must give these areas the highest priority and request funds from the supporting headquarters.

The Army Dam Safety program has four parts:

Inventory — Public law requires all dams to be placed in the National Inventory of Dams with required technical data. The inventory is to be updated every two years. The Army Inventory of Dams, which is a portion of the National Inventory of Dams, is maintained at the Engineering Research and Development Center,

Inspection — Public law requires all dams to be inspected periodically. How often a dam is inspected is influenced by its hazard category, condition and events that may have caused damaged. Dams are categorized as high-hazard, significant-hazard or low-hazard.

All dams require an annual inspection and more frequent inspections for those in poor condition or right after a catastrophic event. High- and significant-hazard dams also require more detailed inspections every five years. Local USACE districts can assist in these inspections.

Emergency action plans — An emergency action plan is a formal document that identifies potential emergency conditions at a dam and specifies preplanned actions to be followed to minimize property damage and loss of life. The plan contains procedures and information to assist the dam owner in issuing early warning and notification messages about an emergency situation to responsible downstream emergency management authorities. The EAP also contains inundation maps that show the critical areas for action in case of an emergency.

Each dam is required to have an emergency action plan. For dams categorized as low-hazard, this may be SOP — standing operation procedure. High- and significant-hazard dams are required to have formal EAPs as detailed in FEMA 64, *Federal Guidelines for Dam Safety: Emergency* ➤

Creative real estate action brings new operations center to Wright Army Airfield

by Anne de la Sierra

Wright Army Airfield on Fort Stewart, Ga., has a new operations facility thanks to "OPM" — other people's money. The new terminal includes more than 6,000 square feet for military operations, replacing a 1,000 square foot, antiquated facility.

To accomplish this feat, the City of Hinesville, Ga., Liberty County Development Authority and Fort Stewart formed a Joint Management Board. The board developed an agreement that allows use of the airfield for commercial and personal aircraft as well as continuing military operations.

The unique feature of this agreement is that the Liberty County Development Authority is leasing the land from Fort Stewart to construct an airfield operations facility for joint use, and Fort Stewart is leasing back a portion of the facility for military use by means of a build-to-lease instrument. The Southeast Region of the Installation Management Command approved this lease agreement in July 2005.

The annual lease cost is $109,000. The Army estimated the cost to construct a similar facility would have been in excess of $1.5 million.

A rendering shows the Wright Army Airfield operations center. Graphic courtesy of Fort Stewart, Ga.

The agreement included the refurbishment of two runways and three taxiways, the extension of one runway by 1,500 feet, and the addition of parking aprons, improvements to navigational aids and lighting. These upgrades were paid for by the City of Hinesville and the Liberty County Development Authority at no cost to the federal government.

The arrangement provides for efficient and practical airspace procedures for military and civilian aircraft operators at Wright Army Airfield without compromising Fort Stewart's military mission as the Midcoast Regional Airport.

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Action Planning for Dam Owners. These EAPs are to be reviewed annually and exercised periodically. Local USACE districts can assist in formulating these plans.

Maintenance and Repair — Army dams are to be maintained as shown in appropriate FEMA documents. Deficiencies found on high- and significant-hazard dams that jeopardize the stability of the dams are to be repaired or the water behind the dam is to be lowered. Dams that cannot be repaired should be demolished or replaced. Dams are to be repaired to the host state's criteria. Local USACE districts can assist in project formulation and execution.

Training on inspections, EAPs, maintenance and repair of dams, and the Army Dam Safety Program can be obtained from ERDC. In-house training can also be conducted using the Training Aids for Dam Safety. TADS is a federal-state program designed to train individuals involved with or having responsibility for the safety of dams.

TADS modules are self-contained, self-paced text, supplemented by video presentations. A complete set of TADS was supplied to each installation in the mid-1990s. Updated TADS can be obtained from the FEMA *(See contact information below.)*.

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How Fort Benning combines facility controls to reduce energy use

by Michael L. Aident, Larry J. Baca, Kirk Ticknor and Vernon Duck

The recent changes to the energy reduction goals as a result of the Energy Policy Act of 2005 and Executive Order 13423, along with ever shrinking utility budgets and rising energy costs, have resulted in government-wide interest in and support for energy conservation. Fort Benning, Ga., like all other Department of Defense installations, has been mandated to reduce energy consumption 30 percent by 2015, an average of 3 percent per year from 2006 to 2015.

To meet these goals, Fort Benning implemented a number of energy conservation efforts:

- Decentralization of boiler plants;
- Privatization of electric, gas, water and waste water distribution systems;
- Ameresco Energy Savings Performance Contract – lighting conversions;
- Electric meter installation on key buildings; and
- Energy Management and Control System integration and upgrades.

These initiatives helped to reduce the energy use at Fort Benning (see chart). The relatively sharp increase in energy use in 2006 is attributed to a change in the calculation basis. In May 2005, about 6 million square feet of Family housing was taken out of the Fort Benning energy use calculation.

Eliminating the low-energy-use Family housing from the calculation resulted in an increase in the overall average energy use for the post even though the actual use may have been lower in 2006 than in 2005. The post is working diligently to achieve the fiscal year 2008 energy goal of about 74,000 British thermal units per square foot of building.

In January 2003, the operation and maintenance of the facility infrastructure for the post was transitioned to Shaw Environmental & Infrastructure. Shaw's scope, in addition to general maintenance of the infrastructure, also included the O&M of the existing EMCS.

EMCS field supervisor Mickey Livingston (left), trains instrument technician Johnnie Silas (right), using a laptop computer to connect to the building controller. Photo by Michael Aident

The EMCS is a network of computers and control equipment that uses digital technology to control the heating, air conditioning and lighting systems for buildings and systems throughout Fort Benning from one centrally located control room. The project team recognized an opportunity to significantly reduce energy use by integrating the existing building mechanical systems computer controls into the EMCS.

The government partnered with Shaw to upgrade and integrate the local building controls into the EMCS. Shaw assembled a team of dedicated personnel to operate, maintain and upgrade the post's existing and sometimes outdated digital controls equipment and systems.

The team's goal was to standardize the control system operating procedures and to integrate each facility's controls into the EMCS central control room. The primary mission of the integration team was to continue the day-to-day operations of the EMCS in such a way as to minimize building occupants' discomfort while simultaneously using the EMCS control system to maximize energy conservation.

When the Fort Benning Directorate of Public Works O&M was transitioned to Shaw, there were six distinct control systems, each incompatible with the other. Several of these control systems were installed in the mid-1980s to save energy using load shedding during times of peak energy demand. Many of the systems were used to turn power off and on to systems and facilities based on total energy use on post.

The team recognized that it would be cost effective to retire these older digital control systems and to integrate their energy-saving functions into the more current, state-of-the-art control technologies that were already being used at Fort Benning. The goal was to minimize the number ➤

Acronyms and Abbreviations	
DPW	Directorate of Public Works
EMCS	Energy Management and Control System
FY	fiscal year
O&M	operation and maintenance

(continued from previous page)

of EMCS control-system technologies and manufacturers, reducing the complexity of the system and making the remaining systems more efficient to operate, service and maintain.

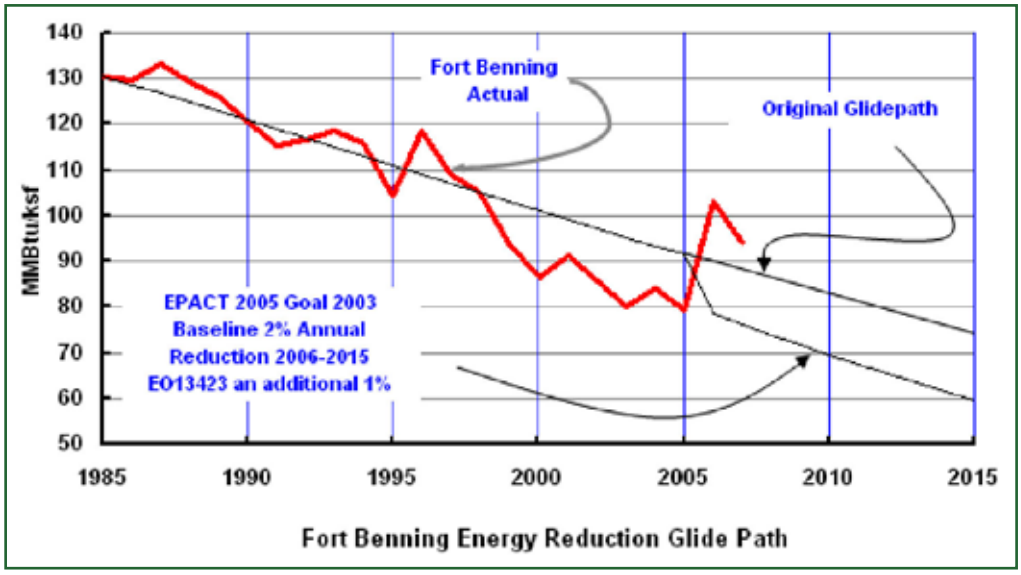
The project team discovered that the existing EMCS computer controls were not being fully utilized to allow the EMCS operators to remotely monitor and control the building mechanical systems. Many of the systems were not programmed with schedules to turn the mechanical systems on and off based on the building use and occupancy.

Before Shaw programmed the system to control the first building, it ensured that the controls and systems worked and that everyone operating and maintaining the equipment was properly trained.

The team developed and implemented the following standards, policies and procedures:

- Heating, ventilation and air conditioning system control standards for each building;
- EMCS system programming standards;
- EMCS operator interface graphics standards;
- Comprehensive operations and maintenance training program;
- Quarterly EMCS preventative maintenance program;
- Performance verification test program and procedures;
- EMCS operations manual; and
- Control system as-built drawing files.

The Fort Benning DPW has requested that all new on-post construction comply as much as possible with the EMCS standards and procedures developed by the team. By requiring new construction projects to comply with these standards, the integration of the new building's controls into the EMCS is greatly enhanced.



In order to quantify the energy savings that resulted from the EMCS integration project, the team developed a simplified algorithm that would allow energy savings estimates to be quickly prepared without performing a complicated heat loss/heat gain model for the building. The model uses an Excel spreadsheet to calculate the energy savings for a building based on the building size, use, and occupancy schedule.

The model was calibrated using actual electrical and natural gas consumption data on a couple of the Fort Benning buildings. The estimated energy savings for natural gas and electricity for the buildings integrated into the EMCS through FY 2007 is estimated to be about $1 million annually. The energy savings will continue to increase as more buildings are brought into the EMCS.

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Larry Baca is a mechanical and Vernon Duck is the energy manager, O&M Division, DPW, Fort Benning, Ga. Kirk Ticknor is the deputy director of Public Works and Michael Aident is a controls engineer, Shaw Environment & Infrastructure.

Facilities regulation now online

Army Regulation 420-1, Army Facilities Management, is now on the Army Publishing Directorate web site, *http://www.apd.army.mil*, in both XML and PDF formats.

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How to remove small structures at minimal cost

by Chris Gardner

The U.S. Army Engineering and Support Center in Huntsville, Ala., kicked off its newest building demolition program with the removal of four 10,000-gallon, above-ground diesel fuel tanks that had been unusable and taking up space for years. The Directed Demolition Service program, a part of the Huntsville Center's Facilities Reduction Program, provides Army installations with an easy way to eliminate small excess structures, like the tanks and associated structures at Military Ocean Terminal Sunny Point, N.C.

"It's great to see the tanks finally go," said David von Kolnitz in MOTSU's Department of Public Works. "Working with DDS has been wonderful. All I had to do was send them the plans and take care of the necessary forms."

The old diesel fuel station was used in the past to refuel locomotives at this major port for the Army on the Atlantic Ocean. The tightening of temporary explosive storage regulations made the location of the tanks unacceptable, and they became unusable. They ended as giant concrete rectangles taking up space along the installation's main road.

That's where DDS came into play.

DDS is a centrally managed and centrally funded program that provides for the demolition of relatively small structures, like storage bunkers or observation towers, at continental U.S. Army installations.

Installations that need these structures removed can contact either Huntsville Center or the Installation Management Command to get their projects into the program. The demolitions are funded by IMCOM, so costs to installations are minimal.

"DDS gets rid of the things that are hard to get rid of through normal demolition channels because they might not have building numbers or square footage associated with them," said DDS program manager Amber Martin of Huntsville Center. "It's harder to get funding for these kinds of projects. With DDS, we can fund these. We can come out and get them done quickly and cost effectively, and help the installation get rid of their unneeded structures."

DDS simplifies the demolition process by cutting overhead and administrative costs. The program uses demolition contracts with certain small businesses that can mobilize for projects throughout the country. Crew day prices are already fixed into the contracts, and specialized equipment costs are added on a case-by-case basis.

Amber Martin (left), Directed Demolition Service program manager for the U.S. Army Engineering and Support Center in Huntsville, Ala.; Alan Berdall (center), GEM Technologies site manager and David von Kolnitz (right), with the Military Ocean Terminal Sunny Point, N.C., Department of Public Works, look inside a torn open fuel tank, one of four 10,000-gallon tanks removed at the first Directed Demolition Service project. Photo by Chris Gardner

To clear the diesel fuel station, Huntsville Center used an existing contract to mobilize a team from GEM Technology, based in Knoxville, Tenn. GEM is the DDS demolition contractor for the southeastern region of the country.

The MOTSU project was the first test for the DDS program. Martin said that she would have liked it to go a bit quicker, but overall, it went well.

"The MOTSU demolition was a success, and we learned a lot of lessons here that we'll be taking into account as DDS continues," Martin said. "All in all, we completed the job pretty quickly and at a much lower cost than if it had been done without DDS."

Martin estimated the MOTSU demolition cost about 30 percent less than it would have cost without using the DDS program. The work took about half a day longer than originally planned.

One hundred percent of the waste from the project was recycled, including more than 404 tons of the concrete that surrounded the fuel tanks and 25 tons of steel from the tanks and associated piping. Even the chain link fence that was around the station was saved for use elsewhere on the installation.

The cleared area will likely be used for a U.S. Department of Agriculture inspection station, von Kolnitz said.

The MOTSU project was the first of many DDS projects planned throughout the country. DDS is geared for Army installations now but could include projects for other branches in the future.

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Chris Gardner is a public affairs specialist, U.S. Army Engineering and Support Center, Huntsville.

Acronyms and Abbreviations	
DDS	Directed Demolition Service
IMCOM	Installation Management Command
MOTSU	Military Ocean Terminal Sunny Point

Get the skinny on the ISCoP reorganization

by Candice S. Walters

By now, most people have heard of the Military Construction Transformation program within the U.S. Army Corps of Engineers. The Corps is responsible for constructing the buildings and facilities the Army needs as it redistributes units, Soldiers and their Families to various Army posts throughout the United States.

But how do these facilities develop from ideas into real projects? What happens to the new facilities and installations once the MILCON program is completed? These facets and many more are part of the Installation Support Community of Practice.

The ISCoP is the "organizational glue" that is responsible for laying the groundwork for all installation matters, supporting the Assistant Chief of Staff for Installation Management, the Installation Management Command, and the Assistant Secretary of the Army for Installations and Environment in the life-cycle management of all Army facilities.

The ISCoP went through a major realignment in October 2007, creating two branches — the Installation Support Branch and the Programs Branch — with 20 Corps employees. This realignment was approved by Maj. Gen. Merdith W.B. "Bo" Temple, the Corps' director of Military Programs, to help USACE tackle both increasing missions in the installation support arena and to better balance and leverage the resulting workload and functions.

The Installation Support Branch provides program management and oversight for Army Sustainment, Restoration and Modernization and Facilities Engineering programs, and the USACE Installation Support programs. The branch focuses on external and internal communications, financial management and liaisons with IMCOM.

Liaison positions are well established at IMCOM headquarters and its six regions. Project manager-forwards can be found at select Army installations. The branch also serves as the Army staff element representative responsible for developing and disseminating Department of the Army policy on the Army Commercial Utilities Program.

It coordinates and integrates USACE-wide support and execution of various utilities and energy initiatives, including the Energy Policy Act of 2005. It serves as managing editor of the IMCOM *Public Works Digest* and oversees the installation support training curriculum offered through the USACE Learning Center.

The Programs Branch supports Army MILCON planning, programming, budgeting, budget execution and reporting processes. This branch provides and manages contracts for the Programming Administration and Execution System information technology tool, commonly called PAX, as well as serving as the systems engineer and system manager for the Construction Appropriations Programming Control and Execution System known as CAPCES.

The branch also serves as the Army's technical lead for real property master planning, providing leadership, professional planning assistance, policy development, professional practice and program management to USACE, ACSIM, IMCOM and the Department of Defense.

It augments the ACSIM staff and provides a program coordinator for readiness and modernization support for both ACSIM and Headquarters, USACE, serving as the proponent for assessing the implications and facilities impact of Army Force Management process and strategic concepts. These include force development, modernization and feasibility reviews. As the Defense sector lead agency for the Public Works defense sector, the branch supports the DoD Critical Infrastructure Program to meet the intent of its objectives.

Working closely with the Corps headquarters' ISCoP is the Installation Support Center of Expertise in Huntsville, Ala. The ISCX links business practices and innovative processes and programs in support of installations.

The new ISCoP mission statement reads, "Enhance national-level relationships with USACE, ASA-I&E, OACSIM and IMCOM, to be a valued member of the Army Installation Management Team; develop and maintain USACE Installation Support policy and doctrine; provide specialized/dedicated installation support services to our customers/stakeholders throughout USACE, the Army and other agencies; foster and promote a capable USACE workforce for IS mission; promote organizational communication; and enhance organizational education and learning throughout the Army Installation community."

With the increase and merger of staff, coupled with the shedding of non-core functions, the new ISCoP organization is better primed to focus on improving and optimizing the delivery of USACEwide installation support services to the Army.

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Candice S. Walters is a public affairs specialist with Headquarters, USACE. Edmond Gauvreau and Gregory Tsukalas, Installation Support Community of Practice, contributed to this article.

Acronyms and Abbreviations	
ACSIM	Assistant Chief of Staff for Installation Management
ASA-I&E	Assistant Secretary of the Army for Installations and Environment
DoD	Department of Defense
IMCOM	Installation Management Command
ISCX	Installation Support Center of Expertise
IS	installation support
ISCoP	Installation Support Community of Practice
MILCON	Military Construction
USACE	U.S. Army Corps of Engineers

Monumental move at Fort Lee

by Patrick Bloodgood

For 33 years, the 1st Logistical Command Memorial stood proudly on Seay Field at Fort Lee, Va. The monument, a white curved concrete shell in the shape of an arrow, honors those Army logistics Soldiers who paid the ultimate price in Vietnam. It also occupied the site where the new Sustainment Center of Excellence facility is being built by the Corps.

"People were concerned it might be destroyed and urged senior leaders here to try and preserve it," said Command Historian Dr. Steven Anders of the Quartermaster Center and School at Fort Lee.

The memorial is carefully rotated to face the main entrance to Fort Lee, Va., making it a more prominent feature on the installation. Photo by Patrick Bloodgood

To preserve the monument for future generations, contractors decided they could move it 150 yards from its location and set it directly in view of the main gate, achieving the contractor's goals of making the monument and a flag pole a prominent part of the SCOE design.

"This being a monument to the Army logistics group [that served] in Vietnam, it was important that the monument be saved and placed into a new location," said Bill Robson, Corps Base Realignment and Closure area engineer for Fort Lee.

The contractor looked to the popular TV show "Mega Movers" to acquire names of companies that could complete this task, according to Robson.

"When we learned it was going to be preserved and moved, there was serious concern as to would it survive the move," Anders said.

Concern quickly turned into excited anticipation when it was learned that the monument's fate would rest in the hands of the same company that moved the Cape Hatteras Lighthouse in North Carolina.

Prior to moving day, the contractor, Ayers House Movers, lifted the entire structure using airbags, then supported it with large steel beams and positioned hydraulically controlled wheels underneath. This would keep the structure level and propel it to its new site. With the monument resting on wheels, the contractors pre-staged the structure for its major move the next morning.

When daybreak arrived, contractors were greeted by an overcast sky and cool temperatures. They fired everything up and moved the concrete shell towards its new spot. Within an hour, the monument was almost to its new home, Now, the structure had to be rotated so that it would face the installation's main entrance.

Inch-by-inch, the contractor nudged the structure into place. The hydraulic wheels struggled on the loosely compacted soil. Eventually front-end loaders were chained into place to help pull the concrete shell to its final home. Nearly six hours later, the 1st Logistical Command Monument stood facing the front entrance, once again resuming its role as a remembrance to those brave Soldiers who lost their lives while serving in Vietnam.

"I think the group that paid for it to be built will be very pleased to see how it looks in its final location," said Robson.

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Patrick Bloodgood is a public affairs specialist and editor of District Tides, *U.S. Army Corps of Engineers, Norfolk District.*

Acronyms and Abbreviations	
SCOE	Sustainment Center of Excellence

Wizard speeds request for proposal process

by Susan Nachtigall

A web-based template eases the task of issuing requests for proposal that comply with U.S. Army Corps of Engineers' guidance for design-build contracts under Military Construction Transformation initiatives. The Model Design-Build RFP is mandated for use in all MILCON Transformation and Base Realignment and Closure projects by Engineer Construction Bulletin 2006-13 issued in September 2006.

Between fiscal years 2008 and 2011, the Corps projects an increase of $41 billion over the existing MILCON program. MT employs best practices, including:

- indefinite delivery-indefinite quantity contracts for continuous design-building;
- industry standard facilities using best standards;
- manufactured building solutions;
- increased partnering to create industry-wide solutions; and
- processes to amplify workforce productivity.

The Engineer Research and Development Center developed the RFP Wizard at Corps Headquarters' request to support its Centers of Standardization. The COS are tasked with gathering industry best solutions and lessons learned primarily through the execution of facility-type/product line D-B contracts as they work towards the establishment of regional "adapt-build" models. These D-B contracts will be procured through the standard Model MT RFP.

The required MT Model RFP template documents are standardized in the RFP Wizard. This tool automates a standardized approach to developing an RFP and provides the required consistency to meet MT objectives. The wizard tool and associated guidance documents are posted at: *https://ff.cecer.army.mil/rfp_wizard.* Starting in FY 2007, execution of contracts is primarily through Corps regional or district contract vehicles using this tool.

Acronyms and Abbreviations	
A-E	architect-engineer
COS	Centers of Standardization
D-B	design-build
ERDC	Engineer Research and Development Center
FY	fiscal year
IDIQ	indefinite delivery-indefinite quantity
MILCON	Military Construction
MT	MILCON Transformation
RFP	requests for proposal

Wizards are software components that operate on a discrete design task by using criteria and user input to create or manipulate a building and criteria model rapidly, according to recognized practices. A wizard is defined as a module of software that represents a discrete design task within a particular context, typically characterized by a sequential series of questions and options from which codified design logic and criteria are used to create or modify a solution.

Many benefits result from using the wizard. Due to volume of work as a result of MT, the wizard helps the process of compiling the overall RFP both from a contracting standpoint and a project management perspective. It ensures consistency throughout the Corps in the delivery, format and content of all D-B RFPs. In addition, the wizard guarantees that changes to overall Corps policies regarding design and construction are distributed nationwide in a timely fashion since the update is done only once.

The wizard's concept is similar to that of modifying specifications for projects. It has to be done only once and then can be modified as necessary for the next project at an installation. It also provides real-time lessons learned, which can be incorporated quickly into the overall model for all who prepare RFPs.

The wizard can be used for all facility types, not just Tier 1 facilities. It speeds the process of modifying the model for IDIQ solicitations and can generate amendments for each section.

Currently, the wizard supports the following facility types:

- Barracks
- Brigade/battalion headquarters
- Company operation facilities
- Tactical equipment shops
- Dining facilities
- Child development centers
- Army community service centers
- Operational readiness training complexes
- General instruction buildings
- Command and control facilities
- Chapels

In addition, it has a feature by which users can upload their own unique statement of work paragraphs for nonstandard facility types.

Four more facility types will be included in the next few months:

- Advanced individual training facilities
- Physical fitness centers
- Fire stations and consolidated fire safety facilities
- Security facilities

The wizard has also been designed to work for Standard (C-Type) solicitations as well as IDIQ and task orders. The template RFP and wizard are updated monthly with lessons learned. At times, interim updates are provided for the addition of new facility types.

Prior to each update, an e-mail containing a brief description of the upcoming update and the Summary of Revisions document, which is the internal change-tracking system, are sent to all active wizard users. This notification allows users to prepare their projects for the updates and gives them an idea of areas where they may need to revisit the project to make sure it is up to date with the latest template.

In addition to monthly updates, ERDC debugs the wizard on a case-by-case basis daily as staff is notified of errors and omissions in the system. The wizard will continue to evolve and improve with user input.

The number of users currently using the wizard, based on Corps elements, is: ➤

FIRESTORM technology brings super tool to deployed Soldiers, civilians

by William Crambo

Contingency operations create unique challenges for real property asset accountability and management. Standard Department of the Army real property systems like the Integrated Facilities System, designed for management of continental U.S.-based facilities, do not work in a contingency environment.

New but standardized processes were required to meet the challenges and comply with Department of Defense and DA regulatory guidance. Enemy action, rapid personnel turnover, training, experience and other competing requirements required U.S. Army Forces Central Command to develop a realistic and simple approach to real property asset management that is sustainable in fast-moving and hostile environments.

The answer was FIRESTORM, a user friendly, self-service, web-based real property management, tracking and reporting capability for contingency environments.

FIRESTORM! The word brings forth an image of a raging inferno consuming everything in its path. It is a fitting name. FIRESTORM consumes all geospatial and infrastructure information provided by users in the contingency Area of Responsibility and stores it in readily accessible online databases.

Development of this initiative was spurred by AR 405-45, *Real Property Inventory Management*, which states property in an officially designated combat zone will not be reported to the Assistant Chief of Staff for Installation Management, but rather will be gathered and maintained by Third Army.

The hand-held device carries data that is invaluable in a contingency environment.

USARCENT developed FIRESTORM — an acronym for Facilities, Intelligence, Reconnaissance and Engineering Spatial Tool for Operations and Resource Management — in partnership with the U.S. Army Corps of Engineers using technology developed by the Corps' Engineering Infrastructure Intelligence Reachback Center, the Corps' Savannah District and the ACSIM.

This capability has three distinct operating mechanisms:

- Ike 305 with GATER – Internet Key Exchange with Geospatial Assessment Tool for Engineering Reachback,
- the Contingency Facilities Module of CAPCES – Construction Appropriations Programming Control and Execution System, and
- ISIP – Infrastructure Spatial Intelligence Portal.

The first mechanism combines Ike 305 hardware and GATER software. The hand-held device has the means to hold and show primary and alternate routes, infrastructure schematics and locations, and countless other types of useful data and information.

Once field data is collected and uploaded at the desktop level, the user can extract shapefiles and generate reports that depict their data. When the data is uploaded to the geodatabase within the EI2RC, it populates the Internet Mapping Service and corresponding online GATER application. The online application allows for the entry of disparate infrastructure data into the GATER geodatabase. ➤

(continued from previous page)

- Northwestern Division – 124 total; 10 architect-engineer contractors;
- South Pacific Division – 28 total; no A-Es;
- Pacific Ocean Division – 58 total; no A-Es
- Southwestern Division – 89 total; 18 A-Es
- Great Lakes and Ohio River Division – 35 total; no A-Es
- North Atlantic Division – 119 total; 49 A-Es;
- South Atlantic Division – 109 total; 42 A-Es;
- Others – 36 total; no A-Es

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Susan Nachtigall is a registered architect, Construction Engineering Research Laboratory, ERDC, Champaign, Ill.

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The Ike 305 with GATER not only gives timely and accurate information during mission execution, it proves essential for critical infrastructure assessments and facilities planning. Reconnaissance facts and figures easily transfer to FIRESTORM, allowing Soldiers at any level to view and plan using the same gathered information.

The CAPCES component of FIRESTORM comprises four tools:

Real Estate Leases: This tool allows a Contingency Real Estate Support Team to keep a record of all leases and accommodation agreements. It allows for the upward reporting of lease expenses and provides day-to-day assistance to the personnel who create and service the leases.

Facilities and Installed Equipment: This tool is designed to maintain a record of facilities and installed equipment within the theater of operation. It tracks and reports the status, cost, location and condition of the facilities and installed equipment. It stores supporting documents and photographs.

Project Tracker: This tool allows project managers to update the status of projects and program funding priorities. It shows the progress of a construction program at project-level detail and includes data for DD Form1391s and the Corps' P2 project management system.

Environmental Site Closure Survey: This tool documents and tracks compliance with environmental requirements of military site closures. It stores supporting documents and site photographs related to a survey. The survey is used to determine the status of factors that affect the environment and might create future U.S. government liability.

The CAPCES tools are available via the Non-Secure Internet Protocol Router Network, commonly called the NIPRNet. Anyone with Internet access and a proper user ID can gain access.

ISIP is an enterprise geospatial solution that integrates the collected property data with other facility-based information providing a Common Installation Picture via the Internet to authorized users worldwide. Integrating the geospatial technology of the GATER with CAPCES contributes to the ISIP, the true hub of FIRESTORM.

The portal puts data to work for the Soldier on the ground. It provides a true visualization of all of the data collected using the Ike 305 with GATER application.

The fusion of tabular data and geospatial data in one area is ISIP's main function. Its capabilities allow users to share data rapidly. Using a standard Oracle Spatial Database and Oracle Application Server allows USARCENT to integrate geospatial data from the GATER application and the tabular real property data from the CAPCES Contingency Module and other data from collaborating databases into a powerful online real property management and visualization tool.

Key planning tools within the ISIP allow for online real property document management, base-camp master planning, automated dig permit approval and more. Not only are users able to view their base camps via an online application, they are able to manage and update their own data provided to the centralized base camp database.

ISIP enables users to interactively view geospatial mapping layers, generate products graphically depicting real property assets, property capabilities, proposed project sites (master planning tool), funding expenditures, high maintenance facilities and security risk locations (anti-terrorism/force protection planning).

Working together, these three components equip the force commander with powerful tools that provide large amounts of critical infrastructure data available in a geospatial database. This information can be used for infrastructure management, mission planning or force protection planning and training.

Soldiers and leaders alike depend on integrated technology to fight and win the Global War on Terrorism. FIRESTORM brings information, intelligence, tools and technology to the warrior in a functional and meaningful way.

The FIRESTORM capabilities are transferable to any contingency environment and are not exclusive to the USARCENT AOR. This means that combat forces are no longer required to develop their own methodologies and capabilities to manage contingency real property. Given FIRESTORM, they now are able to conduct their real property mission with fewer distracters to their combat and peacekeeping operations.

FIRESTORM has applications available on both the NIPRNet and the Secure Internet Protocol Router Network, referred to as the SIPRNet. The information is available via the NIPRNet and as Geospatial Image files with associated shape files on the SIPRNet.

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William Crambo retired in January from the Installation Support Community of Practice, Headquarters, USACE.

Acronyms and Abbreviations

ACSIM	Assistant Chief of Staff for Installation Management
AOR	Area of Responsibility
CAPCES	Construction Appropriations Programming Control and Execution System
DA	Department of the Army
DoD	Department of Defense
EI2RC	Engineering Infrastructure Intelligence Reachback Center
FIRESTORM	Facilities, Intelligence, Reconnaissance and Engineering Spatial Tool for Operations and Resource Management
GATER	Geospatial Assessment Tool for Engineering Reachback
IKE-503	Internet Key Exchange
ISIP	Infrastructure Spatial Intelligence Portal
NIPRNet	Non-Secure Internet Protocol Router Network
SIPRNet	Secure Internet Protocol Router Network
USACE	U.S. Army Corps of Engineers
USARCENT	U.S. Army Central Command

Career program makes great strides in 2007

by Lt. Gen. Robert L. Van Antwerp

As we progress into fiscal year 2008 and the new calendar year, it's a good time to take stock of Career Program 18, Engineers and Scientists (Construction). Bottom line: I want to ensure that all CP-18 careerists are aware of both the accomplishments of the past year and the opportunities for going from "good to great" in the new year.

When I became chief in May 2007, I became the career program functional chief and reappointed Bob Slockbower of the U.S. Army Corps of Engineers' Southwestern Division as the CP-18 functional chief's representative.

Bob and his CP-18 team briefed me on the program within the first month of command, highlighting the principal functions of the program as well as present and future challenges and opportunities. Among the action items from that briefing, as discussed in my first article in this space, was to publicly acknowledge the current activity career program managers for their service and to give the opportunity to other senior managers to step up and serve as ACPMs in their organizations.

The year saw many accomplishments and opportunities in various components of CP-18:

- More than 330 Army Civilian Training, Education and Development System-funded training instances through the Competitive Professional Development program were approved and completed, including seven group training requests, totaling more than $900,000.
- Ten careerists completed course work leading to graduate degrees in technical and management areas.
- Eleven careerists were selected for university training for FY 2008 with proposed studies ranging from business administration to construction management and water resources planning. This training is being conducted at universities across the United States, including two online programs.
- Six team members completed the CP-18 Leadership Development Program, bringing the number of graduates since 2001 to 140. Based on a 2006 survey of graduates, 50 percent have either been promoted or assumed new positions since their graduation. Anecdotal evidence from other graduates in 2007 indicates that figure is probably higher.

Lt. Gen. Robert L. Van Antwerp
Photo by F.T. Eyre

- Bill Sorrentino of Norfolk District headed up a team that reviewed and revised the CP-18 LDP curriculum in September. I discussed the FY 2008 announcement and application in the November/December issue of *Public Works Digest*. I strongly encourage everyone interested in expanding their breadth of experience to apply for the program. Interest in the CP-18 LDP program has increased in the past year, so we are expecting a robust program for FY 2008.
- Four careerists were selected to attend the Harvard Senior Executive Fellows Program, which provides executive-level training for those aspiring to join the Senior Executive Service.
- Six careerists were selected for attendance at senior service colleges, where they will receive a professional military education with field grade officers preparing for advanced positions and promotions. Three are attending the Army War College in Carlisle, Pa. Two are attending the Industrial College of the Armed Forces, and one is at the National War College, both at Fort McNair in Washington, D.C.
- At the FY 2008 prioritization meeting for ACTEDS CPD funds, CP-18 received an 8 percent increase in its allocation due to its outstanding program execution in FY 2007, despite an overall drop in ACTEDS funding for the Army.
- The CP-18 Career Program Managers Workshop was held in August in Southbridge, Mass., after a one-year hiatus. Maj. Gen. Bo Temple, the USACE director of military programs, and I attended the first day of the workshop, enjoying the opportunity to touch base with more than 80 members of our career program management team.
- The Strategy and Integration Directorate of Headquarters USACE led a one-day meeting in September with a small team of CP-18 employees — career program managers, and mid-level and intern employees — to re-examine the mission and goals of CP-18.
- The revisions to the CP-18 Master Intern Training Plan were completed for final review in November, thanks to the determined efforts of Mohan Singh at Headquarters USACE and his team. The new MITP was just issued. This revised MITP is applicable to all intern employees, whether they are funded by the Department of the Army or by local activities and organizations.

All of these accomplishments tie into the common thread of progressive civilian career development — helping Army civilians change to meet the new needs of the Army and the Department of Defense.

My deepest thanks go to the entire CP-18 team for their tireless work and ➤

Acronyms and Abbreviations	
ACPM	activity career program manager
ACTEDS	Army Civilian Training, Education and Development System
CP-18	Career Program 18
CPD	Competitive Professional Development
FY	fiscal year
LDP	Leadership Development Program
MITP	Master Intern Training Plan
USACE	U.S. Army Corps of Engineers

Training opportunities for planners

by Andrea Wohlfeld Kuhn

Do you want to expand your master planning knowledge and develop valuable skills? Register now for Proponent-Sponsored Engineer Corps Training classes.

The fiscal year 2008 PROSPECT master planning classes are:

Course 948

Real Property Master Planning Visualization Techniques

Aug. 18-22, Huntsville, Ala.

This 32-hour course provides planners a fundamental overview of the planning visualization tools SketchUp and Google Earth, easy-to-use tools to help plan military installations. Students will have hands-on instruction on the use of the software and will produce several basic area development proposals using both SketchUp and Google Earth.

Course 075

Real Property Master Planning

Schedule to be determined – check web site below

This course is an introduction for planners and real property specialists. It provides an overview of the planning process, with an emphasis on general planning principles that are applicable not only to the Army but to all government agencies. Emphasis is placed on facilitating stakeholder participation, managing a real property planning board, site planning charrettes and sustainable development concepts.

Course 952

Advanced Real Property Master Planning

July 14-18, Huntsville, Ala.

Through an intensive, hands-on workshop, students will use a planning charrette technique to develop an area development plan for a real world planning problem at an installation.

Participants are required to have a fundamental knowledge of master planning and/or real property management and must have completed Real Property Master Planning, Course 75.

To register or view course descriptions, go to *http://pdsc.usace.army.mil*, or contact Sherry Whitaker at 256-895-7425/7421 or at sherry.m.whitaker@usace.army.mil; or Beverly Carr at 256-895-7432 or at beverly.carr@usace.army.mil.

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Andrea Wohlfeld Kuhn is a Master Planning Team associate, Headquarters, U.S. Army Corps of Engineers.

Acronyms and Abbreviations	
PROSPECT	Proponent-Sponsored Engineer Corps Training

Develop your professional planning credentials

by Andrea Wohlfeld Kuhn

Army planners are encouraged to pursue American Institute of Certified Planners designation from the American Planning Association. To obtain certification and use the AICP designation, APA members must meet certain education and experience requirements and pass a written examination. The higher designation of Fellow in AICP, or FAICP, recognizes the achievements of individuals who are considered model planners and who have made significant contributions to planning and society.

The exam is given twice a year, in May and November. Online training and exam preparation is available through state APA chapters. Work in related professions such as engineering, landscape architecture, architecture, environmental planning and others may qualify one to take the exam.

Important new AICP requirement

Effective Jan. 1, AICP members must engage in continuing education in order to maintain their certification. The intent of this certification maintenance is to enhance the credibility of the planning profession and increase the value of AICP credentialing. The requirement will ensure that members have current knowledge, skills and training in best practices.

Between Jan. 1, 2008, and Dec. 31, 2009, AICP members must earn a total of 32 CM credits. One hour equals one CM credit. A minimum of 1 1/2 credits must be on the topic of ethics, and another 1 1/2 credits must be on current planning law. More information can be found at *http://planning.org/aicp.*

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Acronyms and Abbreviations	
AICP	American Institute of Certified Planners
APA	American Planning Association
CM	Certification Maintenance
FAICP	Fellow in American Institute of Certified Planners

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devotion over the past year. They are truly at the tip of the spear in building the next generation of Army leaders, assuring that the entire CP-18 team is Army Strong, Engineer Ready!

Essayons!

Lt. Gen. Robert L. Van Antwerp is chief of engineers, commanding general of the U.S. Army Corps of Engineers and functional chief of Career Program 18.

Pavement courses to be offered

by Jack Berezniak

The U.S. highway system includes nearly 4 million miles of public roads and 8.3 million lane miles, or about 0.8 percent of the land surface area in the United States. In 2004, the total highway expenditures by federal, state and local governments were $147.5 billion, which is equivalent to more than $400 million per day for building and rebuilding roads.

To help manage Army paving projects, the Engineer Research and Development Center annually offers three pavement training courses through Proponent-Sponsored Engineer Corps Training.

Course 50

Construction and Rehabilitation of Flexible Pavements

Oct. 22-26, Vicksburg, Miss.

This course provides methods for design, construction, maintenance and repairs of flexible pavements.

Course 85

Rigid Pavements Construction and Rehabilitation

Jan. 26-30, 2009, Vicksburg, Miss.

This course provides methods for design, construction, maintenance and repairs of rigid pavements.

Both of the above courses cover recurring and cyclic maintenance requirements and approaches to use to implement effective preventive maintenance schemes. These courses also provide techniques and applications that can reasonably be accomplished by facilities engineer activities. After completion of these courses, attendees will be able to select the best pavement system for a particular application with the consideration of life-cycle costs and maintenance; perform a completed design of pavement systems; and correctly identify major defects in the pavement construction and select the proper remedies to correct the problem.

Students observe rapid pavement repair. Photo courtesy of the Engineer Research and Development Center

Course 115

Pavement Evaluation and Design

March 3-7, 2009, Vicksburg, Miss.

This course is a basic course for engineers or technicians responsible for pavement evaluation and/or design. It covers structural and visual pavement evaluations, pavement design and selection of the best pavement system for a particular application with the consideration of life cycle cost and maintenance.

To see their entire course descriptions, go to http://pdsc.usace.army.mil. For questions or additional information, contact Lulu Edwards, course director at 601-634-3644 or lulu.edwards@usace.army.mil.

To register for these courses, Corps employees are required to complete a DD Form 1556 and submit the request through their local training coordinator. Non-Corps government employees should submit a DD 1556 or SF 182 through their local training coordinators. Contractors must obtain a government — Corps, other federal, state or local — agency sponsorship. The sponsoring agency must submit a written request to the Registrar's Office stating they are willing to acknowledge financial responsibility for the course tuition.

For registration questions, contact the U.S. Army Corps of Engineers Learning Center Registrar's Office at 256 -895-7421 or 256-895-7425, or dll-CEHNC-Registrar@usace.army.mil.

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Jack Berezniak is a geotechnical engineer, Engineering and Construction Community of Practice, Headquarters, U.S. Army Corps of Engineers.

Army planning symposium to be held in April

by Andrea Wohlfeld Kuhn

The Federal Planning Division of the American Planning Association will hold its annual National Training Conference for Federal Planners April 23-25 in Las Vegas at the Circus Circus Hotel. **The Army will hold an agency-specific training session/symposium April 22-23 at the hotel.**

Activities will include Google SketchUp training and preparation for the American Institute of Certified Planners and the Leadership in Energy and Environmental Design-Neighborhood Development exams. For more information and to register for the FPD workshop, go to *http://www.federalplanning.org/annual_workshop.htm*.

The Army session and FPD workshop have proven to be valuable resources for those involved with Army master planning. As of last year, FPD places a new emphasis on training and certification, which fits well with the Army's emphasis on appropriate training and certification, and professionalization of the workforce.

Topics at recent conferences have included Base Realignment and Closure, sustainability, Geographic Information Systems, LEED, historic preservation and encroachment, among others.

Make your reservations now, and plan to attend.

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Acronyms and Abbreviations	
FPD	Federal Planning Division
LEED	Leadership in Energy and Environmental Design

Achmar manages Transportation Infrastructure Program

by Mary Beth Thompson

Ali Achmar is a do-it-now kind of person. One of the sayings he lives by is, "Don't postpone today's work until tomorrow."

That philosophy permeates Achmar's work ethic as the Army Transportation Infrastructure Program manager at Headquarters, Installation Management Command. The program covers airfield pavements, bridges, railroads and dams on Army garrisons worldwide.

"We do the evaluation, the inspection, and we give the garrison maintenance and repair recommendations," he said. The program includes training of personnel. Achmar, a general engineer, also supports Headquarters IMCOM Operations Division by serving on its quality assurance evaluation team for the operations side of airfields.

Born in Kuwait of Lebanese ancestry, Achmar immigrated to the United States in 1980 to go to college. He received a bachelor's degree in engineering from the University of Toledo and then entered the U.S. Army. He earned a master's degree in engineering technology systems management from Murray State University.

Achmar left the Army in 1989 and joined the civil service in 1990. He held engineering positions in the Washington, D.C., area, in Europe and in San Antonio for the Installation Management Agency's Southwest Region. Achmar went back to Europe in 2006 as the IMCOM Europe Region's Force Protection engineer.

Ali Achmar
Photo by Mary Beth Thompson

He came back to the United States to take his transportation infrastructure position only a couple months ago. Once again, he is ahead of the curve, because he is already located at Fort Sam Houston, Texas. Headquarters IMCOM is scheduled to move there in fiscal year 2010 as one of the current Base Realignment and Closure actions.

"I am part of the 'advance team,'" Achmar said. With modern technology and once-a-month trips to Headquarters IMCOM in Virginia, he can do his job from Texas until the rest of the Headquarters joins the advance team.

This job is not Achmar's first time working with pavements. In the 1990s, he worked on the airfield pavements program, and on bridges, railroads and dams for the Engineering and Housing Support Center, which later became the Center for Public Works, where he put into operation the software called PAVER, the Army's Pavement Management System.

In his new position, Achmar not only sees that garrisons receive the inspections, evaluations, advice and training that they require, he also works to help them get the funds needed to get their transportation infrastructure into good condition.

"If I get the funds, and I know that our facilities are getting in better shape, that is big satisfaction," he said. "That is my goal."

Achmar's philosophy of not postponing work until tomorrow shows in his preventive maintenance management thinking. He actively works against the fix-it-when-it-breaks mentality, because preventive maintenance is a big plus in saving resources, he said.

"We want to get them involved more into preventive maintenance, because that will save us money in the long run," he said. He illustrated his point with an example.

"When you see a pothole, it started with cracks," Achmar said. "If we don't do the preventive maintenance such as crack sealing or partial patching, which is the least ➤

Acronyms and Abbreviations	
IMCOM	Installation Management Command

Macdonald promoted to major general

Maj. Gen. John Macdonald receives his second star from his mother, Martha Macdonald (second from left), and his wife, Brig. Gen. Anne Macdonald (right), during a ceremony Jan. 11 at the Pentagon. Gen. Richard A. Cody (left), vice chief of staff of the Army, hosted the promotion ceremony.

Maj. Gen. Macdonald is the deputy commanding general of the U.S. Army Installation Management Command in Arlington, Va., and commanding general of the Family and Morale, Welfare and Recreation Command in Alexandria, Va. Brig. Gen. Anne Macdonald is chief of staff of the U.S. Army Reserve Command, Fort McPherson, Ga. Photo by Stephen Oertwig

Gonzales brings systems expertise to engineering job

by Mary Beth Thompson

From her college days at Virginia Tech, Deb Gonzales has developed two passions – watching college football and engineering. Gonzales arrived at the Public Works Division of Headquarters, Installation Management Command in mid-November to get involved in one of those again.

Over the years, she had gotten away from hands-on engineering, but watching sports on TV never stopped. An avid Hokies fan, she sees all the games she can and tunes in all the college football available.

"I don't watch the pros until the college games are over," Gonzales said.

She earned her bachelor's degree in architecture from Virginia Tech. She went to work at Aberdeen Proving Ground, Md., in 1984 at the Directorate of Engineering and Housing, and her other passion, engineering, expanded.

"I was there for seven years, and then I went to work for the National Guard Bureau," she said. "I was a project manager there for Military Construction projects for eight years."

Deb Gonzales
Photo by Mary Beth Thompson

After that is when Gonzales took a left turn in her career — straight into the computer and data management side of the house. She headed the Guard Bureau's implementation team for their Planning Resource for Infrastructure Development and Evaluation system. PRIDE is the Army National Guard's real property inventory and project management system.

After five years, Gonzales moved to the IT Directorate in the Office of the Assistant Chief of Staff for Installation Management and took on the Installation Facilities System, which is the Army's real property management tool, as well as the Headquarter Executive Information System and the Installation Executive Information System.

"I have some IT background, not in education but having done some systems and converted systems," she said, "But I really wanted to get back into engineering again. I'm an architect, and I wanted to get back into doing more engineering and execution as opposed to just data analysis. That's why I came to IMCOM."

In the Public Works Division at Headquarters, IMCOM, Gonzales's title is general engineer, and she has taken over many of the duties that used to belong to Miriam Ray. She is working on the relocatables data base, handling queries in IFS, developing visuals of what is happening in the inventory and serving as one of the POCs for integration of the General Fund Enterprise Business System.

"IFS is going away, and GFEBS will be the one system to be all," Gonzales said.

The GFEBS initiative is going to be a big adjustment for the public works ➤

Acronyms and Abbreviations	
GFEBS	General Fund Enterprise Business System
IFS	Installation Facilities System
IMCOM	Installation Management Command
IT	Information Technology
PRIDE	Planning Resource for Infrastructure Development and Evaluation

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amount of dollars we can spend, those cracks eventually can lead to a pothole. Then, instead of spending $1, now we have to spend $5 to $6 to fix that area. We're talking hypothetically here — not actual cost — comparing how much we pay."

The point is that we can prolong the life of the pavement by doing preventive maintenance at low cost rather than letting them become potholes, which are far more expensive to repair, he said. In other words, don't postpone today's work until tomorrow.

Mary Beth Thompson is the managing editor, Public Works Digest.

Retirements

More than 120 people gathered Jan. 8 at a Chinatown restaurant in Washington, D.C., to celebrate the 30-years-plus careers of three retiring U.S Army Corps of Engineers employees. From left, Bill Crambo, Greg Tsukalas and Walt Norko listen as Vince Kam of the Office of the Assistant Chief of Staff for Installation Management pays them tribute. Crambo managed the Construction Appropriations Programming Control and Execution System for the Installation Support Community of Practice. Tsukalas was the deputy chief of the Installation Support Community of Practice and chief of its Programs Branch. Norko was team leader of the Construction Management Community of Practice. Photo by F.T. Eyre

National Guard Bureau honors Louisville District's Dan Yelch

by Katelyn Brewer

The National Guard Bureau presented its prestigious Minuteman Award to U.S. Army Corps of Engineers, Louisville District's Daniel Yelch, Nov. 8 at Camp Atterbury, Ind. The *Minuteman Award* is the second highest honor the National Guard Bureau gives to civilians outside of its organization.

Yelch, a realty specialist on the Timber/Agriculture team, received this special recognition for his dedicated service providing forestry expertise to the National Guard Bureau for nearly 30 years at three installations — Camp Atterbury, Ravenna Training and Logistics Site, Ohio, and Fort Custer, Mich.

"Dan is so deserving of this award because he is a very good employee who has a wealth of experience as well as great judgment," said David McConnell, USACE realty specialist and manager of the Forestry Program.

Yelch works out of the Fort Knox, Ky., Area office. His team oversees the timber disposal activities on 10 sites. Of the 10 sites, three are National Guard installations that Louisville District supports with disposal contract management and technical support and consultation.

Yelch is responsible for managing timber disposal at each installation. Disposal includes scheduled timber management sales and salvaging timber from construction sites. The team also lends the installations' forestry staffs assistance in timber marking, inventory and managing areas to fit the needs of different training scenarios.

Dan Yelch displays his Minuteman Award. *Photo courtesy of the National Guard Bureau.*

One of his goals is to help reduce costs. Timber is sold by sealed bid and then harvested by the successful bidder. A sales contract is developed that allows the income from the timber to come full circle back to the reimbursable forestry program. The money helps to fund the installation personnel who oversee the forest and support projects such as tree planting and controlled burning.

Yelch has greatly increased the cost effectiveness of these programs. He is widely known for his responsiveness to customer needs.

"As our installation services and Timber/Agricultural team leader, Dan has been instrumental in developing and consistently maintaining the greatest rapport with our customer base for the last several years," said Robert Krupp, chief of Military Branch in Louisville District's Real Estate Division.

"Dan's reputation speaks for itself," McConnell said. "The customers speak very highly of him."

Some of Yelch's major successes include overseeing the clearing of areas for perimeter security roads at Fort Custer and clearing a massive multi-purpose training range at Camp Atterbury.

"At these sites, Dan is viewed as a member of the installation management team and is relied upon for objective and well-thought-out responses to complex problems unique to the reimbursable forestry programs, said Col. Jeffrey Phillips, chief, Environmental Programs Division, National Guard Bureau,

Yelch has been part of the forestry program since 1982. He participates in both the field work and the office work but has a preference.

"I like being out in the field," he said. "I love to be in the woods marking timber."

Before he came to Louisville District, Yelch was a forester with Baltimore District, a park ranger at Carlyle Lake, Ill., and a lock and dam operator at Mississippi River Lock 25.

Yelch has received numerous USACE awards, but this is his first award from an outside source.

"He has been an outstanding professional who has exhibited selfless service along with unquestionable integrity and commitment," Krupp said. "Dan continues to be a valuable asset to our organization as well as others as evidenced by his most deserving *Minuteman Award*."

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Katelyn Brewer is an intern in the Louisville District Public Affairs Office, USACE.

Acronyms and Abbreviations	
USACE	U.S. Army Corps of Engineers

(continued from previous page)

community, she said. She advised everyone to try to be open to the new system.

"I think it will be a big improvement, and it is a good thing for the Army, but it is going to be a huge change," she said. "Ultimately it will be for the good of the Army but painful along the way."

Gonzales credited input from the field with helping with the GFEBS integration process.

"A lot of subject matter experts came to workshops," she said, "We have gotten very good support from the field."

Gonzales acknowledged that she will be involved in data queries and doing data analysis, but she is looking forward to being more involved in her passion.

"I'm pretty excited to be able to get my feet back into the engineering side of the house," Gonzales said. "I am going to enjoy getting out to the installations more and seeing actual construction."

Mary Beth Thompson is the managing editor, Public Works Digest.

U.S. Green Building Council presents award to Fort Bragg's Rob Harris

by Erin McDermott

The U.S. Green Building Council recognized Rob Harris, chief of the Engineering Division in the Directorate of Public Works at Fort Bragg, N.C., as one of 2007's most influential green building leaders. Harris received the prestigious honor during the Greenbuild International Conference and Expo in Chicago in November.

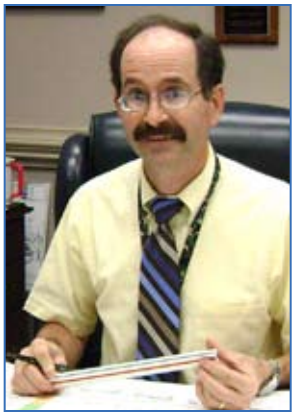
The USGBC's *Leadership Awards* annually acknowledge six individuals for their work with sustainable design and development in the categories of Community, Education, Leadership in Energy and Environmental Design, Organizational Excellence, and Research and Advocacy.

Harris was honored for his exemplary work with LEED on Fort Bragg, specifically for his efforts to develop LEED programs for both existing Fort Bragg infrastructure and $3 billion in new construction slated to occur over the next six years.

The USGBC is a leading national nonprofit organization focused on promoting sustainable infrastructure that enhances and supports the health and well-being of the local community, economy and environment. LEED, a standard developed by the USGBC, is a nationally recognized rating system that scores new and existing buildings based on their energy use and environmental conservation. Projects earn points, and one of four levels is awarded: Certified, Silver, Gold or Platinum.

Harris credited his achievement to the support, dedication and hard work of his team.

"It's a very surprising honor because it is an individual award, and this has most certainly been a group effort," he said. "If there has ever been a group effort that Fort Bragg needs to be recognized for, it's sustainability. How can one individual say that he or she is responsible for that? There's no way something like that could happen on the scale it has if it weren't for the efforts of many."



Fort Bragg's Rob Harris works at his desk reviewing a LEED project. Photo by Erin McDermott

Harris began his work with LEED in late 2001, when he was chosen to lead a progressive 10-person team in charge of managing and promoting sustainable infrastructure for the installation. One of the team's primary initiatives has been to integrate LEED standards for new construction on the installation. In a landmark move in 2005, the Facilities Team and five sustainability objectives were incorporated into the garrison's overall strategic plan as part of *Strategic Goal 1: Sustainable Communities.*

Under Harris's supervision, Fort Bragg's aggressive and innovative LEED program leads the nation. Army installations across the United States are currently developing programs to comply with revised Army requirements establishing LEED-New Construction Silver certification as the standard for 2008-2010 Military Construction. However, Fort Bragg has independently furthered its LEED goals to become the first installation to adopt LEED standards for new construction *and* existing infrastructure as well. Furthermore, with 43 identified buildings totaling more than 5.2 million square feet, its LEED-Existing Building program is the single largest contributor of square footage to the U.S. LEED-EB program

Harris attributed the program's expansive scope and intensity to the post's more than 2,000 federally owned buildings, which total about 24.7 million square feet, and a growing inventory of new construction due to Base Realignment and Closure and other expansion initiatives. Fort Bragg has — for better or worse — a massive economic, social and environmental impact on the surrounding community.

"Putting it into context, Fort Bragg's potential to do so much harm or good is unlike any other installation in the Department of Defense," Harris said. "So we *have* to pursue it to this degree."

There are very few people in the federal government doing what he is, and there's almost no one doing it to the extent that he is, said Julia Love, Facilities Team planner, who helped nominate Harris for the award.

"We wanted to recognize his determination and leadership in really pursuing the LEED certification program for all the right reasons — for the energy benefits and the environment," Love said.

However, Harris, who is a LEED-EB accredited professional, maintained that it's effortless to lead a group as devoted to the cause as his.

"There are so many people here at Fort Bragg who are so impassioned and so inspired and inspiring on the issue of sustainability that it is easy to be the leader," he explained. "Leadership is one thing, but having people who are always on the lookout for processes to tweak and improvements to make is something special. I tell you, nobody else is doing work on that kind of level."

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Erin McDermott is the community resource coordinator, Environmental Management Branch, Fort Bragg, N.C.

Acronyms and Abbreviations	
LEED	Leadership in Energy and Environmental Design
LEED-EB	Leadership in Energy and Environmental Design -Existing Building
USGBC	U.S. Green Building Council

Installation Management Command
2511 Jefferson Davis Highway
Arlington, Virginia 22202-3926

http://www.imcom.army.mil