Public Works DIGEST

Volume XXII, No.1,
January/February 2010

An Army lodge (foreground) and a bowling alley (background) are under construction at U.S. Army Garrison Grafenwoehr, Germany — part of efficient basing efforts in Europe. Photo by Andrea Hoesl, Directorate of Public Works, Grafenwoehr. Page 18

This Issue:
Master Planning and Construction

Master Planning	3
Construction	18
Environment	30
Awards	34
Professional Development	38
Who's Who, What's What	42

U.S. ARMY INSTALLATION MANAGEMENT COMMAND

IMCOM

Public Works DIGEST

Volume XXII, No.1,
January/February 2010

U.S. Army Installation
Management Command
2511 Jefferson Davis Highway
Arlington, Virginia 22202-3926

Public Works Digest is an unofficial publication of the U.S. Army Installation Management Command, under AR 360-1, The Army Public Affairs Program. Method of reproduction: photo-offset; press run: 1,600; estimated readership: 40,000. Editorial views and opinions expressed are not necessarily those of the Department of the Army. Mention of specific vendors does not constitute endorsement by the Department of the Army or any element thereof.

Address mail to:
U.S. Army Installation Management Command
2511 Jefferson Davis Highway
Arlington, VA 22202-3926
Attn: Editor, *Public Works Digest*
Telephone: 202-761-0022 DSN 763
FAX: 202-761-4169
e-mail:
mary.b.thompson@usace.army.mil

Donald G. LaRocque
Public Works Program Manager
Installation Management Command

Mary Beth Thompson
Managing Editor
U.S. Army Corps of Engineers

Printed on recycled paper.

Master Planning

3 Sustainable planning, development ensures future readiness, *by Maj. Gen. Jeffrey J. Dorko*
5 Pillar planning, *by Don LaRocque*
6 The essence of master planning, *by Allan B. Carroll*
7 New look of Army master planning, *by Greg Brewer*
9 Sustainable planning techniques, methods, *by Mark L. Gillem*
10 Developments in sustainable master planning, *by Andrea Wohlfeld Kuhn*
12 Achieving sustainability through good planning, *by Jerry Zekert*
13 Planning for healthy communities, *by Mark L. Gillem*
16 Form-based codes: a visual guide, *by Mark L. Gillem*
17 How to manage change as Army planning policies evolve, *by Jerry Zekert*

Construction

18 Efficient Basing Grafenwoehr – helping warfighters succeed, *by Herb Steinbeck*
20 Dal Molin construction moving out at Vicenza, *by Anna Ciccotti*
22 Fort Carson's Ivy Band gets sustainable home for training, *by Susan C. Galentine*
23 Letterkenny's new gate system tests electronic credentials verification, *by Debra Valine*
24 Fort Polk's barracks renovations to increase lifespan, improve Soldiers' quality of life, *by Jacob Lantz*
26 Fort Benning's mold abatement measures still effective, *by David L. Miller, Kirk Ticknor and John Wilson*
28 Fort Lee's new dining facility sets standards across Army, *by Patrick Bloodgood*
29 Fort McCoy opens children's facility, *by Tom Michele*

Environment

30 Schinnen partnership produces environmental benefits, *by Sarah J. Schmidt*
31 Europe's early environmental review process, *by Johannes Haid*
32 Hohenfels: One step ahead of remediation, *by Jochen Doerr*

Awards

34 Army wins green leadership award, *by Dana Finney*
35 Fort Bliss wins national waste reduction award, *by Terri Smythe*
36 Design-Build Institute of America honors 3 Corps projects, *by Jeffery Hooghouse*

Professional Development

38 Building Strong through continuous learning, *by Lt. Gen Robert L. Van Antwerp*
39 Master planning classes to be offered, *by Andrea Wohlfeld Kuhn*
40 Class held in Norfolk explores master planning techniques, *by Jerry Zekert*
41 Annual Army Planning Symposium scheduled for April, *by Jerry Zekert and Andrea Wohlfeld Kuhn*

Who's Who, What's What

42 Carroll views his role as installation support, *by Mary Beth Thompson*
43 Corps inactivates Gulf Region Division, activates Transatlantic Division

Sustainable planning, development ensures future readiness

by Maj. Gen. Jeffrey J. Dorko

This edition of the *Public Works Digest* focuses on master planning, and there is no more important aspect to kick off the second decade of the 21st century. Our Army has faced tremendous challenges. We are in the final stages of completing the most extensive round of Base Realignment and Closure actions that resulted in thousands of personnel relocations and a multi-billion dollar construction program in a very tight time frame, while we are also meeting tough challenges supporting our Army and our nation in meeting the urgent requirements in Iraq, Afghanistan and other global exigencies.

When we started this century, who would have expected that our Public Works community would be asked to step up to the table to such a huge challenge? We have performed well.

However, with the rapid changes we have implemented, there has been one consistency overall: our installations have served as firm foundations from which the Army and the Department of Defense can rapidly support changing missions.

Most of our installations were acquired during the 1930s or earlier. While the world has changed, our Army has changed, and new missions have been assigned; however, our installations continue to serve as invaluable assets that enable our Army to be ready and trained to support the nation.

At the same time, land, natural resources and energy are being consumed at a rapid pace as the world population grows. We need to preserve these resources for our future generations, so that they can meet the missions and continue the vision of opportunity.

This concern is particularly important for our national defense posture and the planning and development of our installations. It is highly unlikely that the United States will be able to acquire major acreage to build new installations to support changing military requirements. Our installations' infrastructure — our land and facilities — will be the infrastructure that supports our future generations. It is imperative that we embrace sound, forward-thinking master planning principles that enable us to meet immediate mission needs and, at the same time, assure future installation military capabilities are preserved.

Maj. Gen. Jeffrey J. Dorko
Photo by F.T. Eyre

These tenets of preserving our land, natural resources and energy are keystones of sustainable planning and development. To achieve these ends, we need to plan comprehensively. We need to plan and develop great neighborhoods on our posts rather than focusing on project-focused programming. We need to create great walkable communities that embrace the values of neighborhood safety, neighborhood cohesiveness and a respect for our environment and natural and cultural resources while meeting mission requirements.

By committing to great planning, our installations can be developed as great towns for our Soldiers, their families and civilians. They can be national treasures that not only preserve our nation's defense readiness posture but also protect sensitive and treasured environmental, natural and cultural resources.

Acronyms and Abbreviations	
DoD	Department of Defense
EO	executive order

We all have a part in this commitment to great planning. First, we must have excellent planning policies and procedures to set the bar for greatness. Second, we must ensure that the garrison communities, both in the active and Reserve components, are the champions of great planning. Third, we must assure that we have great planning resources to ensure planning is conducted effectively. And fourth, the Army must nurture and grow a broad Master Planning Community of Practice committed to providing the expertise so needed to provide the comprehensive planning recommendations that result in creating these sustainable communities.

Policies and Procedures

The Army is in the process of updating Army Regulation 210-20, *Real Property Master Planning for Army Installations.* This update, which is targeted for publication in early 2010, refocuses our planning efforts to creating great sustainable communities by transitioning away from sprawling, land-use-focused development to compact, transit-oriented solutions.

Further, the updated regulation focuses on area development plans and introduces best business practices by embracing principles of form-based site approvals. It recognizes the good planning efforts documented in our existing planning documentation and gives us a roadmap to achieve master planning greatness.

Planning champions

Army planning policies are being updated, yet one constant remains. Installation planning can only be successful if the garrison commander and the installation stakeholders are involved. One of the prime responsibilities of ➤

(continued from previous page)

a garrison commander is to champion effective installation planning and lead the entire community and its stakeholders in participating in planning.

To fulfill this responsibility, commanders use their planning staffs to help facilitate collaborative planning events where the entire community comes together to forge a long-term vision for installation development. Commanders bring together all the tenants and ensure their needs are included in the process, and a set of planning principles for the next 30-40 years is mapped out.

As part of the Garrison Commanders Pre-Command Course, our planning staff, along with the master planning proponent in the Office of the Assistant Chief of Staff for Installation Management, provides a six-hour planning overview in which our installation leaders learn what planning is and why it is important. They also participate in a collaborative planning exercise, defining a small neighborhood plan. This class helps them understand planning and their important role in its success.

The challenge to the Public Works community is to help our garrison commanders champion great planning by embracing planning principles, encouraging broad community involvement and making sure adequate staffing and resources are available.

Resourcing

During my travels to installations, I hear, "Planning is great, but we simply do not have the resources to plan;" or, "So many things are happening that we need to be focused only on DD1391 documentation and near-term crises." To achieve great sustainable installations that meet tomorrow's requirements as well as today's missions effectively, resourcing of master planning is a prerequisite. With the update to Army master planning policies, the Army recognizes the limited resources for installation support and provides a model of planning framed around area development that focuses planning resources on the most critical needs.

Further, as part of the Army Corps of Engineers Campaign Plan, Lt. Gen. Robert Van Antwerp, chief of engineers, identified one of the prime objectives as ensuring effective planning capabilities are available to ensure smart Military Construction and real estate actions are programmed and implemented that meet our installations' visions for sustainable planning and development. Our supporting districts have broadened their planning capabilities available to our installations through enhanced innovative planning support contracting capabilities, the professional training and development of our planning technical staff, and enlightened community planning and sustainable development research and development.

Over the year, more than $70 million of planning efforts worldwide were exceeded by the Corps. A lot of the work accomplished this year was the result of garrison commanders' leadership in allocating resources to great planning.

Training

The last component of a great planning program is the commitment to building a professional master planning practice. The Army's professional planning training and development program has become the most comprehensive within DoD. It is the only professional planning program in DoD, and perhaps the entire federal government, that is accredited by the American Planning Association. *(Editor's note, see articles on pages 39-41.)*

Our planning team leads a vast program involving formal classroom and studio training, regional mini-workshops and the annual Master Planning Symposium, which I encourage all to attend. We trained more than 400 planners worldwide last year and have built a core set of professional planners working throughout Installation Management Command, the Corps and other Army and DoD agencies who embrace a broad understanding of master planning.

Leadership Emphasis

President Obama issued Executive Order 13514, *Federal Leadership in Environmental, Energy and Economic Performance.* This EO established an integrated strategy towards sustainability in the federal government and made the reduction of greenhouse gas emissions a priority for federal agencies. Key tenets are to:

- advance regional and local integrated planning through effective transit-oriented planning;
- enhance local planning decisions for effective energy choices;
- ensure planning for new facilities that are pedestrian-friendly, focused around town centers and embrace the principles of environmental stewardship.

The update to Army Master Planning policies will guide us to implement this EO and build great installations that meet those mandates and provide great places to work and live. We teach these principles to our garrison leaders. Therefore, we are already on the path to provide "Leadership in Environmental, Energy and Economic Performance" by conducting sound installation planning.

By all of us in the Public Works community embracing the good sound principles of installation planning, we can make great, sustainable communities that meet not only today's missions but also future opportunities.

Maj. Gen. Jeffrey J. Dorko is the deputy commanding general for military and international operations, U.S. Army Corps of Engineers.

Pillar planning

by Don LaRocque

We have said goodbye to the frenetic master planning of the "O" years — 2000-09 — and have entered into a new decade with a dramatically changed outlook. Let me explain.

Sept 11, 2001, defined, shaped and accelerated the master planning world for the last three biennial Military Construction cycles — the fiscal years 2006-11, 2008-13 and 2010-15 Five-Year Defense Plan project lists. Army Transformation (modularity), begun in FY 2004 with rapid Army growth and large acquisition of relocatable buildings, shaped the FY 2006-11 FYDP as we jammed in Military Construction, Army projects to replace the relocatable buildings as soon as possible. This initiative was immediately followed by the Base Realignment and Closure, Global Rebasing, Army Growth and Warrior in Transition programs. These drove us to develop projects in months, not years, and get them into the MCA program before Congress well within the existing programming cycle.

It was hard work but worth the effort. Each of these programs eventually became a "pillar" in the Army MILCON Programming realm. A pillar is essentially a capital investment strategy, i.e., the framework against which a set of actions can be developed and prioritized.

Those pillars are now largely behind us. New pillars have been approved by Army leadership.

There are five pillars:

- Grow the Army/Global Defense Posture Realignment,
- Transformation,
- Modernization,
- Training Support, and
- Strategic Readiness.

These pillars will shape our planning and programming efforts for at least the '10s and '20s.

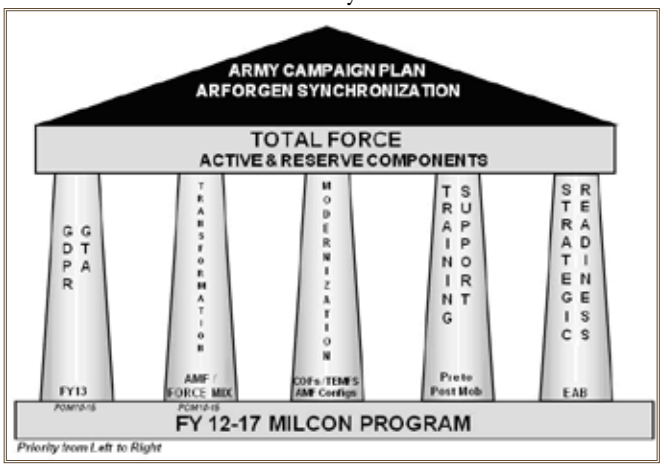
The first pillar, GTA/GDPR, is all about stationing. Stationing

Don LaRocque
U.S. Army photo

is new Soldiers at a given location either as a result of unit movements or growth. Projects in this pillar are defined as, "Military Construction supporting the activation or relocation of an Army unit to include associated enablers."

It encompasses and completes previous FY 2010-15 initiatives of GDPR and GTA, is the result of activations resulting from force structure growth or new capability fielding, includes all projects currently programmed for the GDPR and GTA Management Decision Package, and recoups any FY 2009-10 growth requirements not yet afforded (lost scope projects). We expect to buyout these requirements by FY 2013.

The second, Transformation, is defined as, "Military Construction supporting the fundamental conversion of Army units, the Army Barracks Buyout Program and future Modularization of Army units."



New pillars have been approved by Army leadership. Graphic courtesy of Installation Management Command

Acronyms and Abbreviations	
FY	fiscal year
FYDP	Five-Year Defense Plan
GDPR	Global Defense Posture Realignment
GTA	Grow the Army
MCA	Military Construction, Army
MILCON	Military Construction

It encompasses the former initiative of Army Modular Force MILCON and includes projects driven by unit conversions, such as heavy-to-Stryker brigades, combat aviation brigades, combat support to combat service support. It also includes projects needed to modernize all classes of active component barracks. We expect to have these requirements fully bought out by FY 2015.

The third, Modernization, is defined as, "Military Construction supporting the systematic recapitalization of facilities to reduce existing facility shortfalls in both quantity and quality that negatively impacts readiness." Modernization is the program that was just beginning in the early "Os" but was delayed in favor of the more pressing programs described above.

It includes situations where age and/or deterioration of an existing facility results in a quantifiable and credible facility shortfall — utilities, space, structural constraints, installed equipment, information technology infrastructure. The most notable shortfalls are in our legacy unit operation facilities and vehicle maintenance facilities that have been rendered obsolete as Army units and equipment have transformed and modernized. All units that had the dubious pleasure of being in legacy facilities and were not "stationed" are in small, old, functionally inadequate facilities that need replacing soonest-modernization. It will take several FYDPs to buyout this requirement.

Training Support is next and is defined as, "Military Construction to support training, training ➤

The essence of master planning

by Allan B. Carroll

Three words capture the essence of the master planning: vision, collaboration and balance.

Vision:

- A description of the future.

Collaboration:

- between senior commander and garrison commander;
- between all tenant organizations;
- between all supporting garrison directorates;
- between architects, engineers and builders.

Balance:

- between short term desires and long term needs;
- between buildings and utilities;
- between Sustainment, Restoration and Modernization, and Military Construction, Army;
- between base operations and mission requirements;
- between the cantonment area and the training area;
- between the natural, cultural and built environment

Allan B. Carroll
Photo by Bethany Carroll

- between on-post and off-post
- between families and Soldiers

Without vision, installations can fall prey to the most recent trend, whether it be the proliferation of strip malls or short term storage complexes. With vision, our installations continue to be relevant to training Soldiers for combat and a refuge for families while their Soldiers are deployed. With vision, Army installations have remained relevant for centuries serving millions of Soldiers and families.

Without collaboration, installations become a lopsided industrial complex that fails to take care of families. With collaboration, every unit has a place to train, every family a place to live, and the functional relationships among facilities are logical and efficient.

Without balance, valuable training lands are compromised for bird habitat. Without balance, historic structures are razed to make room for a new shoppette. Without balance, facilities are built without the supporting road system or utilities. With balance, all competing interests are considered, ensuring that Soldiers can train for war; a sense of history is retained; natural ecosystems flourish; and facilities perform as designed.

Master planning is alive and well at installations across the Army, and master planning is that dynamic process that will continue to allow Army installations to remain relevant for centuries to come.

POC is Allan B. Carroll, 210-424-8242, allan.b.carroll@us.army.mil.

Allan B. Carroll is the chief, Military Construction, Master Planning and Real Property Branch, Public Works Division, Headquarters, Installation Management Command.

(continued from previous page)

support and training enabling facilities to provide trained and ready forces." This category targets shortfalls resulting from the Army's total training demand in support of Army Force Generation, i.e., the simultaneous execution of active component training and Reserve component pre- to post-mobilization training and continued enabling quality-of-life support.

It is characterized by projects for ranges, training land, battle command training facilities, simulation facilities, training support centers and combat training center facilities. It also includes projects that enable training, such as operational readiness training complexes, barracks and operations facilities for collective training and mobilization, and active component and Reserve component institutional training.

Last, but not least, is Strategic Readiness. Strategic Readiness is defined as, "Military Construction supporting Army Technology and the Industrial Base, Installation Logistics Infrastructure and Power Projection."

It includes projects that support maintenance, supply, ammunition, logistical command, equipment concentration sites and control facilities at echelons above the deployable, tactical unit level. It also includes projects in support of power projection platforms, maneuver area training and equipment sites, and combined support maintenance shops. Our industrial base requirements have often suffered in order to meet the immediate pressing needs of the operational and institutional bases, and this pillar is intended to give emphasis and traction to that facility group. Long overdue.

Any construction requirement must be mapped to one of these pillars in order to compete and be included in FYDPs beginning with the FY 2012-17 program currently being built. You must keep these in the forefront of your master planning efforts as you continue the systematic and orderly development of your installations.

The last decade was exciting and great. The next will be even better.

Don LaRocque is the chief, Public Works Division, Headquarters, Installation Management Command.

New look of Army master planning

by Greg Brewer

Army real property master planning will be changing with the publication of the revised Army Regulation 210-20, *Real Property Master Planning for Army Installations*, scheduled for early 2010. The old regulation was product-oriented, while the revised regulation is more process-oriented.

Products tend to sit on the shelf and, in the master planning business, have a short shelf life. An installation real property master plan is a living document that evolves as installation missions change and the Army modernizes. Life styles change, as do the expectations of Soldiers and their families, which also influences change to the RPMP. Therefore, the real property master planning process must be dynamic and responsive, producing plans that envision sustainable, safe, quality installations for the future.

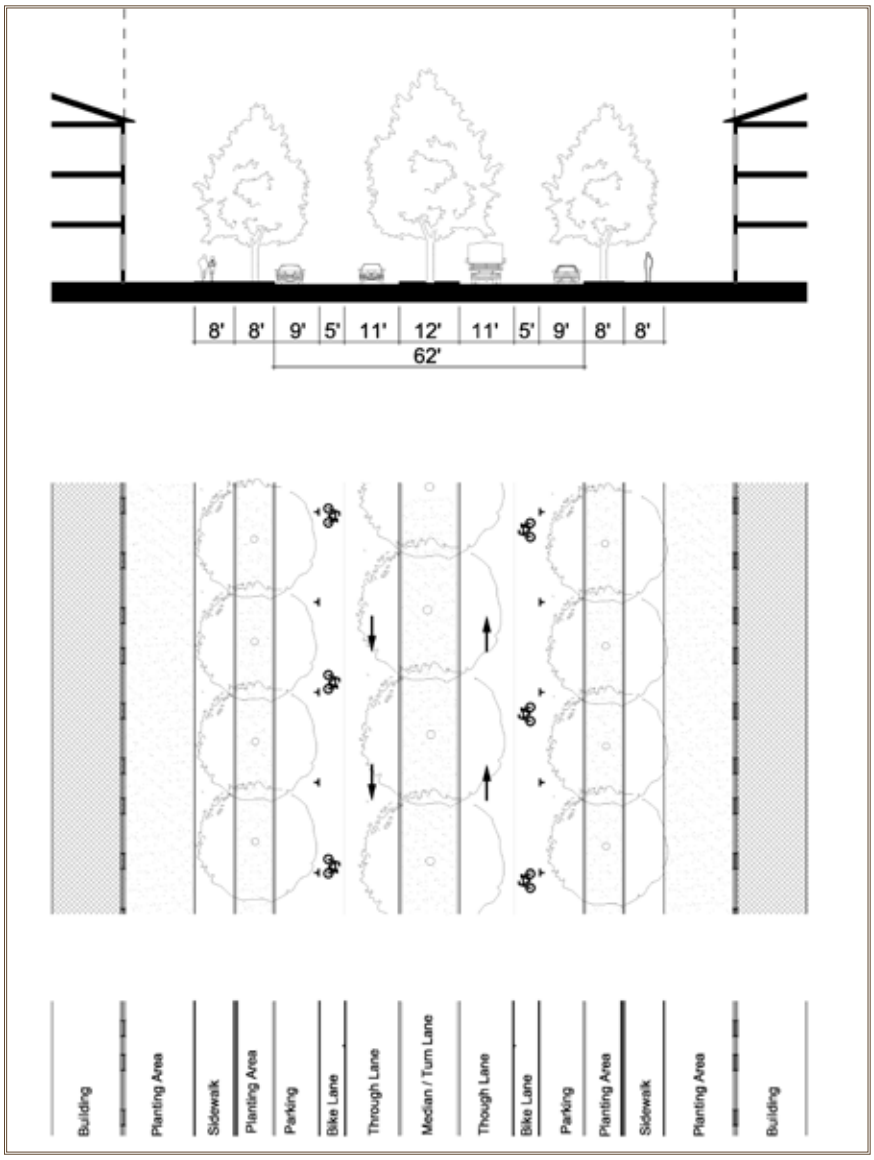
The revised AR 210-20 sets the stage for these dynamics by introducing tenets key to master planning and the paradigms in which RPMPs are developed. Many of these tenets have been assumed in the past but are now formally described and will be applied to Army master planning, making the RPMP a more effective management tool.

This article addresses four of these tenets: form-based coding, sustainable development, area development plans and facility standardization.

Form-based coding

Probably the most important change to Army master planning is form-based coding. Form-based coding is a method of regulating development to achieve the desired end state of the installation senior commander's or garrison commander's vision. It is a graphic tool that condenses the installation vision, goals and objectives into a clear enforceable plan for development.

Acronyms and Abbreviations	
ADP	area development plan
AR	Army Regulation
RPMP	real property master plan



Form-based code addresses the form of development, such as this parkway standard for Fort Lewis, Wash. Graphic by The Urban Collaborative LLC

The form-based code addresses the forms for development — building masses in relation to one another, building heights and set-backs, circulation patterns with scale and types of streets and blocks, landscaping and even architectural details — creating the physical character of the installation. It guides density and building form rather than focusing on building functions.

Why is a form-based code effective? Because it is regulatory in nature, and it provides guidance that answers these questions —

- Is form for development the emphasis, not land use?
- Is the emphasis on physical form, i.e., standards and parameters — build-to lines; frontage type requirements; building forms, features and functions; building placement?

➤

(continued from previous page)

- Is walkable design emphasized, i.e., interconnected streets, pedestrian-scaled blocks, sidewalks, street type and number of lanes, parking, landscaping?
- Is there an unambiguous regulatory plan that shows the desired spatial configurations with regulations and standards keyed to specific locations on the plan?

The form-based code may also include architectural, landscape and signage standards; environmental resource standards for storm-water drainage, development on slopes and tree protection; and renewable energy accommodations. The form-based code becomes the mandatory zoning regulations for the installation. The standards established are incorporated into the installation design guide to be applied to all future building design and installation planning.

The form-based code is also presented in graphic form on the new RPMP documents, the regulating plan and the illustrative plan, developed from existing RPMP maps and plans. These documents provide the "teeth" of the installation RPMP, because compliance for new development is mandatory.

Sustainable development

The Army is enduring and so must be the installations on which the Army lives and trains. The installations must be sustainable. They must meet today's needs without compromising the ability of the future Army to meet its needs.

The Army's capabilities are increasing, putting greater demands on resources and the land available. How installations are planned must be rethought. More compact development patterns support horizontal and vertical mixed-use development. Multi-story, multi-use development saves land and can create interesting architectural diversity. Transportation systems and road networks must also be examined.

Developing compact, built-up areas or community neighborhoods means establishing sensible pedestrian traffic patterns and minimizing the requirement for automobile use. These forms of compact development promote higher density and more efficient land use, reduce planning sprawl, and support antiterrorism and force protection.

Infill development must also be considered. Utilize previously developed land before going to "green grass" development and fill in blank spaces where possible. Such development results in more integrated land use. All these development factors are also common to and supported by form-based code planning.

Area development plans

A third major tenet is preparing the installation RPMP in parts known as area development plans. ADPs are created for established districts that are based on geographical features, land-use patterns, building types and transportation networks.

Use of ADPs allows planners to concentrate efforts due to mission, requirement or command priority changes. Use of ADPs makes installation planning more manageable and allows emphasis to be placed on areas that need planning attention.

ADPs are not incompatible with form-based coding either. Regulatory and illustrative plans are prepared for each ADP. Existing RPMP documents need not be discarded, as they form the basis from which the newly formatted RPMPs are prepared and updated. Form-based codes applied through regulatory plans can be added incrementally to installation ADPs as they are updated. Thus, over time, the entire installation real property master plan will be updated and integrated with the form-based coding concepts in master planning. This incremental approach recognizes imposed resource constraints and ADP development priorities but also allows for changing installation missions and senior commander or garrison commander visioning.

Facility standardization

An Army facility standard establishes the mandatory functional and operational requirements and spatial relationships that must be met by each facility of a specified type or complex. Army standard designs provide a specified configuration or layout, which provides the capability, capacity or siting requirements that can be constructed consistently and meet the mandatory requirements of the Army standard.

The strength of a standardized design is in its spatial programming and functional or spatial relationships, but it can be constructed within a variety of design footprints. Again, these standard designs can be supported by form-based coding in the development of the RPMP as they are regulatory in nature.

Form-based coding underlies all

There are other tenets in the revised regulation that are also important, but the four discussed here will materially affect future master planning and RPMP products. You will note the common theme of form-based coding throughout.

Form-based coding is key to the changing look of master planning both on and off the installation. It creates the desired character and physical appearance envisioned in the commander's vision statement and provides the base to apply the other planning tenets. Application of all the planning tenets will make the RPMP a more effective management tool for installation development, leading to a more mission-oriented, secure and high quality environment with form-based coding leading the way.

POC is Greg Brewer, 703-601-2529, gregory.brewer1@conus.army.mil.

Greg Brewer is a master planner, Planning Division, Operations Directorate, Office of the Assistant Chief of Staff for Installation Management.

Sustainable planning techniques, methods

by Mark L. Gillem

Imagine a community where Soldiers can walk along tree-lined streets to their workplaces, children can walk to school, and families can walk to the community center from their homes. Places like this would not be much different than many small towns built before 1930. Nor would they be different from many historic Army installations. This is the vision that sustainable planning principles embrace.

Army planners have been taking on the principles of sustainable planning, and President Obama's recent executive order has re-energized ongoing efforts. Sustainable development is now a requirement for federal installations. The October 2009 Executive Order on *Federal Leadership in Environmental, Energy and Economic Performance* states that —

> *"In order to create a clean energy economy that will increase our Nation's prosperity, promote energy security, protect the interests of taxpayers, and safeguard the health of our environment, the Federal Government must lead by example. It is therefore the policy of the United States that Federal agencies shall increase energy efficiency … reduce their greenhouse gas emissions … and design, construct, maintain, and operate high performance sustainable buildings in sustainable locations."*

The value of sustainability principles as they pertain to the long-term development of installations is recognized. However, getting down to fundamentals, what are some of the basic planning goals on which planners must focus to achieve these principles?

Compact development

Installations must conserve the land resources they have. They have to ensure the limited training land is available not only to support ongoing missions but also the unforeseen future mission needs for the nation. A development strategy that is achieved through compact development patterns supports an appropriate mix of uses, encourages walking and other alternative modes of transportation, accommodates appropriate residential and commercial densities, and incorporates a more integrated grid network of streets and sidewalks, thereby restricting expansive land uses.

Acronyms and Abbreviations	
AT/FP	anti-terrorism and force protection
VMT	vehicle miles travelled

Sustainable densities can be achieved through mixed-use development, like this at Fort Belvoir, Va., with shops below two-level townhomes. Photo by Mark L. Gillem

Compact development patterns may also include proposing multi-story buildings, greater residential densities, mixed uses and minimal spacing between buildings while maintaining consideration of anti-terrorism and force protection requirements. This means it is essential that the planner must focus on well-coordinated, comprehensive area development plans that are formulated early before programming actions are initiated.

Infill Development

Another technique of planning is infill development. Simply put, this strategy means that planners should, to the maximum extent possible, plan development within the installation core — the existing cantonment area — and on previously developed land.

Planners should place buildings in gaps between existing developed areas and buildings. Such infill development results in greater density at the core of the installation and supports more integrated land use and transportation networks. Removal and replacement of aging low-density development with higher density development may also be appropriate.

These principles, when considered early during area development planning formulation, can result in creating great sustainable installations. Sustainable development has a direct impact on an installation's environmental performance.

A town center proposal for Marine Corps Air Station Iwakuni, Japan, supports sustainable development through mixed uses and appropriate densities. Graphic by The Urban Collaborative LLC

A key aspect of sustainability is building at an appropriate commercial and residential density rate that promotes a more walkable installation. In more dense development, people have a wider range of transportation options, and buildings are oftentimes connected, which results in shared walls and improved energy consumption.

Research has found that more dense development uses less energy and emits less greenhouse gas by a factor of 2.0 to 2.5 than less-dense neighborhoods. Environmental performance is enhanced due to the relationship between transportation and land use. ➤

Developments in sustainable master planning

by Andrea Wohlfeld Kuhn

Sustainability continues to be a major focus for planning, design and construction throughout the federal government and private industry. The ever-increasing awareness that we do not have unlimited resources and that our actions and those of others can have global repercussions make sustainable practices even more critical.

Sustainable planning rating system

Of particular relevance to the master planning community is the news that the U.S. Green Building Council recently finalized its sustainable planning rating system, Leadership in Energy and Environmental Design for Neighborhood Development. As is the case with USGBC's other rating systems, LEED certification is structured on a point-based checklist that results in ratings on a scale from Certified to the highest rating, Platinum.

LEED-ND is a result of collaboration among the U.S. Green Building Council,

Andrea Wohlfeld Kuhn
Photo by Mary Beth Thompson

the Congress for the New Urbanism and the Natural Resources Defense Council. It is based on the principles of smart growth, new urbanism and green infrastructure and building. LEED-ND emphasizes the neighborhood elements of site selection, design and construction, and their relationship to the landscape and the local and regional context.

LEED-ND has three environmental categories:

- Smart Location and Linkage
- Neighborhood Pattern and Design
- Green Infrastructure and Buildings

An additional category, Innovation and Design Process, addresses sustainable design and construction issues and measures not covered under the first three categories. In addition, regional bonus credits acknowledge the importance of local conditions in determining the best environmental design and construction practices as well as social and health practices. Striving to meet these standards will ensure a community is on track to attain improved quality of life for its inhabitants, including health and safety benefits, and that the community creates minimal impacts to the environment.

While the Army has adopted LEED for New Construction with attainment of at least a Silver rating as the mandatory standard for all new construction, the principles of LEED-ND can be used to help define and facilitate master ➤

(continued from previous page)

Of significance is the direct relationship between density, transit options and rates of vehicle miles travelled. One study of 28 communities in California evaluated the effects of neighborhood characteristics on motor vehicle use per household and annual VMT per household. Researchers found that compact communities supported walkability and transit at much higher rates than less dense development.

Using the model developed by these researchers, similar development at military installations could have significant environmental benefits. At Fort Lewis, Wash., for example, by following principles of sustainable development, installation planners concluded that VMT could be reduced by 11.4 million miles per year, which would result in a carbon dioxide emission reduction of 12.9 million pounds per year and a per-family annual savings of more than $1,500.

Compact infill development also preserves installation military capabilities for the long term. By locating new housing and other development in the downtown core and appropriately increasing the density of other neighborhoods, the Fort Lewis installation planning team was able to obtain installation mission capabilities to support an additional 2,000 housing units and two additional brigade combat teams if the Army determines future stationing actions are required.

Sustainable development can significantly reduce land requirements while preserving long-term Army and Department of Defense installation military capabilities. However, it requires an installation to focus on long-term planning strategies and to work early and more closely with the AT/FP experts to forge collaborative solutions for long-term growth.

These principles are not new; they are long-standing practices that previous Army leaders embraced when they directed the building of installations in the early 20th century. The importance of this strategy is being recognized in the proposed update to Army Regulation 210-20, *Real Property Master Planning for Army Installations*, due in early 2010, which will make it policy to embrace these planning principles as much as possible.

POCs are Mark L. Gillem, 510-551-8065, mark@urbancollaborative.com; or Jerry Zekert, chief, Master Planning Team, Headquarters, U.S. Army Corps of Engineers, 202-761-7525, jerry.c.zekert@usace.army.mil.

Mark L. Gillem, Ph.D., AIA, AICP, works with the Master Planning Team, Headquarters, U.S. Army Corps of Engineers, as a contractor. He is an associate professor, University of Oregon, and a principle in The Urban Collaborative.

(continued from previous page)

planning. Since military installations have many of the same elements as small towns or cities, these principles can be adapted for use in Army planning.

For example, under the Smart Location and Linkage category, credits are given for brownfield redevelopment, locations with reduced auto dependence, bicycle network and storage, housing and job proximity, and site considerations to protect habitat, wetland and water bodies. The Neighborhood Pattern and Design category focuses on walkable streets, compact development, street networks and connectivity. Credits are given for mixed-use developments, neighborhood centers and transportation networks. The Green Infrastructure and Buildings category focuses on efficiencies in building energy, water, landscaping, historic preservation and adaptive use, stormwater management and solar orientation.

While Army installations may not correlate completely with the LEED-ND credits, these three categories can help focus and define master planning efforts and may also be of use in prioritizing projects. Incorporating these principles into the master planning process can facilitate siting decisions and the attainment of walkable communities that offer a multitude of benefits to both the inhabitants and the environment.

More information on the USGBC and its rating systems is available at *http://www.usgbc.org/*.

Acronyms and Abbreviations	
DoT	Department of Transportation
EPA	Environmental Protection Agency
HUD	Department of Housing and Urban Development
LEED	Leadership in Energy and Environmental Design
LEED-ND	Leadership in Energy and Environmental Design for Neighborhood Development
USGBC	U.S. Green Building Council

Sustainable Communities Initiative

On a related note, three federal agencies are partnering to facilitate and enhance sustainability efforts. The Department of Housing and Urban Development, the Department of Transportation, and the Environmental Protection Agency have formed a partnership to create more livable communities. Their goal is similar to the Army's Triple Bottom Line for sustainability, as they strive to implement a triple bottom line to foster communities that are environmentally sustainable, economically strong and equitable.

This new partnership is designed to help American families gain better access to affordable housing, more transportation options and lower transportation costs while protecting the environment. Through a set of guiding livability principles and a partnership agreement that will guide the agencies' efforts, the partnership will coordinate federal housing, transportation and other infrastructure investments to protect the environment, promote equitable development and help address the challenges of climate change.

The livability principles most related to the Army's and the Department of Defense's sustainability efforts include:

- **Support existing communities** – Target federal funding toward existing communities — through strategies like transit-oriented, mixed-use development and land recycling — to increase community revitalization and the efficiency of public works investments, and to safeguard rural landscapes.
- **Value communities and neighborhoods** – Enhance the unique characteristics of all communities by investing in healthy, safe and walkable neighborhoods — rural, urban or suburban.

The terms of the partnership that relate most closely to the Army's master planning approach include:

- **Provide a vision for sustainable growth** – This effort will help communities set a vision for sustainable growth and apply federal transportation, water infrastructure, housing and other investments in an integrated approach that reduces the nation's dependence on foreign oil, reduces greenhouse gas emissions, protects America's air and water, and improves the quality of life. Coordinating planning efforts in housing, transportation, air quality and water — including planning cycles, processes and geographic coverage — will make more effective use of federal housing and transportation dollars.
- **Enhance integrated planning and investment** – The partnership will seek to integrate housing, transportation, water infrastructure and land-use planning and investment. HUD, EPA and DoT propose to make planning grants available to metropolitan areas and create mechanisms to ensure those plans are carried through to localities.

Initiatives such as these that other federal agencies and organizations have implemented demonstrate best practices and provide ideas to expand Army sustainable planning efforts. The Army's Master Planning Program can serve as a catalyst to achieve like-minded goals in a sustainable manner.

In the quest to develop installations that support the mission, benefit Soldiers and families, and minimize impacts to the environment, the importance of master planning is key. A holistic planning approach can improve quality of life, conserve limited land and other natural resources, and create a sense of community for Soldiers and families in a sustainable manner.

A key component of a well-planned community is walkability, rather than auto-dependence. Several complimentary benefits are achieved, including conservation of natural resources, energy and monetary savings, cleaner air and individual health benefits, such as improved cardiovascular health, weight control and asthma reduction. By integrating planning, design and construction, a higher level ➤

Achieving sustainability through good planning

by Jerry Zekert

The principles of sustainability have been accepted by the Army, and the Public Works community has done its part to reduce energy use and carbon emissions. For example, a postwide effort of switching to low-energy light bulbs in housing is projected to reduce energy use to only one-quarter of that used by regular bulbs.

If a city like Chicago adopted a citywide program to switch light bulbs, the city could reduce its annual energy use by 2 million British thermal units. That's impressive.

Similarly, what if the energy consumed and the emissions produced by a major component of our lives could be cut by half or more by using a convenient, available technology? That technology exists. Its basic components have been around for centuries, and millions of Americans use it to live low-carbon, sustainable lives. This "technology" is the traditional neighborhood, whether it's in the city, suburb or town, or on a military installation.

A neighborhood is more than just a residential model. It can be a headquarters complex, a unit operations and troop housing area, an academic learning center, a shopping and community center, or a research and development center. All such areas impact carbon emissions and the environment.

Opportunities of sustainable neighborhoods

Traditional neighborhoods have a range of types and mix of facilities. They are sized for specific needs and make for efficient heating and cooling, rather than suburban neighborhoods where one size fits all. Traditional neighborhoods have many convenient ways to get around.

Jerry Zekert
Photo by Mary Beth Thompson

However, the more recently built neighborhoods on installations, like many cities and towns, provide designs that offer people just one way to get anywhere — by motor vehicle. At a time of soaring gas prices, most installations are completely dependent on cars to meet the daily needs of those who live and work there.

The average household in the United States has two cars or trucks and drives them 21,250 miles per year, according to the U.S. Energy Information Administration. That's almost one time around the earth every year.

That amount of driving burns about 1,062 gallons of gasoline per year, based on the average fuel efficiency of 20 miles per gallon. It generates 20,602 pounds of carbon emissions per household and consumes 50 times more energy than household light bulbs. Multiply those figures by 100 million U.S. households, and it's easy to see why the United States has one of the highest rates of carbon emissions in the world.

People in walkable, mixed-use neighborhoods often wind up driving half as much as the national average or even less. They walk more, they bike more, they commute, and they live healthier lives and generate far less carbon than the average.

For example, downtown Evanston in suburban Chicago is a fast-growing, low-carbon, traditional neighborhood. People in this attractive, walkable community do about 45 percent less driving than the average Chicago-area household, according to a census-based report. They do 62 percent less driving than the national average.

This pattern holds true across metro areas. Average households in Chicago's surrounding communities generate 11.5 tons of carbon per year with their cars. Households in more traditional neighborhoods along rail lines average 25 percent fewer emissions per year and generate just 2.5 tons of carbon per ➤

Jerry Zekert explains planning principles in action at Norfolk, Va., during a master planning class field trip. Photo courtesy of Jerry Zekert

(continued from previous page)

of sustainability can be achieved.

Training, development opportunities

For those interested in increasing their knowledge of planning and the role it can play in creating a more holistic, comprehensive approach to sustainability, the Corps of Engineers offers a series of planning classes through Proponent Sponsored Engineer Corps Training. More information can be found at *http://ulc.usace.army.mil*. In addition, the annual Army Master Planning Symposium provides an opportunity for in-depth discussion of these concepts. *(Editor's note: See the Professional Development section of this issue for information on upcoming classes and events.)*

POC is Andrea Wohlfeld Kuhn, 202-761-1859, andrea.w.kuhn@usace.army.mil.

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

(continued from previous page)

year on average.

Military installations, like the rest of the country, seemed to have forgotten how to build these traditional, low-carbon neighborhoods in the second half of the 20th century. Instead, the norm became sprawling communities with broad streets and dead-end cul-de-sacs, and neighborhoods that lack sidewalks and are not easily accessible to the community's various activities.

Sustainable development as federal priority

On Oct. 5, President Obama issued the executive order *Federal Leadership in Environmental, Energy and Economic Performance*. This order directs establishment of an integrated strategy towards sustainability in the federal government and making the reduction of greenhouse gas emissions a priority for federal agencies.

It cites as policy to "[d]esign, construct, maintain and operate high performance sustainable buildings in sustainable locations; strengthen the vitality and livability of the communities in which Federal facilities are located."

Further, as a specific goal, the order directs advanced regional and local integrated planning through:

- participating in regional transportation planning and recognizing existing community transportation infrastructure;
- aligning federal policies to increase the effectiveness of local planning for energy choices such as locally generated renewable energy;
- ensuring that the planning of new facilities or leases includes consideration of sites that are pedestrian-friendly, near existing employment centers and accessible to public transit; and emphasizes existing central cities, rural communities, and existing or planned town centers;
- identifying and analyzing impacts from energy use and alternative energy sources in all environmental impact statements or assessments for new or expanded federal facilities; and
- coordinating with regional programs for federal, state, tribal and local ecosystems, watersheds and environmental management areas.

With this executive order, the federal government recognizes that to achieve the goals of sustainability, it is imperative to take a holistic approach to sustainable development that is grounded in sound, comprehensive, broad installation planning principles.

The challenge is achieving these goals. The question is can the level of installation-planning support be ratcheted up to meet these broad goals?

Ready to meet the challenge

Fortunately, the Army's Master Planning Community of Practice — architects, planners, engineers, commanders, Soldiers, civilians and families — is working to rebuild installations into communities of great traditional neighborhoods designed to achieve the nation's goals for sustainable development and carbon emissions reductions.

The update to Army Regulation 210-20, *Real Property Master Planning for Army Installations*, scheduled for early 2010, realigns planning away from sprawling land use into focused neighborhood area development. Embracing the principles of smart growth, the revised regulation will call for removal of barriers that prevent walkable development and establishment of form-based coding that encourages tight-knit, vibrant neighborhoods.

The Army has established a broad professional development and training program that teaches planning practices that help reach these aspirations. The Corps of Engineers has instituted a portfolio of master planning installation support services, available from its supporting districts, that can help with planning support.

Results of forward-thinking efforts are becoming visible. Detailed Military Construction solutions, such as at Fort Lewis, Wash., create great streets rather than urban freeways, bring neighborhoods back to life and include innovative green buildings. At Fort Belvoir, Va., mixed-use neighborhoods are beginning to be built. Many installations are creating new, vibrant area development plans that are setting long-term site development plans for creating sustainable traditional neighborhoods.

Having great plans enables firm roadmaps and guidelines that guide development now and into the far future. By investing and nurturing great installation planning efforts, the installation not only meets today's challenges for sustainability but creates great sustainable healthy neighborhoods.

POC is Jerry Zekert, 202-761-7525, jerry.c.zekert@usace.army.mil.

Jerry Zekert is the chief, Master Planning Team, Headquarters USACE.

Planning for healthy communities

by Mark L. Gillem

Planners have to consider many factors in creating great communities for Soldiers, civilians and their families. Mission, safety, sustainability, environmental stewardship and economic impact are some of them. However, there is one planning consideration that should be right up there with these other factors — a healthy community.

The Army and the Department of Defense, like the rest of America, are facing major health challenges. The built environment affects the physical, behavioral and psychological health of everyone. People are experiencing major health problems resulting from unhealthy lifestyle activities. Many are overweight and get insufficient exercise, and the working and family environment can cause major stress-related ailments.

Army families are also experiencing stress from frequent deployments, resulting in separated families and creating behavioral and psychological effects. Sprawling communities, where people must rely on cars to get around, lack the exercise opportunities created by walking. They also make it difficult to build "social capital," which is especially needed in stressful times.

Army leaders are increasingly interested in improving the physical and mental health of Army personnel. Planners must consider planning and health issues in their visions for their communities. Fortunately, as many Army installations grow to accommodate new requirements, planners have an opportunity to build healthy communities.

Planning healthy communities is closely related to planning sustainable communities, because the need to promote more exercise by walking coincides with the need to create communities that are not so dependent on automobiles. Many experts say that by just increasing daily walking, a person's level of wellness will significantly improve.

To achieve more walkable communities, planners need to look at more compact development that is built around "sustainable densities." Frequently, when people hear the word "density," they think of congested urban areas with high rises and parking garages, but density is not dependent on tall buildings. Sustainable density is defined as development patterns that look like historic Norfolk, Va., or Old Town Alexandria, Va., or even legacy installation headquarters complexes like at Fort Bragg, N.C., or Fort Leavenworth, Kansas.

Designed by young George Washington, Old Town Alexandria exhibits many of the same characteristics as historic Army posts. Classic, tree-lined main streets with two- to four-story buildings aligned along the sidewalks are the norm. These types of walkable communities with sustainable densities improve health directly by enhancing physical health and indirectly by improving the sense of community, which is often referred to as social capital.

Direct benefit: enhancing physical health

Sustainable development gives residents transportation options that can reduce per capita driving, which is measured in "vehicle miles travelled." One study showed that reduced vehicle use has clear benefits in terms of improved air quality and improved personal health. Another indicated that VMT rates are directly associated with air pollution, and areas with high levels of VMT per capita also tend to have higher accident and injury rates. Research also confirms that greater dependence on vehicles also leads to less walking and increased obesity and other health-related complications.

Neighborhood density is also positively correlated with the number of minutes of physical activity residents get per day. As density increases, the amount of physical activity typical residents get each day increases, according to a study. For each one-half mile walked per day, people are about five percent less likely to be obese.

Acronyms and Abbreviations	
DoD	Department of Defense
VMT	vehicle miles travelled

Obesity comes at a high cost to the military. In fiscal year 2008, for example, the Army spent more than $1.1 billion on TRICARE costs associated with obesity-related illnesses.

Indirect benefit: improving social capital

Sustainable densities also enhance what researchers call social capital. Social capital is a measure of neighborhood cohesion, which identifies the level of community and social bonds in a network or neighborhood. There is greater social capital in a community when neighbors know one another and support one another in good times and bad. Neighbors living and working within walking distance of each other have the opportunity to form social bonds and to watch out for one another.

Research has shown many benefits in ➤

The plan for the Natick Soldier System Center, Mass., calls for increasing walkability by creating campus quads and increasing density within the installation's main core to accommodate projected growth. Graphic by The Urban Collaborative LLC

(continued from previous page)

communities where social capital is high:

- **Prolonged life** – Studies over the last 20 years have found that isolation is correlated with illness. When people who are socially disconnected contract an illness, they are two to five times more likely to die as compared to people with close social ties.
- **Better health overall** – From a survey of almost 170,000 people, researchers have concluded that moving from an area with a wealth of social capital to an area with very little social capital increased one's chances of poor health by between 40-70 percent.
- **Cardiovascular health** – Studies have found that strong community ties link to reduced rates of heart attack, lower risk of dying from heart disease and circulatory problems, and less extensive coronary heart disease.
- **Faster recovery from illness** – Studies have linked social capital to fewer colds, better functioning after strokes and lower incidences of death related to heart attacks, heart disease, cancer, stroke and hypertension.
- **Improved mental health** – There are numerous studies linking mental health to social capital. These studies look at depression, loneliness, self-esteem and a variety of other indicators. Generally, research confirms that social ties buffer us from the stresses of daily life.
- **Enhanced family life** – In neighborhoods with higher social capital, studies indicate that children have lower levels of misbehavior and achieve better grades. Marital burnout and marital violence are reduced. In addition, child abuse rates are lower.
- **Other benefits** – Social capital has been associated with reductions in violent crime, less frequent binge drinking, lower birth rates and more leisure-time physical activity.

How can the physical environment contribute to a greater sense of community? The most important task is getting people out of their cars and onto a connected network of sidewalks into neighborhoods with sustainable densities. Empirical research has found that a 1 percent increase in the proportion of neighbors who drive to work is associated with a 73 percent decrease in the chance that any individual will report having a social tie to a neighbor.

Historic housing in Norfolk, Va., is built at the sustainable densities that support healthy communities — within walking distance of downtown Norfolk's grocery stores, offices and shops. Photo by Mark L. Gillem

Moreover, research has found that people living and working in walkable neighborhoods with a mix of uses have greater social capital. In walkable neighborhoods, residents feel more connected to their community, are more likely to know their neighbors, are more likely to have faith in others and are more likely to walk to work.

This is not just an abstract academic concept divorced from the reality of military bases. New research at military bases links social capital to walkability. A detailed study of military families in Japan found that respondents who lived in walkable neighborhoods had higher social capital. Respondents to a random sample survey sent to more than 400 families were asked a variety of questions related to neighborhood cohesion. These questions represented four constructs that roughly correspond to: a) perceived similarity to one's neighbors, b) desire to continue living in one's neighborhood, c) preferences about desired levels of neighborhood cohesion, and d) the amount of contact that one has with neighbors.

The neighborhood cohesion scale scores were examined in conjunction with a variety of other items to determine predictors of neighborhood cohesion. Respondents who socialized with more people within walking distance of their residence had statistically significant higher neighborhood cohesion scores.

Planners working for the DoD have nearly endless opportunities to construct settings that consume less energy, generate less pollution, support greater social capital and use less land. In fact, planning for healthy communities will be a key Army planning tenet in the proposed update to Army Regulation 210-20, *Real Property Master Planning for Army Installations*, due in early 2010, which states that —

> *"High connectivity, mixed land uses, and well-designed pedestrian and bicycle infrastructure decrease auto dependence, and increase levels of walking and cycling. A connected transportation network of streets with sidewalks, pedestrian pathways, and bicycle trails reduces the distance between origins and destinations and increases transportation alternatives."*

POCs are Mark L. Gillem, 510-551-8065, mark@urbancollaborative.com; or Jerry Zekert, chief, Master Planning Team, Headquarters, U.S. Army Corps of Engineers, 202-761-7525, jerry.c.zekert@usace.army.mil. Contact Dr. Gillem for a detailed list of references.

Mark L. Gillem, Ph.D., AIA, AICP, works with the Master Planning Team, Headquarters, U.S. Army Corps of Engineers, as a consultant. He is an associate professor, University of Oregon, and a principal, The Urban Collaborative. Jeff Springer, urban planner, Booz Allen, and Jill Schreifer, of The Urban Collaborative, contributed to this article.

Form-based codes: a visual guide

by Mark L. Gillem

Sustainable planning and development requires installation planners to relook how they are master planning installations. It requires that planners focus on developing great places and then focus on site-specific planning principles. This process is why area development planning is so important to successful planning.

A critical aspect of area development planning is the creation of a set of "form-based codes" that define the criteria for siting and development for an area. Form-based coding, while allowed by current Army master planning policies, is an optional planning technique used by many installations to better manage base development. However, as more and more sustainability initiatives are matured, there will be more use of form-based coding. This article provides a short overview of the principles of form-based codes and their role in achieving great plans.

Form-based coding guides the development of appropriate building densities and building forms needed to support sustainable development and the installation planning vision. Form-based coding also adds flexibility and specificity to the planning process.

The code is designed to support a sustainable building form, which is a form that supports current and future mission requirements, ecological needs and fiscal priorities. The form that the code supports reflects mission needs, program requirements, environmental constraints and opportunities, and other development factors.

The elements of the code include traditional illustrative plans that graphically show potential development that supports the planning vision. These plans show building footprints for short- and long-term requirements, roads, sidewalks, street trees, open spaces and parking areas. Underlying this approach is a regulating plan that provides clear parameters for height, massing and siting requirements for each parcel of land.

The intent is to regulate only the most important elements of the illustrative plan, such as build-to lines, required entry and parking locations, minimum and maximum building heights, and acceptable uses. The regulating plan is a natural evolution of and replacement for the traditional land-use plan, because it addresses land uses and building form together. In addition, the regulating plan provides specific guidance that shapes development to conform to the installation's planning vision.

Supporting these plans are building standards that specify acceptable massing, height, fenestration and uses; circulation standards that describe and graphically present allowable street types and circulation elements in plan and section; and landscape standards that show, at a minimum, appropriate type and placement of primary landscape elements, which includes natural landscape features like trees and ground cover, and manmade landscape features such as street furniture, signage and lighting. Illustrative renderings may also be used to show the desired character of development.

Planners have tested this approach at Fort Lewis, Wash., and Marine ➤

This Fort Lewis, Wash., illustrative rendering demonstrates the transition from vacant lot to sustainable neighborhood using form-based coding. Graphic by The Urban Collaborative LLC

How to manage change as Army planning policies evolve

by Jerry Zekert

The update to Army Regulation 210-20, *Real Property Master Planning for Army Installations*, is expected to be published in early 2010. The beauty of the update is the recognition that installation plans are not static documents, but rather evolving documents that will change over time. Therefore, while it is appropriate for installations to integrate the requirements of the revised regulation into the next update of their real property master plans, the changes can be done incrementally as resources permit.

What is the best method for updating existing installation master plans? Here are 10 steps that you can use to update installation planning documents —

1. Update vision, goals and objectives.
2. Create the framework plan.
3. Identify districts that require updated area development plans that will meet projected requirements and comply with Army planning tenets.
4. Prepare or update the vision, goals and objectives and analyses in Part 1 of the RPMP digest.
5. Update the installation design guide.
6. Update the long-range component using existing and new area development plans as required.
7. Consolidate existing and new area development plans into the installation development plan. Prepare network plans for street systems, parks and open spaces, pedestrian and bicycle networks, and primary utility networks. Once the installation has completed area development plans for priority districts, it can integrate them into the installation development plan. Note that these area development plans can be from existing work effort or new effort.
8. Integrate area development plans project listings into the installation's capital investment strategy.
9. Complete the RPMP digest.
10. Monitor and amend plan as needed.

Acronyms and Abbreviations	
RPMP	real property master plan

Jerry Zekert
Photo by Mary Beth Thompson

Planners need, to the maximum extent possible, to reuse data and graphics from the existing installation master plan and reformat to comply with the requirements of this regulation.

Existing mission statements, visions, goals, objectives and other descriptive data may be current and reusable. Data in the existing capital investment strategy and installation design guide may require minor modification to comply with the new format.

Elements of the existing long-range component can also be reused where they still apply. If area development plans have been established, continue to use them and create new plans as necessary to bring them into compliance with the regulation.

Change always occurs, and you can initiate the journey to creating great installation master planning products. It doesn't take a lot of work. By starting with great visions, goals and objectives for real property development and setting the framework plan, you have set up the process for an exciting planning effort for your installation.

POC is Jerry Zekert, 202-761-7525, jerry.c.zekert@usace.army.mil.

Jerry Zekert is the chief, Master Planning Team, Headquarters, U.S. Army Corps of Engineers.

(continued from previous page)

Corps Air Station Iwakuni, Japan, and the results have been very promising. The code gives planners some help in maintaining the vision while flexibly guiding future development.

With a form-based code, planners can rewrite and regulate more effectively the development that occurs on their installations. They can give the code to tenant organizations and contractors. Finally, the code is like a recipe for development that uses the same ingredients, e.g., streets, buildings and landscape elements, that would normally lead to sprawl and reorganizes those elements to create more sustainable installations.

The Army is in the final process of updating Army Regulation 210-20, *Real Property Master Planning for Army Installations.* Expected in early 2010, the update will transition the Army away from sprawling development to a compact area development planning approach implemented through form-based coding. These techniques enable base development to be consistent while meeting the Army's and the nation's goals for sustainable development and preserving long-term installation military capabilities.

POCs are Mark L. Gillem, 510-551-8065, mark@urbancollaborative.com; or Jerry Zekert, chief, Master Planning Team, Headquarters, U.S. Army Corps of Engineers, 202-761-7525, jerry.c.zekert@usace.army.mil.

Mark L. Gillem, Ph.D., AIA, AICP, works with the Master Planning Team, Headquarters, U.S. Army Corps of Engineers, as a consultant. He is an associate professor of Architecture and Planning, University of Oregon, and a principle in The Urban Collaborative.

Efficient Basing Grafenwoehr – helping warfighters succeed

by Herb Steinbeck

How do you make training more efficient, modern and, most importantly, effective with fewer dollars? Here's how the U.S. Army is doing just that at Grafenwoehr, Germany.

In 2001, it was recognized that the warfighters' operational tempo was dramatically increasing while funding was decreasing. Changes to accommodate the increased training needs needed to be achieved with fewer dollars while maintaining the morale of the troops. Thus Efficient Basing Grafenwoehr, or EB-G, was conceived and initiated by the Department of Defense, the Department of the Army, U.S. European Command and U.S. Army Europe's 7th Army.

This stationing initiative will save the U.S. taxpayer about $529.5 million over a 31-year period by eliminating 7.6 million square feet of facilities constructed before or during World War II and closing 13 installations. Additional efficiencies will be realized in time and money by eliminating troop movements from and to the training area and by minimizing internal traffic.

As the name implies, EB-G is a cost- and time-savings measure realized by consolidating about 1,400 wheeled and tracked vehicles, 3,800 Soldiers and 6,800 family members that were spread over many widely dispersed locations into a single training area. A mature, well-exercised railhead system, a bulk fuel site and excellent local training areas with immediate access to the Grafenwoehr Major Training Area are additional benefits.

The brigade complex at Grafenwoehr has direct access to tank trails leading to the railhead, ensuring easy access to critical deployment infrastructure. It supports day or night brigade-sized movements with both end- and side-load capabilities allowing for flexibility and quickness when loading a unit's equipment for deployment. A bulk fuel site at Grafenwoehr reduces the need to transport fuel to the brigade, resulting in reduced costs and safer handling of flammable and hazardous cargo.

Acronyms and Abbreviations	
EB-G	Efficient Basing Grafenwoehr
USAG	U.S. Army Garrison
USAREUR	U.S. Army Europe

Four of the 28 company operation buildings (two per structure), with their accompanying vehicle maintenance shops behind, are completed and in use at Grafenwoehr. Beyond them, another four company operations buildings and vehicle maintenance shops are under construction. Photos by Andrea Hoesl, Directorate of Public Works, Grafenwoehr

The brigade complex motor pools have direct access to the tank trails, ranges and training area. Instead of spending valuable time in transit, brigade personnel will be able to use this time to accomplish the training mission.

When all EB-G construction is completed in 2010, USAG Grafenwoehr will have been transformed from a nontactical training support garrison into the premier Army training base outside the continental United States and the home to a brigade combat team and its enabling assets. Seven motor pools with 28 company operation buildings, battalion and brigade administration areas, 12 barracks with 154 1+1 spaces, build-to-lease housing, a child development center, a youth activity center, an elementary and middle school, physical fitness centers, a community service center, a traumatic brain injury clinic, and a centralized post exchange and commissary complex will have been erected. These equally agile, flexible and innovative facilities create an enhanced community living and working environment where Soldiers and their families will enjoy a higher quality of life and benefits such as one-stop shopping.

"I have been impressed with all the new facilities, but particularly the quality of the barracks," Lt. Col. Eric Stetson, rear detachment commander of the 172nd Infantry Brigade, said.

The new barracks and company operations concept places all tactical and operational facilities in the company operations buildings, which are located within the motor pools and not in the basement of the single-Soldier barracks. This concept allows Soldiers to walk into the company operations area, draw their weapons and gear from individual NFL-style wall lockers, go out the back door, get in vehicles, drive onto the tank trail and go to the range. When the mission is completed, Soldiers hit the wash rack, return their weapons, put their gear back in their personal wall lockers and exit the company operations building before walking 50 to 150 meters to their barracks. Because Soldiers will now be located closer to their barracks or housing, they have more personal or Family time.

"Our Soldiers are enjoying the benefits of living close to the ranges they train on," Stetson said.

The new 830-unit housing complex, Netzaberg, located 1.5 miles northwest of Grafenwoehr, was designed and built to the latest specifications required by German and U.S. law by a host-nation third- ➤

(continued from previous page)

Two of the 12 new barracks buildings near completion at Grafenwoehr.

A battalion headquarters building is under renovation at USAG Grafenwoehr, part of EB-G.

party investor. Amenities include wall-to-wall carpeting, 110/220 electricity, appliances, a full basement, Armed Forces Network basic television and individual yards. Soldiers of all ranks live in this village, and the square footage of the homes exceeds Army standards for most grades.

The Netzaberg housing complex surrounds the elementary and middle school that was opened in 2008. Centrally located next to the Netzaberg schools are the child development and youth services center and a shoppette with a gas station. A new chapel is scheduled for construction within this area in fiscal year 2012.

The enhanced quality of life features that are now part of the USAG Grafenwoehr include the Army's largest post exchange and commissary facilities in Europe. The old four-pump gas station has been replaced by a 24-pump gas station, and construction is ongoing for a new Army lodging facility nearby.

The Army Post Office and Community Mail Room was modernized and expanded to accommodate the growing number of personnel. A new community support center is located right inside the main gate, and the vehicle inspection point is across the street, so Soldiers can quickly accomplish their in-processing tasks without having to leave the area or drive to another building. The new physical fitness center is close to the barracks and Netzaberg housing.

Other improvements to the garrison include enhancements to the training area, an expanded library, a new dining facility, a complete infrastructure upgrade, consolidation of the Noncommissioned Officer Academy into a single complex and upgrades to the airfield.

To guarantee a smooth planning and construction process within the program and to support the brigade combat team consolidation on one installation, several base operations and services were also consolidated, thus leveraging installation management efficiencies. A modified installation planning board process was created to quickly obtain reviews and decisions from the senior commander and other key stakeholders. The EB-G cell ensured that enhanced anti-terrorism and force protection measures were incorporated during design, construction and renovations. Versatile, multi-use design concepts meant that public discussions and consequential modifications of design and construction methods could be kept to a minimum.

The USAG Grafenwoehr team was formed to serve as the command's single point of contact between German government agencies, design and construction agencies, the U.S. Army Corps of Engineers, USAREUR, Installation Management Command's Europe Region, the Joint Multi-National Training Command, all subordinate elements and the end user.

The EB-G program enhances the brigade combat team's military capabilities in terms of both training and deployment. At Grafenwoehr, all necessary training facilities for simulation exercises, live-fire qualification and certification, and live-fire maneuver training are collocated. The consolidation maximizes training time, enhances readiness and reduces operational expenses by reducing the time required to move units to and from the major training area.

These enhanced training opportunities will not only reduce nonproductive military time but significantly increase the effectiveness of the U.S. Soldiers — truly "efficient basing."

POC is Andrew Spendlove, acting director, Public Works, USAG Grafenwoehr, 011-49-9641-83-1360, andrew.spendlove@eur.army.mil.

Herb Steinbeck is chief, Master Planning, USAG Grafenwoehr, Germany.

Dal Molin construction moving out at Vicenza

by Anna Ciccotti

Construction on the multi-facility complex at Dal Molin, a former Italian air base that is now part of U.S. Army Garrison Vicenza, Italy, is progressing rapidly. When completed, the new installation will house the headquarters of the 173rd Airborne Brigade Combat Team and the four battalions currently stationed in Bamberg and Schweinfurt, Germany.

The move will consolidate the brigade with the other two battalions already in Vicenza at Caserma Ederle, in line with the ongoing reorganization of U.S. military resources in Europe. The complex features 34 buildings master planned into command, residential and operational areas, plus nine buildings inherited from the Italian air force.

This unique program had many challenges. Flexibility was the key element that guided the planners in designing a new installation that would meet the dynamic requirements of the future users and blend harmoniously into the existing urban environment of a historic Italian city.

Keenly aware of the impact of such a program, the U.S. Army adopted green building policies that require environmental certification. At Dal Molin, this tangible effort to be responsible neighbors to the people of Vicenza was a way to address local concerns.

The new post stands as the U.S. government's largest design-build project ever in Italy. The team effort involved several organizations, including Installation Management Command, Europe Region; U.S. Army Europe; and Naval Facilities Engineering Command.

Working closely with their host nation counterparts, these government agencies cooperated regularly with diverse private companies from archaeology consultants to major construction firms. They faced the extraordinary challenges associated with a $289 million program being constructed in a contract time of about four years from design to occupancy at the site of a former Italian air force base.

Acronyms and Abbreviations	
NAVFAC	Naval Facility Engineering Command
UXO	unexploded ordnance

The contract for design and building the new complex at Dal Molin was awarded in March 2008 to the Italian joint venture of C.C.C. of Bologna and C.M.C. of Ravenna. Design is at 85 per cent completion, while building is at 14 per cent completion.

Thirteen of the 34 facilities are under construction, with crews working on multiple floors of the six largest buildings — two barracks, the brigade headquarters, a multi-purpose facility and two parking garages. More than 250 workers are on site, with 19 tower cranes in operation, dedicated on-site batching and crushing plants in full production and more than 100 pieces of equipment moving materials and fill.

Pile driving is complete, with about 3,800 piles in place. The piles were driven 14-18 meters into the ground to support the foundations of the largest buildings. Much like they use in the Venetian lagoon, pile foundations were chosen for the characteristics of the local soil to reduce the impact on the environment and to not interfere with the underground aquifer.

As the construction agent, NAVFAC chose to fast track the Dal Molin contract in order to meet the Army's goal of relocating the 173rd Airborne Brigade Combat Team by fall 2012. This decision translates into an aggressive work schedule that reduces the delivery timeline by overlapping the design and construction phases of the project. For example, foundation work can start as soon as the foundation design is completed and approved. If the contract hadn't been fast tracked, construction would not have begun until the overall design was completed and approved, which had been scheduled for April.

The approval process culminated in February 2009 with the final authorization to build from the Italian military General Directorate for Public Works and Real Estate. This approval was the result of intermediate endorsements released by local and national agencies entitled to evaluate the impact of the new installation on the existing urban planning.

To guide such a complex process, a special commissioner was appointed by the president of the Republic of Italy. With the commissioner's leadership, the program worked through the myriad of political issues surrounding the award of the contract, access to the site and start of the work.

Dal Molin has been conceived as no other U.S. base in history. It is one of the first installations completely developed ➤

The new home of the 173rd Airborne Combat Team at Dal Molin will occupy an area of 145 acres that was vacated by the Italian air force in 2008 and is slated to be occupied by the U.S. Army by fall 2012. Rendering by Alberto Izzo and Partners

(continued from previous page)

according to the criteria of green architecture and sustainable design. It will be one of the largest European Military Construction projects to obtain at least a Leadership in Energy and Environmental Design Silver certification. The entire complex will be evaluated as one large urban project, comparable to a university campus, designed and built according to sustainable criteria.

The intent is to minimize the project's environmental impact while ensuring its quality from start to finish. The site is developed to efficiently use resources during construction and throughout the life of the facility. The facilities will minimize environmental impacts, conserve energy, provide a healthier and safer environment for Soldiers and civilians, and minimize waste materials. For example, about 85 percent of the waste debris from demolition of old buildings is being reused to build the new facilities.

Demolition of the existing structures was completed in a few months and proceeded in parallel with other site preparation activities and soil cleanup. Prior to any activity, initial site development included unexploded ordnance clearance of World War II explosive remnants, the legacy of intense aerial bombing on the Vicenza airport in 1944.

UXO clearance was slated to be finished in January, with 46 explosive devices, ranging from 2-inches bullets to 500-pound bombs, detected and safely disposed of. The clearing added to the safety of the work site and the nearby community. Interestingly, most ordnance detected was actually Italian-made and likely placed on site to blow up the runway should it fall into the Allies' hands.

Two of the 22 cranes at Dal Molin support construction at two barracks that will house about 1,200 Soldiers. Photo courtesy of U.S. Army Garrison, Vicenza

Archaeological surveys are another necessary prerequisite to beginning any construction activity in Italy. The U.S. Army hired a team of dedicated consultants to ensure that archeology of Dal Molin is investigated and documented under the strict supervision of the Italian Office for Archeology Heritage. The surveys are conducted weekly on two different levels.

A first analysis through core samplings and trenching is required to document the physical and chemical aspects of soil and record any modification due to human passage through the centuries. Depending on the findings of the initial study, a deeper investigation may follow through different methods of excavations.

Findings include previously documented Roman-era structures, including the arched pillars of an aqueduct, the foundations of a farm and the remains of irrigation channels. Some of the artifacts discovered even date back to the Bronze and Neolithic ages.

The brigade headquarters facility at Dal Molin is one of six pile-driven foundation buildings and is designed to provide a state-of-the-art work environment to support the future requirements of the command. Photo courtesy of U.S. Army Garrison, Vicenza

As for more modern times — modern by Italian standards — the site documents the remains of a building of the late medieval, early Renaissance period. The Italian authorities ensure the recording and the safeguarding of relevant artifacts. To date, no archeological discoveries have been found on the project site that are significant enough to impede progress. Surveys are 85 per cent complete with anticipated completion in February.

As an unexpected bonus, the Dal Molin site includes a legacy area vacated by the Italian military with facilities worth about $80 million. The planners identified nine buildings that will be reused to meet the needs of the Vicenza military community. When their renovation is complete, these inherited buildings will help reduce the reliance of the Vicenza garrison on the expensive leases outside the post.

Current progress is the result of the hard work and dedication of all team members who are involved in supporting Army Transformation. The new contract completion date following resolution of initial critical path delays is early fall 2012, and the program is on schedule.

POC is Anna Ciccotti, DSN 314-534-2007, anna.ciccotti@eur.army.mil.

Anna Ciccotti is with the Transformation Construction Management Office, U.S. Army Garrison, Vicenza, Italy.

Fort Carson's Ivy Band gets sustainable home for training

by Susan C. Galentine

Soldiers of the Ivy Band moved their flutes, trumpets and drums into an energy-efficient, sustainably constructed training facility in mid-September. The new home of the 4th Infantry Division Band features Fort Carson, Colo.'s first application of a geothermal heating and cooling system.

The 12,620-square-foot band training facility was built by the service-disabled, veteran-owned, small business joint venture of Mass Services and Supply LLC and Main Electric. The structure houses rehearsal spaces, locker rooms, offices, administrative space, a library, instrument storage and a break room area.

Main/Mass, as the joint venture is known, exceeded the U.S. Army Corps of Engineers' standard requirement for the Ivy Band's facility, which was to attain a U.S. Green Building Council Leadership in Energy and Environmental Design Silver rating certification. The construction contractor achieved enough project points to pursue a Gold rating certification.

"Creating sustainable facilities matches the Corps of Engineers' goals of providing high quality products that have minimal impact on the environment, greatly reduced energy needs and feature numerous user-friendly features," said Greg Sipes, USACE's project engineer for the band training facility.

DLR Group Inc., the architects, included a number of sustainable features in the design. They used daylighting, materials that include a large amount of recycled content, low-flow water fixtures, water-efficient landscaping and a high-efficiency ground-loop geothermal system.

"Acoustics, daylighting and sustainability were the overriding themes influencing the design of the facility," said Tom Kapels, DLR Group project manager for the facility design. "Each of the main rehearsal spaces has acoustical wall panels, ceiling diffusers, variable acoustic curtains and cork flooring. Most of the materials have recycled content, and the cork flooring is a material that is from a rapidly renewable resource."

Acronyms and Abbreviations	
LEED	Leadership in Energy and Environmental Design
USACE	U.S. Army Corps of Engineers

"One new feature to Fort Carson is the use of geothermal heat pumps," said Sipes. "This type of heating and cooling system has been used successfully around the world for many years. Various other Army posts have been using geothermal heating and cooling in both residential and commercial applications with great success."

This ground-source heating and cooling technology entailed drilling 40 wells 400 feet into the ground to capture the relatively constant temperature of the earth. Water circulates through the wells and simply transfers heat to and from the earth to provide heating and cooling. In the summer, the ground temperature is cooler than the outside air, and in the winter, the ground temperature is warmer than the outside air.

The Fort Carson Soldier and Family Assistance Center, under construction adjacent to Evans Army Community Hospital, will also have a ground-source geothermal system.

Building sustainable facilities costs more at the outset, but costs are coming down, according to Kapels.

"Historically, the increased costs associated with a LEED Silver certified building has been between 3 percent and 5 percent," he said. "That percentage has been decreasing rapidly due to the influx of sustainable technologies and products into the marketplace and the increasing acceptance by the industry of sustainable practices."

Kapels estimates the payback on the cost of the geothermal heat pump system alone to be two to three years from the energy savings yielded from the system.

Fort Carson's new band facility realized enough project points to pursue LEED Gold certification. Photos by Susan C. Galentine

The 4th Infantry Division's Ivy Band practices in its new, sustainable training facility.

The Ivy Band, the first Army band assigned to Fort Carson in 14 years, is enjoying the new green training facility.

"These musicians are extremely pleased with the facility," said Chief Warrant Officer Marvin Cardo, officer in charge of the band. "With all its unique features and space, it makes this band facility the Cadillac of band buildings."

Musicians who join the Army bands are highly trained, Cardo said. Most are graduates of top universities and conservatories and have performed with some of the leading orchestras in the world.

"Having performed in some of the greatest concert halls and theaters, it is crucial for musicians in our military bands to be able to continue training and performing in such great concert halls," he said.

➤

Letterkenny's new gate system tests electronic credentials verification

by Debra Valine

The nearly 3,000 employees at Letterkenny Army Depot, Pa., are some of the first to experience an electronic way to verify credentials when entering a military installation. The Automated Installation Entry system is similar to electronic toll-collection systems used on civilian toll roads to speed traffic flow.

The U.S. Army Engineering and Support Center, Huntsville, Ala., working with the Office of the Provost Marshal General and the Office of the Product Manager, Force Protection Systems, developed a standard Army design for an entry system that will change the way an individual's credentials are verified and speed up the process. The proof-of-concept demonstration for this type of system was conducted at Fort Hood, Texas.

Other agencies supporting PM-FPS in the endeavor include the Army Test and Evaluation Command for performance evaluation and endurance tests, the Space and Warfare Naval Systems Command for the Defense Information Assurance Certification and Accreditation Program documentation that is processed through Net Command, and the Training and Doctrine Command for review and comment on operators, system administrator and maintenance training documents.

(continued from previous page)

"I am very excited to be the first commander in such a great facility and set the example of what this band should look and sound like," said Cardo. "This facility represents the professionalism that this band displays with every performance."

POC is Susan C. Galentine, 719-526-4320, susan.galentine@us.army.mil .

Susan C. Galentine is the public relations contractor for the Directorate of Public Works, Fort Carson, Colo.

Letterkenny will be the first Army DIACAP-certified AIE system and one of three installations being used to demonstrate the capability. Huntsville Center is also installing and testing AIE systems at Fort Campbell, Ky., and the Military Ocean Terminal, Sunny Point, N.C. The three locations represent different types of installations where AIE will be installed.

The technology is mature, commercial-off-the-shelf technology that proves the AIE system can work in accordance with Army standards. It is likely that the system, once perfected, could be adopted by other services and Department of Defense agencies, potentially improving security at military installations across DoD.

"AIE incorporates access control technology, combined with policy and procedure revisions, that will enhance security, standardize access control point technological requirements and provide commanders a flexible force protection solution," said Gregory R. "Jay" Jones, Office of the PM-FPS.

Before the AIE system can be installed, the existing infrastructure at the access control point has to be upgraded. Huntsville Center's Access Control Point Equipment Program is doing this work. Upgrades include guard booths; active vehicle barriers; traffic islands; overhead canopies; power, conduit and wiring; and incidental paving.

Acronyms and Abbreviations	
AIE	Automated Installation Entry
ATEC	Army Test and Evaluation Command
DoD	Department of Defense
DIACAP	Defense Information Assurance Certification and Accreditation Program
NETCOM	Net Command
PM-FPS	Product Manager, Force Protection Systems

The Automated Installation Entry System at Letterkenny Army Depot, Pa., is the Army's first approved installation access control system. Photo by Craig Zeigler

Installation of the AIE system includes electronic and computer assemblies, optical and mechanical assemblies, conduit and wiring. The major elements of the AIE are the access control point with vehicle lanes, an enrollment center, a visitor control center and data centers.

The AIE mission is to automate access control in order to:

- enhance security by verification and authentication of credentials, vetting of individuals and establishing permissions to control access;
- reduce guard requirements and costs at access control points; and
- maintain or increase traffic throughput at gates.

To be able to use the system, individuals and vehicles must be registered on the installation.

"The AIE work at Letterkenny was awarded in two phases," said Jeffrey Mitchell, Electronic Security Systems program manager, Huntsville Center. "In phase one, the prep work at the site was assessed to ensure AIE equipment could be procured and installed. Follow-on was to complete and deliver a technical design. In phase two, the equipment was procured and installed.

"The project presented unique challenges because this was a PM-FPS 'program of record' where we had to engage other ➤

Fort Polk's barracks renovations to increase lifespan, improve Soldiers' quality of life

by Jacob Lantz

At the forefront of the Directorate of Public Works' mission is the Barracks Modernization Program. However, Fort Polk, La.'s version is slightly different than the rest of the Army's.

Major concerns at Fort Polk are aging barracks and providing quality, mold-free living spaces for single Soldiers.

The buildings were designed for a 50-year lifespan; replacements aren't scheduled to begin until 2028. Of the 34 barracks, 31 Volunteer Army-era structures are between 28 and 35 years old. The difficulty in securing funds for barracks, coupled with harsh conditions and several years of less-than-adequate preventative measures, have contributed to the current conditions. The living spaces lack sufficient heating and cooling. Ventilation is nonexistent, and site drainage is ineffective. These factors have contributed to mold and mildew issues, which have a potential to affect the health and quality of life for Fort Polk Soldiers.

"One Soldier, One Room" is Fort Polk's answer to the Army standard "1+1" space criteria. Current inventory on post prohibits converting VOLAR barracks to 1+1 through renovation. The OSOR concept provides a Soldier with his or her private room, kitchenette, latrine and large closet, achieving the square foot requirement established by Installation Management Command. Ongoing renovations amounting to more than $200 million are divided over a three-phase Barracks Modernization Program that will enhance 16 of the 34 barracks.

In conjunction with the BMP, repairs and upgrades to the central energy plants and distribution systems are being accomplished, providing better heating and cooling capabilities for a majority of the barracks. Four central energy plants and more than 20 miles of piping will be replaced and upgraded.

During the renovations, the DPW and the Corps of Engineers are increasing the energy efficiency of the building envelopes to stop or reduce the infiltration of moisture into the living spaces. To achieve this goal, the plan is to replace the brick façade with an exterior insulation finish system. In addition, stairwell and courtyard spaces will be enclosed to provide climate control and to increase the pressure variant relative to the surrounding environment. Rooms will have thermostat control over respective heating, ventilation and air conditioning systems, which will be placed in mechanical closets in adjacent space gained from the courtyard closures. This design will allow preventive maintenance to be conducted without disturbing occupants.

Acronyms and Abbreviations	
BMP	Barracks Modernization Program
CERL	Construction Engineering Research Laboratory
DPW	Directorate of Public Works
FY	fiscal year
MCA	Military Construction, Army
OSOR	One Soldier, One Room
UPH	unaccompanied personnel housing
VOLAR	Voluntary Army (barracks)

Along with the obvious aesthetic changes, Fort Polk is implementing a few best practices. The existing concrete floors will be resurfaced, stained and polished. Through this process, the vinyl composition tile, which was adhered with asbestos-containing material, will be removed, reducing future replacement costs for damaged flooring and creating easy-to-maintain spaces.

There are also plans to place solar-powered lights in and around the barracks areas, providing safety and security for the residents. An additional safety measure includes installing a fire sprinkler ➤

(continued from previous page)

agencies through PM-FPS to execute this project," Mitchell said.

"Whenever you have a new system that will be tied to an Army network, you have to ensure the information processed on that system will be secure," said Craig Zeigler, Electronic Security Systems program physical security specialist. "The system has to be certified and accredited to be networthy — that it can be plugged in and talk computer-to-computer without corrupting the Army network."

"Once the system was installed, it was tested in accordance with an Interim Authority to Test provided by NETCOM," Mitchell said. "Performance verification tests were completed by ATEC in August, and follow-on endurance tests that started in September were completed Oct. 22. The next step is the authority to operate, which is approval to use the system on the Army network.

"The system at Letterkenny is working well," Mitchell said. "This has been one of our more challenging projects because of all the players involved and the requirement to follow the DIACAP process for the Letterkenny system. There were some initial hiccups as expected with fielding any new system, but we have worked through them."

"The automated installation entry program has the potential to be one of our greatest assets. It would be like owning a tricycle and then upgrading to a '65 Ford Mustang," said Lt. Col. Robert Leasure, deputy director of Risk Management at Letterkenny. "The project at Letterkenny will be the tip of the spear for the Army and could lead us into a joint venture with other services."

POC is Jeff Mitchell, 256-895-1243, jeffrey.b.mitchell@usace.army.mil.

Debra Valine is the chief, Public Affairs, U.S. Army Engineering and Support Center, Huntsville, Ala.

(continued from previous page)

system throughout the facility. Plans are to use landscaping that requires less upkeep, reducing the carbon footprint and water use for irrigation.

Drainage and erosion have become contributing factors to the constant moisture problems in the barracks. Current terrain conditions and soil type do not support adequate drainage away from structures, and continuous erosion leaves sidewalks and stairs full of good Louisiana dirt. Plans are to redirect storm runoff, create better drainage systems and engineer the building crawl spaces to prevent water retention. Close to $6 million is dedicated to this portion of the project.

The Corps of Engineers is providing overall project management, design and quality assurance. Roughly $13 million is retained from the funded amount for these services. The DPW has received support from the Corps' Fort Worth District; Engineering and Support Center, Huntsville; and Construction Engineering Research Laboratory.

DPW teamed with CERL staff to test mold remediation methods, existing testing technology and anti-microbial treatments that will assist in the battle against mold. These tests, methods and procedures are providing knowledge and familiarity with current state-of-the-art, commercially available technology, and Fort Polk is proud to be at the forefront of this endeavor. The hope is the joint effort and hard work will be used to defeat mold, while increasing the lifespan of the barracks at Fort Polk and across the Army.

"Our team has worked hard to obtain this funding to enhance the living conditions for our unaccompanied Soldiers," said Ellis Smith, DPW director. He anticipates close coordination among the DPW, the Corps and the Soldiers who will live in the barracks.

The battle against mold will continue at Fort Polk through repairing aging barracks and efforts to acquire additional funding. It is estimated that Fort Polk will require an additional $300 million to bring the remaining 18 barracks to an equal and much-needed level of quality.

Several courses of action have been generated — including competing for Military Construction, Army funding to build replacement barracks; and combinations of Sustainment, Restoration and Modernization-funded renovations and MCA — to complete the BMP as well as fielding a pilot program for a Privatized Barracks Initiative.

A privatized initiative with a long term Residential Communities Initiative partner will show results quickly. Long-term benefits provide greater quality-of-life improvements with less taxpayer money, fewer maintenance teams and less overall barracks management. Many arguments can be voiced in support of any one of the courses of action, but during this time of multiple deployments, the drastic difference in the quality of life between married privates and their single battle buddies is something that Fort Polk is working to resolve.

This project shows Fort Polk's commitment to quality-of-life improvements that affect Soldier morale. By 2012, more than half of the installation barracks will have been upgraded to OSOR design. A Warriors in Transition Campus is also underway, and an additional barrack is in the long-range plan. Fort Polk is growing and moving in a positive direction.

This rendering shows Fort Polk's barrack upon completion of current BMP. Renderings courtesy of the U.S. Army Corps of Engineers

A concept rendering displays a typical OSOR.

This concept rendering shows the OSOR living and kitchen area.

Barracks modernization and winning the battle against mold are small tokens to show Soldiers the nation's appreciation for their sacrifices and service.

POC is Jacob Lantz, 337-531-6889, jacob.lantz@us.army.mil.

Jacob Lantz is an engineer technician, BMP, DPW, Fort Polk, La.

Fort Benning's mold abatement measures still effective

by David L. Miller, Kirk Ticknor and John Wilson

Two years ago, Fort Benning, Ga., completed a renovation project that addressed indoor air quality issues at the Sante Fe Child Development Center. Since the primary IAQ issue was mold growth, and indoor mold is one of the environmental triggers for asthma, Fort Benning recently re-examined the results to determine their efficacy.

The goals of the renovations were to comply with classroom ventilation standards contained in American Society of Heating, Refrigerating and Air-conditioning Engineers 62 and provide a healthier, safer learning environment for the children.

Constructed in 1992, the Sante Fe CDC is a nearly 20,000-square-foot facility designed to accommodate day-care needs for infants, toddlers and preschoolers. It has 12 classrooms, two motor skills rooms, a kitchen, administration offices, a library, a teachers lounge, a laundry room, staff bathrooms and 14 classroom lavatories. It is a one-story facility, metal stud construction, brick-sided, with a low-pitched, shingles-over-metal-deck roof.

Mold growth first appeared on the walls of the teachers lounge, located between the kitchen and the administration offices. The visible mold was removed, and the walls were primed with a mold-resistant primer and repainted. When mold began to appear on the walls in the hallways, the mold was removed, the walls primed, and impermeable vinyl wallpaper hung. Roof leaks and air duct condensation drips continued to support mold growth on ceiling tiles, which were periodically replaced. Maintenance activities were increased to keep direct expansion air conditioner drainage pan lines, located in the attic crawl space, cleared.

When pink blotches began to appear on the new vinyl wallpaper, samples were collected and found to be caused by a common mold, Alternaria alternata. Fort Benning's Public Works Department and Shaw Infrastructure evaluated the Sante Fe CDC. Engineers, scientists and technicians from both organizations began to dissect the critical elements of the center's IAQ issues.

They developed a list of contributing factors that would all have to be addressed to finally remediate the problems:

- The attic air space, between an uninsulated metal roof deck and insulated ceiling tiles, while never reaching dew point, typically stayed hot and humid.
- The facility's kitchen hoods had no make-up air source.
- The building was under constant negative pressure, which resulted in the introduction of hot humid air when the doors were opened.
- The air handler drainage pans in the attic were a constant source of moisture.
- The mold growth on drywall surfaces was originating underneath the vinyl wallpaper and, in some areas, had grown outward from the stud side of the wall due to condensation inside the walls.
- Janitorial cleaning in the classrooms was wetting the base of the drywall, supporting mold growth.
- The classrooms' lavatory design was contributing to excess moisture and cleaning issues.
- The eight units that cooled the building were not sufficient to remove the excess moisture within the occupied spaces.
- The interior wall partitions were uninsulated and uncapped, allowing thermal communication between the hot, humid attic air and the cool interior wall surfaces causing surface condensation.

The remedial steps fell into three broad categories: mold removal; heating, ventilation and air conditioning replacement; and interior surfaces and fixtures rehabilitation. Scopes of work were developed, contracts awarded, and the work was performed during summer 2007. The Sante Fe CDC staff and children used a nearby elementary school during that school's summer vacation.

Acronyms and Abbreviations	
CDC	child development center
DDC	direct digital control
HEPA	high efficiency particulate air filtration
HVAC	heating, ventilation and air conditioning
IAQ	indoor air quality
I/O	input and output
MBH	thousand British thermal units per hour

Contractors removed mold damaged material. Mold inspections had previously identified drywall to be removed, typically the bottom 4 feet of drywall in most rooms. With the walls opened up, other moldy areas could be identified, and, in total, more than 5,000 square feet of damaged drywall was removed and replaced. Mold abatement was conducted following EPA large-scale remediation guidelines, which include respiratory protection for the workers, high efficiency particulate air filtration and vacuuming, and the bagging of the construction debris.

Contractors also removed the eight outside direct expansion air conditioning units and refrigeration piping and the eight existing attic air handlers, drain pans and condensate lines, leaving the supply and return air ducts for the new system to tie into. Undisturbed duct work was cleaned by air lance, HEPA vacuumed and then disinfected. Hot water heat piping from the boiler to the eight inside air handlers was removed. Damaged ceiling tiles, kitchen counters, wall tiles and appliances, 14 classroom lavatories and seven classroom washbasins were removed. Interior doors were removed and rust damaged wall studs and rusted corner drywall beading replaced.

Walls were repaired using type X drywall, and all surfaces were skim coated with drywall mud amended with an EPA-approved aliphatic alkyl quaternary ammonium-based fungicide. The kitchen drywall was replaced with five-eighths-inch moisture-resistant cement board and retiled. The walls were primed with paint containing a fungicide and finished with two coats of interior paint. ➤

(continued from previous page)

The underside of the metal roof deck was sprayed with carbon dioxide-expanded, two-pound polyurethane closed-cell rigid foam to a depth of 1.5 inches. The ceilings were insulated with R-19 unfaced fiberglass batts on top of the lay-in ceiling tile. Fiberglass batts were also packed into the top of interior wall partitions to reduce attic air infiltration. The existing air ductwork was insulated and sealed using 2-inch-thick 0.75-pound-density foil-faced fiberglass blanket insulation with vapor barrier on the outside.

A 13-by-22 foot cement slab was poured on the north side of the building to accommodate a new 70-ton, air-cooled chiller. Piping was sized to deliver a water-glycol solution to the air handler at 138 gallons per minute. Two circulation pumps were installed — a one-quarter-horsepower inline pump used to circulate hot water to the preheat coils of the air handler and a two-horsepower pump used to circulate the water-glycol solution through the cooling coils of the air handler.

A new air handler was placed in the building's mechanical room where the old heating boiler had been removed. The air handler was equipped with two coils — one coil for preheat from the boiler and the second for cooling from the chiller. The air handler was capable of supplying air at 17,000 cubic feet per minute against a static air pressure of 1.5-inch water column.

Also installed in the building's mechanical room was a natural gas hot water boiler, rated at 399 thousand British thermal units per hour, for the purpose of intake air preheat. The boiler is used to warm outside intake air when the ambient temperature is below 32 degrees. This protects the cooling coil from freezing, since the chiller can run year around to deliver air at a constant 55 degrees if needed. Supply air can be reset upward during the winter based on the most critical call for cooling by the room sensors.

The supply and return duct was 36-inch-diameter, round spiral 20-gauge ducting with Ys in each duct at the point where the two hallways connect to each other. The supply and return ducts run down the two main hallways inside the building above the ceiling tiles in an over-under pattern. Each duct had takeoffs at the location required to connect to the existing duct with eight new heated variable air volume boxes that replaced the old ceiling air handlers in each zone. Supply and return ducting was insulated and sealed using 2-inch thick, 0.75-pound-density foil-faced fiberglass blanket insulation with the vapor barrier on the outside.

A 275-MBH natural gas heat make-up air unit was located in the kitchen area to furnish fresh warm air to the kitchen during exhaust fan use. In addition to 100 percent make-up kitchen air, an air curtain was installed at the front entrance to the building.

Before the renovation, mold grows inside an interior wall in the Santa Fe CDC at Fort Benning, Ga. Photos by David Miller

After the renovation, the lower four feet of the classroom walls are covered with vinyl wallpaper and capped with a chair rail.

New HVAC controls were integrated with the energy management control system using Lon Works-based direct digital controls. The new DDC system provided for all input and output previously connected to the old controllers plus I/O for each air handler's variable frequency drive motor starter panel to permit status feedback. Smoke sensors were tied into the safety shutdown circuitry for the air handlers, and high- and low-pressure limit switches shut down the air handlers should a pressure excursion occur. Existing thermostats were replaced with Lon Works-based programmable thermostats.

Any I/O status can be displayed on a graphics web page accessible from any computer at Fort Benning. Programmable events included a reset schedule for the boiler, an occupancy schedule for the facility and alarms from the building control system to appropriate alarm reporting engines.

Interior rehabilitation gave the center's staff an opportunity to select wall finishes, colors and lavatory fixtures. After painting the interior walls, the lower four feet of the walls were covered with vinyl wallpaper and capped with a chair rail. A vinyl wall base, silicon sealed to the flooring tile, was installed throughout. Window blinds, light fixtures, sinks, floor tiles and carpeting were cleaned. Wall tiles were replaced in the classroom lavatories and the kitchen. Fourteen new stand-alone lavatory units and seven new stainless steel, single bowl classroom sinks with new cabinetry and countertops were installed. All the interior doors were refinished. Vinyl corner guards were placed on all corners and window ➤

Fort Lee's new dining facility sets standards across Army

by Patrick Bloodgood

Soldiers completing their advanced individual training at the Army's ordnance school at Fort Lee, Va., dine at a brand new dining facility, which is currently the largest in the Army. This Base Realignment and Closure 2005, U.S. Army Corps of Engineers-built, state-of-the-art facility can feed 3,557 Soldiers in 90 minutes.

"It's beautiful; you can tell they put a lot of work into this building," said Pvt. 2 Nicholas Meyers, a student at the Army ordnance school.

"It has as a more modern feeling, so the Soldiers enjoy it," said Michael Roach, the U.S. Army Corps of Engineers, Norfolk District, resident engineer for Fort Lee BRAC. Roach managed the construction of the 75,000-square-foot DFAC.

Plenty of thought and consideration went into the entire eating experience — not only in the functionality of feeding nearly 3,600 Soldiers in a limited time, but also how Soldiers flow in, through and out, which according to Army Staff Sgt. Gina Aceves, an advanced individual training platoon sergeant, was somewhat problematic at the ordnance school's old dining facility at Aberdeen Proving Grounds, Md.

"They won't be bumping into each other as big as it is and as expanded as the tables are from each other. It's just going to be better for them," said Aceves.

The DFAC is also the first two-story dining facility in the Army. It serves Soldiers on both floors with a central kitchen that sends food to the second floor serving lines via an elevator. Each floor has four serving lines plus specialty lines for fast-food style items such as burgers and fries.

Soldiers eat lunch at the new Army Ordnance Dining Facility at Fort Lee, Va, the largest Army dining facility. Photos by Patrick Bloodgood

A food service worker serves Soldiers in the new DFAC at Fort Lee.

To keep Soldiers cycling through, a unique tray drop-off system is used, and according to Meyers, Soldiers think it's a great feature.

"You can just put your tray in there and walk right out without the hassle of having to put your silverware in the right container," said Meyers.

The DFAC construction along with the other BRAC projects at Fort Lee give Roach the satisfaction of directly supporting the troops.

"I'm proud to serve our Soldiers, who are serving our great nation and to give back," he said. "This is a wonderful facility for the Soldiers."

For Soldiers arriving from basic training, the DFAC gives a great first impression of what they can expect and what they will experience while serving in the Army.

"It shows me the Army is really trying to make a change and trying to make a change for the better," said Meyers.

POC is Patrick Bloodgood, 757-201-7606, patrick.j.bloodgood@usace.army.mil.

Patrick J. Bloodgood is a public affairs specialist, U.S. Army Corps of Engineers, Norfolk District.

Acronyms and Abbreviations	
BRAC	Base Realignment and Closure
DFAC	dining facility

(continued from previous page)

sills. Dividing walls were removed in two classrooms and one new dividing wall added as directed by the center's staff. Damaged lights and outlet covers were replaced.

Total remediation and rehabilitation costs were about $640,000. A recent building inspection determined that the remediation and rehabilitation efforts were successful. Staff satisfaction remains high, and the overall IAQ remains excellent two years after the mold abatement efforts.

POCs are Kirk Ticknor, 706-545-7928, kirk.ticknor@us.army.mil; and John Wilson, 706-545-3725, john.wilson59@us.army.mil.

David L. Miller is a scientist 4, Shaw Environmental & Infrastructure; Kirk Ticknor, P.E., is chief, Operations Maintenance Division, Department of Public Works; and John Wilson, P.E., is a general engineer, Operations Maintenance Division, Department of Public Works, Fort Benning, Ga.

Fort McCoy opens children's facility

by Tom Michele

Using ceremonial scissors nearly as tall as some of the participants, several children, parents and staff members cut the ribbon at the entrance to the new $4.8 million child development center at Fort McCoy, Wis., in October. The 13,000-square foot facility provides 109 child care spaces.

"The former facility had four classrooms," garrison commander Col. David E. Chesser told the crowd assembled for the grand-opening ceremony. "This new facility features eight classrooms and an activity room."

The installation's original child development center opened Oct. 1, 1988, with a capacity of 52 children, but the demand for child-care services has grown over the years as the installation's mission has grown, Chesser said.

Construction took nine months and was completed in late May.

"Within days, a semitruck carrying $55,000 worth of toys and furnishings arrived, and, thanks to the efforts of a transition team from the Family, Morale, Welfare and Recreation Command, everything was unloaded and placed in its proper place within the classrooms," Chesser said.

The center opened its doors for business Aug. 31, and every child who had been waiting for child care was able to enter the program, Chesser said.

"This [facility] significantly improves the installation's ability to support the Soldiers, families and civilians who live and work on Fort McCoy ... a facility that demonstrates our commitment to delivery of the Army Family Covenant," he said

Army leadership executed the Army Family Covenant in October 2007. Fort McCoy's senior leadership committed itself to delivery of the Army Family Covenant in November 2007 by holding a symbolic signing of the agreement.

At the grand opening, Chesser, Fort McCoy senior commander Maj. Gen. Glenn J. Lesniak and garrison Command Sgt. Maj. William T. Bissonette Jr., each signed the covenant, as their Fort McCoy predecessors had nearly two years earlier.

A teacher and students take a walk on the grounds of the new Fort McCoy Child Development Center. Photos by Tom Michele

Children, parents and officials participate in the CDC ribbon cutting.

"Today we are here as a community to rededicate ourselves to the covenant, to our pledge to take care of Soldiers and their families," said Lesniak. "I can think of no better way to demonstrate this commitment than to execute a re-signing of the Army Family Covenant and simultaneously celebrate the grand opening of our new child development center."

A $7 million youth center is under construction adjacent to the child development center. The installation also is expanding the Pine View Campground with the addition of four new log cabins in 2010 with more to follow. An Alpine slide will be constructed at Whitetail Ridge in 2010, and the installation's request for construction of a 100-room lodging facility with an activity center through a public-private venture remains on track for possible construction in 2011.

"And all of this is in addition to the $63 million in renovation of World War II wood facilities executed in 2009 to improve the quality of life for the Soldiers who train at Fort McCoy," Lesniak said.

POC is Lou Ann M. Mittelstaedt, Fort McCoy Public Affairs, 608-388-2769; DSN 280-2769,

louann.mittelstaedt@us.army.mil.

Tom Michele is with Eagle Systems and Services.

Schinnen partnership produces environmental benefits

by Sarah J. Schmidt

Partnership opportunities at military installations outside the continental United States often run the gamut of professional connections between civilian, military and host nation partners. At U.S. Army Garrison Schinnen in the Netherlands, a long-standing partnership with the Dutch Environmental Protection Agency, known as VROM, has enabled the garrison's Environmental Division to fulfill key regulatory mandates with a comprehensive annual report, rather than multiple inspections. This constructive cooperation has produced greater administrative efficiencies and reduced delays in construction procedures.

"It's been an extremely cooperative and productive relationship," said Hans Verwasch, Schinnen's Environmental Division chief.

So productive, in fact, that much of Schinnen's work is now recognized by regional environmental authorities as setting the standard. Last year, for example, Schinnen conducted a survey to identify threatened and endangered species on the garrison.

Verwasch said that regional authorities were pleased to learn of the study and quickly requested copies.

"Of course, we're happy to know they were interested in our work," said Verwasch, "because it helps Province Limburg [the Dutch province in which USAG Schinnen is located] create a more complete TES map of this whole area."

The survey found a surprising number of TES on Schinnen, with the highest concentrations at the Schinnen Pond on the east side of the garrison. The Duck Pond, located in front of the headquarters building, and the Patrol Road, which runs along the back perimeter of the post, also registered significant numbers. For such a small installation, only 12.67 hectares, the survey revealed an amazing number of flora and fauna: 387 plant species and 369 different creatures, including bats, newts and dragonflies.

Of those identified, 61 species are legally protected under Dutch environmental law because of their endangered status. An additional 63 species are "red listed" in Germany or the Netherlands, meaning they are threatened or rare.

"Many people think that only highly protected areas, such as designated nature protection areas, provide habitats for endangered species," said Verwasch. "But this is not the case. Our community at USAG Schinnen also contributes to the conservation of various species by conserving these valuable habitats."

Chris Binje (left) and Hans Verwasch (right), of Schinnen's Environmental Division, take water samples from the Schinnen Pond. The wetlands habitat is home to more than 60 endangered species. Photo by Sarah J. Schmidt

The survey, conducted by the commercial contractor AMEC, used various methods to identify flora and fauna. For example, the bat population was evaluated using a bat detector, headphones and voice recorders. The recorded ultrasonic signals were analyzed using signal conversion software.

A number of Grosse Abendsegler, one of the largest bats in Europe, make their homes in the forested areas on USAG Schinnen. During the winter months, they hibernate in the trees in holes left by woodpeckers. Photo courtesy of www.fledermausschutz.ch

"That was fairly high-tech," said Verwasch, "but other, less technical methods were used for different species."

The 11 species of dragonflies and damselflies, for instance, were all identified after capture in a sweeping net. Amphibians were surveyed visually during the day and at night by brightly illuminating the shore areas of the ponds. Live traps were set overnight. Nothing was harmed or damaged during the identification process, according to Verwasch.

"That would have defeated the purpose of the survey," he said.

Because Schinnen already maintains high environmental standards, the survey results did not change any current operations. Verwasch said the Environmental Division hopes to improve existing conditions that foster greater numbers and diversity of species in the future.

"It's something that a good partner would do," he said.

Schinnen's Environmental Division ➤

Acronyms and Abbreviations	
LNV	Dutch Ministry of Agriculture, Nature and Food Quality
TES	threatened and endangered species
USAG	U.S. Army Garrison

Europe's early environmental review process

by Johannes Haid

Every construction project has the potential of impacting the environment in some form. With the U.S. Army's ongoing global rebasing and restructuring, many military construction projects are planned or are in progress within the European theatre. Functions are relocating to enduring installations to increase operational readiness, to support the forces more efficiently and effectively, and to facilitate new ways of doing business.

The U.S. Army conducts environmental reviews as part of the planning process for every new or major renovation project in Europe. An ER is an assessment of the possible impacts that a proposed project may have on the environment. The review takes into account all of the project's environmental aspects, i.e., underground contamination, protected biotopes and species, water runoff, wastewater, solid waste, noise, air emissions and alternate energy sources. All impacts must be identified and evaluated in the earliest project design stages, and appropriate mitigation measures merged into the project design.

The ER process is a joint effort conducted by a team of project proponents, planners, architects, engineers and environmental experts. Networking, communication and information flow are essential for successful environmental project support.

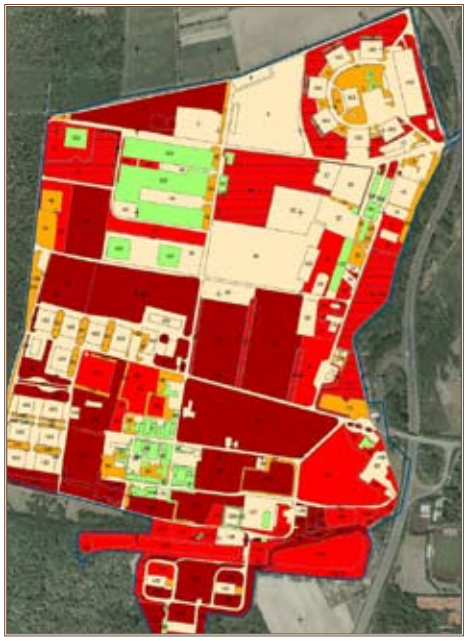
In recent years, compensation for environmental impacts resulting from construction or other military activities has become increasingly important. Many decades of military, including industrial, site use may lead to soil or groundwater contamination. Contamination can pose significant development and planning constraints. Garrison lands serve as protected buffers for the groundwater drinking supply, so contamination is a primary concern for planners.

A ferro-magnetic soil survey is conducted at Germersheim Army Depot as part of the ER. Photos courtesy of the Directorate of Public Works, USAG Baden-Württemberg.

In the densely populated and highly industrialized environment of Germany, U.S. Army installations face additional pressure as islands of natural habitat. These lands are protected as local biotopes, state landscape and nature reserves, European Union habitat and bird protection areas, as well as groundwater protection zones.

Of U.S. Army Garrison Heidelberg's roughly 1,520 acres, 860 acres — 57 percent — are under some form of nature protection, and 214 acres — 14 percent — are considered valuable biotopes. These areas support more than 250 threatened and endangered species. In addition, 47.5 percent of the lands are located within water protection zones.

USAG Heidelberg's strategy is to spend money in the earliest design process for surveys and assessments to prevent costs that could result from unexpected contamination, project delays and potential project disapprovals. Before construction work commences, compensation ➤



GIS was used to develop this installationwide ecological site ranking at Germersheim Army Depot.

Acronyms and Abbreviations	
ER	environmental review
GIS	Geographical Information System
USAG	U.S. Army Garrison

(continued from previous page)

also partners with the Dutch Ministry of Agriculture, Nature and Food Quality, known as LNV in Dutch, on a variety of environmental actions. Permits are required any time an environmental action is undertaken, such as planting and cutting trees or introducing certain fish species into the Schinnen Pond.

Thanks to cooperation between Schinnen officials and the LNV, advance consultations on all these planned actions are easily arranged, which streamlines the permit process, Verwasch said.

"Partnering with our local, regional and national host nation authorities is a way of business here at USAG Schinnen," he said. "As the only U.S. installation in the Netherlands, this just makes sense as a way to do business but also as a way to be a good neighbor, too."

POC is Tom Budzyna, director, Public Affairs, USAG Schinnen, DSN 314-360-7585, commercial 00-31-(0)46-443-7585, thomas.budzyna@eur.army.mil.

Sarah J. Schmidt is a public affairs specialist, U.S. Army Garrison Schinnen.

Hohenfels: One step ahead of remediation

by Jochen Doerr

U.S. Army Garrison Hohenfels, Germany, supports the Joint Multinational Readiness Center, which, at 40,000 acres, is the second largest U.S. Army training area in Europe. Petroleum, oil and lubricant spills and POL-contaminated solids and sludge are a common source of contamination, which must be handled by Directorate of Public Works personnel on a daily basis.

Environmental Management System and benchmarking

The USAG Hohenfels DPW's Environmental Division sets the standard under the umbrella of the EMS. The Spill Prevention Program was implemented by establishing environmental benchmarks, which were presented as EMS targets at the quarterly Environmental Quality Control Committee meetings with the objective to take, implement and control decisions.

The environmental benchmarks consist of:

- training at least 1,000 individuals per year;
- conducting 200 to 250 environmental performance assessments and hardstand inspections per year;
- monitoring spill volumes and spill incidents; and
- monitoring quantities and disposal costs of POL-contaminated hazardous wastes.

The Spill Prevention Program's effectiveness demonstrates that resolution of environmental issues does not necessarily require investment in expensive pollution control equipment.

➤

(continued from previous page)

measures for habitats and species must be in place.

German law requires that when construction projects affect land, an equivalent parcel of the same nature must be improved as compensation. To fulfill this requirement, the Environmental Division works closely with host nation officials to identify appropriate lands and courses of action.

At Germersheim Army Depot, an enduring installation, plans are in place to upgrade the installation into a major logistics center for the U.S. Army in Europe. This will involve more than 15 new construction projects between fiscal years 2010 and 2014 worth $161 million. The depot is located entirely within a European Union Special Protected Area for birds. In addition, the open areas within the installation are characterized, from an ecological point of view, by nutrient-poor sand meadows, which are protected biotopes by host nation law.

As overall project support, Germersheim was surveyed in 2008 for biotopes and plant and animal species to develop an ecological baseline and to implement a rating system of sites within the depot, based on their ecological value. At the same time, sites were screened for potential underground contamination through historical data research and compilation, geophysical site investigations and soil surveys.

This process assists with assessing possible environmental risks and calculating potential extra costs for soil decontamination and hazardous waste disposal. Based on the results, a final site selection can be made together with all key players within the ER process.

A key decision-supporting instrument in the ER process is the geographic information system. The garrison's GIS, implemented in 2003, covers a wide variety of environmental themes, including protection zones, vegetation, threatened and endangered species, soil quality and infrastructural data. USAG Heidelberg uses this data management, analysis and visualization tool to efficiently evaluate the potential environmental impact of proposed actions.

Maintaining all environmental data in the USAG Heidelberg GIS allows the project planning team a quick and reliable assessment of various planning scenarios from an environmental point of view without losing the overall perspective. It enables the evaluation of numerous environmental aspects and impacts such as soil, groundwater, natural and cultural resources, air emissions and waste disposal. In addition, the GIS-based data analysis supports the professional documentation of the environmental planning process.

With this planning instrument, proposed project sites and alternatives can quickly and easily be compared in order to select the location with the lowest compensation and mitigation requirements from an environmental perspective. This approach also serves as a basis to determine compensation costs.

For Military Construction projects, the overall goal is to provide effective environmental stewardship while balancing multiple uses and preventing impact on mission-essential tasks. Because ER identifies and evaluates the project's environmental effects early in planning, it is a critical part of all construction projects. Without an early ER, supported by a team of all involved parties, a project runs the risk of delay or failure due to environmental issues. Open communication and networking between all parties is an essential factor in the process.

Early action and open dialogue make ERs successful, and a successful ER results in a successful project for everyone involved.

POC is Johannes Haid, DSN 387-3141, cell 0162 2700770, johannes.haid@eur.army.mil.

Johannes Haid is an environmental protection specialist, Environmental Division, Directorate of Public Works, USAG Baden-Württemberg, Germany.

(continued from previous page)

Wash rack modification

To avoid high-cost investments, effective technical remedies were developed through close cooperation between the various DPW branches. For the contaminated sludge and soil treatment facility associated with the wash rack at Camp Albertshof, a Hohenfels training site, major modifications to the existing soil-treatment system were accomplished in fiscal year 2008.

The existing treatment facility for contaminated sludge was modified to allow additional separation and dewatering of contaminated soil into contaminated fine-fractions and purified coarse-grain fractions, or noncontaminated residues.

About 15 to 25 percent of the total treated material is classified as contaminated fines (< 100 µm). These contaminated fines are reused at a brick production plant. About 75 to 85 percent of noncontaminated residues (coarse-grain fraction > 0.1 mm to 32 mm) are reused as part of road construction projects. Less than 1 percent of the contaminated material — normally consisting of leaves, plastics and organic material — has to be disposed of as hazardous waste.

The modification enabled the installation to treat about 1,500 metric tons of POL-contaminated soils in FY 2008 that previously would have had to have been disposed of.

Investment costs and payback

The investment costs for the treatment facility modification were about $87,500. Of the roughly 1,500 metric tons of POL-contaminated soils processed through the treatment facility during FY 2008, about 90 percent of the volume of sludge was recycled; 150 metric tons of contaminated fines were transported to a brick manufacturing plant for reuse instead of disposal at a cost of about $3,750. Only 15 metric tons of contaminated residues — leaves, plastics and organic matter — were disposed of offsite at a cost of $9,750. About $28,750 was spent on energy consumption and labor. The investment was paid back within 38 days.

An additional external charging bunker with a grinding unit was installed to allow feeding of POL-contaminated soils into the treatment process at the wash rack at Camp Albertshof, Germany. Photo by Jochen Doerr

The disposal costs for 1,500 metric tons of POL-contaminated soils would have been about $887,500.

Since the Spill Prevention Program was established, the average quantity of POL-contaminated hazardous waste disposed of per calendar year was reduced by about 16 percent. The average disposal costs per calendar year were reduced by about 32 percent, while unit disposal costs for POL-contaminated hazardous waste increased in the same time frame by about 100 percent.

In a nutshell, USAG Hohenfels is staying one step ahead of remediation.

POC is Bernhard Weber, chief, Environmental Division, DPW, USAG Hohenfels, +49-9472-832658, bernhard.weber@us.army.mil.

Jochen Doerr is an environmental engineer contractor, Environmental Division, DPW, USAG Hohenfels.

Acronyms and Abbreviations	
DPW	Directorate of Public Works
EMS	Environmental Management System
FY	fiscal year
POL	petroleum, oil and lubricant
USAG	U.S. Army Garrison

Fraction %	Residues Hazardous Waste	Contaminated Fine-Fraction (< 100 µm) of soil	Coarse-Grain Fraction (0.1–8mm) of sand	Coarse-Grain Fraction (8–32 mm) of gravel	Coarse-Grain Fraction (>32 mm) of gravel
Fraction %	< 1 %	> 15 % to 25 %	> 15 % to 25 %	> 25 % to 35 %	> 15 % to 25 %
Disposal path	Off Site Incineration (Disposal)	Off Site Brick Manufacturer (Recycling)	On site Construction Work (Recycling)	On site Construction Work (Recycling)	On site Construction Work (Recycling)

Soil from the wash rack at Camp Albertshof is separated and reused or disposed of according to this chart. Graphic by Jochen Doerr

Army wins green leadership award

by Dana Finney

The Construction Engineering Research Laboratory, representing the U.S. Army, received the U.S. Green Building Council's *Leadership Award* in the *Public Sector Category* during the annual Greenbuild conference in Phoenix in November.

The award recognizes outstanding individuals and organizations who are leaders in the evolution of green building design and construction. Recipients are considered to be among the most influential green building leaders in the country whose achievements are bedrock to the USGBC mission of transforming the built environment.

"The Army team was able to carry out a major change of culture in a long-standing facility acquisition process, committing to improving its infrastructure for current and future generations," a USGBC press release stated.

The winning team initiated a multi-agency effort that led the Department of the Army to transition from the Sustainable Project Rating Tool to USGBC's Leadership in Environmental and Energy Design for all Military Construction projects and to establish a goal of achieving Silver ratings.

This effort involved multiple partners among stakeholders in the facility delivery process. Team leaders included:

- **Annette Stumpf, Richard Schneider** and **Ilker Adiguzel**, CERL;
- **Vincent Kam, Hyuk (Chuck) Pak** and **John Scharl**, Office of the Assistant Chief of Staff for Installation Management;
- **John Krajewski**, Installation Management Command;
- **Joanne Qualey** and **Harry Goradia**, Headquarters, U.S. Army Corps of Engineers;
- **Judy Milton**, USACE, Savannah District; and
- **Donald Fournier**, University of Illinois.

Representing their agencies (left to right) Andrea Kuhn, Headquarters, USACE; Vincent Kam, OACSIM; Annette Stumpf and Richard Schneider, CERL; Melissa Gallagher-Rogers, LEED Government and Higher Education Sector, USGBC; Ilker Adiguzel, CERL director; and Jeff Ward, Headquarters, Installation Management Command, pose at the awards ceremony. Photo courtesy of CERL

"The Army's adoption of LEED has led to a revolution in the facility acquisition process," said Stumpf, a researcher in CERL's Engineering Processes Branch. "It has a far-reaching impact on the multi-billion dollar annual MILCON program both in the U.S. and at overseas installations."

For example, in fiscal year 2009, the Army built some 1,000 facilities for occupancy that achieved USGBC certifiable LEED Silver, Stumpf said.

"Nearly 10 years ago, the Army proposed the use of a rating tool to help shape the sustainability of its facilities at the design and development phases," said Schneider, also a researcher in the Engineering Processes branch. "The AEC [architectural, engineering and construction] industry was moving in this direction — most notably USGBC, which was developing a consensus-driven standard, LEED 2.0. To address military requirements for such a tool, ACSIM asked CERL to customize LEED 2.0, and the result was SPiRiT, which debuted in 2001."

As with LEED, the intent of SPiRiT was to seek green options for MILCON projects that would produce sustainable facilities over the entire life cycle — from master planning, design, construction and occupancy, through operation and maintenance to environmentally sound disposal. SPiRiT represented a critical step in helping participants in the facility delivery process gain comfort with using a rating tool to build sustainability into projects.

As USGBC's LEED tools evolved, CERL conducted an extensive study comparing the new LEED versions with SPiRiT and recommended that the Army adopt LEED for New Construction ➤

Acronyms and Abbreviations	
ACSIM	assistant chief of staff for installation management
CERL	Construction Engineering Research Laboratory
LEED	Leadership in Energy and Environmental Design
MILCON	Military Construction
SPiRiT	Sustainable Project Rating Tool
USACE	U.S. Army Corps of Engineers
USGBC	U.S. Green Building Council

Fort Bliss wins national waste reduction award

by Terri Smythe

Keep America Beautiful honored Fort Bliss, Texas, for its efforts in reducing waste through its innovative recycling programs. The nonprofit organization presented the Fort Bliss Directorate of Public Works' Environmental Division with *First Place* in its *National Award for Waste Reduction, Government Agency Category*, at its national conference in Washington, D.C., Dec. 4.

Fort Bliss was recognized for its innovative recycling programs, both ongoing and launched this past year. At the core of the effort are single-stream recycling, electronics waste collection and litter-free events.

The Environmental Division's Bob Lenhart uses his desk-side recycling container. Photo by Terri Smythe

"It is a tremendous honor to receive this award on behalf of all those who serve, live and work at Fort Bliss," said Lilia Lenhart, environmental engineer and Solid Waste Program manager. "It is their commitment to environmental excellence that has resulted in this national recognition."

Fort Bliss Solid Waste Program manager Lilia Lenhart explains electronic waste recycling to Fort Bliss Soldier Sgt. Hatfield. Photo by Donita Kelley, Fort Bliss Public Affairs Office

Single-stream recycling

Fort Bliss is the first U.S. Army installation to implement SSR for its administrative, retail, restaurant, contractor and other partner organizations. With SSR collection, all recyclables are placed together in one of the more than 400 blue dumpsters located across the post. Recyclables include paper, Nos. 1 and 2 plastic, and aluminum, steel and tins cans.

The installation launched SSR to capture more recyclables and meet the demands of a growing community. Within a few short months, Fort Bliss realized a 94 percent increase in materials collected over the previous year's numbers.

Electronics Waste Collection Days

EWC Days allow anyone who is able to come onto the installation to bring personal electronic waste items — such as computers, radios, stereos and TVs — to the Fort Bliss Recycling Center for proper disposal. After two successful EWC ➤

Acronyms and Abbreviations	
DPW	Directorate of Public Works
EWC	electronics waste collection
SSR	single-stream recycling

(continued from previous page)

and establish the target rating at Silver. The assistant secretary of the Army for installations and environment and the ACSIM concurred, and the Army issued a policy to this effect Jan. 5, 2006. Through its follow-on LEED implementation policy letters, Army leadership provided guidance to appropriately capture MILCON language, directives and additional requirements.

"Beginning with fiscal year 2008 new construction, all MILCON is required to achieve LEED Silver," said CERL director Adiguzel. "In addition, all design teams are required to include at least one LEED-accredited professional." Currently USACE has 159 LEED-accredited professionals.

Effecting a change of culture in a long-standing, conservative facility-acquisition process represents a major accomplishment by this Army team. By adopting LEED, the Army has demonstrated a commitment to align itself with this proactive approach to improving infrastructure now and for future generations.

The USGBC's Leadership Award acknowledges the Army team's perseverance and dedication to this outcome. CERL maintains the Sustainable Design and Development web site for the Corps: *https://eko.usace.army.mil/FA/SDD.*

POC is Dana Finney, 217-373-6714, dana.l.finney@usace.army.mil.

Dana Finney is a public affairs specialist, CERL, U.S. Army Engineer Research and Development Center, Champaign, Ill.

Design-Build Institute of America honors 3 Corps projects

by Jeffery Hooghouse

The Design-Build Institute of America recognized three U.S. Army Corps of Engineers projects with *National Design-Build Awards* at its 2009 Design-Build Conference in November at the National Harbor near Washington, D.C.

To be considered for a *National Design-Build Award*, projects must successfully apply design-build principles, including collaboration in the early stages of the project and the acceptance of single-entity risk. The project must be completed on time, on budget and without litigation. Winning projects are honored for their advanced and innovative application of total integrated project delivery and for finding unique solutions for project challenges.

The Brigade Combat Team and Brigade Battalion Headquarters at Fort Carson, Colo., received a 2009 Design Excellence Award from DBIA.

Brigade Combat Team and Brigade Battalion Headquarters, Fort Carson, Colo., received a 2009 Design Excellence Award for Public Sector Building Over $25 Million. The design-builder was Hensel Phelps Construction Co., with the architect RNL Design.

Executed by the Omaha District, this project was part of the Corps' initial Military Construction Transformation initiative. The project achieved enough points to acquire the prestigious Leadership in Energy and Environmental Design Gold certification.

Acronyms and Abbreviations	
DBIA	Design-Build Institute of America

The structure consists of a multi-tenant, multi-story office building that houses the 1st Brigade Combat Team of the 4th Infantry Division's administrative and command operations. The high-security facility is home to a brigade headquarters, as well as six battalion headquarters at Fort Carson.

St. Bernard Parish Pump Station Rehabilitation, New Orleans, received a Design Excellence Award for Rehabilitation/Renovation/Restoration Project. The design-builder was CDM Constructors Inc., with architect-engineer CDM.

Hurricane Katrina severely damaged ➤

(continued from previous page)

events, this program has now become a permanent recycling offering at Fort Bliss.

Litter-free events

Fort Bliss piloted its first litter-free event at its Armed Forces Day celebration in 2008. With that first success, the program expanded to include the Amigo Airsho. To support this effort, the Amigo Airsho promoters and Fort Bliss Recycling Center staff worked in partnership with vendors to provide "recyclable only" beverage containers to reinforce the recycling message and further the program's goals. The overwhelming participation in recycling by attendees at these events resulted in permanent litter-free event components being incorporated into all public events on the installation.

"These new programs along with the success of existing programs such as the Soldiers' Unit Fund Recycling Program, HazMart, Curbsiders and the community's response to recycling resulted in this award," Lenhart said.

"I commend all who have worked so diligently to make this award possible," said Maj. Gen. Howard Bromberg, Fort Bliss commanding general. "To receive this honor is testament Fort Bliss is truly committed to keeping America beautiful; the award also further enforces our role as a national environmental leader by demonstrating that we are good stewards of the environment. Well done, Team Bliss!"

In June, Fort Bliss had received a first place award from Keep Texas Beautiful.

POCs are Terri Smythe, 915-568-1537, terri.smythe@conus.army.mil; and Lilia Lenhart, 915-568-5724, lilia.a.lenhart@conus.army.mil.

Terri Smythe is a marketing specialist, Environmental Division, DPW, Fort Bliss.

(continued from previous page)

three pump stations in St. Bernard Parish leaving the parish exposed to flood waters from future hurricanes. The design-build delivery method was successfully used to quickly and cost effectively rehabilitate the three pump stations and provide flood protection during two ensuing hurricanes.

Overhead Coverage System Program: Enhanced Force Protection for U.S. Military and Government Personnel, various locations, Iraq, received a *Design Excellence Award for Rehabilitation/ Renovation/Restoration Project.* The design-builder was Perini Corporation, and the engineer was Tetra Tech.

This project was executed through the Corps' Transatlantic Programs Center, Middle East District; and the Gulf Region Division. Other Corps participants included the Engineer Research and Development Center and the Protective Design Center.

The Overhead Coverage System Program provides critical enhanced anti-terrorism force protection to high-occupancy facilities under a hyper-accelerated design-build program. It provides protection for more than 2 million square feet of structures from mortar and rocket attacks and has saved the lives of hundreds of U.S. military and government personnel in Iraq. This project was also a finalist for the *Overall Project Excellence Award.*

The St. Bernard Parish Pump Station Rehabilitation project in New Orleans received a Design Excellence Award for Rehabilitation/Renovation/Restoration Project.

For information on all the DBIA award winners, visit *www.dbia.org/about/awards/national/2009awardprojects.htm.*

The Overhead Coverage System Program in Iraq won a Design Excellence Award for Rehabilitation/Renovation/Restoration Project.

POC is Jeffery Hooghouse, 202-761-5533, jeffery.t.hooghouse@usace.army.mil.

Jeffery Hooghouse, AIA, is chief, Value Management and Value Engineering, Headquarters U.S. Army Corps of Engineers.

Call for ARTICLES

The March/April 2010 issue of the

Public Works Digest

will feature

Housing and Lodging

Deadline is Feb 16

Submit articles to
mary.b.thompson@usace.army.mil
202-761-0022

Building Strong through continuous learning

by Lt. Gen Robert L. Van Antwerp

The Army and the nation have placed a heavy workload on our shoulders. This workload often makes it difficult for us to build our workforce and organizations the way we should. However, our training and educational activities are critical investments in ensuring our team members are prepared to meet current and future demands. We must recognize and overcome obstacles to making workforce training and education opportunities a reality.

I often hear from supervisors and team members that there just isn't enough time or money available to send individuals to training. Training is an investment in our workforce, and I believe we need to make the time and funding available. If we don't have team members with the right skills, at the right time and in the right place, we won't be able to meet the demands that are placed on us.

Sometimes, I hear that we can't afford to let a particular individual go for training because we don't have anyone who can fill in and get the work done. If it doesn't hurt to send a person to training, then we probably aren't sending the right person.

Our professions are constantly changing. If we're not learning and growing professionally, we're falling behind. It's imperative that our employees have the training needed to perform current duties as well as to set the standards for the future within the Department of Defense and our communities of practice.

We all recognize that training and travel budgets are often limited. But there are ways to obtain professional training without breaking the bank. Distance and web-based learning opportunities are two solutions that work exceedingly well in stretching our training dollars.

The U.S. Army Corps of Engineers Learning Center offers 15 fee-for-training distance-learning modules. Find out more on their web site at *http://ulc.usace.army.mil/*. Many of these courses are designed specifically for Career Program 18 workers. In addition, many colleges, universities and even some of our Army training programs offer distance learning alternatives for those who can't be away from home, work or family.

The Army also offers more than 3,000 learning opportunities through its Skillsoft E-Learning program. These courses — offered online at no charge to Army Soldiers and civilians through Army Knowledge Online — include Microsoft certification preparation, project management training aligned to the Project Management Institute, mentoring and coaching, Six Sigma Black Belt training, fundamentals of supply chain management and many more.

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

Several of these courses are acceptable alternatives for Defense Acquisition University certification. In fact, employees can earn up to 20 credit hours toward required Acquisition Corps membership and certification. Here's a no-cost alternative that allows staff to complete courses online.

As an added benefit, employees also have access to other personal and professional opportunities, ➤

Acronyms and Abbreviations	
AKO	Army Knowledge Online
CP-18	Career Program 18, Engineers and Scientists – Resources and Construction

American Council on Education (ACE) Business Course Equivalency Guide

Course Title	Course #	Credits
Business Operations: Six Sigma and Lean Manufacturing	SKIL-0011	3
Accounting for Non-Accounting Majors	SKIL-0012	2
Business Finance	SKIL-0013	1
HRCI/PHR Certification Program	SKIL-0014	1
Knowledge Management Fundamentals	SKIL-0015	1
Managing Contractors and Temporary Employees	SKIL-0016	1
Business Writing Essentials	SKIL-0017	1
Project Management for IT Professionals	SKIL-0018	1
Strategic Project Management for IT Projects	SKIL-0019	1
Project Management Professional (PMP & CAPM)	SKIL-0037	3
HRCI/SPHR Program	SKIL-0038	1
Six Sigma Black Belt	SKIL-0039	4

Skillsoft Courses that meet Defense Acquisition University certification requirements. Chart courtesy of CP-18 Team

Master planning classes to be offered

by Andrea Wohlfeld Kuhn

The Proponent Sponsored Engineer Corps Training, known as PROSPECT, schedule for master planning courses has been announced for 2010. All classes are open to all interested parties, including contractors, private citizens, and state, city and county employees.

Course 948

Real Property Master Planning Visualization Techniques

Feb 1-4

Huntsville, Ala.

This 32-hour course provides planners with a fundamental overview of planning visualization tools such as Google SketchUp, Google Earth and Photoshop. Students will receive hands-on instruction on the use of the various software applications and will produce illustrations and basic area development proposals using these techniques.

Course 075

Real Property Master Planning

May 11-14

Portland, Ore.

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 developing a real property master plan, environmental considerations, facilitating stakeholder participation, force structure and sustainable planning concepts.

Course 952

Advanced Real Property Master Planning

May 17-21

Portland, Ore.

July 26-30

Savannah, Ga.

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 or real property management.

Course 326

Master Planning Applied Skills

Aug 23-27

Huntsville, Ala.

This class provides an overview and techniques to develop real property requirements and allowances, and assess stationing actions.

Real Property Master Planning Class team members work out a planning solution. Photo by Jerry Zekert

To register or view course descriptions, go to *http://pdsc.usace.army.mil*, or contact Janine Wright at 256-895-7431 or janine.p.wright@usace.army.mil.

POCs are Jerry Zekert, 202-761-7525, jerry.c.zekert@usace.army.mil; and Andrea Wohlfeld Kuhn, 202-761-1859, andrea.w.kuhn@usace.army.mil.

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

(continued from previous page)

such as the full suite of Rosetta Stone software and voice recognition tools. Army employees can access any of these courses at any time at no cost through the Army E-Learning portal. They are listed under the "My Education" tab on the AKO home page, *www.us.army.mil*, and are updated at least annually.

With all that, I think the biggest training and development obstacle may be individual motivation. It's not enough to have the tools and opportunities available. Each of us must take responsibility for our own personal and professional development — no mentor or supervisor can do it for us.

One of our goals for CP-18 is to promote an environment of lifelong learning. This is a very real culture change and will involve each and every one of us. We must all work together—commanders, supervisors and careerists — to identify opportunities to continue to learn and grow so that we will become a GREAT community of practice serving the nation and the Army. By promoting continuous learning, we can ensure that we are Building Strong.

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

Class held in Norfolk explores master planning techniques

by Jerry Zekert

What is this thing called master planning? How do planners translate ideas into great visions for installations? Following a class as it goes through the Real Property Master Planning course offered by the U.S. Army Corps of Engineers illuminates the answers to those questions.

The course is structured to provide members of the installation master planning community a broad overview on the process of master planning. Now in its 27th year, the course provides a unique learning environment. Leading planning experts from the public service, academia and federal sectors teach various aspects of master planning. The class is very active, involving field trips to explore that enable students to understand how great planning principles are translated into completed, transformed neighborhoods. Students put their thoughts on paper through a series of interactive class exercises. The class is broken into groups and challenged to create a transformed vision and plan for a small installation.

In December, USACE hosted the class in Norfolk, Va. Planning is real, and during the field trip to the downtown area of Norfolk, the students saw planning in action.

They visited the city of Norfolk Neighborhood Design and Resource Center, where a team of planners and architects provide assistance to citizens in implementing the form-based coding that the city practices by providing quick sketches and design options that comply with the city's planning vision. This presentation was particularly timely since the Army intends to transition into form-based coding this year.

The class also visited a mixed-use building that contains housing, a large grocery store, offices and community college facilities. The store manager provided great insight on how successful this business model is for the neighborhood, and all the paradigms of security, noise and sanitation are broken. This mixed-use model has proven so successful, that the grocery chain is using it in Chicago and other cities and towns.

Students observed the construction of Norfolk's new light rail transit system from the offices of USACE's Norfolk District to the Virginia Beach line. They observed how transit-oriented development can create sustainable solutions that reduce dependency on cars while creating great, healthy, walkable communities.

After returning from the extended field trip, the class finished their planning projects. Class team members created great planning solutions that embraced many of the planning solutions they had noted in downtown Norfolk.

Class members leveraged the power of Google mapping, Photoshop and other visualization techniques to create their solutions. The instructor team found that the class solutions were some of the most creative and imaginative they had seen.

The Real Property Master Planning class provides an overview of the planning process and opens the door for those interested in the rest of the master planning training curriculum.

The next session of this course is scheduled for May 7 in Portland, Ore., where students will explore the successes of great planning in the Pacific Northwest.

(Editor's note: For USACE's master planning course schedule and enrollment information, see the article on page 39.)

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

POC is Jerry Zekert, 202-761-7525, jerry.c.zekert@usace.army.mil.

Jerry Zekert is the chief, Master Planning Team, Headquarters USACE.

A class member presents his team's planning solutions at the Norfolk class in December. Photo by Jerry Zekert

An official from the Norfolk Neighborhood Design and Resource Center explains form-based coding and support to the community. Photo by Jerry Zekert

Annual Army Planning Symposium scheduled for April

by Jerry Zekert and Andrea Wohlfeld Kuhn

In conjunction with the Federal Planning Division of the American Planning Association's National Training Conference, the U.S. Army Corps of Engineers will host, for the 15th year, the Army Planning Symposium. This year's symposium is scheduled for April 6-7 at the New Orleans Marriott at the Convention Center.

The symposium provides an excellent opportunity for the Army's Master Planning Community of Practice to exchange information on successful Army practices and gain knowledge of current planning trends. In addition, other federal agencies, such as the Air Force and the Navy, will conduct their respective symposia at the same time, which creates networking opportunities for an exchange of federal planning information.

There is no registration fee for the Army symposium.

Topics at the Army symposium will include:

- discussions of the update to Army Regulation 210-20, *Real Property Master Planning for Army Installations;*
- form-based coding and other new planning principles the Army is championing;
- sustainable planning; and
- best planning practices.

Also, the Symposium serves as the mid-year U.S. Army Corps of Engineers Master Planning Community of Practice review at which all major subordinate commands and centers provide review of their ongoing planning program.

Since the agenda is still open, nominations for topics and presentations are welcome. Contact the POCs listed below if you wish to make a presentation.

Attendees are **strongly** encouraged to register for the Federal Planning Division's National Training Conference, which immediately follows the Army symposium April 8-9 and offers sessions on topics ranging from sustainability to intergovernmental coordination, land-use compatibility and technical topics.

Attendees are encouraged to register early and secure lodging as soon as possible. Although there are no fees to attend the Army symposium, the National Training Conference registration fees start at $210 and vary depending on when attendees sign up.

The deadline for early registration is March 20. Lodging goes quickly, so making reservations early is a wise move. Last year, about 500 people attended the entire conference, and another great turnout is expected this year.

To register for the Army Planning Symposium, contact Jerry Zekert or Andrea Kuhn at the POC information below. For information on the Federal Planning Division and to register for the National Training Conference and secure lodging, go to *www.federalplanning.org.*

POCs are Jerry Zekert, 202-761-7525, jerry.c.zekert@usace.army.mil; and Andrea Wohlfeld Kuhn, 202-761-1859, andrea.w.kuhn@usace.army.mil.

Jerry Zekert is the team leader and Andrea Wohlfeld Kuhn is an associate, Master Planning Team, Headquarters, U.S. Army Corps of Engineers.

2009 symposium participants take in the new trends in planning. Photo by Jerry Zekert

Carroll views his role as installation support

by Mary Beth Thompson

It's a long, long way from a garrison's proposal of a Military Construction project to the Congressional approval. What's more, the path may be intricate and can include many hurdles. A major contributor to getting a project to that finish line is the MILCON Programming, Master Planning, Real Property and Real Estate Branch at Headquarters, Installation Management Command's Public Works Division. The branch is led by Allan B. Carroll.

"We are the advocate and champion for projects that originate at each garrison," Carroll said. "Every project on Army installations comes up from garrisons to regions to Headquarters, IMCOM, and then we ensure the data is correct and clear so that we can then articulate, advocate and defend those projects to the ACSIM [Office of the Assistant Chief of Staff for Installation Management], because they have to make the decisions as to what projects go forward to Congress for authorization and appropriation."

Carroll described his branch as providing guidance, funding, authority, training, issue resolution and strategic communication to Army garrisons for their MILCON, master planning, real property and real estate needs.

His team's big project right now is prioritizing input from garrisons for the fiscal years 2012-17 Military Construction, Army program. Team members are also finishing the *Army Space Planning and Criteria Manual* and the *Real Property Master Planning Technical Manual*, which will give updated guidance, assistance and examples. They also participate in the courses taught by the Corps of Engineers' Master Planning Team.

They are involved in another Corps-operated effort — Enhanced Use Leases, which allow private-sector use of Army real estate in ways that benefit the involved installation. Team members also work to ensure databases like the Real Property Planning and Analysis System and the Integrated Facilities System, which feed other systems that validate projects, are accurate.

Although some of this work may seem on the surface as though it is directed at the needs of higher headquarters, Carroll emphasized that the branch's focus is in support of garrisons.

"I am proud of how hard those guys (at the garrisons) are working," Carroll said. "They are undoubtedly one of the most dedicated teams of people who serve Soldiers and families every day.

"I feel so strongly that it's Headquarters' responsibility to support garrisons. It's our job to make their lives manageable. That's our commitment."

Carroll talked about the transformation taking place at IMCOM. That the changes will be executed in a way which improves assistance to garrisons is a concern. In the end, the re-created organization should be truly better able to support the garrisons, he said.

Toward the goal of making life more manageable for garrisons, Carroll believes it is important to improve the relationship between the IMCOM Public Works community and the U.S. Army Corps of Engineers.

"The relationship is really inseparable," he said. "We are dependent on each other.

"Often times, we see the engineer career field from different views, but it's all interconnected. It's important for us to continue to work together and appreciate the contributions of each other. We can only be better if we work together."

Carroll speaks from experience with both organizations. He is a retired Army colonel who served in engineering assignments in Korea, Europe, Hawaii and continental U.S. posts. He taught at Army engineering schools and served with two Corps of Engineers districts and a division. After retirement, he became chief of Public Works at IMCOM Pacific Region. When IMCOM Transformation eliminated the Pacific Region Public Works Division, Carroll moved to his new position in Headquarters, IMCOM, at Fort Sam Houston, Texas.

Acronyms and Abbreviations	
DPW	Directorate of Public Works
IMCOM	Installation Management Command
MILCON	Military Construction

Allan B. Carroll
Photo by Bethany Carroll

"Having had assignments in the Corps of Engineers, IMCOM and Army units over my 30-plus years as military and civilian has made me appreciate the contribution and vital interconnection of each. Anything we can do to continue improving relationships will make us collectively much better."

But Carroll admitted that building relationships is not necessarily easy.

"It's not natural. You've got to work it," he said.

Carroll is a graduate of the U.S. Military Academy at West Point. He earned a master's degree in engineering management from the University of Missouri-Rolla and another master's degree from the Industrial College of the Armed Forces. He also attended numerous Army schools during his career.

He called the Army's system of educating and developing its noncommissioned officers and officers unparalleled. Soldiers go from a training experience to an active duty assignment, then back to school and on to another assignment, throughout their careers. ➤

Corps inactivates Gulf Region Division, activates Transatlantic Division

The U.S. Army Corps of Engineers stood down the Gulf Region Division and stood up the new Transatlantic Division to consolidate engineering requirements and set priorities throughout the Middle East and Central Asia. The new division unifies all USACE programs in the U.S. Central Command operations area, which covers 20 countries from Egypt through the Arabian Gulf to Central Asia.

Three USACE organizations have supported customers in this region: the Gulf Region Division, the Afghanistan Engineer District and the Transatlantic Programs Center. The new division, dubbed "TAD," with its five districts, is responsible for Military Construction and interagency and international support missions throughout the region.

USACE's Gulf Region Division began transforming as a result of the drawdown of U.S. forces in Iraq. On July 20, the Gulf Region North and Gulf Region Central districts merged into the Gulf Region District. No change was made to the structure of Gulf Region South District. On October 23, the division was inactivated, and the districts began reporting to TAD.

Since its stand-up on Jan. 25, 2004, the Gulf Region Division completed 5,257 reconstruction projects at a cost of $8.9 billion, with an additional 529 projects underway or planned totaling $2.4 billion. More than 5,000 USACE Soldiers and civilians have deployed to Gulf Region Division, and more than 2,400 have deployed to AED.

Acronyms and Abbreviations	
AED	Afghanistan Engineer District
TAD	Transatlantic Division
USACE	U.S. Army Corps of Engineers

Maj. Gen Michael Eyre (left) and Command Sgt. Maj. Mitch Prater (center) prepare to case the Gulf Region Division colors during an inactivation ceremony at Al Faw Palace, Baghdad, Iraq. Photo by Mike Scheck, USACE

Gulf Region Division accomplishments

- U.S. and Iraqi efforts have added 6,000 megawatts to the country's electrical grid.
- USACE has met its goal of assuring the capacity to produce 3 million barrels of oil per day.
- More than 5 million people are benefitting daily from USACE water and sewer projects.
- More than 1,100 school projects that serve hundreds of thousands of children have been completed.
- Millions of people each year are being treated in USACE-built medical facilities.
- Gulf Regional Division projects employ an average of 8,900 Iraqis.

Transatlantic Division

The Transatlantic Division is a new organization with command and control over five districts.

The division was stood up Sept. 29 at a ceremony in Winchester, Va., home to its headquarters. Brig. Gen. Kendall Cox is its first commander.

When fully operational, TAD will have five districts — two in Iraq, two in Afghanistan and the Middle East District in Winchester, Va. TAD expects to manage about $4 billion a year in Military Construction and interagency and international support missions.

USACE had a "Transatlantic Division" from 1991 to 1995; that organization was renamed the Transatlantic Programs Center in 1995. The Transatlantic Programs Center has been renamed the Middle East District. Its mission remains the same: to provide engineering, construction and related services to U.S. military, U.S. government and host nation customers in the region; and to increase reach-back support to the deployed districts.

In Afghanistan, a second district, AED-South in Kandahar, was added in August because of increasing facility requirements for U.S. forces there. AED-North is located in Kabul. USACE's work in Afghanistan will grow from about $800 million two years ago to $3.4 billion next year.

From a USACE release.

(continued from previous page)

"The fact that we integrate education and experience over time is, I think, paramount to developing leaders in the Army," Carroll said. "You don't find that in industry. I feel honored that I've had that opportunity."

This depth of education and experience through all the levels of IMCOM and USACE helps him provide a bridge between the Corps and the Public Works community.

"Consequently, from a Public Works view now, I know what the Corps is doing. It's not a mystery," Carroll said. "The language the Corps and the DPW use is different. It's like French and German."

His military and civilian assignments, always as an engineer, have made him adept at translating between the two.

He's a "mission first, people always" person, he said. That philosophy, along with his career background, explains why he remains focused on helping the garrisons as they support Soldiers and families.

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

U.S. Army Installation Management Command
2511 Jefferson Davis Highway
Arlington, VA 22202-3926
www.imcom.army.mil

IMCOM

U.S. ARMY INSTALLATION MANAGEMENT COMMAND