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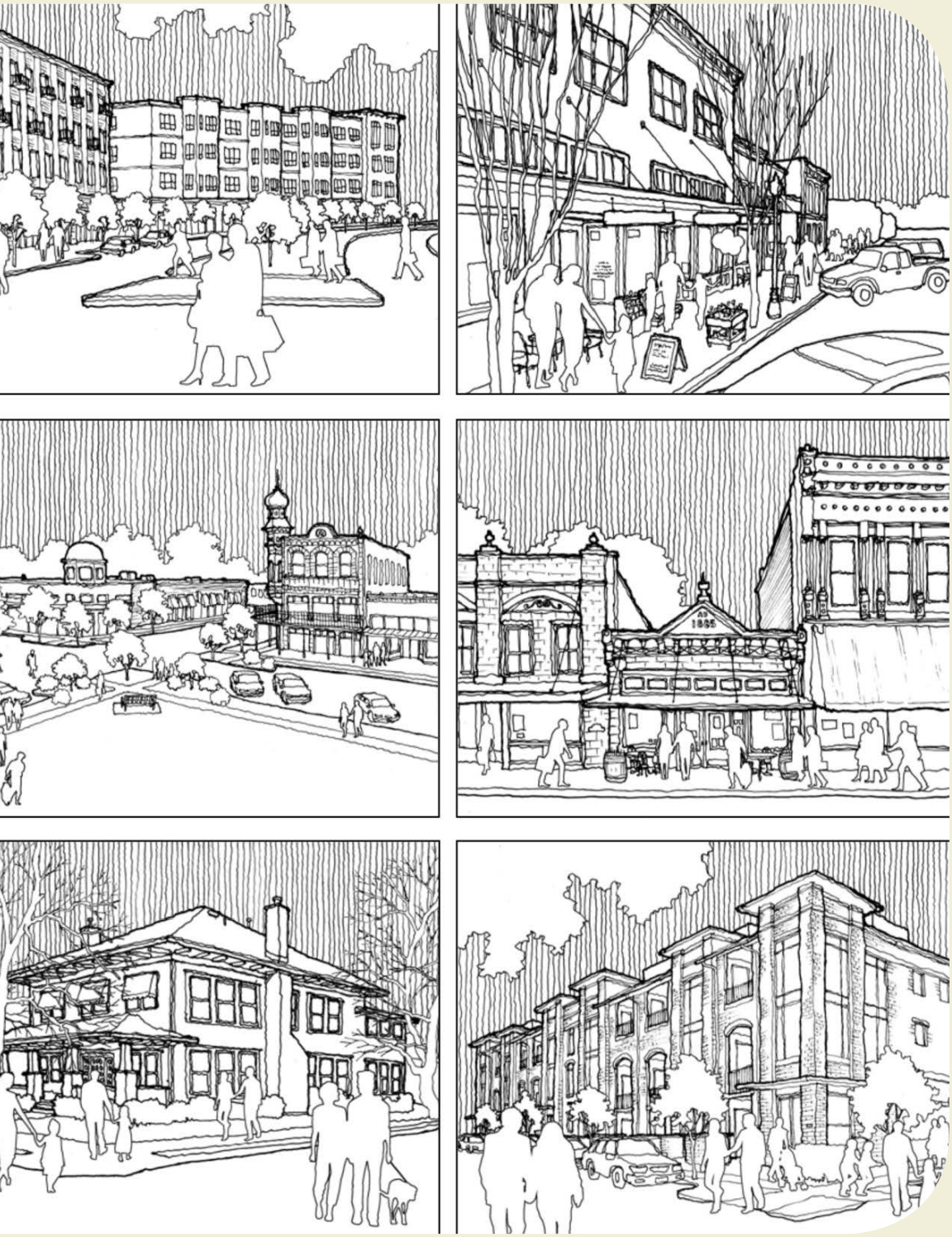

This Issue:
Master Planning, Housing and Barracks

Real Property Master Plans should reflect appropriate regional planning patterns for streets, public spaces, and buildings, like these images from development near Fort Hood. Complete article located on page 11.

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Fort Carson Manages FSBP through Centralized Approach

by Hal Alguire

The First Sergeants Barracks Program, better known as FSBP 2020, is working at Fort Carson because of an innovative, centralized approach and the dedication of some really good people. I will explain our approach, highlight some challenges, and then provide some food for thought as a director of public works who has been involved in barracks management for quite some time.

Fort Carson had a contractor-operated FSPB program up until September 2011. Knowing that we were not funded into 2012 to continue with this contract approach, we, along with other installations, implemented the Army's FSBP 2020 as a way to reduce costs while still maintaining the good points of FSBP.

We looked at two options going forward; a decentralized approach where brigade and separate battalions would manage all barracks tasks by establishing teams within their footprints and a centralized approach where we, at the installation level, would establish a FSBP team in a central location to manage selected barracks tasks. A decision was made to move forward with this centralized approach. We felt that the improvements we had made under FSBP would only remain if we continued in a centralized fashion with FSBP 2020.

At Fort Carson, the centralized FSBP 2020 operation includes 30 Soldiers from across all units, lead by a noncommissioned officer. The team operates out of one facility within the barracks' footprint. Each brigade and separate battalion at Fort Carson provides one or more Soldiers as part of this 30-Soldier team.

As an example, our 1st Armored Brigade Combat Team provides four of the 30 Soldiers on the FSBP team, and those four Soldiers are dedicated to 1st Brigade tasks. We have not strayed from the roles and responsibilities identified in FSBP 2020 and are compliant with all headquarters requirements. For example, the military/tenant unit is still responsible for the Installation Management Command FSBP stated tasks. The 30-Soldier FSBP team is an extension of our military units, not a replacement, and focuses primarily on the following key tasks:

- Room assignment and terminations
- Issue of room furnishings and hand receipts
- Issue of room key
- Room check-in/out inspections

I believe that there are clear advantages to a centralized approach.

Quality training is better assured by training team members in a single location. New NCOs and new assignment and termination clerks can learn from those Soldiers in the FSBP office who have experience. If they're hit with something new, all they have to do is ask. Consider the alternative where an understaffed DPW Unaccompanied Housing Office is attempting to train, monitor and mentor barracks managers in close to 17 different brigade and separate battalion areas and a multitude of company locations.

All initial and subsequent Soldier room assignments are performed out of the single facility. Assignments are made to the company level. Fort Carson leaders are assured that each incoming Soldier gets the same information from one of only a few assignment and termination clerks. Standardized briefings and procedures have been refined over time. An NCO oversees the assignment and termination clerks and ensures quality.

With a centralized approach, we also are able to manage and account for keys, furniture, and use of barrack spaces in an efficient manner. At Fort Carson, the FSBP team is responsible for and maintains accountability of 8,100 bed spaces and 46,000 keys. No small task but made much more efficient under centralized control where one FSBP Soldier controls the keys.

Soldiers know that if they put a hole in the wall or destroy furniture, they will pay for it. There is a sense of fairness as room inspections upon termination are made with inspectors trained under the same set of standards. Statements of charges are processed in a timely manner.

Acronyms and Abbreviations	
CSM	Command Sergeant Major
DPW	Directorate of Public Works
eMH	Enterprise Military Housing
FSBP	First Sergeants Barracks Program
NCO	Non-Commissioned Officer
NCOIC	Non-Commissioned Officer In Charge
UH	Unit Housing

When unit-assigned barracks are full, room assignments are made outside of the unit's footprint. Command Sergeant Major's are concerned when a Soldier is assigned to a room outside of the unit's footprint, but the process is fairly painless because CSM's are made aware and there is trust that the Enterprise Military Housing, or eMH, utilization reports are accurate.

The eMH reports are accurate because instead of 200 people at 100 company locations entering information into eMH, Fort Carson has four Soldiers entering data, on four computers, eight hours a day. Directly related to the quality of eMH data, we are currently working through unit realignment planning with the Army's downsizing plan. Although difficult in any environment, assurance that all of the brigade's eMH data has been entered correctly makes this very manageable.

In a centralized FSBP operation, barracks management is each Soldiers full time job and single focus – not an additional duty. We believe that when barracks management becomes an additional duty in a decentralized FSBP operation, barracks management is potentially not a priority and the quality of life of Soldiers in the barracks suffers.

The importance of mass assignments and terminations of rooms as a result of unit deployments and redeployments cannot be overemphasized. Under ➤

(continued from previous page)

a centralized approach, it's easy. FSBP centralized teams are part of each CSM's team. It didn't take long for the FSBP to develop and refine a system to ensure all unit mass assignments and terminations are consistently and efficiently executed.

During deployments, a centralized approach helps unit leadership facilitate room assignments for Soldiers as they get off the plane. The 30 Soldier FSBP team can surge to support individual unit redeployments even though not all 30 Soldiers come from the redeploying unit.

Repairs made to barracks are remarkably more efficient under a centralized approach. The DPW maintenance workers go to the FSBP centralized facility with assurance that, at any time of the day and in 30 seconds or less, they can obtain a room key to any of the 8,100 barracks room on the installation. Same day return is just as easy. Key accountability is assured. Compare this to having maintenance workers going to the many different company areas to obtain a key and being delayed by such things as when the supply clerk is away for a couple of hours on a medical appointment. On average, we have reduced routine service order completion time from 30 to 14 days.

Even though the FSBP team works with a skeleton crew on training holidays and the December holiday half-day schedule, new Soldiers get a room quickly and efficiently.

There are challenges in barracks management; although, I would argue that these challenges are minimized with a centralized approach.

Probably every housing office around the country is short on staff. Here, the UH staff is co-located with the 30 person team, making it easy for one or two UH people to reach out and touch our six Brigades and 11 separate battalions. If someone on the FSBP team has to attend school, is about to move to a new duty station or is about to take two weeks of leave, the NCOIC and UH staff know about it normally the same day the Soldier is notified, and the team can react.

Soldiers assigned to FSBP come with differing levels of experience and skills. A centralized team means that the stronger members of the team train and motivate those Soldiers with less experience or motivation to help bring them up to standard.

Communication is always a challenge. Some would argue that communication is better if barracks management is decentralized at the brigade or battalion level. I would argue that communication requires leaders at all levels to understand FSBP 2020 whether it is decentralized or centralized. It's a continual challenge either way. The key is for everyone to understand the responsibilities and tasks of Soldiers assigned to FSBP 2020 and that good order and discipline, security and general quality of life have always been the responsibility of unit leaders at all levels.

The Army decided some time ago that barracks management was important and we created FSBP. Based on budget realities, most centralized operations at installations have been abandoned. I believe that is a mistake. Providing a safe, clean and quality barracks living experience for our single Soldiers is one of the most important roles of the Army. Barracks operations should not be an additional duty. To be really good at doing this, the Army must focus on it with dedicated resources. At the installation level, a strong centralized FSBP 2020 operation is a must.

Spc. Timothy Prince, First Sergeants Barracks Program 2020 assignments and terminations clerk, inspects the barracks key lockers. The FSBP program manages more than 46,000 keys for 8,100 barracks rooms. Photo by Susan C. Galentine.

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Master Planning: An Imperative in These Tough Times…

by Jerry Zekert

It has been a tradition for the Public Works Digest to open a new year on the theme on installation master planning. What a way to emphasize New Year's resolutions that focus on the importance of planning in guiding the development of our installations. But, 2013 brought us a turbulent year.

In regards to the Army and DOD, there has been more guidance issued to requiring commitment to master planning. In the 2013 Defense Authorization Act, the Congress directed DOD, to ensure all installations have an approved master plan, that will 'embrace the principles of sustainable development' and integrated transportation planning. In May 2013, The Under Secretary of Defense issued a directive to the Military Departments in all installations to have an approved master plan. The plan must be in accordance with the Unified Facilities Criteria 2-100-01, Installation Master Planning, dated May 2012 and be completed no later than 2018. This directive also specified compliance to a suite of planning strategies that all base development must follow. Currently, all the Military Departments are updating their planning policies to comply with these directives.

At the same time, our installations faced some of the most challenging financial situations in a generation. With our Nation's financial constraints, installations had to maintain some core operational readiness while dealing with the Sequestration process and furloughs. This placed unbearable hardships on everyone. With this constrained environment, one might assume 'we can't afford to plan' or 'we don't have the money to make the plan come alive'. While that is the normal reaction, I would challenge all installations with the goal "we cannot afford not to plan". Master Planning is more important now than ever. We have to establish a sustainable master plan that supports the missions of today, anticipates the unforeseen missions of tomorrow and preserves our installations military capabilities by preserving training areas. The master plan will adopt common-sense sustainable solutions that will reduce the use of energy, water and waste in a way that is executed in a integrated investment strategy. The plans will repurpose what we have by leveraging Sustainment, Revitalization and Modernization (SRM) resources and by exploring innovative public-private funding ventures.

Acronyms and Abbreviations	
ACSIM	Assistant Chief of Staff for Installation Management
DOD	Department of Defense
IMCOM	Installation Management Command
SRM	Sustainment, Revitalization and Modernization
USACE	US Army Corps of Engineers

This edition of the Public Works Digest is going to highlight many exciting master planning initiatives that focus on three aspects of championing a great installation master planning program.

First, great installations have installation leaders, engaged in championing master planning and promoting a collaborative planning process. In this edition of the Public Works Digest, you are going to read about Garrison Commander's who have led installation planning efforts and the value they see in the process.

Second, great installations have a comprehensive suite of technical planning support resources that help them achieve success. This Digest edition includes insightful articles on technical planning practices including Policy insights from ACSIM and IMCOM, detailed planning practices to include developing Sustainability components of the Master Plan, and integrating planning and energy into the master plan. Also included is information about USACE innovative Regional Planning Support Centers, which are technical master planning support hubs that are staffed with trained, knowledgeable planning support that can supplement installation planning efforts.

Thirdly, great installations use the plan to guide all installation investment and development. The master plan is a very useful tool to ensure prudent allocation of resources and in these constrained financial times is so important. Read an article on the use of Area Development Execution Plans to formulate a sound comprehensive investment strategy necessary to implement the plan and how it can be integrated with Builder. It is exciting to see the master plan become reality. Read the article on the post-occupancy evaluation of family housing recently completed at Joint Base Lewis/McCord that was planned and constructed in accordance to current planning practices.

Susan Walters, one of the USACE Planning Support Center planners assisting an installation team at Ft Hunter Liggett prepare a Sustainability Component of the master plan.

With this publication, readers will see that a great installation master plan is essential for making our military installations great and responsive to rapidly changing missions, doctrine and force structure. Our military installations are invaluable resources that are legacy assets for training and operations in the present and in the next 40-50 years; therefore, a sustainable master plan is essential to meeting the needs of today and tomorrow. Within this edition of the Public Works Digest are articles which share great case studies which other installations can follow.

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Master Planners Desk-side Reference

by Dwayne Melton

HQ IMCOM is developing an IMCOM Master Planners Desk-side Reference (MP-DSR). The intent of the MP-DSR is to:

1) Provide guidance to assist Master Planners with their daily activities,
2) Replace the Master Planning Technical Manual (MPTM),
3) Compliment the IMCOM RPLANS Users Manual,
4) Compliment the IMCOM Space Planning and Criteria Manual (ISPCM), and
5) Supplement Installation Management Academy Master Planning 101 course material.

Since the initial MP-DSR scope of work kickoff meeting in December 2012, the development of this document has been, and will continue to be, a collaborative effort with continued input from FORSCOM, TRADOC, AMC and joint base installations. This initial meeting determined the fundamental intent of the MP-DSR along with delineating the major concerns of installations. The participants included FORSCOM, TRADOC, and AMC installation Master Planners along with HQ IMCOM, HQ AMC, and OACSIM.

The consensus of the kickoff meeting determined that the current MPTM needed to be scrapped due to so many regulation, process, and organizational changes since its original development. The MP-DSR will reflect the latest Real Property Master Planning guidance as provided in the recently published Master Planning UFC 2-100-01 as well as the soon to be published AR 420-1, Chapter 10, which will replace AR 210-20. The MP-DSR will provide IMCOM specific guidance regarding Army regulation compliance along with Real Property Master Planning daily activity guidance and best practices learned from installations.

The MP-DSR contract was awarded in September 2013 to a consultant who has personnel with firsthand experience with daily installation, region and headquarters master planning, real property, engineering, and environmental activities. Since the contract award, we have visited multiple installations were we gained more insight into guidance needs and concerns from the installation master planners. We have also sent out surveys to all IMCOM installation master planners soliciting input for topics of discussion for inclusion in the MP-DSR.

To continue the collaborative MP-DSR effort, we plan to ask for all installations to review the 35 percent draft submittal and provide comments. The 35 percent draft will be provided to installation Master Planners on 17 February 2014 with comments due by 4 April 2014. The completion date is planned for 11 March 2015 when installations will be provided with a hardcopy while an electronic version will be accessible from IMCOM's Master Planning website located at https://eko.usace.army.mil/usacecop/is/fa/arpmp

The MP-DSR is being developed concurrently with the IMCOM RPLANS Users Manual and the Space Planning and Criteria Manual (SPCM) update. The RPLANS Manual is scheduled to be completed by March 2013, and the SPCM is planned to be completed by September 2014.

Acronyms and Abbreviations	
AMC	Army Materiel Command
AR	Army Regulation
FORSCOM	Forces Command
HQ	Headquarters
IMCOM	Installation Management Command
ISPCM	IMCOM Space Planning and Criteria Manual
MP-DSR	Master Planners Desk-side Reference
MPTM	Master Planning Technical Manual
OACSIM	Office of the Assistant Chief of Staff for Installation Management
RPLANS	Real Property Planning and Analysis System
SOW	Scope of Work
SPCM	Space Planning and Criteria Manual
TRADOC	Training and Doctrine Command
UFC	Unified Facilities Criteria

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IMCOM Master Planning Website

by Dwayne Melton and Charles Schroeder

Continuous communication among installations allows the U.S. Army Installation Management Command (IMCOM) to provide our Soldiers with the best possible service through the sharing of best practices, lessons learned, guidance, training opportunities, interpretation and implementation methodologies and other useful information. To help communicate information and activities occurring within the IMCOM Real Property Master Planning community and external actions that affect us, HQ_IMCOM maintains a secure website on the Engineering Knowledge Online (EKO®) Portal. The IMCOM Real Property Master Planning homepage is located at https://eko.usace.army.mil/usacecop/is/fa/arpmp. You must login to the site using your Department of Defense (DOD) Common Access Card (CAC), or other DOD-approved certificate.

The website has been updated for easier navigation and we continue to update the website with information about the most current and relevant Army and installation initiatives.

At the moment, our focus is on uploading all installation Real Property Master Plans submitted by Garrisons per Operations Order (OPORD) 13-126, Real Property Master Plan Submissions, as well as recently-completed plans that were centrally funded. The intent is to share all components of the Master Plan and the challenges and best practices experienced since the release of the Unified Facilities Criteria (UFC) 2-100-01, Installation Master Planning, on 15 May 2012. These files are located on Web pages under the Master Planning Menu and Master Plans link. These files are designated as AR (2012) compliant or AR (draft) compliant. The files that are titled AR (draft) compliant are considered UFC 2-100-01 compliant.

This website is designed to be a collaborative effort thereby providing the most up-to-date information. If you notice something incorrect or items that should be included, please contact the HQ_IMCOM POC.

Acronyms and Abbreviations	
AR	Army Regulation
CAC	Common Access Card
CERL	Construction Engineering Research Laboratory
DOD	Department of Defense
EKO	Engineering Knowledge Online
ERDC	Engineer Research and Development Center
HQ	Headquarters
IMCOM	Installation Management Command
OPORD	Operations Order
POC	Point of Contact
UFC	Unified Facilities Criteria
USACE	U.S. Army Corps of Engineers

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IMCOM Master Planning Homepage

Before You Pave the Way, You Must Have a Plan

by Tyrone Williams

Military master planners serve the public interest of military communities by creating healthier, convenient, and more attractive installations. They use a variety of specialized tools to control the growth, function, and appeal of the community.

"When done correctly there is no measure to the benefit military planning provides to all those who live and work on an installation," said Gordon Simmons, chief of the U.S. Army Corps of Engineers (USACE), Savannah District engineering division. City planner of the early 1900s, Daniel Burnham, believed the beautification of a community brought its residents an improved quality of life and increased their inspiration and productivity. "While advances in technology certainly have improved our processes, many of the fundamentals remain constant," Simmons said.

Today, military master planners with the Savannah District, look to Burnham's premise for inspiration. Additionally, the district's master planning section intertwines planning charrettes, geographic information systems (GIS) and area development plans to strengthen its success.

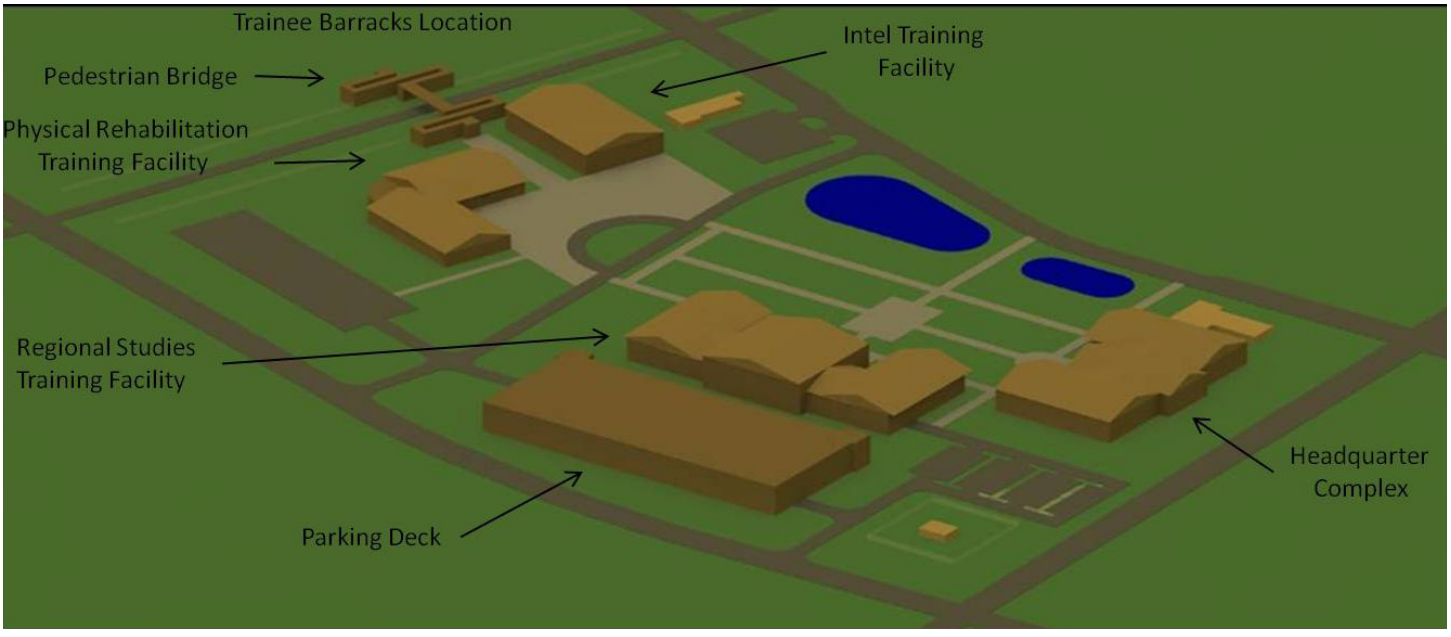
In 2000, the Savannah District master planning section began using the concept of planning charrettes, a collaborative planning and design effort, as the foundation of their in-house master planning team. "The use of charrettes brings the project stakeholders together to provide the installation with a well-defined project as it relates to scope and budget," said David Futrell, chief of the Savannah District master planning section. By 2008, the district implemented a long-term staffing plan to acquire expertise in master and community planning. This team includes two community planners, two architects, two site civil engineers, one landscape architect, two GIS technicians, and one GIS contractor. Other in-house engineering technical support is provided by design branch engineers with master planning experience.

In 2012, the Savannah District master planning section earned the distinction of being named one of three USACE Planning Centers of Expertise by the Corps of Engineers.

Acronyms and Abbreviations	
GIS	Geographic Information Systems
GPS	Global Positioning System
USACE	U.S. Army Corps of Engineers
USAGN	U.S. Army Garrison, Natick
USASOC	U.S. Army Special Operations Command

"Today, the Savannah District provides an integrated scope of master planning services rare to find in a single location. This includes state-of-the-art GIS technology," Futrell said.

The GIS capabilities in the district have streamlined the planning process. Also, using in-house expertise reduces costs to customers and the American taxpayer. In the case of the water-sewer infrastructure at Fort Stewart, Ga., the team used baseline GIS development, Global Positioning System (GPS) field survey, data collection, and map updates to consolidate geospatial data into one GIS database. In doing so, planners knew where existing water-sewer structures lay and integrated them into future water-sewer development. Two more perks to the GIS arsenal are their easily accessible aerial photography assets and production of customer- ➤



D-Campus 3D Image

Using Planning to Proactively Respond to Climate Change Issues

by Andrea Wohlfeld Kuhn

Many planning best practices can be used to address serious climate change issues and may proactively stave off future unwanted consequences. The combined impacts of increased population growth and related increases in energy consumption and environmental pollution have resulted in temperature, sea level, and overall climate changes. While architecture/engineering solutions often focus on individual buildings, planning provides a broader, more holistic perspective that can not only respond to climate change issues, but also have positive, interrelated impacts that can further improve the environment and the lives of the inhabitants.

The American Planning Association's (APA's) "Policy Guide on Planning and Climate Change" updated April 11, 2011, is available at http://www.planning.org/policy/guides/pdf/climatechange.pdf and outlines specific planning measures for a two-pronged approach that advocates both mitigation and adaptation measures. The Guide states: "Planners must play a key role in promoting energy efficiency in the existing built environment and changing development patterns, transportation systems, and regulations in ways that reduce greenhouse gas emissions, while simultaneously enhancing the resilience of communities to unavoidable climate impacts through adaptative responses such as stormwater management, improved hazards planning, and efficient use of climate-sensitive resources like water."

Andrea Wohlfeld Kuhn

What are the implications for military planners, and how can they follow this guidance? The best resource might be UFC 2-100-01 of 15 May 2012, "Installation Master Planning." At the heart of the UFC are master planning strategies, many of which relate to climate change issues. The primary strategy is sustainable planning, based on the following principles:

- compact development, as opposed to sprawling, single-story buildings, thereby reducing vehicle emissions
- infilling with new construction in existing developable areas
- transit-oriented development, which offers transportation alternatives to the automobile and provides for clustered development, thereby lowering costs and attracting other compatible uses
- mixed-use development, as a corollary to compact development, which may offer a mix of retail, commercial, residential, educational, and other compatible development; often having the secondary effect of lessening the need for

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centric, web-enabled databases which don't require special software for the customer.

One of the top-priority customers for the Savannah District master planning section is the U.S. Army Special Operations Command (USASOC) at Fort Bragg, N.C. The project brings to life the D-Area Campus Master Plan—essentially consolidating educational facilities scattered across the installation into a single, centralized educational campus. The functional design plan of the D-Area Campus not only supports the training needs of USAOC, but has even influenced the training schedule.

With planning charrettes, project site plans, and facility utilization studies, the master planning section determined how the varying educational components could coexist to better support training. It showed which facilities needed ground-up construction, and which existing facilities could add to the functionality of the overall plan. The main concept took into consideration the current layout of existing barracks, dining options and convenience facilities, then connected it with a series of walkways. This timesaver actually cut the overall training rotation because students could walk to class instead of commuting across the installation.

As part of the four-year, five-phase project, 14 facilities will be demolished and three will undergo renovation to remain part of the final design. The master planning team is leading the charge for the Army's goal of "Net Zero" infrastructures on all installations in 2013. Most recently, in a project at the U.S. Army Garrison, Natick (USAGN) in Massachusetts, the planning charrette developed a proposal to convert an existing central energy plant to a modern trigeneration plant, with cost savings that would pay for the project in less than 10 years through energy cost savings. "While we are geographically located in Savannah, Ga.," said Futrell, "our team's commitment, tenacity and range of expertise make us a global asset. We stand ready to take on the next challenge."

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automobile use and encouraging pedestrian use
- connected transportation networks, thereby providing alternative forms of transit and a measure of safety to encourage bicycle or pedestrian use
- sustainable landscape elements, such as xeriscaping, street trees that provide shade to lower building energy use and encourage walking; or the use of Low Impact Development (LID) measures such as natural features or manmade ones such as bioswales, pervious pavement, etc. to control stormwater runoff
- multi-story construction which uses less land and minimizes utility costs
- building orientation and configuration to optimize building performance, conserve energy, and optimize natural ventilation
- energy conservation measures such as renewable energy by using wind, solar, geothermal, biomass, and other sources
- water conservation, such as the use of greywater
- waste management, including minimizing construction waste
- facility utilization and building reuse to optimize existing buildings, some of which may be historic, rather than building new ones
- lifecycle planning which focuses on longer term, holistic returns on investment
- flood protection, including siting of buildings and structures to avoid flood hazards

Related to these sustainable planning concepts are the following key master planning principles, also highlighted in the UFC, which will also help us mitigate and adapt to climate change:

- natural, historic and cultural resource management to ensure that threatened and endangered species, wetlands, habitats, forests, historic buildings, structures, landscapes and archeological sites, including sacred sites, are identified and protected or integrated in a sustainable manner
- healthy community planning to encourage physical activity by creating opportunities to walk, run, or bike rather than drive
- defensible planning that includes the Defense Critical Infrastructure Program (DCIP) with its risk management approach to assets and infrastructure
- antiterrorism measures that include climate change impacts
- capacity planning that calculates maximum development capacity with an awareness of climate change impacts
- area development planning for a holistic rather than individual building approach
- network planning that links utilities in a holistic, energy-efficient manner
- form-based planning that specifies mass, volume, and set-backs for current and future development, thereby fostering a more sustainable overall development plan
- facility standardization to ensure climate and energy-appropriate building standards are enacted
- plan-based programming to tie programming directly to the planning vision

These principles are being put into practice at many Army installations. For example, at Fort Hunter Liggett, which is a pilot net zero energy and waste installation, planning level assessments were conducted to determine current energy use. By calculating energy use intensity, best planning practices are being implemented to counteract climate change and to lower energy consumption, and ultimately result in more sustainable energy, water and waste practices. Planners are using a holistic approach that views the installation as a system of inter-related buildings, structures, utility networks, roadways and pedestrian/bikeways, and other components that lend themselves to comprehensive planning solutions. These include sustainable planning practices such as clustering buildings to provide opportunities for alternatives to automobile transportation; relying on natural ventilation; and educating building occupants on energy/water/waste conservation practices.

The climate and locality unique to each installation can provide specific and distinct opportunities. At Fort Hunter Liggett, the abundance of sunshine offers opportunities to optimize solar energy. Photovoltaic structures erected over parking lots serve a dual purpose by not only generating energy, but also providing needed shade for vehicles.

Acronyms and Abbreviations	
APA	American Planning Association
UFC	Unified Facilities Criteria
LID	Low Impact Development

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Implementing the Master Plan: The Role of the Area Development Execution Plan

by Kristina Manning, Rumanda Young, and Tricia Kessler

Fort Hood is nearing completion of its first new master plan in decades. Hundreds of stakeholders have participated in the planning process over the last two years and they have defined a future for this installation (referred as the Great Place) that will have accessible campuses and walkable small towns with modern, energy-efficient infrastructure. The Vision Plan, Long-Range Component with Area Development Plans (ADPs) for all the installation's districts as well as Network Plans, and the Digest are nearly done. We are now developing the detailed Capital Investment Strategy (CIS) and refining our Installation Design Guide (IDG). This has been a significant effort that is already bearing fruit. Stakeholders are more engaged in the development process, projects are now aligned with an overall vision, and work is well underway on several key aspects of the plan.

To ensure that we base our development program on the master plan, we are now creating detailed Area Development Execution Plans (ADEPs). Since our ADPs are now in place, we can turn our focus to implementation and execution.

An ADEP is part of a robust CIS that serves as a visual Integrated Project List for Public Works staff to coordinate and execute current and future projects generated by the ADPs, BUILDER, tenant priorities, and SRM needs. The ADEP shows on an actual plan the projects needed to meet the vision.

An ADEP can only be prepared after an ADP has been created for a district on an installation. The first step is to divide the planning district into distinct areas using a simple grid. Each grid square (these ideally cover an area about 1,400 feet square) then has a focused analysis of all the work required to meet the requirements of the ADP that covers that grid. Planners then create a detailed Technical Plan that graphically shows all needed horizontal and vertical projects in the grid square. This can include street and sidewalk upgrades, landscaping, and building repurposing, renovation, and construction. In this way, all relevant projects are shown in a graphic format that is easy to understand and easy to identify. Accompanying the Technical Plan is a project spreadsheet that provides the necessary detail for the identified projects. This allows for easy review, synchronization, and approval of short, mid, and long-term work.

Acronyms and Abbreviations	
ADEP	Area Development Execution Plan
ADP	Area Development Plan
CAMPS	Comprehensive Army Master Planning System
CAV	Calvary Division
CIS	Capital Investment Strategy
IDG	Installation Design Guide
ISR	Installation Status Report
MILCON	Military Construction
SRM	Sustainment, Restoration and Modernization

View of Proposed Greenbelt in Phantom Warrior District at Fort Hood

At Fort Hood, the first ADEP for the 1st CAV district is nearly completed. Installation planning staff and military and civilian personnel working in the district worked together to prepare the ADEP. By using this collaborative and participatory approach, participants developed ownership in the process.

Since the Army will be moving to BUILDER as a replacement for the Installation Status Report (ISR) to help establish ongoing work plans for its existing building inventory, the ADEP is ideally suited to incorporate relevant projects identified by the BUILDER Sustainment Master Planning System. For example, if BUILDER identifies a need for a roof replacement, that project can be inserted into the ADEP Project Spreadsheet and tracked graphically on the ADEP Technical Plan.

In addition, at Fort Hood planners are integrating ADEP data into the Comprehensive Army Mapping System (CAMPS). This will allow data from the ADEPs and ADPs to be easily viewed along with other facility data, such as ➤

USACE Regional Planning Support Centers: Hubs for Master Planning Technical Support

by Jerry Zekert

Since the founding of the country, The U.S. Army Corps of Engineers have been involved in the planning and development of military installations. From the early development of coastal fortifications to building bases throughout the ninetieth and twentieth century USACE continue this role to plan and develop military installations. As we entered the 21st Century, we are seeing a world changing, as well as a transforming Department of Defense with complex factors that affect the long-term development of our military installations. Our world is getting smaller and the cumulative effect of unsustainable development is affecting the amount of natural resources, available to support day to day activities much less future generations. At the same time the Army and the rest of DOD are faced with rapidly changing military requirements, rapid deployments, and new technologies and doctrine, while facing tough challenges with constrained budgets throughout the government. While this all sounds like tough times, we, as stewards of our Nation's installations, have to ensure our installations military capabilities are preserved for the needs of the future.

With the issuance of many Congressional directives, Executives Orders, DOD, and Army policies regarding installation master planning, USACE recognizes that master planning technical expertise is a core competency needed to support the evolving military master planning mission that guides the long-term development of DOD installations. This competency can be applied not only to assist our installations in planning but also provide insight to our design and construction community. This community provides the projects required to meet missions today as well as the future missions of tomorrow. In implementing this strategy, the USACE directed in its Campaign Plan, to establish Regional Planning Support Centers that will provide technical planning support in accordance with Army DOD and Federal planning ➤

USACE Regional Planning Support Centers		
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South Atlantic Division	Planning Support Center, Savannah	David Futrell 912-652-5637
	Planning Support Center, Mobile	Joe Hand 251-694-3881
Lakes & Rivers Division	Planning Support Center, Louisville	Mark Real 502-315-6413
Southwestern Division	Planning Support Center, Ft. Worth	Dr. R. Young 817-886-1779
Northwestern Division	Div Master Plan Program Manager	Laura Kemp 503-808-3837
South Pacific Division	Planning Support Ctr, Sacramento	James Oliver 916-557-7469
Pacific Ocean Division	Planning Support Ctr, Team A/FW	Dr. R. Young 817-886-1779
	Planning Support Ctr, Team B/Sac	James Oliver 916-557-7469
Huntsville Center	Planning Support Center	Jimmie Jackson 256-895-8130

Acronyms and Abbreviations	
ADEPS	Area Development Execution Plans
DOD	Department of Defense
UFC	Unified Facilities Criteria
USACE	U.S. Army Corps of Engineers

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tenant occupancy, facility type, quality, and size. The inclusion of district planning and phasing information to the CAMPS evaluation criteria will allow for more comprehensive analysis and a comparison of occupant requirements. With an ADEP in place, Fort Hood planners can effectively coordinate and synchronize SRM, MILCON, and tenant funded projects aligned with the master plan vision.

For planners interested in learning more about preparing similar execution plans, the U.S. Army Corps of Engineers offers PROSPECT course 326, Master Planning Program Execution. This 4-day course starts on 28 July 2014 and is open all. Please contact Mr. Jerry Zekert, at 202-761-7525 if interested.

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Kristina Manning, P.E., is the chief of the Real Property Planning Division at the Directorate of Public Works, Fort Hood. Rumanda Young, Ph.D., RLA, AICP, LEED AP, is the chief of the Master Planning Section with Southwestern Division U.S. Army Corps of Engineers. Tricia Kessler AICP is an associate planner with The Urban Collaborative, LLC.

National and Federal Planning Training Conferences in Atlanta in April

by Andrea Wohlfeld Kuhn

The American Planning Association (APA) and its Federal Planning Division (FPD) will hold their annual training conferences in Atlanta. This year, the FPD Forum will be condensed from previous years, and be more fully integrated into the national APA conference. The FPD Forum will begin on 25 April with agency/service briefings offsite, followed by an evening FPD networking event. The main portion of the forum will occur on Saturday, 26 April, with two tracks to choose from, including sessions covering mandatory ethics and law training for certified planners. The FPD awards presentations will occur that evening. On Sunday, 27 April, the annual business meeting will be held prior to the start of national conference sessions.

Acronyms and Abbreviations	
APA	American Planning Association
FPD	Federal Planning Division

Andrea Wohlfeld Kuhn

More information can be found at their respective websites:

- Federal Planning Division: 25 - 27 April 2014; http://federalplanning.org
- American Planning Association: 26 - 30 April 2014; http://www.planning.org/conference/

Topics at both conferences will include sessions that address critical issues facing planners and those in related fields, including topics such as energy, sustainability, climate change, environmental issues, natural and cultural resources, transportation planning, land use, etc.

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directives.

USACE Divisions were directed to establish at least one regional planning support center within their Area of Responsibilities. These Regional Planning Support Centers have to be validated before they are established. The Centers must 1) demonstrate they have a Planning team that have been trained in current planning practices; 2) have installation/USACE installation support program to place to assure responsive installation planning support to the installations; 3) have suite of in-house/contracting tools available that deliver planning services and products in accordance with Master Planning UFC; and, 4) maintain an established program management strategy to assure consistent delivery of products and services to meet DOD/Army standards.

After a year of operation, these Regional Planning Support Centers have been a great success in helping installations in master planning support. They have provided broad planning support from completing various planning products such as Vision Plans, Area Development Plans, Installation Development Plans, Installation Planning Standards, Capital Investment Strategy and Real Property Digest. They have championed great planning support such preparing the Sustainability Component of the Master Plan and help formulate planning execution strategies with developing Area Development Execution Plans (ADEPS). They have also provided great support in providing Geo-spatial mapping support and Environment assessments. The Centers provide asset management services to include real property validation, facility utilization studies, builder support and encroachment studies. They have provided programming support in providing planning charettes and requirement analyses. The centers are directed to support their installations in their Area of Responsibilities and for enterprise challenges, affecting work involving multiple areas of responsibilities.

DOD has issued a directive to their Military Departments requiring all installations comply with the DOD Master planning UFC by 2018. Our team is prepared to work with installations (both Active and Reserve component) in assisting in meeting this goal, to include Tier 1, 2 and 3 planning evaluations as well as updating planning products and providing multiple spectrum of planning support. I encourage all to contract their appropriate regional planning support teams, this team of professionals are great resources.

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A Different Way to Think About Installations

by Paula J. Loomis

Often people refer to an installation as a small city and apply small city planning principles to it. While it is a small city, it is much more. This articles looks at "What is an installation?" "Why does it exist?" "How can we make it perform its function best?" "Why is it important that we take this approach?"

An installation is a platform for launching the weapon system including the people, the weapon itself, and the materials and people to support the weapon system as well as training the warfighter on how to effectively operate the weapon system. Thus, an installation has different functions than a typical small city. The installation should be the most effective, efficient platform so that scarce resources can be used for other missions. If the installation cannot serve this basic mission, then installation does not serve its purpose. Installations also play the small city role, delivering a safe and comfortable quality of life for the warfighters and their families. Knowing that families are safe and cared for, allows warfighters to effectively carry out their missions and remain physically and mentally prepared.

So how do we reach this ideal? Installations should be designed in an efficient manner with a minimum use of facilities, utilities, and roadways. Appropriately compact installations/ cantonment areas provide some space for internal expansion, but are compact enough to take advantage of walking, biking and alternative modes of transportation. Appropriately compact installations mean utility and road costs are minimized over the life cycle of the installation. Efficient installations by definition are sustainable and conserve energy, water and land. Conserved land outside of the cantonment areas provides land for anti-terrorism/ force protection stand-off measures, environmental habitats, new missions/ relocations and implementation of low impact development (LID) principles. Each installation needs a LID overlay in the master plan that addresses stormwater on an area-wide (not individual project site) basis.

Sprawling installations should be redesigned over the long-term to encourage compact development with these plans incorporated into the installation's master plan. When building new areas of an installation (or significantly changing those areas) consider orienting the street system and buildings to take advantage of microclimate weather (such as sun or wind for renewable energy or breezes for natural cooling) and minimize any negative impacts of the local microclimate (cold northwest winds, west setting sun, etc.).

Installations should encourage public transportation, ride sharing, carpooling, etc. so employees/families have the option to reduce the number of vehicles. Where public transportation cannot be brought on base, public transportation options should connect to an on-base transportation option (such as walking paths or base bus route). On base housing should be within a bike's ride of work areas. Off base military or privatized housing should be built near public transportation or if existing encourage local public transportation to connect to it.

In laying out the installation, functions that work together should be grouped so that workers can walk between those facilities. This allows workers to carpool to work. It lessens the time used for transportation between work areas during the day and may eliminate the need for some government vehicles. Provide support facilities (food, dining halls, ATMs, laundry drop offs, etc.) in these groupings. If this is not feasible consider alternatives such as food trucks, salad/ sandwich drop off locations, and laundry drop off/pick. Similarly co-locate or combine active duty, reserve and guard units with similar missions. The active duty can use the facility during the week and the reserve/guard on the weekend.

Use vegetation to control microclimate weather (such as sheltering buildings with coniferous vegetation to block northwest winds). Use buildings to shelter one another and control the microclimate. Encourage local gardens in/near ➤

Andrews AFB was redesigned to provide compact nodes with shared parking.

Leading the Planning Process: The Role of the Garrison Commander

by LTC Christopher Gerdes and Mark Gillem

In May of 2013, Mr. Frank Kendall, the Undersecretary of Defense for Acquisition, Technology, and Logistics, issued a policy requirement that all military installations have updated master plans consistent with Unified Facilities Criteria (UFC) 2-100-01 by 1 October 2018. Fortunately, the U.S. Army is well on its way to meeting this requirement. In fact, the UFC was based largely on the draft Army Regulation on the same subject that is nearing publication. UFC-complaint plans are complete at Fort Hunter Liggett and the Natick Solider System Center, and Joint Base Lewis-McChord (started under leadership at what was called Fort Lewis), nearly complete at Fort Hood, Fort Sill, and Camp Parks Reserve Forces Training Area, and underway at Fort Polk and U.S. Army Garrison Hawaii. Many other installations have completed key elements of a UFC-compliant plan – from Vision Plans to Area Development Plans. At these installations, the common denominator for success has been an engaged Garrison Commander.

A Garrison Commander is the temporary steward of an installation's history with the responsibility to honor the history of the installation while simultaneously laying the groundwork for the future. If done right, a garrison commander's efforts will link the installation's history to its future mission, improvements, and growth. It is certainly not an easy task; various "colors of money," limited funding, competing priorities, and inheriting a garrison that has evolved in a less-than-ideal fashion over time are all obstacles. Discipline is required. Sometimes, the toughest decision is to not "throw good money after bad" and recognize that hard rudder steer may be needed to get headed in a better direction.

As COL Matt Elledge, Fort Hood's Garrison Commander notes, "The Garrison Commander can and should provide priorities within the planning process to allow our engineers to develop projects so that we have 'shovel ready' projects when funding becomes available and still stay within the long-term vision of the Installation Master Plan." COL T. Glenn Moore, the Garrison Commander at Fort Polk adds, "As a Garrison Commander, I see my role as ensuring the master plan is created with stakeholder input, so the Fort Polk community creates and owns that plan. I also need to ensure the plan is followed in our decision-making and implementation process, and to continue to communicate our progress to stakeholders. My most important role is to use the plan in executing real property and stationing decisions and to ensure that the plan is clearly communicated to my successor so we can continue to implement our vision."

Acronyms and Abbreviations	
COL	Colonel
DPW	Department of Public Works
RFTA	Reserve Forces Training Area
UFC	Unified Facilities Criteria

Of course, commanders have their DPW planning team to help them in the planning process. While commanders should actively participate in the planning process by providing leadership intent and even opening and closing on-site master planning workshops, they should also ensure that the planning staff has adequate training and that the plans are consistent with the UFC. If not, the staff needs to develop a strategy for updating the plans as needed.

Commanders who have been through the process recognize the near-term and long-term benefits of a clear master plan that includes a Vision Plan, a Long-Range Component with Area Development Plans and Network Plans, an Installation Design Guide, a Capital Investment Strategy, and a Master Plan Digest that summarizes the plan. At Camp Parks Reserve Forces Training Area (RFTA), for instance, the master planning effort is crucial. If done correctly, it will replace a well-intentioned but haphazard series of decisions about infrastructure improvements, and space allocation that have been fairly disconnected from one commander to another. Over time, especially at ➤

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housing areas (including military family housing and barracks/dormitories).

Take advantage of hot desking, shared conference rooms/classrooms, creative use of outdoor spaces, and similar concepts to reduce facility sizes. Take advantage of telecommuting, flex hours, and similar energy saving measures. When designing the facilities prioritize energy saving measures starting with the lowest life cycle cost first. (See companion article How to Design a Sustainable Building – Where Do I Start?).

Consider centralized renewable energy options for compact cantonment/work areas where they might be more cost effective than individual facility units. Use heat from heat generating facilities (dining halls, computer facilities, etc.) to supply heat to neighboring facilities (dormitories, offices, etc.).

Even though an installation is very similar to a small city, the installation plays a larger role. The installation serves as a launching and training platform for warfighters and weapon systems. An installation keeps the family safe so the soldier can concentrate on his/her job. Good planning helps establish the installation as an effective, efficient system that when done well is as vital to the fight as more traditional weapon systems. It is our job to provide the most efficient, effective, sustainable system we can to the war fighter and their families.

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this installation that has changed hands from the Navy to the Air Force to now the Army, the typical result is a patchwork quilt effect of growth and maturation through the years. A true master plan – and what Camp Parks RFTA planners are striving for - provides a coherent deliberate plan for infrastructure improvements and future increased mission capability that uses best practices from municipal master planning to provide a best-case future state of the garrison that can be incrementally striven for.

At Fort Hood, COL Elledge states that "Our Installation Master Plan allows me and those Garrison Commanders that follow to be ready with "Quick Wins" if funding comes available in the short term with an eye on the long term vision of the installation in the out years. Habitually funding comes available towards the end of the fiscal year and as that funding becomes available we at the Garrison are ready to execute quickly with 'shovel ready' projects because of the master plan. This also allows us to stay on course to reach our long-term vision.

At Fort Polk, COL Moore notes that, "The comprehensive master plan will be flexible enough to meet current mission requirements, adaptive to the changing needs of the Army, and will provide continuity between commanders to achieve a long-range vision. It gives a firm foundation to the master planning process and aligns our priorities to a strategic vision so that we can make smart decisions with our limited resources. The process we are embarking upon gives stakeholders at Ft. Polk an opportunity to create a plan and contribute to the future. We hope to have all organizations, spouses, military, civilians, retirees, and members of the greater Fort Polk community participate in the vision workshop and contribute their ideas and perspectives."

The comments of these commanders are consistent with experiences across the Army. An effective master plan provides a flexible roadmap that can guide development today and prepare an installation for a sustainable future regardless of funding streams. To create such a plan, garrison commanders need to take a visible, leadership role in the process.

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The stakeholders determined that Camp Parks RFTA will evolve into a training campus with perimeter parking and central quads shaped by multi-story buildings and connected by continuous sidewalks. (Photo by The Urban Collaborative)

The Real Property Master Plan

by Daniel Seastrum

For the short range future, MILCON projects will be few and far between. In a period of extreme fiscal unpredictability, one of the constants will be our inability to execute large, complex projects due to pressure on the overall budget. If an installation has one MILCON project a year, they are truly fortunate. For the short range future, installations will have to rely more and more on the Sustainment, Restoration, and Modernization (SRM) account to address requirements that are stated in the Installation Real Property Master Plan (RPMP).

The RPMP is composed of 5 elements: the Vision Plan, the Installation Design Guide, the Capitol Investment Strategy, the Long Range Component and the Complete Digest/Summary. Each of the major elements breaks down into smaller components that will help define what is realistic and executable at the installation level.

The Vision Plan is developed through a Practicum which teaches participants about the planning and visioning process by engaging them in the preparation of a Vision Plan for the installation. The Vision Plan is the first component of a robust Real Property Master Plan. This practicum includes the development of Installation Planning Standards where participants will help create planning standards for streets, buildings, and landscapes. The results of the practicum can be used to guide future planning and synchronize installation investments using SRM, NAF, MCA, and other funding sources. HQ IMCOM will fund a limited number of these each year.

An Area Development Planning (ADP) workshop is a facilitated planning charrette that provides a training opportunity focused on meeting real property planning needs for a specific geographic area or district within an installation. The workshop is funded by HQ IMCOM. The objectives of an ADP Training Workshop documents the process and includes the district's Capital Investment Strategy and a final illustrative plan, regulating plan, and phasing plan for the district.

HQ IMCOM has recognized the importance of setting the right framework for installations to be successful in producing their RPMP. In FY 13, 6 Visioning Practicums and 12 ADP training workshops were funded. We are committed to continue this successful program in FY 14 with at least 4 Visioning Practicums and 7 ADP training workshops being fully funded. Installations that have received this training have a significant lead on producing an up-to-date, complete RPMP.

With a complete RPMP, master planners now have an objective document to support recommendations for making progress that have been synchronized with the Vision and the Installation Development Plan. Smaller SRM projects that fit within the realm of local funding authority can and should contribute towards achieving the Real Property Vision. Small projects when synchronized with the RPMP actually have a larger impact given the magnitude of funding.

Typically the type of projects that should be considered are:

- Projects that support and reinforce installation building and street standards
- Any "Construction" project up to $750K
- Any "Life, Health, Safety" construction project up to $1.5M
- Any maintenance project
- Any "Repair" project – but project over $7.5M requires Congressional notification. Construction over $750K (or $1.5M for Life, Health, and Safety) requires funding via legislation, i.e. MILCON authority

Remember, normally don't include projects that:

Acronyms and Abbreviations	
ADP	Area Development Practicum
DPW	Director of Public Works
FY	Fiscal Year
GC	Garrison Commander
HQ IMCOM	Headquarters Installation Management Command
MCA	Major Construction Army
MILCON	Military Construction
NAF	Non Appropriated Funding
RPMP	Real Property Master Plan
SRM	Sustainment, Restoration, and Modernization

- Replace a facility
- Expand building footprint
- Increase in facility volume
- New equipment (except those required to meet Code)
- Relocation of facility
- Upgrading roads, runways, taxiways, walkways, etc., increasing area of pavement, or changing routes of same
- New walkways curb & gutter, jogging paths, lighting, (doesn't normally apply to improvements)
- Replacing vertical section of building (including foundation)
- New underground storm water system
- Adding or expanding utility service to section of building that does not have it
- Adding an additional story to a facility (i.e. mezzanine)
- Demo associated with a "construction" project

Selection of projects that support the RPMP is a deliberate process. It has to be priced right, and within the right project authority level. The natural allies of the Master Planner are the Director of Public Works (DPW) and the Garrison Commander (GC). If the Master Planner has conducted the Visioning Practicum and ADP correctly, the DPW and GC have participated in the process and ➤

Net Zero for Training Through Construction

by Colonel Adam S. Roth

In an era of declining resources, numerous measures have been taken to reduce costs, leading to a decrease in available training opportunities, dollars, and readiness. The establishment of Installation Management Command (IMCOM) created a fundamental change in not only how U.S. Army installations were funded and managed, it also created a physical divide between the engineer and the installation he supports. Due to the demands of the past ten years of conflict, installations/IMCOM contracted other core capabilities (gate guards, cooks) in part to utilize green suiters for the actual fight. These contracts, though necessary are costly. In light of current fiscal realities a "re-greening" is taking place. Military Policemen are manning installation gates, cooks are cooking in dining facilities.

Why not so with our engineers, irrespective of component? Our Army is a Brigade Combat Team (BCT)-centric Army. Our BCTs conduct training culminating in a rotation at one of the Combat Training Centers (CTCs), costing roughly $23M per rotation. The Army spends an enormous amount of money to attain a level of readiness, but at the end of that pathway, all we have is readiness. Engineers too must attain a level of readiness, but it is the pathway that is markedly different and the thrust of this article.

Net Zero: When one thinks of Net Zero, the first images are of green roofs, motion sensitive light switches, and photovoltaics. The question I pose is this... using the BCT training example above, why can we not apply a Net Zero approach to engineer training that not only provides readiness, but also provides a material cost savings to the U.S. Government (USG) as it relates to Operations and Maintenance (O&M), Sustainment, Restoration, and Modernization (SRM), minor construction, even to Civil Works projects? Perhaps we could call this Net Zero for Training. If we assume that pay and allowances are a sunk cost, and examine a project normally costing $1.0M, it would be reasonable to assume that 70 percent of that cost is encumbered in labor, with the remainder of the cost attributed to Bill of Materials (BOM). If a green suit construction unit was able to accomplish that project, theoretically there would be a $700K cost savings to the USG, an increase in readiness, cost neutrality (or even a "profit") to what it cost to train the unit, and also satisfaction on the installation supported.

What is Working Today?: No doubt there are units across all components that interact with their own local Director of Public Works (DPW) executing meaningful projects on a local scale. Realistically it can be a DPW's disinclination to utilize troop labor (due to perceived threats to the civilian (or contractor) labor force). What happens when the money for those critical projects has no longer flatlined, but rather has taken a precipitous nosedive?

Some Thoughts on a Way Ahead:

- Explore the possibility of a component-level discussion with IMCOM as to what comprehensive risk management strategies be developed for to O&M (both Demand Work Orders as well as scheduled maintenance), SRM, and minor construction utilizing the green suit side of the Regiment to contribute.
- Explore the potential of the green suit Regiment participating in Civil Works projects. Currently planning continues at Folsom Dam where units will be both removing an access road, as well as demolishing an existing temporary access bridge, all part of a much larger project. This same type of cooperation might also be considered for emergency hazard mitigation on Corps owned levees, or their maintenance on a periodic basis.
- The biggest take-away must be that the potential exists for a change in mindset for Net Zero for Training to take place. Moving forward, if this mindset can be adopted, it will not only assure a higher level of readiness for our Regiment, it will also most assuredly ensure the indispensability of the Regiment to our Army and our Nation, at a time when they need us most.

Acronyms and Abbreviations	
BCT	Brigade Combat Team
BOM	Bill of Materials
COL	Colonel
CTCs	Combat Training Centers
DPW	Director of Public Works
IMCOM	Installation Management Command
O&M	Operations and Maintenance
SRM	Sustainment, Restoration, and Modernization
USG	U.S. Government

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have approved the products at the Real Property Planning Board. Careful review of the prioritized projects from the Capital Investment Strategy and Annual Work Plan will lead to projects that set the stage for implementation of the long range plan.

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Moving Towards Net Zero: The Role of a Sustainability Component Plan

by Cyndi Skinner and Mark Gillem

In this era of constrained budgets, Public Works staff members are regularly identifying and implementing practical ways to reduce our costs associated with energy, water, and waste. At installations with updated Area Development Plans, a Sustainability Component Plan (SCP) can help facilitate this effort and move an installation closer towards net zero. Just as a Transportation Component Plan identifies ways to facilitate more efficient movement around an installation, the SCP identifies ways at both the planning and building level to facilitate more efficient use of our limited fiscal and natural resources.

SCPs are prepared at the district level and then, when all SCPs are completed, the metrics can be integrated into an overall SCP for the installation. Before completing the SCP for a district, an Area Development Plan (ADP) needs to be in place. This is essential since the ADP gives planners the metrics needed to effectively forecast supply and demand of energy, water, and waste. In this way, the outcome is not a stand-alone plan for energy, water, or waste but a fully integrated component of a holistic master plan.

Before preparing an SCP, planners must ensure that their ADPs integrate sustainability strategies that can help move an installation towards net zero for energy, water, and waste. These strategies are outlined in UFC 2-100-01, Installation Master Planning. Effective planners integrate these strategies during the preparation of an ADP.

Step 1. With an appropriate ADP in place, the real work of preparing the SCP begins and it starts with a field survey of all the buildings in the district using a simple Facility Inspection Checklist in order to gather the minimum information needed to input building performance criteria into the Net Zero Tool developed by the Civil Engineering Research Lab (CERL). The tool is a model that forecasts energy consumption and then identifies energy efficiency measures needed to reduce that consumption. CERL is currently working on water and waste modules. The data includes building size, year built, major equipment, wall types, roof materials, window types.

Step 2. At the building level, using this data, the model then determines each facility's Energy Use Intensity (EUI) as measured in kilowatt hours per square foot per year or similar. The model then compares total installation energy consumption to the forecasted energy consumption determined by the model. This forecast takes the determined EUI and multiplies it by the building area with that EUI to get a total energy consumption number. Relevant accuracy is achieved when the actual installation energy use corresponds to the forecasted energy use. This is a very important concept because, with this information in hand, individually metered buildings are not needed. Since most installations are not yet equipped with individual meters, this shortcoming need not delay the preparation of an SCP. Using a similar process, the planning team can also calculate water use intensities (WUIs) and refuse use intensities (RUIs). Taken together, this information establishes the baseline.

Step 3. With baseline use intensities in place, planners then create scenarios following the installation's goals in each category (energy, water, and waste). Using metrics from the completed ADP, planners create a base case that determines total energy, water, and waste demand by applying existing use intensities to the appropriate building area identified in the ADP. The area comes from the capacity noted in the ADPs Illustrative Plan and accounts for planned demolition, existing building area to remain, and proposed new footprint. This assumes no change to the current approach. This process is done using a model developed by the Headquarters, U.S. Army Corps of Engineers. For example, the base case EUI determined by the CERL Net Zero Tool is inserted in the overall USACE model. The USACE model then determines the base case for energy, water and waste. With the projected demand for energy, water, and waste calculated, meeting that demand with renewable resources can then be determined. Generally, this will be cost prohibitive, as the current base case is usually not very efficient.

Acronyms and Abbreviations	
ADP	Area Development Plan
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
CERL	Civil Engineering Research Laboratory
EUI	Energy Use Intensity
LED	light-emitting diode
PV	photovoltaic
RUI	Refuse Use Intensity
SPC	Sustainability Component Plan
WUI	Water Use Intensity
UFC	Unified Facilities Criteria
USACE	U.S. Army Corps of Engineers

Step 4. Planners then create a better case that applies improved use intensities based on federal mandates, ASHRAE standards for existing and new construction, and other energy, water, and waste conservation strategies. The goal is to reduce the use intensities as much as economically feasible before relying on recovery of the resource through renewable means. It is generally less expensive, for example, to save energy first than rely on alternative generation. After all, switching to fluorescent or LED lights is almost always less expensive than keeping incandescent lights and relying on photovoltaic panels to generate the electricity. As in step 3, with the demand calculated, reducing that demand through renewable resources can be determined. For energy, with the future energy demand established based on focused reductions, then renewable energy recovery approaches (solar PV, solar thermal hot water, wind, ➤

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geothermal, waste-to-energy, etc.) can be modeled to identify what it would take to get closer to net zero. For water, the better case typically relies on replacing inefficient fixtures and reducing demand. For waste, the better case usually relies on a more robust recycling program. As in the base case, balancing the supply and demand with only conservative measures will generally not get in installation to net zero in an economical way.

Step 5. Planners then craft a third course-of-action that can be referred to as the best case. In this case, planners model more aggressive reduction strategies. For energy, this typically means applying Passive House use intensity standards that use nature for more of the heating and cooling and reduce energy use through more robust insulation, more efficient windows, reduced infiltration, and more efficient equipment and fixtures. For water, this means adding recovery through rainwater harvesting, greywater reuse, and even blackwater repurposing through the use of living machines that convert blackwater to greywater suitable for irrigation or similar uses. For waste, this means adding a comprehensive composting program to the recycling used in the better case. These strategies are not unheard of for military installations. The Presidio of Monterey and Parks Reserve Forces Training Area, for example, are planning on passive approaches for energy reduction. The Marine Corps is testing a living machine in San Diego. And Joint Base Lewis McChord is continually improving a leading edge recycling and composting program.

Step 6. With three courses-of-action in place (base case, better case, best case), planners can then identify projects to achieve their desired reduction and recovery goals in each area (energy, water, and waste). These projects can then become part of the capital investment strategy for the district and the installation. In this way, what emerges is a Sustainability Component Plan that is directly tied to the installation's master plan. The plan's synergies leverage and coordinate the efforts of energy managers, facility engineers, architects, planners, and landscape architects towards a common goal. The plan also assists the installation in the integration of energy efficiency elements into the Military Construction 1391 process. Using an innovative training practicum, where participants learn by doing, planners have prototyped the SPC concept at Fort Hunter Liggett and a similar effort is starting in 2014 at the Presidio of Monterey.

PROSPECT Class 258, Master Planning Energy and Sustainability outlines in detail how to create a Sustainability Component Plan. It will be offered in Washington DC April 15-18 and July 21-24. The course is open to all. Please contact Mr. Jerry Zekert, at 202-761-7525.

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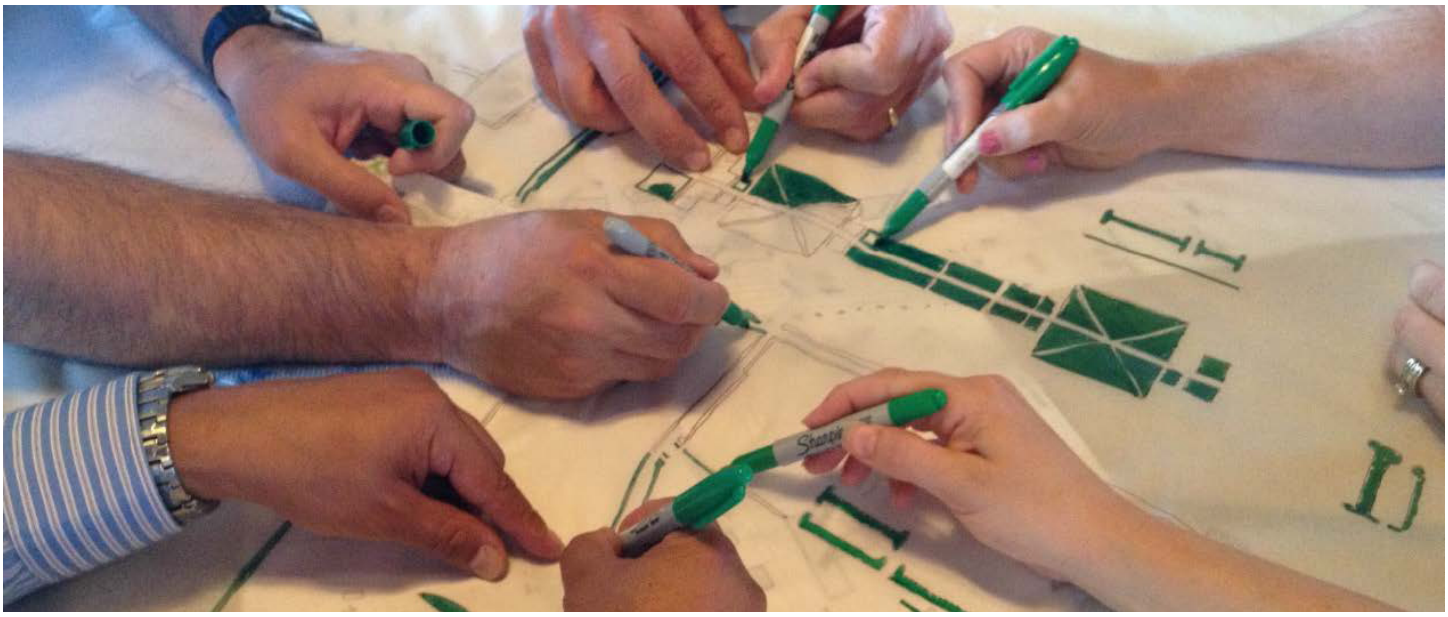
Cyndi Skinner is the director of Public Works at Fort Hunter Liggett CA . Jerry Zekert is the chief of the Master Planning Program with HQ U.S. Army Corps of Engineers. Mark Gillem, PhD, AIA, AICP, is an associate professor at The University of Oregon and is a principal with The Urban Collaborative, LLC.



In a participatory workshop at Fort Hunter Liggett, installation stakeholders work together on the storm water management drawing, which is part of the installation's Sustainability Component Plan (image by Mark Gillem).

Vision Plan Practicum a Success at Fort Wainwright

by Kate Siftar

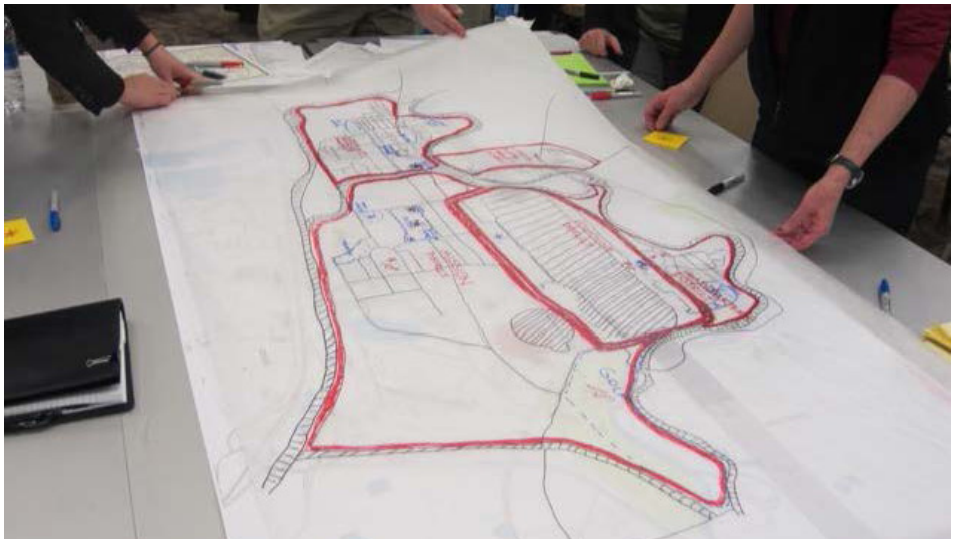
A Visioning Practicum, the first step for Fort Wainwright (FWA) toward creating a consolidated master plan was held in February 2013 and was a huge success. A truly collaborative effort with participation and guidance provided by senior leaders including the U.S. Army Alaska (USARAK) Commanding General, the Garrison Commander, Commanders of each of the major units - 1-25 Stryker, USARAK Aviation Task Force, 2 Engineer brigade, and Garrison Directors. The timing could not have been better as the installation prepares for an accelerated growth as a result of Army Force Structure and Brigade Combat Team Reorganization. Fort Wainwright, the home to Arctic Warriors, is located is a unique environment for training and is a strategic and vital location for Pacific operations. The cantonment area itself is only approximately 13,500 acres however USARAK training areas total about 1.6 million acres of arctic wilderness.

The practicum was funded by HQ_IMCOM and facilitated by contractors contracted by the U.S. Army Corps of Engineers, Sacramento District. Interviews were scheduled with over 30 organizations and conducted a week prior to incorporate everyone's needs, opinions and expertise. The compressed 2 day effort was a combination of training and analyses resulting in a Real Property Vision Plan. Participants identified FWA strengths, weaknesses, opportunities, threats, design challenges, constraints, positives and negatives. The information gathering and analysis culminated in a framework plan which divided the installation into 5 prioritized districts each with an individual theme and vision.

IAW UFC 2-100-01, at a minimum, a master plan should include a vision plan, installation planning standards, installation development plan, development program and a plan summary. Fort Wainwright is now better equipped to plan and maximize long term capabilities. The next challenge for FWA stakeholders and planners is to create area development plans for each of the identified districts.

The most difficult tasking during the practicum seemed to be agreement on the vision statement. It was important to the stakeholders that the vision statement was not "just anywhere army installation". It had to be unique and identifiable as Fort Wainwright Alaska. This proved to be quite a challenge. Other lessons learned include:

➤



Framework Plan and Districts created during the practicum

Acronyms and Abbreviations	
FWA	Fort Wainwright
HQ IMCOM	Headquarters Installation Management Command
IAW	In Accordance With
UFC	Unified Facilities Criteria
USARAK	U.S. Army Alaska

Fort Wainwright's Planning Vision

Our planning vision is to create an energy-efficient installation with compact districts, versatile buildings and interconnected transportation networks.

Design goals

Goal 1: Energy Efficient Installation Energy-efficiency should be paramount to ensure the installation's viability in an era of fiscal uncertainty.

Goal 2: Compact Districts

Compact development creates sustainable installations through measures including consolidation, multi-use, multistory buildings and walkability.

Goal 3: Versatile Buildings

The planning of buildings concerns much more than housing a function, and should be used to enhance architectural themes, encourage compact development, preserve cultural heritage, and enhance force protection, among other things.

Goal 4: Interconnected Transportation Network

Transportation should incorporate many different characteristics and not focus on automobiles, but include public transportation, sidewalks and paths and include the installation access control points in the design.

Real Property Master Plan and the New UFC

by Kathryn Haught

To quote Charles Dickens: "it was the best of times; it was the worst of times." Real Property Master Planning for DOD entered a new era on 12 May 12 when the updated UFC was approved by the DOD Engineer Senior Executive Panel. This update provided new, innovative policy for completing, maintaining, and using the Master Plan in a manner that optimizes sustainability and management of both real property and real property funds. The ACSIM issued guidance on 30 Apr 13 regarding Army's use of the UFC. The Master Planning AR that reflects the update is currently under formal review by the Office of General Counsel. We hope to have the regulation published in FY14, at which time AR 210-20 will be rescinded and the guidance will be contained in Chapter 10 of AR420-1. The DUSD(I&E) issued further guidance on 28 May 13 for compliance with the UFC; this guidance set a suspense of 1 Oct 18 for update of RPMPs.

The guidance also stated that DUSD (I&E) will, with the input of the Services, establish metrics to evaluate compliance with the new policy. This dovetails not so nicely with the impact of the Budget Control Act and sequestration – we are now faced with the challenge of updating our RPMPs to incorporate these new principals with shrinking resources.

While many may assume that a shrinking Army and shrinking budget means the Master Plan is not important, these conditions make the RPMP more important than ever. Constrained resources means every dollar and every square foot or acre must be assigned and used with the most serious of deliberation. The Master Plan is the primary tool used to allocate funds and determine the greatest need. With RPLANS and ISR ratings being used to allocate funding per the Facility Investment Strategy, installations must maintain their Master Plans.

Having viable and relevant master plans is a priority for HQDA; now we have OSD emphasis to support the Master Planning community. Compliance with the UFC is a top priority with the office of the DUSD (I&E). With the challenges facing DOD installation management such as climate change, rising energy costs, and encroachment to name a few, the strategies outlined in the UFC are instrumental in ensuring the Installation Management community can provide the proper infrastructure for training, operations, and quality of life. Army has a strong Master Planning community and while maintaining our RPMPs may be a challenge I am confident we have the expertise in the field to accomplish what is necessary. While we can expect cuts in contract support our goal is to maintain our Master Planners in the field to ensure we can continue with our Master Planning excellence.

The four major required components per the draft AR are the Vision Plan, the Installation Planning Standards/ Installation Design Standards, the Long Range Component (including the Area Development Plans) and the Capital Investment Strategy. Our land holding Commands continue their efforts to complete the Vision Plans and the Area Development Plans. Update of these components will support continuation of sustainability and compact development and facilitate the implementation of capacity planning. Capacity planning is especially critical for HQDA Army Planning. Of utmost importance is an updated, balanced RPLANS TAB to support your Capital investment Strategy IAW HQDA Facility Investment Strategy. One of our most important tasks as Master Planners is to have the facility requirements and conditions updated in the office of the ACSIM systems of record so that the information is validated and accessible.

We anticipate setting metrics per OSD guidance by the end of the fiscal year. We will continue to assist our Commands in remaining on track to update master plans by 2018 in accordance with the policy. We fully understand the challenges involved and believe that using approved metrics will assist in determining where to direct emphasis within the Army Real Property Master Planning program.

In summary while we have lean ➤

Acronyms and Abbreviations	
ACSIM	Assistant Chief of Staff for Installation Management
AR	Army Regulation
DOD	Department of Defense
DUSD (I&E)	Deputy Under Secretary of Defense, Installation & Environment
HQDA	Headquarters, Department of the Army
IAW	In Accordance With
ISR	Installation Status Report
OSD	Office of the Secretary of Defense
RPLANS	Real Property Planning System
RPMP	Real Property Master Plan
TAB	Tabulation of Existing and Required Facilities
UFC	Unified Facilities Criteria

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1. Interviews prior to the practicum are critical. Make sure you reach out to everyone. If the point of contact is not available, identify someone to speak on their behalf.
2. Command involvement. Senior leader input and installation wide representation was essential.
3. Gather existing maps, plans, and/or relevant documents before the practicum and available for use during the group analyses.

Most importantly, just do it and enjoy the opportunity to collaborate with everyone else who is passionate about your installation's future.

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The Evolution of a New Fort Polk: Laying the Foundation for Change

by Lorna Hanes, Joey Ball and Jill Schreifer

"The exercises in Louisiana provided thousands of men with their first experience of armed conflict and ultimately helped many of them survive overseas. Even when, in the course of maneuvers, they carried only stick weapons or did not participate directly in simulated combat, they learned to adapt and to fulfill their duties as part of a large military force confronting a determined enemy." *-A Soldier's Place in History,* by Sharyn Kane and Richard Keeton, 2004

The quote refers to the Louisiana Maneuvers, which occurred at Camp Polk in 1941 in preparation for World War II. Today, nearly 40,000 soldiers pass through Fort Polk every year for training that continues to provide an unparalleled armed conflict experience.

As Brigadier General William Hickman, Commanding General of Fort Polk remarks, "we are always challenging ourselves to provide a premier training experience for every warfighting function." The evolution of that training, from the stick weapons of 1941 to, as BG Hickman describes "graduate-level training in a complex, well-structured environment that attracts conventional, special operations, joint, multi-national and interagency units and organizations" is not the only change that has occurred at Fort Polk in the past seven decades.

The master planning team, led by Scotty Goins and a team of community planners, is embarking on a master planning vision process to create a real property planning vision to guide future development at Fort Polk and tell the story of the unique capacity and capabilities of the installation.

Those who have passed through Fort Polk (which includes most of the Army!) can attest to the changes in facilities and infrastructure that have already occurred installation-wide, and the master planning vision process will provide a foundation for a physical layout to support future growth and development.

Currently, Fort Polk has the facility and infrastructure capacity to support an additional two Brigade Combat Team Divisions with limited MILCON and facility expenditures. In an era of limited resources, constricted funding, and changing Army mission and force structure, installations that have the capacity to flexibly adapt are well poised. As Colonel T. Glenn Moore, Garrison Commander said, "It would be a shame if we had to provide MILCON funding to another base in order to shrink the Army, when Fort Polk currently has the capacity to support it. We are postured for growth."

Room for growth, or capacity planning, is a key strategic planning tenet of Unified Facilities Criteria 2-100-01, Installation Master Planning. Capacity planning determines an installation's maximum development capacity based on the real property planning vision, goals, and objectives, and proactively accounts for both current and future requirements.

Fort Polk is planning for a thriving future. With the only active land purchase program in the Army, Fort Polk has created a training area with capabilities unmatched Army-wide. Fort Polk has very limited constraints in terms of development potential, and the community has committed their support of Fort Polk's ability to purchase land and guard against encroachment of the training mission. Fort Polk is currently about to acquire an additional 45,000 acres of training land, which will make it one of the largest installations (in terms of overall size) in the Army.

The community support for Fort Polk extends beyond the preservation of range and training land. Community leaders have made significant investment in services and support facilities, and organizations like Fort Polk Progress provide opportunities for involvement in supporting the installation. A new elementary school is planned to open in fall 2015 (Fort Polk schools represent some of the best in Louisiana – Vernon Parish was recently ranked as the fourth-best school district in the state), and a new commissary is currently under construction. The existing commissary and elementary school will provide additional facility capacity for the installation.

As BG Hickman said, "The people of Fort Polk have to have input into the vision. With an ever-changing population due to PCS, we have to have a plan to continually inform people and gather information, to get and sustain feedback. The vision workshop will provide that opportunity."

Vision interviews took place at Fort Polk from 2-5 Dec 13, allowing installation stakeholders and community members to share their ideas for Fort Polk. The master planning vision workshop will be held 27-28 Jan 14. The entire Fort Polk community is invited to attend. For more information, please contact Lorna Hanes at lorna.g.hanes.civ@mail.mil

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Lorna Hanes is a community planner at the Fort Polk Department of Public Works; Joey Ball is a community planner with the USACE Southwest District; and Jill A. Schreifer is the chief strategy officer and planner with the The Urban Collaborative.

Acronyms and Abbreviations	
BG	Brigadier General
MILCON	Military Construction
PCS	Permanent Change of Station
USACE	U.S. Army Corp of Engineers

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times ahead of us this is our greatest opportunity to show how much an RPMP can assist all levels of Army leadership in management our facilities in infrastructure and how critical this consideration is for Army planning and operations.

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Kathryn Haught is a master planner with the Office of the Assistant Chief of Installation Management, Operations Directorate, Plans Division.

USAG-Hawaii Continues to Expand Family Housing

by Ann M. Choo Wharton

The number of families now living in a newly constructed Island Palm Communities home at U.S. Army Garrison-Hawaii is 4,097 and increasing. An additional 2,345 families are living in a renovated home.

The development is part of the Army's 15-year initial plan to build 5,241 new homes, community centers and amenities, and to renovate 2,535 existing homes. "It's great to see that the vision of our IPC partnership to 'Create the Best Places' is being realized and families are benefitting from it," said Col. Daniel Whitney, commander, USAG-Hawaii. "Seeing thousands of families enjoying their homes and communities demonstrates we have our priorities in place and are truly taking care of our service members."

IPC's initial development is more than halfway complete, and families continue to move into new and renovated homes each month. Several homes are highly desirable four- and five-bedroom units.

"Our experience with the staff was absolutely wonderful. They kept us informed about our new home, and it's beautiful, well worth the wait," said Maj. Michael Post who is assigned to support operations with the 8th Theater Sustainment Command at Fort Shafter. Post recently moved into IPC's Hibiscus neighborhood located on Aliamanu Military Reservation where all 2,070 existing homes – most four-, six- and eight-plex – have been demolished and will be replaced with primarily 1,428 single family and duplex homes. More than 200 new homes will be constructed in 2014, and major renovations will wrap up in 2015.

Acronyms and Abbreviations	
BEMS	Building Energy Management Systems
IPC	Island Palm Communities
LEED	Leadership in Energy and Environmental Design
PV	Photovoltaic
USAG-Hawaii	U.S. Army Garrison Hawaii

Aliamanu Community, Aliamanu Crater
More than a quarter of USAG-Hawaii's planned 5,241 new homes are located on Aliamanu Military Reservation, where construction of 1,428 new homes is scheduled to be completed in 2014.

When IPC's initial development is complete in 2020, it will be one of the largest solar-powered communities in the world with nearly 30 percent of its energy needs supported through renewable energy. "We're fortunate to have a talented development team and strong Army leadership in Hawaii that can provide the experience and support needed to help meet important Department of Defense energy goals," said Pete Sims, IPC project director. "When our initial development is complete, more than 7,800 families will make IPC their home, so our families have a tremendous opportunity to make a positive impact on the local environment."

Rooftop photovoltaic systems play a big role in IPC's energy-efficiency plans, and they have been installed on new homes since construction started in 2005. Over the past year, IPC has worked with solar provider SolarCity to install PV systems on existing homes. The first phase of PV installations in the Helemano community was recently completed, and SolarCity started installations this month on homes at Fort Shafter Flats. In 2014, IPC plans to add more than 2.5 megawatts of PV systems on existing homes, bringing it closer to its goal of generating up to 18 megawatts of power.

With a certified LEED for Neighborhood Developments achieved at Simpson Wisser on Fort Shafter, IPC continues to pursue new technologies to gain maximum energy efficiency. A 30-home pilot project to explore Building Energy Management Systems, or BEMS, is under consideration this year. Initial plans would include testing smart thermostats that can detect movement and a human being's heat signature. The system also can monitor performance of air conditioning and solar hot water systems by communicating temperature differentials and mechanical operation reliability. Energy savings is estimated between 10-20 percent. The pilot will ➤

Fort Irwin Achieves 90 Percent Savings in Energy Retrofit Project

by Hossam Kassab

As the Army's premier desert training center, Fort Irwin is best known for its heavy-mission responsibilities, and its expertise in providing combat training for the nation's deploying forces. This mission may seem to be in contradiction with a quest for sustainability, but in fact, Fort Irwin is emerging as a national leader in sustainable operations, recently achieving 90 percent energy savings as a result of an energy retrofit of its Rotational Unit Field Maintenance Area (RUFMA) facility.

The facilities team recognized the opportunity to set an example for millions of Americans by reducing its impact on the planet, and in the process, dramatically reducing energy bills. Fort Irwin identified and implemented a wide variety of energy-saving actions, and is proud to share the enormous, positive contributions these changes are making.

Acronyms and Abbreviations	
EO	Executive Order
EPACT 2005	Energy Policy Act of 2005
EISA 2007	Energy Independence and Security Act of 2007
LED	Light-Emitting Diode
LEED	Leadership in Energy and Environmental Design
RUFMA	Relocation Unit Field Maintenance Area

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help quantify potential savings.

For more information about IPC's initial development, log on to http://www.islandpalmcommunities.com/AboutUs

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Ann M. Choo Wharton is the senior marketing manager for Hawaii Region, Lend Lease (US) Public Partnerships. Aiko Brum is the chief of Internal Communication Public Affairs Office at the U.S. Army Garrison-Hawaii.

Arrays used at Fort Irwin

In combination with these policies and the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings and Leadership in Energy and Environmental Design (LEED), Fort Irwin now employs green practices, including energy and water conservation principals in all facets of base operations.

Energy-saving efforts at Fort Irwin fall into three main areas: Exterior lighting and control, interior lighting and control, and water conservation efforts.

Fort Irwin is a remote Army installation encompassing more than 642,000 acres, and located 37 miles northeast of Barstow, California in the High Mojave Desert. Its location guarantees desert conditions and abundant sunshine, making renewable energy sources an excellent option for providing power to the base.

As one of its first changes, the installation replaced existing 100-1000 Watt, high-press sodium streetlights with 40-80 Watt LED lighting fixtures. The LED streetlights significantly reduced demand on the over-stressed California power grid, and limited consumption of coal-generated power. Project managers also supplemented more than 350 of the 1,100 new fixtures with solar-powered panels, further reducing electricity demand.

The facilities team uses the term, "low hanging fruit" to explain how easily the lighting retrofit was implemented, and how much money the installation saved. Calculations for operating 1,100 high-pressure sodium streetlights annually was $80,000 compared to just $12,500 per year to operate the LED streetlights. Fort Irwin also earned $15,000 in billing credits for the LED lights, and avoided nearly $2 million in installation expenses that would have been required to install 350 new electric poles, high-voltage wires, and transformers to connect the new units to the power grid.

The solar-powered, exterior lighting represents a strategy for capitalizing on the intrinsic value of the readily available sunshine in the Mojave Desert. Inside base buildings, wireless lighting controls were installed which allowed the base to use all the daylight to effectively light interior spaces, and limit the need for supplemental electric lighting. Wireless daylight sensors communicate with wireless dimmers and to automatically reduce electric light levels when daylight is sufficient. Wireless occupancy/vacancy sensors ensure ➤

Living Downtown: An Evaluation of Joint Base Lewis-McChord's Town Center Housing

by Christina Bollo

In 2009, stakeholders at what was at the time called Fort Lewis established the planning vision for the installation. Part of the planning vision called for walkable neighborhoods in the heart of the installation. In response, the housing partner built nearly 300 homes in a variety of styles at the heart of what is now Joint-Base Lewis McChord (JBLM). These homes are within a ten-minute walk of the Exchange, Commissary, schools, offices, the chapel, and the fitness center. To fit within the town center, however, the standard model of low-slung, garage-dominated homes had to change to something a bit more efficient in terms of land use. The designers selected a townhome and apartment model and since they were built occupancy rates have been extremely high.

The townhomes are three levels with a tuck-under garage on the ground floor, the main living, dining, and kitchen area on the second floor, and the bedrooms on the third floor. The apartments are flats. These homes have no back yards and the townhomes have the smallest of front yards.

To test the effectiveness of this housing type, researchers from the University of Oregon conducted a post-occupancy evaluation of housing at Town Center. Town Center is designed as a pedestrian-scaled neighborhood and the walkability of the neighborhood is a clear asset for families. At the time of the study, sidewalk and road construction was underway, so the neighborhood did not have all of its designed pedestrian connections. Still, 57 percent of residents report walking to the Commissary at least once a week, and 70 percent report walking somewhere on base at least once a week.

With this walkability, comes increased density: more residents can easily walk to more places. Designers placed small parks and green spaces amongst townhouses and 12-unit apartment buildings. There are alleys and garages for residents and on-street parking for visitors.

Acronyms and Abbreviations	
JBLM	Joint Base Lewis-McChord

The study examined two of the tradeoffs that people make in choosing to live at Town Center.

Two aspects of Town Center are different from the typical housing at JBLM private outdoor space and parking. The dwellings at Town Center do not have large fenced yards; instead, the apartments have 70 square foot balconies and the townhouses have 66 square foot decks. Though each dwelling has two parking spaces, like elsewhere at JBLM, the arrangement of the cars is unusual – they are parked end-to-end rather than side-by-side. Visual surveys, ➤

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that lights are not left on, and wasting electricity, when a space is vacant.

The advantage of the wireless control strategy is a significantly reduced cost of installation, and the controls allow for maximum flexibility if a given space is repurposed, or the needs of the space are redefined. Ultra-reliable, wireless technology promotes energy security, helps support the base's net-zero energy doctrine, and contributes to a facility that is innovative and self-sufficient.

The third aspect of sustainability efforts at the base revolves around installation-wide water conservation measures. Water is an especially contentious issue in the Western part of the country, and For Irwin worked to find creative ways to decrease water without sacrificing the safety, health, comfort, or quality of life standards expected by base residents. Effective implementation of this program will eliminate energy waste, conserve utility dollars, and help the National Training Center meet its energy and water conservation goals.

The Installation Management Command Regional office is monitoring Fort Irwin's lighting project to determine the broad-based opportunities available in other Army installations. An ancillary advantage to the project is that it alerts both the military and civilian workforce to the emphasis given to sustainable living on post. As soldiers and civilians navigate through their home and work communities, the Army's commitment to efficient operations heightens the call to join in its conservation efforts.

Cost savings result not only from the use of more efficient lighting and control technologies, but also from the decreases in maintenance costs that are attributable to more efficient, longer-life sources and more efficient controls. Fort Irwin's Public Works engineers calculate labor cost savings to be nearly $5,000 annually ¬which is money that can be applied toward quality of life projects that directly benefit soldiers and help achieve the bottom line.

Fort Irwin's elite Garrison team of dedicated professionals proudly serves our nation by providing world-class sustainable services in support of our soldiers and their families on the Army's premier training installation. Our compassion for excellence and mission success allows our soldiers to focus on training, knowing that their families are well cared for by Garrison individuals working together. We work hard and take the extra steps necessary to make Fort Irwin an installation of choice for our soldiers and their families.

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questionnaires, and interviews were used to gauge the success of these two areas of interest.

The research found that the majority of residents (62 percent, for both apartments and townhouses) use their balconies. In a questionnaire, 65 percent of residents expressed satisfaction with their private open space, and 57 percent reported using their private open space on a regular basis. Though initially the private developer reported that people used the balcony solely for satellite television dishes, only 9 percent of the dwellings had dishes at the time of the visual survey, compared to 30 percent of the dwellings with grilles, and 36 percent with chairs. The results show that the private outdoor space is being used by many of the service members and their families and the yards are not that critical in downtown housing on a military installation.

The parking at Town Center is the second focus area because it is different from other neighborhoods at JBLM. The garages at the townhouses are "tandem" garages: each fits two vehicles, nose to tail. The parking for apartment residents is under carports and in small parking lots, immediately adjacent to the secure entrance of each apartment building. The questionnaire results showed that a strong majority of the residents were "satisfied" with the parking, 73 percent, with a surprising 31 percent reporting being "very satisfied" with their parking. While there had been concern that only one car would fit into the tandem garage, the questionnaire indicated that the design works: 35 percent of the townhouse residents report using the garage for two vehicles.

A visual survey assessed the use of the on-street parking at diverse times of day, and different days of the week. The results show that while 750 spaces are available on the streets of the Town Center neighborhood, on average only 45 percent are used. On-street parking that is immediately in front of the townhouses is used at a higher rate, 61 percent, and parking that is to the sides of the townhouses at a lower rate, 18 percent.

Apartment residents who utilize the carports and surface lots express slightly lower parking satisfaction rates than the townhouse residents, 67 versus 75 percent. Like the on-street parking, the carport and surface lot parking is quite underutilized: at no time did the carports exceed 61percent utilization, and the surface lots never exceeded 40 percent. With 320 private garage spaces, and 1,800 other parking spaces, Town Center has ample parking for residents and visitors. Future allocations of parking space in similar neighborhoods should look to Town Center to learn which types of parking, particularly on-street parking, are most beneficial to service members and their families.

Tradeoffs in private space, open space, and parking did not seem to decrease residents' satisfaction with their housing. The study also shows some surprising benefits of living at Town Center. Interviews revealed that many of the children who live in the apartment buildings are disabled; the elevators and accessible bathrooms have substantially increased these families' quality of life. Another surprising finding was the residents' perception of Town Center as a very safe neighborhood, because of the increased density. Residents report fewer break-ins than in other housing, and an increased sense of connection to their neighbors. With minimal adaptation, Town Center could be a successful model for future family housing at military installations across the United States. The results also show how important a clear vision is in guiding sustainable development.

Town Center housing consists of townhomes and apartments designed to create an attractive and safe streetscape with on-street parking, connected sidewalks, and planting strips that separate pedestrians from the curb. (Image by Mark Gillem)

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First Sergeants Barracks Program (FSBP) 2020 - What's on the Horizon

by Stefanie Casey

Originally created to provide a central point for management of the Army's unaccompanied housing (UH), the First Sergeants Barracks Program (FSBP) began as a pilot program in 2004 and was implemented Army wide by October 2011. It centralized day-to-day property management functions at the garrison Housing Division using Department of the Army Civilians in lieu of decades of Soldier managed barracks. In the summer of 2012, the Army transitioned to FSBP 2020, which takes the best pieces of FSBP and increases the involvement of the military unit in daily management.

The three basic principles of FSBP remain the same with FSBP 2020– support the mission, take care of Soldiers, and use resources wisely—although the Army has to be flexible in accomplishing these principles as circumstances evolve. Supporting the mission remains the primary principle of FSBP 2020, yet we know that over time the mission will change and the program will need to adapt. Similarly, as our fiscal environment becomes more constrained, the importance of using resources wisely must be underscored and we, the Army, must look for innovative ways to provide the same level of service, if not better, with fewer resources.

In keeping with fiscal responsibility, the concept of ownership in the barracks has become more important than ever. From pride in ownership to assuming responsibility for recklessness or damage, Soldiers and their units will need to remember that the barracks are single Soldiers' home and affect their quality of life. Accountability reinforces the need for having the military unit as the face of FSBP 2020 and having a Non-Commissioned Officer (NCO) presence in the barracks to help prevent damage and quickly establish responsibility when it occurs.

Units also have the responsibility to maintain their facilities by keeping on top of reporting and/or completing repairs and maintenance, and tracking service/work orders, especially during this period of fiscal uncertainty. If a service/work order fails to get completed in a timely manner, residents will work with unit personnel to raise the issue to get proper visibility both within the unit and the Directorate of Public Works (DPW), who is responsible for getting the maintenance/repair completed.

The garrison's DPW is responsible for the planning, programming, sustainment, maintenance and repair of UH facilities. As a professional workforce, the garrison Housing Division civilians are the subject matter experts for UH services and provide policy guidance and oversight on UH operations, including training and technical assistance. The entire garrison staff is there to help; communication between garrisons and unit leadership is of the utmost importance.

It is essential that leaders at the unit and installation level support the program and its three principles. Leadership's support in everyday duties of barracks management at their installation also cannot be underestimated. Pride in ownership is infectious – and is something we want everyone from the residents to the NCOs and other leaders to have!

As the organization responsible to create and monitor policy for FSBP 2020, the Office of the Assistant Chief of Staff for Installation Management Housing Division, too, has to adapt to the current situation and circumstances. We established several new Installation Status Report (ISR) metrics under the "UH management" service to measure the program's successes and challenges. The ISR is an Army web-based program used to evaluate the condition and readiness of our facilities, services, and natural infrastructure and assist leaders in decision making. One new metric monitors the turnover rate of Soldiers who are assigned UH management duties which affects training and time management for both the military and civilian managers. Another new metric looks at the components of FSBP 2020 affecting barracks security, relating to the prevention of sexual harassment and suicide and aligning with new barracks physical security reporting requirements.

As times and circumstances change, so too, will FSBP 2020. The faces of the people implementing and maintaining this program will change over time, as will the specifics of how the services are provided. The commitment to the Soldier is still present and the goal is to ensure this program does everything it can to guarantee our unaccompanied Soldiers have the living environment they deserve.

Acronyms and Abbreviations	
DPW	Directorate of Public Works
FSBP	First Sergeants Barracks Program
ISR	Installation Status Report
NCO	Non-Commissioned Officer
UH	Unaccompanied Housing

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Army Corps, Garrison Open New Barracks for Schofield's HHBN, 2nd Brigade Soldiers

by Dino W. Buchanan, Honolulu District Public Affairs

Officials from the U.S. Army Corps of Engineers, U.S. Army Garrison-Hawaii, and Absher Construction opened a new $35.3 million barracks with a ribbon-cutting ceremony Oct. 30. The new Unaccompanied Enlisted Personnel Housing on Montague Street (Schofield Barracks) will house Soldiers of Headquarters and Headquarters Battalion, 25th Infantry Division (25th ID) and the 2nd Brigade.

During the ceremony, Honolulu District Commander Lt. Col. Thomas D. Asbery told guests that construction of the barracks "continues the Corps' strong partnership and commitment to building quality facilities for the Garrison and Soldiers returning from deployments – on time, of high quality and under budget."

Honolulu District Commander Lt. Col. Thomas D. Asbery (left) assists Robert Eastwood, Director, Directorate of Public Works, USAG-Hawaii cut the ceremonial ribbon during ceremonies held Oct. 30 to open the new $35.3 million barracks on Montague Street. (Photo by Dino W. Buchanan)

"Today with this ribbon-cutting for this barracks the Corps of Engineers continues our efforts to build the highest quality facilities for our Soldiers – on time and under budget," Asbery said. "Because of our strong commitment to schedule and partnership, the Corps and Absher are providing this facility one month ahead of schedule. These highly-energy efficient barracks provide Soldiers with modern accommodations, while also helping to reduce the post's energy consumption and costs."

The design-build construction contract for the 228 personnel barracks was awarded to Absher Construction Company in June 2011 for $35.275 million to meet Department of the Army Whole Barracks Renewal standards. Design was done by Tetra Tech. This project was the second Absher has completed with the Corps of Engineers in Hawaii - the first was the New Barracks Complex on Lyman Road on Schofield Barracks.

Sustainability and protecting the environment were key components in the construction of this barracks with energy saving elements like: Solar water heating, high-efficiency appliances, plumbing systems that reduce water consumption by 40 percent, and the use of energy efficient Insulated Concrete Form (ICF) technology to construct this barracks, similar to that used in the construction of the New Barracks Complex on Lyman Road. The Adobe-building blocks keep the facility interior cool and greatly minimizes energy costs. The ICF can also withstand winds of up to 250 mph.

These environmental innovations and other sustainability components translate into real dollar savings for the Garrison and the Army well into the future.

Absher is in the process of trying to attain LEED Gold certification for this facility through the U.S. Green Building Council in lieu of the normal LEED Silver standard. Leadership in Energy and Environmental Design is a voluntary, consensus-based, market¬-driven program that provides third-party verification of green buildings. Building projects satisfy prerequisites and earn points to achieve different levels of certification. Gold certification is the second highest level (Platinum).

The new six-story UEPH will be home to Soldiers living in two-man suites that feature a shared kitchenette with a cook-top range & oven, microwave, a refrigerator and dining area, a shared bath, central air conditioning, cable TV, and internet service. Project amenities also include central laundry facilities on each floor, activity rooms and boot wash stations at each ground floor entry. Supporting facilities include utilities, paving, walks, curbs, gutters, parking, fencing, storm drainage system, information systems, site and road improvements.

Participating in the traditional maile lei untying and ribbon-cutting ceremony were Lt. Col. Asbery and Robert Eastwood, Director, Directorate of Public Works, USAG-HI. The Rev. Dr. Kaleo Patterson of the Pacific Justice and Reconciliation Center led the Hawaiian blessing and maile lei ribbon untying cutting ceremony.

The Honolulu District is committed to building and managing the construction of high quality projects that improve the quality of life for service members and their families and that provide jobs and money which stimulate the local economy.

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Korea Relocation Program Barracks Construction

by Jason Chudy

The U.S. Army Corps of Engineers Far East District is making a name for itself in the Republic of Korea, spearheading the multi-billion dollar Korea Relocation Program, in which U.S. forces are moving from Seoul and north of Seoul to two enduring hubs around the city of Pyeongtaek, about 40 miles south of Seoul, and around Daegu, about 150 miles southeast of Seoul.

A major part of this relocation involves barracks construction, and the district is building them on an almost unprecedented scale. Nearly 20 barracks are either completed, nearing completion, in construction or planned for on four different installations across the peninsula. Dozens have been built over the past decade or so. "We have 13 well under construction or nearly complete, and three just started, for a total of 16 just here at Humphreys," said Greg Reiff, the Far East District Humphreys Area Office resident engineer.

All told, the district is now building barracks space for nearly 3,500 unaccompanied personnel, most of which is at U.S. Army Garrison Humphreys, near Pyeongtaek. The majority of the barracks under construction for the Army are eight-story projects capable of housing 302 military personnel apiece. "The fact that they're eight stories is unusual," said Reiff.

For the Army projects at Humphreys, "we're going with the standard Army one-plus-one standard plan," he said. "From the inside they all look the same [as barracks on other Army installations worldwide]."

The standard sets a two-person apartment-style room setup that gives each resident separate 157 square-foot living/sleeping room and a 33 square-foot closet. Each shares a bathroom, kitchen and common area with one other resident. The kitchens are equipped with a government-furnished and installed oven/range, microwave and refrigerator. The one-plus-one standard for single enlisted housing was implemented by then-Secretary of Defense William J. Perry in 1995.

Acronyms and Abbreviations	
HVAC	Heating, Ventilation and Air Conditioning
U.S.	United States

Reiff's worked for the district since 1996 and has seen many barracks being built. "Two to three barracks a year," he said about the majority of his time in Korea. "Now its four to five clusters of three to four barracks at a time." Many of these projects are tied together as part of larger packages, most of which include dining facilities, and some include work spaces such as vehicle maintenance facilities.

Steve Kim, resident engineer at the district's Pyeongtaek Resident Office, has construction surveillance oversight of eight of the new barracks at U.S. Army Garrison Humphreys near Pyeongtaek under three different contracts. These contracts aren't U.S. military construction-funded projects. They fall under what is called Republic of Korea Funded Construction – In Kind. With this, the Korean Ministry of National Defense, Defense Installation Agency contracts out the projects and provides project management of the actual construction.

The Far East District, however, still plays a key role in ensuring they are built to U.S. specifications. "With construction surveillance, I ensure these projects are built to standards," said Kim. "I spend a lot of my time keeping the chain of command and the installation DPW (Department of Public Works at U.S. Army Garrison Humphreys) informed of their progress."

The new 302-person barracks are also being built with new heating, ventilation and air conditioning systems, better known as HVAC systems, which are computer controlled. Temperatures throughout the buildings can be monitored through this state-of-the-art system, said Kim. ➤

U.S. Navy, Republic of Korea military, and U.S. Army Corps of Engineers officials break ground on a Navy 110-person barracks at the U.S. Marine Corps Camp Mujuk near Pohang, on the southeast coast of the Republic of Korea Dec. 6, 2012. U.S. Army photo by Patrick Bray.

EDRC-West Point Readies Deployed Structures Operational Energy Testbed

by Marie Darling and Lt. Col. Steven D. Hart

Researchers with the U.S. Army Engineer Research and Development Center's (ERDC) Construction Engineering Laboratory (CERL) in conjunction with a multi-disciplinary group of cadets from the United States Military Academy (USMA) at West Point and their instructors combined efforts this past academic year to establish the ERDC-West Point Deployed Structures Operational Energy Testbed.

The USMA at West Point instructors on this project are Col. Fred Meyer and Lt. Col. Steven D. Hart, ERDC Engineering Fellow and USMA director of Infrastructure Studies for the Center for Innovation and Engineering.

The newly created testbed will be used as a research tool by cadets and faculty to conduct a year-long, side-by-side comparison of a standard B (Barracks)-Hut and a SIP (Structural Insulated Panels)-Hut, a fast, easy-to-construct, energy-efficient structure for Soldiers to work and live in when deployed.

The SIP-Hut is built on the same footprint as a B-Hut, but uses two layers of oriented strand board sandwiched around a core of polyurethane or expanded polystyrene insulation. This design reduces energy consumption by 50 percent, structural construction time by 70 percent and air infiltration by 97 percent.

ERDC-U.S. Military Academy at West Point Deployed Structures Operational Energy Testbed is opened for business (research) by Cadets Scott Ratzer and Diego Crespo. (Photo by Lt. Col. Hart, USMA-West Point and ERDC)

The SIP-Hut is also simpler to build. A B-Hut has 567 boards, plywood sheets, and metal connectors, whereas a SIP-Hut has only 80 boards and panels. Approximately half of the B-Hut boards are required to be cut to size, but the SIP-Hut boards require only eight cuts, which can easily be done using a hand saw. Finally, the B-Hut requires a skilled carpentry team about three days to construct, while the SIP-Hut requires only two skilled leaders and six laborers 10 hours to build.

This past spring, the SIP-Hut 1.0 was built by a multi-disciplinary cadet team on the West Point campus, next to a standard B-Hut. These two buildings form the heart of the testbed and are instrumented to collect data on internal and external temperatures, energy consumption, weather data, and solar radiation. The data collected over the course of a year will be used to validate the energy reductions.

The hut is also a prize winner. The cadet SIP-Hut Team competed in the Massachusetts Institute of Technology's Institute for Soldier Nanotechnology in early April and won the QinetiQ Prize of $3,000 at the Soldier Design Competition.

Building on these experiences, the SIP-Hut 2.0 was constructed in early August. A team of four Soldiers from the Army's 210th Digital Liaison Detachment and Maj. Drew Johannes, a doctoral candidate at the Naval Postgraduate School (NPS), with a follow-on assignment to CERL, were led by West Point instructors Meyer and Hart in constructing a SIP-Hut for the Joint Interagency Field Experiment ➤

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The scope of the work at Humphreys alone is almost staggering – a medium-sized American city is being built under a $10.7 billion project. The garrison itself is growing from 1,210 acres to 3,528 acres. In the next two years, 655 new buildings will have been constructed, and 339 older buildings demolished. The barracks at Humphreys are at the forefront of this new work

"When you drive around the existing Camp Humphreys perimeter road, you see the 'new land' and the first thing you notice are these barracks," said Kim. "Most of the barracks on these three different projects are pretty much complete. They stand out. You're seeing the beginning of a new city out there."

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(JIFX) sponsored by NPS at Camp Roberts, Calif.

The JIFX event brings together more than 400 researchers, scientists, first responders and military personnel to conduct a multitude of experiments and evaluations at the California National Guard's Camp Roberts facility in southern Monterey County, Calif.

For the JIFX exercise, materials for the SIP-Hut arrived onsite Monday and the foundation was prepared in five man-hours. Construction of the structure began the next day at 9:20 a.m. and was completed on Wednesday at 12:30 p.m. By noon on Thursday the doors, trims, HVAC systems, and electrical service were complete. This exercise proved the construction efficiency of the SIP-Hut.

SIP-Hut 2.0 also validated the energy efficiency of the concept. "Initial energy assessments showed that a 1-ton HVAC unit drawing 1,150 watts of power maintained an internal temperature of 68 to 70 degrees Fahrenheit (F.), while the external temperature was 91 degrees F," Hart said. "A B-Hut in the same conditions would require five tons of air conditioning or about 6,000 watts of electricity.

"Many of the project assumptions were validated, including an improved floor design, improved ridge beam and column detail, and construction by a crew of untrained laborers with direction provided by two trained leaders."

The testbed energy efficiency continues to grow with a 2kW photo voltaic solar fly (PV fly), generally known as a solar panels system (provided by the Natick Soldier Research, Development and Engineering Center), installed in the testbed in late October in an attempt to power the SIP-Hut during daylight hours using only the PV fly. If successful, this will reduce the required energy by another 50 percent, meaning the SIP-Hut could use as little as 25 percent of the energy a B-Hut requires, with the overall possibility of making the hut a Net-Zero deployed structure.

The PV fly was dismantled Nov. 26 and as part of that effort a load cell was used to measure the load on the most heavily loaded anchor strap during both striking the fly and installation of the first two poles. This experiment provided erection load data not previously recorded and will be used to improve the design of the anchoring systems.

Ongoing investigations with the SIP-Hut also include an integrated force protection package to provide protection from 120 mm mortar fragments and a detailed life cycle analysis of a 120 SIP-Hut forward operating base.

Also in the works is a SIP-Hut 3.0. Building on all lessons learned, this near-final prototype will include factory-applied roofing, siding, interior painting, and flooring. A modular electrical system is also being developed for this version's use.

"If these initiatives are successful, SIP-Hut 3.0 will allow a squad to build a deployed housing structure for six Soldiers, complete with lights, outlets, and interior and exterior finishes in one day," said Hart. "Construction of SIP-Hut 3.0 is planned for this spring at CERL."

To view time lapse construction of a B-Hut and the newly designed SIP-Hut by a group of West Point Cadets and their advisers click on B-Hut/SIP-Hut Construction - YouTube.

Learn more about their efforts at ERDC and West Point Partner to Re-Shape the Army with SIP-Huts.

Acronyms and Abbreviations	
B-Hut	standard Barracks Hut
ERDC	U.S. Army Engineer Research and Development Center
CERL	Construction Engineering Laboratory
F	Fahrenheit
HVAC	Heating, Ventilation and Air Conditioning
JIFX	Joint Interagency Field Experiment
kW	kilowatt
mm	millimeter
NPS	Naval Postgraduate School
PV fly	photo voltaic solar fly
SIP	Structural Insulated Panels
USMA	United States Military Academy

The SIP-Hut Construction Team stand with Soldiers from the 210th Digital Liaison Detachment. (Photo courtesy of Lt. Col. Hart, USMA-West Point and ERDC)

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Crafting a Cadet Barracks Upgrade Program (CBUP) to Fix West Point's Ailing Barracks

by Matthew Talaber and Jonah Havranek

As an historical installation, the United States Military Academy at West Point features buildings that were constructed a century or more ago. For example, while its newest barracks were built in 1972, its oldest has stood 118 years since 1895. Through the decades, minor improvements were made to each of West Point's nine barracks, but wholesale revitalization was never realized. The recognition that the barracks have dramatically surpassed lifecycle replacement expectations prompted the need for a CBUP. Providing exemplary quality of life for cadets is a top priority for West Point, and since a cadet's quality of life revolves around his or her barracks room, it is imperative that the CBUP is successful.

West Point's CBUP, developed in partnership with Installation Management Command (IMCOM) and the Assistant Chief of Staff for Installation Management (ACSIM), spans nine years from 2013 to 2022, commencing with Scott Barracks and concluding with Sherman Barracks. Scott Barracks is one of two barracks designed with a vertical orientation, meaning that each cadet division is comprised of an independent staircase serving six floors of stacked cadet rooms and latrines. The other seven barracks (including Sherman) feature a horizontal orientation, each division covering the length of one floor.

The CBUP begins with the renovation of Scott Barracks (photo by Kenneth Stay)

Acronyms and Abbreviations	
ACSIM	Assistant Chief of Staff for Installation Management
BAS	Building Automation System
CBUP	Cadet Barracks Upgrade Program
DPW	Directorate of Public Works
IMCOM	Installation Management Command
LED	Light Emitting Diode
LEED	Leadership in Energy and Environmental Design
R-values	measure of thermal resistance used in the building and construction industry

Regardless of the division structure, all the barracks suffer from deterioration.

The CBUP will remedy a variety of issues and raise all barracks to current code. Fire suppression systems will be added where they do not exist now; currently installed fire detection equipment and controls will be replaced with modern addressable components; original plumbing and electrical infrastructure will be upgraded; egress routes and related signage will see improvements that satisfy current building codes; and roof replacements and masonry repairs will ensure a water-tight envelope. CBUP will also allow for properly located and sized latrines for female cadets.

When the barracks were originally constructed, energy conservation was not a consideration, but now West Point has opportunities to enhance energy efficiency. For example, antiquated pneumatic steam heat controls will be replaced with digital controls connected through a building automation system (BAS). The BAS will efficiently maintain environmental controls and support LEED Silver requirements. Cadets will be able to control room temperature locally and all barracks will be connected to an energy management control system, spanning all of West Point, allowing central controls of barracks heating, ventilation, and air conditioning systems. Other energy efficiency and

A glimpse of the North-South wing of Scott Barracks under construction (photo by Kenneth Stay)

sustainability measures include the addition of LED lighting, robust insulation that will drastically raise R-values in ceiling, roof, and wall assemblies, and the replacement of existing single-pane windows with triple-pane windows. Improvements to building envelopes offer further cost-saving measures that will enhance quality of life and address environmental concerns. Rooftop solar thermal panels will be installed and roof drains will be rerouted from the wastewater system to the storm water system. Additionally, landscaping improvements are planned to 'green' and cool the area surrounding the buildings.

Because all the barracks are located in West Point's National Historic District, often referred to as 'Central Area' and considered the heart of cadet life, a detailed logistics plan was imperative to the success of the upgrade program. Central Area is urban in nature with buildings in close proximity to each other, copious pedestrian and vehicular traffic, and precious little unused space. Furthermore, the several other major construction projects underway in this area reinforce the need for a comprehensive logistics plan. West Point's Directorate of Public Works (DPW) has predetermined logistics for the life of the program, identifying staging areas, just-in-time delivery routes, and parking area relocations. Potential conflicts between ➤

Administration honors Corps professionals with GreenGov Awards

by Tanya King, Michael Coffey and Candice Walters

When the U.S. Army Corps of Engineers unveiled its Environmental Operating Principles in 2002 with a focus on sustainability, the hope was that individual professionals would incorporate those principles in their daily work to make the U.S. Army Corps of Engineers more sustainable.

On Nov. 5, 2013, three U.S. Army Corps of Engineers professionals were recognized for doing just that when they were announced as winners of the fourth annual GreenGov Presidential Awards. Jeanette Fiess, an electrical engineer with the U.S. Army Corps of Engineers Northwestern Division, was selected for the Sustainability Hero Award and Dr. Kathleen White of the Institute of Water Resources and Mark Huber of the U.S. Army Geospatial Center were part of an interagency federal team that won the Climate Champion Award.

The GreenGov awards honor federal civilian and military personnel as well as agency teams, facilities, and programs that have taken innovative steps to reduce energy use and carbon pollution, curb waste, and save taxpayer money in federal agency operations. At the White House ceremony, senior administration officials recognized the eight award winners for exemplifying President Barack Obama's charge to lead by example and demonstrating extraordinary achievement in the pursuit of the president's 2009 Executive Order on Federal Leadership in Environmental, Energy and Economic Performance (Executive Order 13514).

Jeanette Fiess, sustainability and energy program manager for the U.S. Army Corps of Engineers Northwestern Division, won the GreenGov "Sustainability Hero" Award. Photo by Shane Wallenda.

The White House Council on Environmental Quality solicited nominations for the 2013 GreenGov Presidential awards from the Federal community earlier this year. A panel of judges that included Federal and national sustainability leaders reviewed the nominations and recommended the award finalists to the President.

"I was very surprised and honored," Fiess said, who began her career with the U.S. Army Corps of Engineers in 2003 as an electrical engineer intern in Seattle District's Design Branch.

"I was singled out as the winner, but the truth is that there is a huge team behind me that made this possible. I manage a program, but the people behind me are the ones getting the work done," said Fiess, whose title now is Northwestern Division Sustainability and Energy Program Manager. "To me, it's the significant accomplishments of our program, capabilities, and commitment to the program that made this possible."

Under Fiess' leadership, the division has increased the number of employees with training in high-performance building standards by 70 percent. In 2012, she led the nationwide U.S. Army Corps of Engineers effort to update the USACE Unified Facilities Guide specifications, which previously lacked critical sustainability requirements. ➤

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the CBUP and ongoing and anticipated construction were resolved and such details as haul routes and lay-down areas were also addressed in advance of construction.

The DPW garnered willing cooperation from affected West Point agencies such as the Office of the Commandant of Cadets, the Directorate of Intercollegiate Athletics, and the Office of the Dean. With the logistics plan complete, DPW project managers have now turned their attention to the execution of the design/ build contract.

Project managers invited a number of others to participate in the review process, including DPW shop personnel and cadets. Thus extending the conversation yielded several additional improvements to the design. The CBUP has generated a great deal of enthusiasm within DPW, and we recognize the importance of the CBUP and are excited to play a major role in improving quality of life for cadets for years to come.

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Fiess, who is passionate both at work and at home about considering the impact humans have on their environment and other people, began working to implement sustainability requirements within the U.S. Army Corps of Engineers in 2009, teaming up with Judy Milton of Savannah District to teach day-long sustainability classes.

"Not everyone knew what the requirements were or how to implement them, so we offered them in a one-day class," Fiess said. "But the classes were so big and there are so many requirements that it was a bit like drinking from a fire hose. We made it into a week-long class."

She then took it one step further, opening up the class to not only U.S. Army Corps of Engineers employees, but the agency's partners and customers so they, too, could understand the requirements and find ways to implement them.

"We have federal requirements to use bio-based products, which have high corn or plant contents, not just recycled contents," Fiess said. "This wasn't previously identified, but increases our potential for success."

U.S. Army Corps of Engineers Headquarters has recommended that the training Fiess developed be included as part of its national training platform in future years, something that she is pleased to see. And although she receives credit for developing the course, she is quick to pass on the praise to those on her team.

"As I lead the program, the districts are the ones implementing the requirements," she explained about how her team supports military installations. "They've done a significant job in achieving Leadership in Energy and Environmental Design certifications. We have three installations in our division designated as Net-Zero and our districts have taken a direct role in supporting them. We've seen third party review and validation of the energy and water savings and waste reduction that has been achieved by their dedication."

Another area Fiess worked in was leading a team of engineers to develop a new policy for central heating plants at Army installations.

"This is especially important for us in the Army because we, as the federal government, own and operate those buildings for their lifetime. Anything we can use to reduce the energy, cost savings, while considering the environmental benefits," Fiess said. "It's at the core of what we do. We are fiscal stewards of these resources and this just builds on that. It's what we've been doing and what we've been charged to do."

White and Huber were part of a team that also included members from the National Oceanic and Atmospheric Administration, the Department of Homeland Security and the U.S. Global Change Research Program. The team developed the Sandy Sea Level Rise Tool, which is being used in New York and New Jersey as businesses and residents in those states continue to recover from Hurricane Sandy and try to determine whether to and where to rebuild. The tool helps them take sea level rise and the Federal Emergency Management Agency's flood elevation levels into account as they make rebuilding decisions. The Sandy Sea Level Rise Tool incorporates a previously developed Army Corps of Engineers sea-level rise calculator.

More information about the U.S. Army Corps of Engineers sustainability efforts can be found at www.usace.army.mil/Missions/Sustainability and information about what the U.S. Army Corps of Engineers is doing in the climate change arena can be found at www.corpsclimate.us

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From the editor

Please note we are reducing the number of printed copies of the Public Works Digest beginning with this issue. If the number you receive does not meet your needs, please contact me at editor.pwdigest@usace.army.mil Thank you.

Kathye Gerrity-Milibram
Managing Editor

Out and About With Sustainability...

To see the 'Top Stories' related to DOD Sustainability go to: http://www.defense.gov/home/features/2010/1010_energy/

To explore DOD research related to sustainability go to: http://www.denix.osd.mil/sustainability/Index.cfm

To view the DOD Sustainability/Energy OMB Scorecard go to: http://www.denix.osd.mil/sustainability/upload/DOD-Final-Jan-2013-OMB-Scorecard-public-version.pdf

To review the Army's sustainability direction go to: http://www.asaie.army.mil/Public/ES/sustainability.html

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Fort Benning Considers Feasibility of Capturing Energy from Cooling Tower Exhaust

by Kirk W. Ticknor

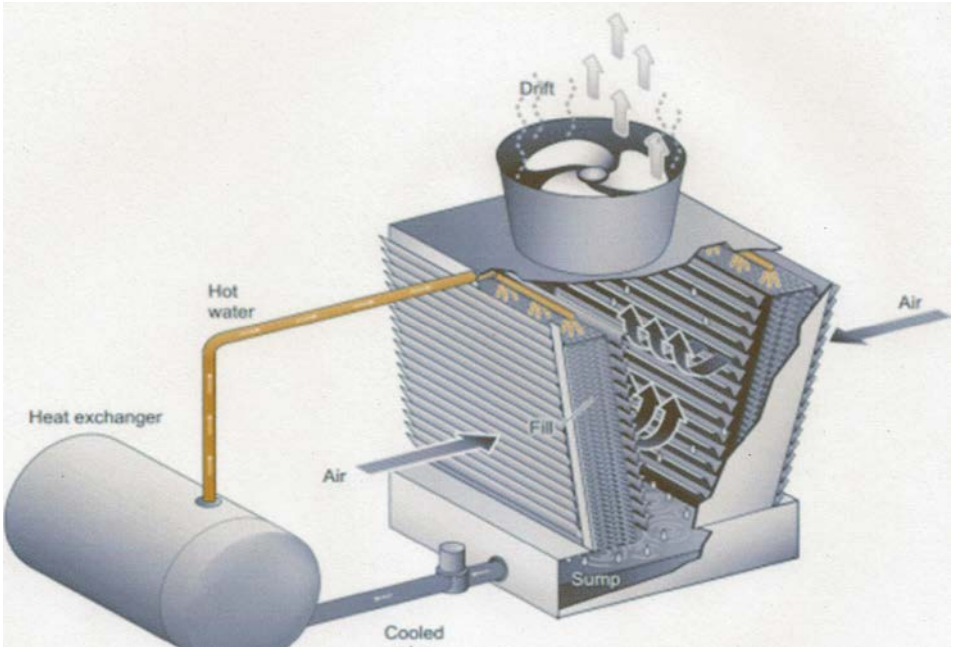
Fort Benning has considered implementing different green technologies that have proved to be economically feasible for their geographic region. For example, an historic barracks complex underwent a HVAC renovation using water source heat pumps coupled to an extensive geothermal field. Waste-to-energy projects are also being considered. The post is also serving as a testing site for the feasibility of capturing energy from cooling tower exhaust streams.

Energy consumption causes depletion of natural resources, and increases environmental emissions. Improving energy efficiency is a simple way to reduce these negative impacts, while also gaining economic benefits. EXnergy Technologies, LLC has created a patented wind turbine technology that appears to be a promising way of recapturing waste energy from cooling tower exhaust. Fort Benning purchased two of these wind turbines and we have been monitoring energy usage, cooling tower performance, and maintenance impacts under normal operating conditions.

The turbine is six feet in diameter, and uses ceramic bearings rather than gears at its center hub, with permanent magnets attached to its wheel perimeter. As the wheel spins, the magnets pass through a patented track of copper stators which are embedded in glass-filled nylon and housed within an aerodynamic shroud. Twenty blades attached to the wheel are designed to make the turbine respond to wind speeds as low as two miles per hour. The turbine generates approximately 1,500 watts at a constant wind speed of 31 miles per hour.

In a commercial cooling tower, water is cooled by evaporation into a high-flowing air stream. The air stream is pulled through vertical layers of corrugated plastic which are wetted by the flow of pumped water. This water then collects in the bottom sump of the cooling tower, and from there is continuously recycled. A large fan is typically located at the top of the tower and is driven by a high-horsepower motor to generate the air flow. The wind turbine (named the XT9000 System) is then placed on top of the cooling tower for recovering energy from the waste air streams.

Acronyms and Abbreviations	
F	Fahrenheit
HVAC	Heating, ventilation and air conditioning
kW	kilowatt
kWh	kilowatt hour



Evaporator Chiller System 300 dpi

The tower can cool the recycled water by approximately ten degrees Fahrenheit. This cooled water can then be used to cool a facility directly through an air handler, or indirectly through a chiller unit in combination with an air handler. Chillers consume large amounts of electricity in order to cool water, and the use of evaporator-cooled water to feed the chiller greatly reduces that electricity consumption.

When the XT9000 System is installed on top of a commercial evaporator, 700 to 1,000 watts of power can be recovered directly from the exhaust air as the turbine spins and generates energy. The XT9000 System also reduces the fan motor power consumption of the evaporator by 20 to 30 percent as a result of decreased air flow within the evaporator. Because of the large capacity of commercial cooling towers, the resulting exit water temperature (such as condenser water return temperature) increases only approximately 0.5 degrees Fahrenheit.

Cooling tower performance depends on ambient temperature, humidity, site elevation and the overall efficiency of the evaporator. The performance of the tower, as well as the chiller, is typically adjusted by the user depending on the size of the facility, the changing occupancy and the energy conservation budget. This is achieved by adjusting the output water temperature of the cooling tower and/or the chiller.

In an automatically-controlled cooling tower/chiller system, the small increase in the condenser water return temperature, approximately 0.5 degrees F, needs to be added to the chilled water supply temperature set point to ensure that it passes through to the facility as an ➤

Bulletin Offers Guidance to Manage Water in Historic Districts

by Anne Dain-Owens and Ellen Hartman

Installation Directorates of Public Works face the dilemma of how to retain and not compromise historic character while incorporating new and sustainable technologies for stormwater management into historic districts. The Corps of Engineers has issued a Public Works Technical Bulletin to help DPWs navigate the many issues and concerns involved with upgrading a historic district's stormwater management infrastructure using sustainable approaches. PWTB 200-1-118 is posted on the internet at http://www.wbdg.org/ccb/ARMYCOE/PWTB/pwtb_200_1_118.pdf

The growth and development of an installation is often revealed in the physical evolution of its built environment. In many cantonments, the original core of development is often referred to as a historic district. To be classified as a historic district an area must retain a significant amount of historic features that conveys the time period in which the area was developed. Many historic districts on installations have been evaluated for their eligibility to the National Register of Historic Places, in response to cultural resource legislation requiring federal agencies to document and effectively manage their historic resources. At the same time, environmental regulations require efforts to prevent nonpoint source pollution and other adverse effects of stormwater runoff. While preservation laws allow for adaptively reusing buildings, redesigning landscapes to accommodate sustainable technologies presents many challenges not addressed through policy or regulation.

The PWTB focuses on implementing sustainable stormwater management systems into the landscapes of previously listed or potentially eligible historic districts. Since preservation and management practices vary among installations, the bulletin provides general guidelines to help in selecting appropriate stormwater management technologies and designed elements suitable for the historic genre of an area.

Acronyms and Abbreviations	
CRM	Cultural Resources Manager
DPW	Directorate of Public Works
GI	Green infrastructure
LID	Low-impact design
NRHP	National Register of Historic Places

This vegetated swale sited in the cantonment at Fort Bragg, N.C., is an example of a LID feature which is compatible with a historic district. (Photo courtesy of U.S. Army)

Many federal agencies, including the DOD, promote sustainable management of the environment. The PWTB presents currently identified green infrastructure (GI) strategies for stormwater management, which include low-impact development and light imprint practices. In the context of stormwater management, these GI strategies assist in property redesign and development while actively employing natural site elements to support natural hydrologic function.

The PWTB contains a comprehensive, illustrated list of GI technologies and best management practices with a description of each. It also includes case studies from several cities and four military installations. Because cost-benefit is always a consideration, the bulletin discusses the elements of both traditional stormwater management versus GI strategies that capture lifecycle costs and installation issues for each approach. It provides an extensive list of references and web links as additional resources for DPWs and CRMs.

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Anne Dain-Owens and Ellen Hartman are researchers at the U.S. Army Engineer Research and Development Center, Construction Engineering Research Laboratory, Champaign, Ill.

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energy conservation measure.

As an example of the application of the XT9000 System, when installed on an 11-foot, 25-horsepower motor commercial evaporator the wind turbine produced 0.8 kW. The reduction in fan motor power consumption would be 6.0 kW, with an associated 0.3 to 0.5 degrees F rise in the exit water temperature. The combined energy generation and conservation would save $3,000 annually with an assumed operating duty cycle of 50 percent and an average electricity price of $0.10 per kWh.

Additional factors resulting from an XT9000 System application such as prolonged fan motor life, potential reduced evaporator water loss, and reduction of carbon emissions would result in further cost savings. Fort Benning partnered with EXnergy Technologies, LLC by allowing one of its cooling towers to serve as a site for research and development. The company is continuing to improve the device and gather data that can eventually be used for determining a return on investment from installing these wind turbines on cooling tower exhaust steams.

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POCs are Kirk Ticknor, P.E., chief of the DPW Operations and Maintenance Division, Fort Benning; Imad Mahawili, Ph. D., president and chief executive officer of EXnergy Technologies, LLC; and Wayne Morris, Partner of Contubernium Incorporated.

USACE, Fort Hunter Liggett use Net Zero Planner for Master Planning

by Jerry Zekert, Andrea Kuhn, and Michael Case

The first phase of an energy and water sustainability practicum was launched at Fort Hunter Liggett, Calif., on July 30 – August 1, 2013. A practicum is a course designed to apply theory in a supervised environment. The U.S. Army Corps of Engineers and Fort Hunter Liggett staff organized the practicum with contractor support. Its purpose was to determine energy and water implications of the installation master plan, including three Area Development Plans, and to identify required measures to ensure that future development supports the installation's net zero goals. The Army had designated Fort Hunter Liggett as a pilot net zero energy and waste installation in 2011.

Personnel from both Fort Hunter Liggett and Camp Parks attended the practicum. They worked with instructors to do a planning-level assessment of buildings, perform energy, water, and solid waste calculations by hand, and establish a baseline energy model using the USACE Net Zero Planner software system. Net Zero Planner is an analysis and simulation tool developed by the U.S. Army Engineer Research and Development Center, Construction Engineering Research Laboratory and is specifically designed for installation-scale energy planning.

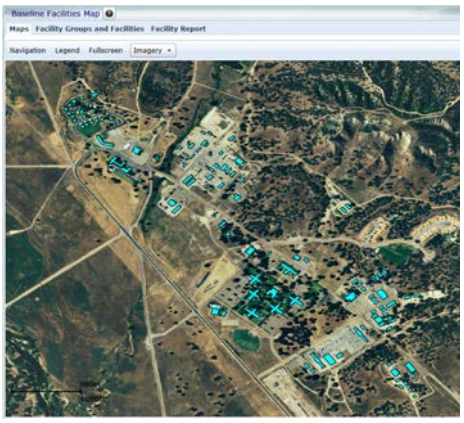
Acronyms and Abbreviations	
ADP	Area Development Plan
AEWRS	Army Energy and Water Reporting System
Calif.	California
EEM	Energy Efficiency Measure
ERDC-CERL	Engineer Research and Development Center, Construction Engineering Research Laboratory.
EUI	Energy Use Intensity
USACE	U.S. Army Corps of Engineers
mm	millimeter
NPS	Naval Postgraduate School
PV fly	photo voltaic solar fly
SIP	Structural Insulated Panels
USMA	United States Military Academy

To collect the information needed for the practicum, abbreviated assessment questionnaires had been tailored specifically to support the level of detail needed for master planning. The questions were derived from more detailed forms already being developed for the 25 percent energy audits required by the Energy Independence and Security Act of 2007.

One important challenge in sustainability planning is to predict and minimize the impact that future changes will have on energy and water consumption. Net Zero Planner is designed to do this with a minimum of data input. An overall baseline for an installation can be obtained from the Army Energy and Water Reporting System. From this data, including the reported facility area, an Energy Use Intensity can be calculated. For instance, Fort Hunter Liggett's overall purchased energy EUI has trended downward by about 25 percent between fiscal years 2007 and 2012 thanks to energy conservation and renewable generation efforts by the staff.

For the practicum, AEWRS, existing geographic information system data, and ADPs were used to create a baseline (current situation) and a basecase, which is a projection of the baseline into the future considering current standards, demolition, and planned construction. To create these models, the overall installation energy use has to be divided between different types of facilities, such as dining, barracks, administration, storage, and other facilities. Demolished buildings will result in lower energy and water use, while new construction will result in higher energy use. If the EUI of the new buildings is lower than that of the demolished buildings, the overall EUI of the installation will decrease. The total energy and water use of the installation could increase, however, if the total area and/or population increase.

The practicum's phase I involved collection of data and established a baseline. Participants surveyed and analyzed each building onsite. In Phase II, scheduled for September 2013, participants will learn how to project the energy, water, and solid waste implications of the master plan under a variety of efficiency and renewable energy scenarios. Participants will use Net Zero Planner to predict resource usage if facilities are demolished as planned and new facilities are built to current standards, which will enable them to calculate the amount of renewable energy required to achieve net zero. In addition, users will learn to explore the results of requiring higher standards (where cost effective) and tradeoffs between facility energy efficiency measures, renewable technologies, and energy storage technologies.



On this Net Zero Planner screen, baseline facilities have been entered. From these facilities, using GIS and simple assessment forms, energy use reported in AWERS is divided into an estimate of the energy used by each building.

Although many view energy conservation in terms of buildings or facilities, the broader scoped master planning can play a key role in achieving sustainability goals and energy efficiencies. By taking a holistic approach and viewing the installation as a system of inter-related buildings, structures, utility networks, roadways and pedestrian/bikeways, and other components, a ➤

Bulletin Encourages Expanded Use of Forestry and Agricultural Outleases

by Natalie Myers

The U.S. Army Corps of Engineers issued a new Public Works Technical Bulletin to help installation environmental managers identify lands that can potentially be outleased for forestry and agricultural uses. PWTB 200-1-125, "Considerations in Identifying Army Lands Suitable for Forest Products and Agricultural Outleasing," is available on the internet at http://www.wbdg.org/ccb/browse_cat.php?o=31&c=215.

The 1960 Sikes Act authorized "multiple use" public lands which allowed for wildlife conservation programs and recreation on government-owned property. It also legalized the collection of usage fees that the military could use to support environmental management efforts. In 1983, Sikes was amended and along with other legislation, created the reimbursable agricultural and grazing outlease program. Over the next two decades of increasing environmental laws and more intensive training, installations received the mandate to develop Integrated Natural Resources Management plans to help balance competing interests for land use.

Acronyms and Abbreviations	
MCE	Multicriteria evaluation
PWTB	Public Works Technical Bulletin

Army Regulation 200-1 requires installations to "routinely examine Army land to determine what areas, if any, are available for agricultural outleasing and/or sale of forest products." This language encourages installations to expand the use of forestry and agricultural reimbursable programs to maximize environmental and economic benefits, without compromising the mission. Yet, it does not provide guidance on implementation. Moreover, evaluating land suitability for forest and agricultural products goes beyond site characteristics to system-wide considerations. The type and quantity of forested and agricultural land plays into the different mission, ecosystem, and economic systems in which each installation is functioning.

Using multicriteria evaluation, the PWTB provides an integrated overview of how to identify lands potentially suitable for outleasing, while also considering military activity and ecologic variables. The objective of using MCE models is to find solutions to decisionmaking characterized by multiple alternatives, which can be evaluated using decision criteria. Evaluation is structured within a geographic information system framework where concerns of different actors are explored and tradeoffs between conflicting goals are identified. These MCE models can be individually built for specific decisions by each installation, property, or project. The PWTB provides several matrices color-coded in green, yellow and red to help identify potential compatibilities for land types and uses.

Logging operations at Fort McCoy, Wisc., help maintain trails for heavy mechanized vehicles, reduce or prevent erosion, and reduce/remove obstacles (e.g., trees, downed woody debris, potholes, and gullies) to create or retain a line of sight for drivers. (Photo courtesy of Fort McCoy Public Affairs)

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more comprehensive approach can be realized. Some examples of sustainable planning include clustering buildings of similar purposes, providing opportunities for alternatives to auto transportation, relying on natural ventilation, and educating users.

The climate and locality unique to each installation is also taken into account. At Fort Hunter Liggett, the abundance of sunshine provides opportunities for optimizing solar energy. Photovoltaic structures were recently erected over parking lots and serve a dual purpose by not only generating energy, but also providing needed shade for vehicles.

The USACE team can conduct master planning energy/sustainability practicums on location, upon request. Practicums are tailored to meet the specific needs of the installation. For more information on Net Zero Planner, please contact Michael Case at Michael.P.Case@erdc.usace.army.mil To learn more about the master planning program, including practicums and Master Planning Institute classes, please contact Jerry Zekert at jerry.c.zekert@usace.army.mil or Andrea Kuhn at andrea.w.kuhn@usace.army.mil.

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Fiscal Year 2013 Career Program-18 Awards

by CP-18 Proponency Office

Congratulations are in order for the winners of the Fiscal Year 2013 Engineers and Scientists (Resources and Construction) Career Program-18 awards!

The CP-18 awards were established to recognize the dedication, contributions, and outstanding achievements of CP-18 careerists Army wide. The winners of the awards ensure the Army can recruit the best talent, develop a world-class highly skilled workforce, and retain a talented team of professionals through a lifetime learning environment.

Nominations for the four awards came from across the Army, including Installation Management Command, Army Materiel Command, and the U.S. Army Corps of Engineers. The winners were selected based on the panel rankings of their personal contributions to the CP-18 mission and goals, their advocacy of the CP-18 program, and their demonstrated mentoring and team development skills.

Richard West, Tulsa District, USACE, was named the Senior Journeyman of the Year. Richard is an Area Engineer in the District's Fort Sill Area Office. Richard leads one of the best construction field office rotations for young engineers and scientists in Tulsa District's robust CP-18 intern program. Richard's team pursues innovative ways to resolve problems, delivers high-quality projects, and has high customer satisfaction -- a testament to Richard's exemplary leadership. His community contributions are equally noteworthy. Richard serves on the Tulsa District STEM committee and also encourages his employees to participate in a wide variety of activities, such as local school presentations, mentoring students, and serving as judges for STEM-related competitions. Richard was also instrumental in establishing the Wichita Mountain Post of the Society of American Military Engineers, serving as the first post president. Richard sets the example of professionalism in dealing with tough challenges and overcoming hurdles to ensure the credibility of the organization.

Acronyms and Abbreviations	
CP-18	Career Program-18
IMCOM	Installation Management Command
STEM	Science, Technology, Engineering and Mathematics
USACE	U.S. Army Corps of Engineers

Richard West

Roland Langford

Roland Langford, USAG Red Cloud, IMCOM, received the Installation and Directorate of Public Works Journeyman of the Year award. Roland serves as the Chief of the Environmental Division for Area I in Korea leading a staff of nine engineers and technicians. Roland highly encourages his employees and peers to achieve certification and licensing and leads by example with multiple licenses and certifications. He has actively recruited the best talent by aggressively working with STEM instructors in Korean schools and colleges and hiring the very best candidates for open positions. His outreach efforts resulted in the development of a memorandum of understanding with a Korean college for joint environmental research activities. Roland's love of lifelong learning is evident in his personal achievements and the leadership he exhibits towards his team.

Joshua Lix, Kansas City District, USACE, received the Journeyman of the Year award. Joshua is a Project and Office Engineer in the Fort Leonard Wood Resident Office. Joshua strives to build and recruit the best talent to serve as technical experts and leaders of the future. He does this by participating in college recruiting trips and by mentoring recent college graduates about the Corps of Engineers. Joshua also plays a leading role in the office's partnership with nearby school districts and youth organizations to promote the Science, Technology, and Engineering and Mathematics (STEM) initiative. This partnership, dubbed, "Tomorrow's Engineers," has achieved great results by conducting STEM events at Fort Leonard Wood and performing science and mathematics experiments at the local community fair, where over 1,500 parents, students, and children attended. Joshua is creating an exciting and challenging career experience that enables learning, recognizes excellence and will help stimulate interest in pursuing STEM education.

Frederick Boglione, Buffalo District, USACE, received the Activity Career Program Manager of the Year award. Fred serves as the District Environmental Branch Chief. Through his strong desire to assist others to grow and develop professionally, Fred has taken the initiative to serve as both a District and regional leader for staff professional development. In addition to numerous district-level ➤

Master Planning Educational Training

by Andrea Wohlfeld Kuhn

Are you a planner, engineer, architect, project manager, realty specialist, or employed in a related position and need to gain a better understanding of how the master planning process works and how planning can be of benefit to your projects? With the publication of the DOD Unified Facilities Criteria (UFC) for Installation Master Planning (UFC 2-100-01) on 15 May 2012, it is more important than ever to employ an integrated approach that includes master planning. Although students are encouraged to take Course 75 early in their training, there are no prerequisites for any of the master planning courses, and they may be taken in any order.

Master planning courses and Area Development Plan Workshops are offered through the U.S. Army Corps of Engineers Proponent Sponsored Engineer Corps Training (PROSPECT) program, also known as the Department of Defense Master Planning Institute (DOD MPI). Courses range from an introductory level to advanced, and include universal planning practices as well as Army-specific information. Each of the courses references the UFC and provides key information on UFC implementation.

The key goals and objectives of the DOD MPI are to develop a world-class workforce by providing the most up-to-date, essential tools and materials to achieve sustainable, energy-efficient planning, engineering and architecture solutions. Classes and workshops are open to all interested parties, including private citizens; contractors; and all federal, state, city and county employees. The original Army-focused materials were expanded to include information relevant to all DOD service branches and other Federal agencies. All courses are fully accredited by the American Institute of Certified Planners (AICP), American Institute of Architects (AIA), and National Society of Professional Engineers (PE) and provide continuing education units.

One of the unique features of these classes is that the instructors employ a variety of dynamic media that goes beyond lectures, and includes hands-on training, small group exercises, field trips, site visits, and other learning opportunities. While basic theory and history is a necessary part of the curriculum, students have the opportunity to develop ideas or plans that can actually be implemented at their locations. By identifying and engaging all relevant stakeholders in Area Development Plan workshops, full participation is realized and buy-ins to solutions and subsequent implementation is enhanced. Technologies include computer programs used for site design and calculations of space, materials, and personnel. Sketches, data from on-site observations, interviews with stakeholders, guest lecturers, multi-media presentations, field trips, and literature reviews are used to provide a complete learning experience.

Acronyms and Abbreviations	
AIA	American Institute of Architects
AICP	American Institute of Certified Planners
DOD	Department of Defense
DOD MPI	Department of Defense Master Planning Institute
PE	National Society of Professional Engineers
PROS PECT	U.S. Army Corps of Engineers Proponent Sponsored Engineer Corps Training
UFC	Unified Facilities Criteria

The instructional staff is composed of Federal and private-sector professionals who are accredited subject matter experts.

Course Descriptions: Brief descriptions of Fiscal Year 2014 DOD Master Planning Institute classes are as follows, with more detailed descriptions and registration available at http://ulc.usace.army.mil/ or http://www.dodmpi.org/. Area Development Plan Workshops are listed on the DOD Master Planning Institute website at http://www.dodmpi.org/. All

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responsibilities, he is also the chair of the region's Leadership Development Program Steering Committee and a member of the regional STEM team. Fred is very supportive of maintaining technical competencies and career broadening opportunities. One of his team members recently developed a methodology for the U.S. Navy to conduct radiological surveys of jet engine parts from planes that flew over the Fukushima Power Plant disaster. Fred is also quick to recognize superior performance in others as evidenced by the selection of his nomination for the very prestigious Hispanic Engineer National Achievement Awards. Fred's passion in growing and developing others in technical and leadership excellence reflects positively on himself and the Corps of Engineers.

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Ms. Langland is a member of the CP-18 Proponency Office.

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classes are fully accredited and offer American Institute of Architects (AIA), American Institute of Certified Planners (AICP), Professional Engineer (PE) and continuing education units.

Course 258: Master Planning Energy and Sustainability Factors

April 15-18, 2014: Washington, DC

This course covers energy and sustainability on a broader planning level, rather than at the individual building level. Discussion and demonstration of energy-related planning practices and initiatives provide effective strategies for implementation. Classroom learning is enhanced by field trips and demonstrations of energy-saving methodology from a planning and design perspective.

Course 241: Master Planning Practices

April 28 - May 1, 2014: Atlanta, Georgia

This course expands on the basic sustainable, energy efficient planning concepts in Course 75 and relates them to Army-specific examples and practices, including analysis of requirements and forecasting. Students will learn the steps of the Army master planning process to identify components and understand the difference between short- and long-term planning horizons, the concept of capacity planning, and formulation of customer requirements.

Course 392: Master Planning Sustainable Historic Structures

July 15-17, 2014: Washington, DC

This course provides an awareness of the unique characteristics, legal requirements, procedures, technical knowledge and skills necessary to administer, maintain and repair federal historic properties. Sustainable, energy-efficient solutions for historic preservation as well as pertinent laws, regulations and guidance are covered.

Course 258: Master Planning Energy and Sustainability Factors

July 21-24, 2014: Washington, DC

This course covers energy and sustainability on a broader planning level, rather than at the individual building level. Discussion and demonstration of energy-related planning practices and initiatives provide effective strategies for implementation. Classroom learning is enhanced by field trips and demonstrations of energy-saving methodology from a planning and design perspective.

Course 326: Master Planning Program Execution (formerly Applied Skills)

July 28-31, 2014: Huntsville, Alabama

This course provides an overview and techniques to develop real property requirements and allowances, assess stationing actions, and ensure sustainability and energy factors are included. Students will learn to use Army planning tools to conduct planning studies and requirements analyses, and determine the impact to the installation's real property master plan.

Course 948: Master Planning Visualization Techniques

July 29 – August 1, 2014: Huntsville, Alabama

This course provides an overview of visualization techniques and offers hands-on training in using Google SketchUp and Google Earth. Students will produce several basic Area Development proposals using these tools and gain knowledge of the concepts of scale, massing of facilities, landscaping, architectural compatibility and force protection requirements.

Course 319: Master Planning Guideline Implementation (formerly Coding Practices)

July 30-31, 2014: Huntsville, Alabama

This new course provides students with an understanding of the concept of form-based coding and its use in the planning and development of sustainable installations. Students will learn how to develop a code, planning standards, and create a regulatory plan for code enforcement.

Course 75: Master Planning Principles

August 5-8, 2014: Savannah, Georgia

This course provides an introduction to master planning concepts and principles, including the comprehensive issues of sustainability and energy. An overview of the planning process is provided, including applying the principles of UFC 2-100-01, with an emphasis on general planning principles that are applicable to all organizations and government entities.

Course 952: Master Planning Advanced Techniques

August 18-21, 2014: Portland, Oregon

Through an intensive, hands-on workshop, students use a planning charrette technique to develop an Area Development Plan for a real world planning problem at an installation. Advanced concepts and cutting-edge sustainable and energy-efficient practices are featured. Participants are required to have a fundamental knowledge of master planning or real property management, and although they are encouraged to take Course 75 prior to this, there are no prerequisites for this or any of the other master planning courses.

Register now and increase your understanding of master planning by signing up for one or more of these courses at or http://ulc.usace.army.mil/ or http://www.dodmpi.org/.

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What You Need to Know About Becoming a Project Management Professional

Colonel Stewart R. Fearon

Within the Department of Defense, it is becoming increasingly important for project managers to become Project Management Professional (PMP) certified. The Army Corps of Engineers is requiring their senior project managers to be PMP certified, and in an effort to modernize the Engineer Corps and promote a more professional Branch, Headquarters Department of the Army Human Resources created an Additional Skill Identifiers (ASI) (W5) for Captain through Colonel who have a PMP credential. This article will briefly answer the questions: What is the PMP? Why should project managers strive to become PMP certified? How to earn the PMP credentials? And what is required to maintain PMP credentials?

The Project Management Professional (PMP) credential is awarded by the Project Management Institute (PMI). The PMP credential is an industry-recognized certification for project managers and demonstrates that they have the combination of experience, education and competence necessary to lead and manage projects. Not every project manager or program manager has an engineering degree from an Accreditation Board for Engineering (ABET) accredited program or the need to earn a Professional Engineer (PE) license, but most project managers should pursue their PMP credential.

Project managers interact with contractors, subcontractors, engineers, superintendents, other project managers and project engineers. The PMP credential instantly builds credibility, which makes the project manager's job that much easier. In order to take the PMP exam, applicants need to meet certain pre-requisites. Applicants with a bachelor's degree need a minimum of 3 years of experience and 4,500 hours of project management experience. Applicants with a high school diploma can still apply for and take the PMP exam, but they are required to have 7,000 hours of project management practice, and 5 years of experience. All applicants must also have at least 35 hours of formal project management training. For complete details on the prerequisites, applicants should download and review the PMP Handbook at: http://www.pmi.org/en/Certification/~/media/PDF/Certifications/pdc_pmphandbook.ashx

Once applicants submit their application and pay for the exam they have 90 days to submit their audit materials; and 1 year from the date the application is approved to take and pass the exam. Applicants can retake the exam twice for a reduced price during the 1 year eligibility period. Although applicants are not required to join the Project Management Institute in order to take the PMP exam, members receive a $150 discount for the exam and can download the Project Management Body of Knowledge Guide (PMBOK). The PMBOK covers the PMI Project Management Process in detail and is an excellent resource.

The PMP Exam is up to four hours long and consists of 200 questions covering Project Initiating (11 percent); Planning (24 percent); Executing (30 percent); Monitoring and Controlling (25 percent); and Closing (8 percent). It will test the applicant's knowledge of the PMI processes; understanding of commonly used terms; the applicant's ability to apply scheduling, costing, and estimating formulas; and their project management professional responsibilities. The good news is that this is what project managers do on a daily basis. Applicants just need to take what they already know and do as a project manager and translate it into the PMI terms and processes.

One reference that is particularly helpful in preparing for the PMP exam is "The PMP Exam, How to Pass on Your First Try", by Andy Crowe. It walks applicants through the PMI project management process framework and helps them understand how the five process groups relate to the 10 knowledge areas and how the 47 processes fit into the processes. This reference also has practice questions in back and a one week subscription to "InSite" the Velociteach's comprehensive online prep tool for the PMP exam. This will build the applicants confidence in their understanding of the material and allows them to practice taking the PMP exam.

Acronyms and Abbreviations	
ABET	Accreditation Board for Engineering
ASI	Additional Skill Identifiers
PDUs	Professional Development Units
PE	Professional Engineer
PMBOK	Project Management Body of Knowledge Guide
PMI	Program Management Institute
PMP	Project Management Professional

Once applicants pass the exam, they will need to continue to develop themselves by taking training courses or writing professional articles to earn Professional Development Units (PDUs). Staying current in project management techniques and procedures or giving back to the project management community is part of being a professional. Many of the required Army and Department of Defense courses can serve as credits toward PDUs.

The PMP certificate is a recognized credential for project management professionals. Project managers and program managers should strive to earn their PMP credentials because it adds to their credibility and opens up career opportunities in and outside of the Department of Defense. Applicants can begin the application process at http://www.pmi.org/default.aspx. Once applicants earn their credential, they can maintain their certificate through continued develop and growth.

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