

JOURNAL OF THE ARMY NATIONAL GUARD

INSTALLATIONS+ENVIRONMENT

2018

THE FOUNDATIONS OF READINESS

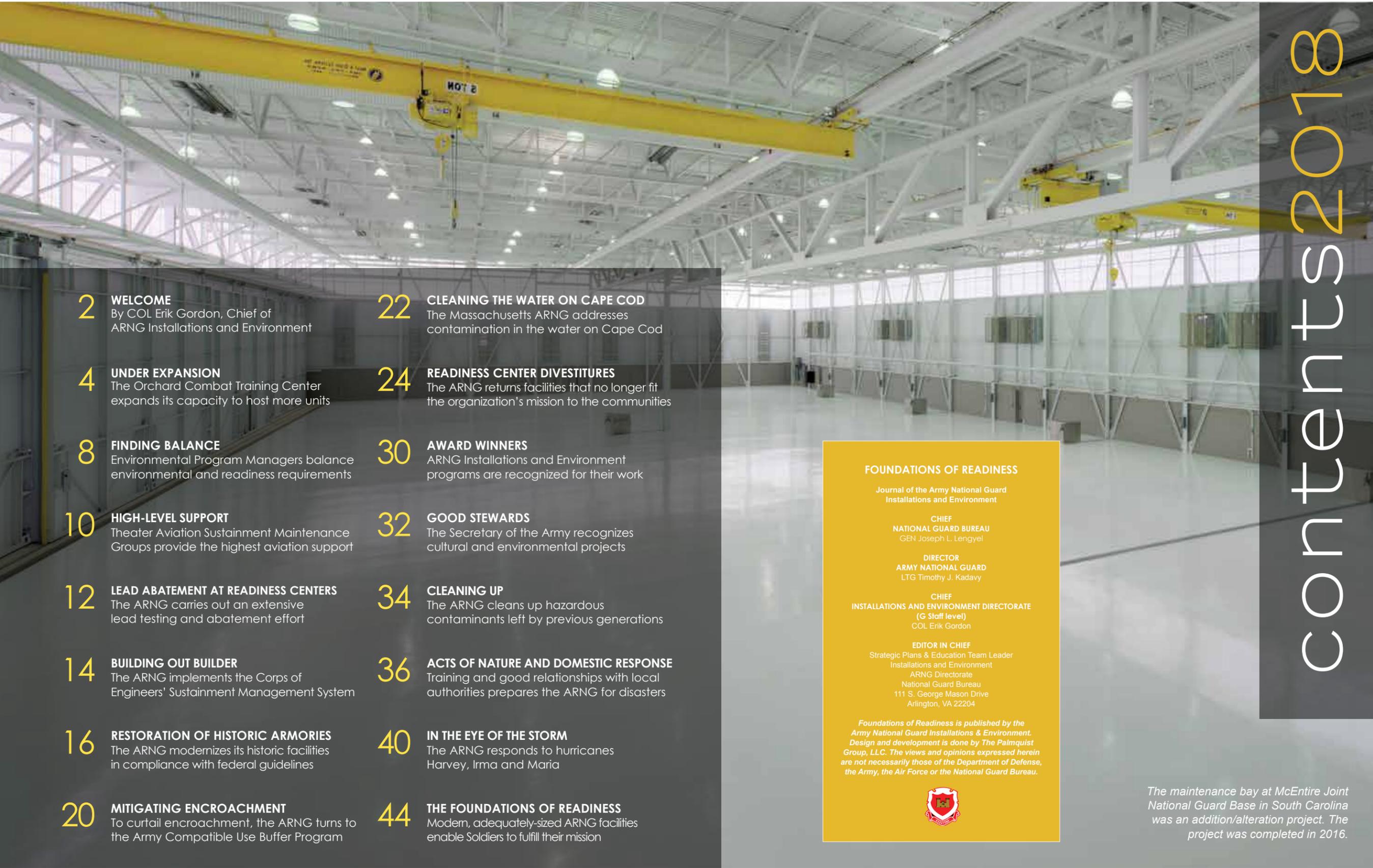


NATIONAL GUARD BUREAU
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*Virginia National Guard
Soldiers assigned to the
Powhatan-based 180th
Engineer Company, 276th
Engineer Battalion, 91st
Troop Command clear debris
to open a blocked road in
Essex County, Virginia. In
February 2016, a severe storm
brought high winds, hail, and
heavy rain to the area. (Photo
by Cotton Puryear, Virginia
National Guard Public Affairs)*

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FOUNDATIONS OF READINESS

Journal of the Army National Guard
Installations and Environment

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The maintenance bay at McEntire Joint National Guard Base in South Carolina was an addition/alteration project. The project was completed in 2016.



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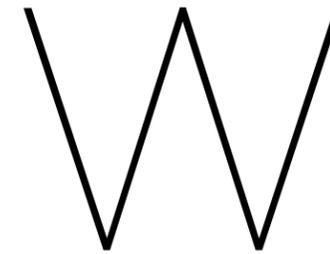
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“Our training requirements continue to increase to meet the new readiness requirements that are a direct result of global threats.”

THE FIRST TO RESPOND
CLOCKWISE FROM TOP, LEFT:
Texas National Guard Soldiers participating in Hurricane Harvey response efforts store their gear at a Readiness Center in August 2017. (Photo by SSG Tim Pruitt); In April 2014, the Arkansas National Guard was among the first to respond to a devastating tornado that ripped through Vilonia, Arkansas; Texas National Guard Soldiers rest in between shifts during Hurricane Harvey in August 2017. (Photo by SSG Tim Pruitt); South Carolina Army National Guard Soldiers drive through flooded roads to evacuate South Carolina residents in the aftermath of Hurricane Matthew in October 2016. (Photo by TSgt Jorge Intriago)

elcome to the 2018 issue of *Foundations of Readiness*, the Journal of the Army National Guard Installations and Environment (ARNG I&E) directorate.

Last year’s merger of the Installations and Environment divisions into one directorate was a big undertaking. It was a positive move. By working together, we are a stronger organization. The reorganization functionally aligned our organizational structure with that of the Army, specifically the Office of Assistant Chief of Staff for Installation Management (OACSIM). The way we manage our Installations and Environment portfolios is now very similar to how OACSIM manages its portfolios. In this journal you will find articles about projects in our Installations and Environment portfolios, and see how those projects often overlap.

Our Military Construction (MILCON) Total Obligation Authority (TOA) is increasing in the future years. Previously, there was no process in place. A Resource Management Decision (RMD) required the Army to look at how it distributes the MILCON funding across the Army, the Army Reserve, and the ARNG. Historically, we have been allotted 12 to 16 percent of the Army’s total MILCON funding. In 2020, our percentage of the Army’s MILCON funding is 16.3 percent. In 2023, that figure increases to 33.7 percent. In dollars, that translates to \$180 million in 2020, and \$380 million in 2023.

Our focus is on two types of facilities—Readiness Centers and Maintenance Facilities. If you look at the quality and functionality of the Readiness Centers and Maintenance Facilities in our inventory, you will find that out of a total 2,312 Readiness Centers, 1,078 (46 percent) have a poor or failing quality rating and 1,642 (70 percent) have a poor or failing functionality rating, with some of these facilities failing in both categories. We have a deficit in our authorized space requirement at our Readiness Centers of 43 million square feet. Of our total 814 Maintenance Facilities, 273 (33 percent) have a poor or failing quality rating and 298 (37 percent) have a poor or failing functionality rating. For Maintenance Facilities, we have a space deficit of 13 million square feet. In dollars, we have a \$20 billion deficit to build out. The increase in MILCON TOA is not going to get us to the point where we need to be in terms of quality, functionality, and space, but it does get us further down the road.

Over the last 40 years, the ARNG has transitioned from a strategic reserve to an operational force. Our training requirements continue to increase to meet the new readiness requirements that are a direct result of global threats. For ARNG I&E, that means new ranges to meet training requirements and new facilities for storage and maintenance of weapons and vehicles. On page 4, you can read about how the Idaho National Guard’s Orchard Combat Training Center is expanding its capacity to meet the new training requirements, and on page 10 you can read about the aviation support provided by Theater Aviation Sustainment Maintenance Groups.

On pages 12, 22, and 34 you will find three articles that describe the ARNG’s work to remediate contamination caused by past processes. We are committed to this work. We are realigning program funding that would have supported the sustainment, restoration, and modernization of our facilities to support these efforts instead. Going in to next year, we have prioritized close to \$300 million in funding for these projects, which include abatement, continued testing, the expansion of service contracts, and the education of personnel.

Several states were hard-hit by natural disasters this year. At ARNG I&E, we provide support to the States throughout the rebuilding process, from their initial rough order of magnitude estimates to the final planning programming documents. On page 40 you can read about the ARNG’s work to help those affected by devastating storms during the 2017 hurricane season, and on page 36 you can read about the ARNG’s ongoing work to ensure readiness in times of disaster.

Thank you and Essayons!



COLONEL ERIK GORDON
 CHIEF, ARMY NATIONAL GUARD
 INSTALLATIONS & ENVIRONMENT





Under Expansion

SOLDIERS, MARINES, AND AIRMEN COME TO TRAIN AT THE IDAHO NATIONAL GUARD'S ORCHARD COMBAT TRAINING CENTER. **THE TRAINING CENTER IS EXPANDING ITS CAPACITY TO HOST EVEN MORE UNITS.**

PRE-DEPLOYMENT TRAINING
OPPOSITE PAGE: Oregon Army National Guard Soldiers with Charlie Troop, 1st Squadron, 82nd Cavalry, 41st Infantry Brigade Combat Team practice at the sniper qualification range during pre-deployment training at the Orchard Combat Training Center. (Photo by 1SG April Davis)
RIGHT: Oregon Army National Guard Soldiers of 1st Squadron, 82nd Cavalry, 41st Infantry Brigade Combat Team conduct short-range marksmanship at the Orchard Combat Training Center in preparation for deployment. (Photo by SGT Erin Quirke)

The Orchard Combat Training Center (OCTC), located south of Boise, Idaho, is one of the Nation's premier facilities for training Soldiers, Marines, and Airmen. The area, which has been used by the Idaho National Guard and the Army Reserve since 1953, started out as a small range for training local units. Over the years the OCTC's capabilities grew, and the training center started receiving units from across the country. Today, members of all Services train at the OCTC.

"The main purpose of the OCTC is to provide lands and facilities to support the Idaho National Guard and Reserve Forces training requirements," said LTC Kevin Hickey, Chief of the OCTC. "That said, our high-desert training center has such a large expanse of land it can support the training requirements of our training aligned units and allow rehabilitation efforts to take place at the same time," he said. The OCTC covers 143,000 acres. Of that, 53,500 acres is impact area and 89,500 acres is maneuver area. "We have a large amount of land that can be used to conduct maneuver training with our tracked vehicles. With this heavy maneuver land and our ranges, the OCTC is a great place to come," LTC Hickey said. What started out as a small, local range is now a large, generally self-contained area. The OCTC has its own wastewater plant, well, and generator backup. "The OCTC is kind of our own city," LTC Hickey said.

The OCTC has 30 ranges, including the largest Multi-Platform Range Complex-Heavy in the Army. It has an Urban Assault Course, a Combined Arms Collective Training Facility (CACTF), a Multi-Purpose Machine Gun Range, and a Live Fire Shoot House. "We conduct tank, Bradley, Paladin, and Apache gunnery at the OCTC along with many other platforms and that capability is why units choose this training area," LTC Hickey said.

The OCTC boasts a 35-kilometer Counter Improvised Explosive Devise (CIED) lane comprised of four villages. The Urban Assault Course features a three-story building with a basement, tunnels, and rappel points, as well as a Live-Fire Breach Facility with steel or concrete doors, windows, and walls. The CACTF consists of 11 different structures—including a police station with a jail, a municipal building, three residences, a three-story hotel, a three-story business building, a service station, tunnels, and hidden rooms—that simulate an urban environment. In the CACTF, Service members train to engage the enemy under numerous scenarios.

Every year, thousands of Service members train at OCTC, but the training center is not at full capacity, yet. "Our heavy times are usually from April to September when the Army National Guard (ARNG) does most of its training. The other months are open to other components of the military. We have units coming here year-round to train. The changing of the seasons offers units the experience to train in the different weather conditions they may face when deployed," LTC Hickey said.

Enhancing the OCTC

More than 30 years ago, the Idaho ARNG started enhancing the OCTC's capabilities. That effort is still ongoing. "Within the last five years, we have built a new Organization Readiness Training Complex (ORTC) and had multiple range and cantonment area improvements. The ORTC gave us much needed life support capacity. A new railhead enables units—and their equipment—to arrive via rail, which has made us a lot more attractive to our customers," LTC Hickey said. The railhead has four rail spurs, three for vehicle and one for container loading, and tracks that stretch 4.7 miles, allowing visiting units to transport their equipment from the commercial railroad connection point to the front steps of the OCTC Headquarters.



“With our heavy maneuver land and our ranges, the Orchard Combat Training Center is a great place to come.”

LTC Kevin Hickey
Chief, Orchard Combat
Training Center

The OCTC is expanding its capability to train units, but perhaps more importantly, the training center is expanding its role within the National Guard. “Going into the future, the National Guard is looking at possibly making us the premier heavy maneuver training center, where the ARNG’s five Armored Brigade Combat Teams (ABCT) and two Stryker Brigade Combat Teams (SBCT) may come to train, due to the large expansive training area that we have,” LTC Hickey said. The ABCTs are the Army’s primary armored force. An ABCT consists of seven battalions and contains both M1 Abrams tanks and M2 Bradley infantry fighting vehicles (IFVs), M109A6 Paladin self-propelled artillery systems, and armored personnel carriers, which operate in a supporting role.

While being the premier training center for ABCTs will raise the OCTC’s profile, what will really transform its role within the National Guard is the possibility of becoming a mobilization site. “We are exploring the possibilities of becoming a primary mobilization site for ARNG units,” LTC Hickey said. “The ARNG has two relatively large historical mobilization sites, Camp Atterbury in Indiana and Camp Shelby in Mississippi. Camp Atterbury and Camp Shelby are secondary mobilization sites, whereas we are a contingent mobilization site. We do not currently possess the same facilities and the infrastructure that primary and secondary mobilization sites have.”

To support units coming for training and mobilization, the OCTC will need to expand its infrastructure. “We are looking at Fort Irwin National Training Center in California for examples of how to support rotational training units. They have a large infrastructure to support rotational training units—barracks, mess pads, laundry facilities, and so on. What sets us apart is the ranges and the maneuver land that we have. The ABCTs need a lot of land to be able to maneuver their tanks and complete the required training,” LTC Hickey said.

“For the next couple years, we are looking at hosting two brigades per year, which is something we have done at various times in the past,” LTC Hickey continued. Each brigade is around 4,000 people. Depending on what type of rotation the brigade is doing, and the number of support elements, a brigade could bring 4,000 to 6,000 people to the OCTC for 30 to 60 days. “Where bed space really comes into play is with mobilizations and training support personnel, since training units typically lodge under austere conditions. If we will be doing mobilizations from the OCTC, we will need the infrastructure to support that mission.” With the added billeting, the OCTC’s total bed space is now 880.

Increasing the bed space and the supporting infrastructure is a large undertaking, both in terms of funding and time. When asked about the timeframe for the expansion, LTC Hickey said, “To get to where we want to be it is at least a 10- to 20-year effort. Much of what we are attempting to accomplish is funding-dependent. Within our funding constraints, we improve and expand our facilities each year. Periodically, we are funded by Congress to complete multi-million dollar Military Construction (MILCON) facilities.” A 30-minute drive away, adjacent to the Boise Airport is Gowen Field, headquarters of the Idaho National Guard and home of the 124th Fighter Wing. Despite the fact that the OCTC and Gowen Field are not physically connected, the two training centers are considered one installation. “Between the OCTC and Gowen Field, we currently have more than 3,000 beds in total. We are looking at increasing the life support and the logistical infrastructure to house an entire brigade at the OCTC. The long-range plan is to build up to the capacity of 9,000 beds between the OCTC and Gowen Field to support mobilizations and units coming through for training,” LTC Hickey said.



Financial and environmental impacts of expansion

A military installation is an economic driver. While an installation expansion is sometimes met with resistance from the surrounding communities, more often it is greeted with support, because of the positive effect such an expansion will have on the local economy. The OCTC is 20 miles south of the city of Boise, which has a population of 218,000. “A share of the local population does not even know we exist, or the extent of what we do, because we have very minimal impact on the main population centers,” LTC Hickey said. What people of Boise will notice, however, is the impact the OCTC’s expansion will have on the local economy. “Every unit that comes here has an economic impact on the local economy. With every unit, there is funding attached. With that funding we hire employees, we repair and upgrade the ranges, and so on. We use Union Pacific to rail in the equipment, and local contractors for dumpsters, port-a-pots, food, and fuel.

The new construction supports the local economy as well, as we hire commercial engineering and construction companies. The ORTC complex is a multi-phased construction project, with the latest addition completed a year ago for a total cost of \$53 million so far. We are planning to construct a Digital Air Ground Integration Range (DAGIR). That is a \$20-\$40 million project scheduled to start in 2019,” LTC Hickey said.

If not done properly, an expansion can strain or damage the natural environment. The OCTC is situated in the middle of a national conservation area for birds of prey. Established in 1993, the conservation area, now called the Morley Nelson Snake River Birds of Prey National Conservation Area, covers close to 485,000 acres and is managed by the Bureau of Land Management (BLM). “We have one of the largest raptor populations in the world: falcons, golden eagles, bald eagles, owls, and hawks,” LTC Hickey said. The OCTC has made some areas with rehabilitated plant or animal habitat off-limits to training. Much of the off-limit areas are covered by sagebrush. Native to the North American west, sagebrush provides a diverse habitat for ground squirrels and other small mammals. “The mice and ground squirrels that the raptors eat live in the environment that we train in. We maintain the habitat in order to maintain the food supply for the raptors,” LTC Hickey explained.

IMPROVED CONNECTIONS

Most units bring their equipment to the Orchard Combat Training Center by rail. The training center’s new railhead enables visiting units to bring their equipment all the way to the Orchard Combat Training Center Headquarters.

At 143,000 acres, the OCTC has enough land that it can rotate training, avoiding undue stress on the land. “We are working with other stakeholders, such as the BLM and Idaho Department of Lands to expand the total area by up to 29,000 acres, which will enable the OCTC to further protect the critical habitat by reducing the concentration of maneuver impact. We are doing the rehabilitation that needs to be done after a unit trains out here, in order to keep the vegetation needed to sustain the habitat. If you look at the areas that surround us you will see a drastic difference between how good the habitat looks within our training area compared to the area outside our training area, in the areas that we do not manage,” LTC Hickey said.

It is a large undertaking, but once completed, the OCTC’s expansion will provide the National Guard with more training opportunities, and ultimately a higher level of readiness. “Our current facilities and maneuver land allow units to achieve the readiness level they need to deploy. The infrastructure and the ranges that we are constructing will increase our throughput. That will allow units to complete required training in a shorter amount of time with increased capacity. The National Guard is increasing its readiness so that it can respond more rapidly to conflict. Our expansion supports the new timeline and the new readiness level of the National Guard,” LTC Hickey said.



REVEGETATION EFFORTS

Environmental staff from the Idaho Army National Guard load sagebrush seed into the hopper of a helicopter seeding bucket. The helicopter is then flown over the Alpha Maneuver Areas of the Orchard Combat Training Center. Only native grasses and plants are used for revegetation on the Orchard Combat Training Center.

“The National Guard is increasing its readiness so that it can respond more rapidly to conflict. Our expansion supports the new timeline and the new readiness level of the National Guard.”

LTC Kevin Hickey
Chief, Orchard Combat
Training Center



Finding Balance

ENVIRONMENTAL PROGRAM MANAGERS BALANCE ENVIRONMENTAL AND READINESS REQUIREMENTS IN THEIR **WORK TO SUPPORT THE ARMY NATIONAL GUARD'S MISSION**

Every aspect of the Army National Guard's (ARNG) mission to maintain properly trained and equipped units, available for prompt mobilization for war or national emergencies, relies on the expertise of Environmental Professionals. These professionals guide the ARNG through a myriad of regulations and ensure the organization's compliance with the law. *Foundations of Readiness* had the opportunity to speak with CPT Jerry Hartley, Environmental Program Manager (EPM) for the Indiana ARNG (IN-ARNG) about what his work entails, his team's recent projects, and the balance between environmental and readiness requirements.

Foundations of Readiness: What does the role of EPM entail?

CPT Hartley: The EPM integrates environmental stewardship and fiscal law with the operational training mission. It sounds simple enough, but to achieve harmony between the three aspects an EPM must have good communication skills, thick skin, and the ability to recite, as quoted to me, over 20,000 pages of regulations. That number is probably a bit dramatic, but I think that is the point in this case. EPMs have to retain, recall, and apply a complex web of regulatory requirements in a variety of contexts in real time. Pretty high expectations, but a challenge I think most of the EPMs enjoy. Ultimately, I think the EPM must be an advocate for the Environmental Program and most importantly for the people that make up and execute the Program.

To answer the question more directly, the EPM must identify and build an Environmental State Operating Budget that sufficiently funds the Environmental Program, ensure environmental funds are executed in accordance with the ARNG Environmental Program Guidance, and certify that each activity the state proposes is compliant with all applicable federal, state, and local environmental regulations.

Foundations of Readiness: How big is your team, and what are the roles of the different team members?

CPT Hartley: The INARNG is currently authorized 22 Environmental Professionals as defined by AR 200-1. We have 20 professionals committed to sustaining our training mission, training lands, and resources. The roles they serve cover multiple disciplines, but all 20 professionals ultimately provide direct management of resources and perform advisory and assistance roles to Modification Table of Organization and Equipment (MTOE) and Table of Distribution and Allowances (TDA) elements to ensure they maintain compliance with applicable regulations.

The ARNG publishes a manning model authorizing Environmental Program strength for each state and territory. This strength is based on several factors, such as the size of the state, the type of MTOE units within the state, and the complexity of the applicable regulations of the state. Included in the authorization is the state's authorized federal technician who often serves as the EPM.

We have multi-media managers who are adept at working in the hazardous waste rules one day and the Clean Water Act or the Clean Air Act rules the next. These managers are very adaptive to the needs of the day and bring great flexibility to the Program and the entire INARNG. Although this practice is common throughout our Program, we have some managers who specialize in more specific functions such as our biologist, forester, Threatened and Endangered Species Act manager, archaeologist, architectural historian, and cultural resources manager. We also have staff that manage our Program funding and various administrative tasks. We are a diverse force.

All of our Environmental Professionals serve to ensure the Soldiers of the INARNG are able to conduct the most realistic training feasible without jeopardizing the future Soldiers' ability to train. Our

AS PRESCRIBED
Environmental Program Conservation staff routinely apply herbicide and burn thousands of acres of training areas at Camp Atterbury to meet ecological goals outlined in their Integrated Natural Resources Plan.

focus is to truly sustain the mission through application of sound science and regulatory compliance.

Foundations of Readiness: Can you describe some recent projects your team has carried out?

CPT Hartley: We just surveyed hundreds of acres of training lands for archaeological resources that had not

yet been inventoried. We coordinate with our Directorate of Plans, Training, Mobilization and Security (DPTMS) and Integrated Training Area Management (ITAM) staff to prioritize our natural and cultural resource management efforts. This process focuses our efforts where the mission need is or is anticipated to be. With this knowledge, we can support the proposed actions of our sister directorates through planning advice. That is, we can say, "this area is clear for tracked vehicle operations, or this area is a protected resource that will only accommodate light dismounted maneuver." Not only does this information help them plan and even execute training area maintenance, it also helps them manage the use of our training areas by controlling how intensely an area is used given its environmental sensitivity.

Another example is our use of prescribed fire to achieve ecological goals that complement the training mission. Our natural resource managers plan to burn approximately 2,500 acres of training areas every year to control the spread of invasive species. A review of training mission requirements with the DPTMS and ITAM staff identified a greater need. Since 2014, we have prescribed burned approximately 3,500 acres a year to meet both conservation goals and training mission needs.

Over the previous decade, training areas in the un-glaciated areas of Camp Atterbury had become overgrown with undesirable, invasive shrubs. The density of the invasive species growth had made the land unusable as functional maneuver space. Through mechanical flailing, mowing, and spot application of herbicides, ITAM and Environmental staff reverted thousands of acres back to functional training land. In subsequent years, we have increased our surveillance for undesirable species and use prescribed fire to retard the re-establishment of the invasive species. This project has been largely successful due to effective communication and clearly defined goals and objectives. Included in this project was the enhancement of Indiana bat habitat. The Indiana bat is a federally endangered species and perennial inhabitant of Camp Atterbury. It was a win-win-win scenario.

Foundations of Readiness: How does your work fit into the overall mission of the ARNG?

CPT Hartley: To me, our work is an integral part to the ARNG decision-making processes. Our work ensures that we not only have a ready trained operational force today, but also a sustained ability to train an operational force for generations to come. It is no secret that military training is intense, not only for our Soldiers, but

also for our lands and the resources entrusted to us. Improperly managed, training lands can quickly become useless, too costly to maintain or repair, or even a threat to our neighbors. What the Environmental Program does is bring a full staff of highly trained and educated professionals to the table to help the ARNG make informed decisions to ensure we are still an operational force well into the future. This process is not limited to land management, but also Military Construction, building maintenance, acquisition of material, and even training events themselves. Everything we do in our private and public lives touches our environment and the environment touches everything we do.

Foundations of Readiness: Can you give some examples of environmental projects in your state that have positively impacted the ARNG's readiness?

CPT Hartley: I think everything the Environmental Program does has a positive impact on readiness. A great example that may not be so obvious is the annual effort by our Environmental Performance Assessment System team. These folks travel all over the state throughout the year to assess various aspects of environmental stewardship at our Readiness Centers, Maintenance Shops, and Training Centers. They not only help the units fix compliance issues, but they also take the time to educate and

inform our Soldiers on the importance of stewardship; I will argue that compliance is stewardship. Ultimately, a well-informed and trained force reduces unintended impacts to our facilities and further ensures that we all have a safe environment in which to work and train.

Foundations of Readiness: Can you describe some of the challenges in balancing environmental and readiness requirements?

CPT Hartley: Well, at times the two can seem to be in conflict with each other, but it comes down to communication and awareness. The earlier the Environmental Professional is brought into the planning process the better. We all understand the initial concept does not survive first contact and is widely different by the time the project is executed. Each planning iteration should include an environmental subject-matter expert to identify potential environmental impacts, as well as impacts to the project by environmental constraints. Often decisions have been made long before any consideration of environmental impacts, which can result in avoidable project delays, extended costs, and even violations of laws. In the facilities side of our work, there are processes in place to help ensure environmental consideration is integrated early. They don't always work perfectly, but they are there. ●●●

“Our focus is to truly sustain the mission through application of sound science and regulatory compliance.”

CPT Jerry Hartley
Environmental Program
Manager for the Indiana ARNG



High-Level Support

THE THEATER AVIATION SUSTAINMENT MAINTENANCE GROUPS PROVIDE
THE HIGHEST LEVEL OF ARMY NATIONAL GUARD AVIATION MAINTENANCE SUPPORT

As warfare has changed, the Army and its components have come to rely more heavily on aviation as an indispensable part of military operations. In the Army National Guard (ARNG), those aircraft are serviced and maintained by Army Aviation Support Facilities (AASF) across the country. Those facilities, in turn, are supported by Theater Aviation Sustainment Maintenance Groups (TASMG), which provide the ARNG with the highest level of aviation maintenance support.

The National Guard has four TASMGs, located in Fresno, California (1106th), Springfield, Missouri (1107th), Gulfport, Mississippi (1108th), and Groton, Connecticut (1109th). "The support we provide evolves as the mission requirements and the types of aircraft evolve," said COL Glen Flowers, Commander at the Mississippi ARNG's (MSARNG) 1108th TASMG, which sits on 27 acres of land outside Gulfport. The 1108th TASMG provides major airframe repair, aircraft painting, and repair of components, and works with the Aviation and Missile Command (AMCOM) for National Maintenance Program (NMP) repairs. "Our certifications and compliance with International Organization Standards (ISO), as well as Aerospace Standards (ASO), allows us to conduct repairs within the NMP. TASMGs coordinate with AMCOM on various NMP components that they deem should be serviced," COL Flowers said. The Gulfport facility supports 23 AASFs in Alabama, Florida, Georgia, Louisiana, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the Virgin Islands. It provides the AASFs with aviation sustainment maintenance, backup-field maintenance, aircraft painting, and back shop training for ARNG Aviation Soldiers.

CORROSION CONTROL
 The Mississippi Army National Guard is constructing a Corrosion Control Center at the 1108th TASMG. The 60,000-square foot structure, seen here under construction at the end of the current hangar, is scheduled for completion in May 2018.

The 1108th TASMG supports the UH-60A/L (commonly referred to as "Alpha Lima") and UH-60M ("Mike") Black Hawk helicopters, the AH-64A/D Apache helicopter, and the CH-47D/F Chinook ("Delta") helicopter, which is now transitioning to the newer "Foxtrot" model (CH-47F). "It varies from year to year, as units turn in and pick up aircraft, but we support 292 aircraft throughout the nine states and two territories," COL Flowers said. "TASMGs are also starting to assist our customers with their UH-72 Lakota aircraft, which is an off-the-shelf commercial aircraft that the ARNG procured. As with other aircraft, TASMGs are working to provide scheduled maintenance support to the ARNG Lakota community."

TASMGs conduct a cycle maintenance inspection on UH-60A/L aircraft with the On-Condition Maintenance (OCM) program. "Through the OCM program, we confirm and improve each aircraft's

integrity and the serviceability of its components, and extend the aircraft service life. When UH-60A/L aircraft throughout our region reach a certain number of flight hours, or they meet other established criteria, they are recommended for induction into the OCM line. Within the OCM line we complete the needed inspections, repairs, and modifications. That includes heavy sheet metal work, paint blasting, and new paint on the aircraft, as part of the corrosion control program. OCM is a great cost savings for the ARNG, as it delays the requirement for purchasing new aircraft. Plus, they are not making new Alpha Lima Black Hawks. The OCM program is a way to extend the service life of each aircraft and it allows our customers throughout the nine-state, two-territory region to continue to support both their stateside and overseas missions," COL Flowers said.

Another part of the TASMGs' mission is the identification and classification of aviation receipts and stocks in storage. "The TASMG Supply Support Activity (SSA) provides efficient and timely logistical support for our region. SSA efforts include maintaining authorized stockage list, component repairable management and repair and return, world-wide shipping, and care of supplies in storage (COSIS). These efforts provide a cost-effective solution to meet regional supply demands. In addition to operating an SSA, TASMGs support retrograde operations with the identification and classification of aviation parts returning from theater. After all aviation components are identified and classified to confirm serviceability, the components are further processed for repair or simply placed back in the system for future use," COL Flowers said. The classification mission can be conducted in the continental United States, as well as in theater. "If there's a big retrograde operation, for example, we can send a team to do the identification and classification of components to assist in getting these aircraft pieces and parts to the right place to be used for future follow-on missions," COL Flowers said.

The 1108th TASMG was first organized in 1971 in Biloxi, Mississippi as the Mississippi ARNG's Transportation Aircraft and Repair Shop (TARS) Number One. It moved to its current location in Gulfport two years later, and in 1979 the TARS was designated as an Army Aviation Classification Repair Depot (AVCRAD). In 1991, the unit became the 1108th AVCRAD, and 20 years later, in 2011, the AVCRAD was re-designated as a TASMG. Today, the 1108th TASMG occupies close to 170,000 square feet of industrial space. The main hangar is approximately 80,000 square feet, and various back shops cover another 40,000 square feet. A new 60,000-square foot corrosion control paint hangar is under construction. "Once that project is completed, we will build a separate, 30,000-square foot follow-on hangar that will house some of our back shops. The new paint hangar will provide capability to provide additional paint support throughout the region. One improvement with the new paint hangar is that we can put a CH-47 Chinook in our paint bay without removing the aft pylon, which saves a great deal of man hours. Another big upgrade is improved climate control capability. Our current paint hangar is not as climate-controlled as we would like, and it is quite humid in south Mississippi. The improvement in climate control will reduce the paint cure times and provide opportunity to paint additional helicopters for the region," COL Flowers said.

The 1108th TASMG has 463 Modification Table of Organization and Equipment (MTOE) Authorized personnel. It has 248 fulltime employees, of which 173 are Soldiers and 75 are state employees. The TASMGs are deployable units. Eighty Soldiers from the 1108th will deploy to Kuwait in December 2017. While the unit will be based in Kuwait, it will have maintenance teams located in multiple locations throughout the theater of operations. "The deployable unit has 463 Soldiers. Of those, 80 will be deployed. Obviously, that's a pretty significant number. There's an impact to the stateside regional support, but it is manageable. When we build the deployed manning document to fill the 80, we do not select 80 full-time employees. Some have civilian jobs outside the National Guard, so their deployment has no impact on the TASMG's Monday-through-Friday operations. As for the full-time employees, we make sure we select a group that allows us to fulfill our deployed mission, while minimizing the impact on the weekday regional support mission at the TASMG," COL Flowers said.

The 1108th TASMG has previously deployed personnel to Kuwait during four deployment cycles (in 2003-2004, 2005-2006, 2007-2008 and 2015), and to Afghanistan during one deployment cycle (2011-2012). When asked if the 1108th can perform the same functions in theater as in Gulfport, COL Flowers responded, "If all required tooling is in place overseas, TASMGs can perform at the same level while deployed." Providing the highest level of ARNG aviation maintenance support, the TASMGs fulfill their mission, at home and overseas. ●●●



PREVENTATIVE MAINTENANCE
 1SG Douglas Krol (right) of the 1108th TASMG, assists SPC Daniel Burke (center) and PFC Robert Smith (left) of the Multinational Forces and Observers Aviation Company with preventative maintenance inspections on a UH-60 Black Hawk helicopter at El Gora, Egypt. (Photo by SSG Amber Simpkins, 1108th TASMG)

"The support we provide evolves as the mission requirements and the types of aircraft evolve."

COL Glen Flowers
 Commander at the
 Mississippi ARNG's 1108th TASMG

Lead Dust Abatement at Readiness Centers

AFTER SEVERAL OF ITS READINESS CENTERS TESTED POSITIVE FOR ELEVATED LEVELS OF LEAD, THE ARMY NATIONAL GUARD IS CARRYING OUT AN EXTENSIVE LEAD TESTING AND ABATEMENT EFFORT

The Army National Guard (ARNG) is currently undertaking a large lead abatement project that includes all facilities in its inventory that have or have had an indoor firing range. According to State-reported real property data, that adds up to 1,257 indoor firing ranges. After reports of elevated lead levels at several facilities, all facilities with indoor firing ranges were tested for lead in fiscal year 2016 by the Army National Guard's Industrial Hygiene (ARNG-IH). The analysis of the lead dust tests have been shared with the States. The air sample results showed no airborne lead in Readiness Centers, except in an active indoor firing range during firing.

The ARNG-IH team is also working to increase awareness of lead, and to improve housekeeping throughout all ARNG facilities. That includes educating personnel on how to safely and effectively clean exposed areas to contain the dust and to avoid contamination in other areas of the facilities. The team is asking personnel to take such simple steps as to wash their hands after handling weapons and ammunition, working on vehicles and aircraft, or moving items from storage, and to change their clothes after a day at the firing range. "We are training our Soldiers about proper hygiene techniques after they use and handle weapons. We are also developing procedures to assist with cleaning weapons at the outdoor ranges instead of back in the Readiness Centers," said Ken Forsythe, Chief, ARNG-IH. His team will continue to collect samples every year to monitor the effort's progress. It will also continue its educational efforts through classes and by posting guidelines for ARNG Soldiers and employees on the 'Guard Your Health' website. "Soldiers can find an assortment of information about health and fitness on this website and ask any questions they may have through the 'Ask the Experts' section (www.guardyourhealth.com/ask-the-experts/health-conditions/lead-exposure/)," Mr. Forsythe said.

Every time a gun is fired at a firing range, tiny lead dust particles are released into the air. If the firing range is indoors, it is important that the area is properly vented and equipped with air filters to prevent those particles from entering into Soldiers' respiratory systems. It is also imperative that those particles are cleaned up after practice, by using high-efficiency vacuums and by wiping down surfaces. Lead cleaning protocols advise Soldiers to wear full-body



coveralls, masks, and respirators. Rags, gloves, and wash water should be treated as hazardous waste. At several ARNG Readiness Centers, those procedures were not followed, allowing lead dust to linger at the indoor firing ranges, and spreading from the ranges to other parts of the facilities. Soldiers swept up lead dust, sending it airborne, and ventilation systems spread the lead dust to public areas and offices. Soldiers also tracked dust outside the ranges by foot, spreading it as far as locker rooms and cafeterias. As a result, ARNG Readiness Centers that have or have had an indoor firing range could potentially have exposed Soldiers, their families, and community members to elevated lead levels.

In response to such concerns, all ARNG indoor firing ranges were ordered closed by the Director of the ARNG, LTG Timothy Kadavy, in December 2016. Deteriorating lead paint and the use of leaded fuel can also result in elevated levels, but in the ARNG's case, the ranges are the most common source of lead contamination. Even after the abatement efforts conclude, the indoor

VIRTUAL REALITY
SPC Cody Leasor, Headquarters Company, 35th Engineer Brigade, uses a virtual training simulator at Fort Leonard Wood, Missouri. (Photo by PFC Samantha Whitehead)



OUTDOOR PRACTICE
SPC Julian Batz, a team leader with Troop K, 1st Squadron, 221st Cavalry, Nevada ARNG, engages a target at Fort Benning, Georgia. As a result of the ARNG's lead abatement efforts, all target practice has moved outdoors. (Photo by SGT Darron Salzer)

"Going in to next year, we have prioritized close to \$300 million in funding for these projects. We are committed to this work."

COL Erik Gordon
Chief, ARNG Installations and Environment

firing ranges will not reopen. "The ARNG directed all indoor firing ranges, either within or attached to Readiness Centers, to be closed and the indoor firing ranges/contaminated areas be remediated and be repurposed for another authorized use. Indoor firing ranges are no longer authorized as a functional area within Readiness Centers," said Mr. Raymond Barnard, Supervisory Reality Specialist in the ARNG Installations and Environment's (ARNG I&E) Requirements and Analysis Division.

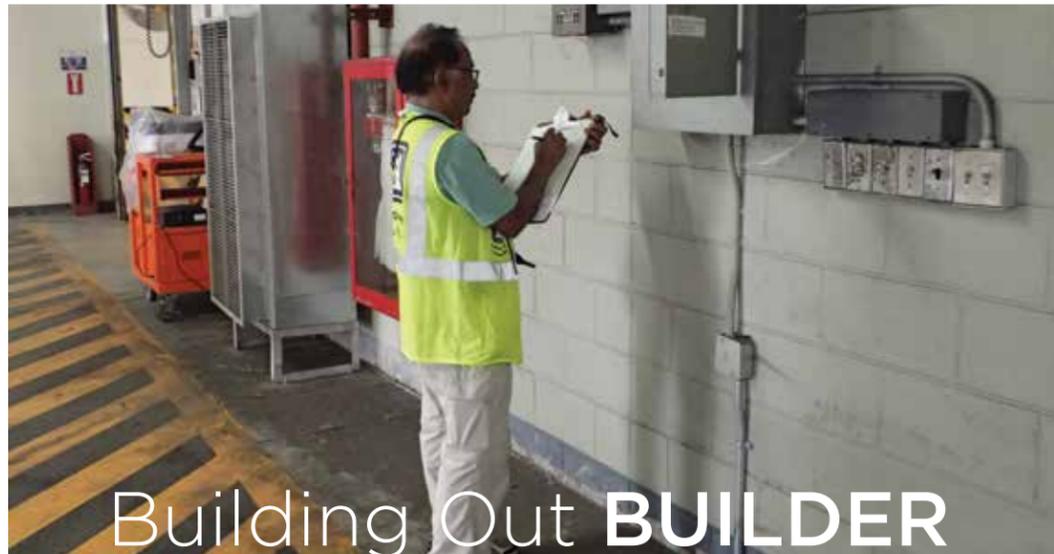
Lead is a natural metal element found in the air, soil, and water that can be toxic to humans. When combined with other metals, it can produce alloys. Lead and lead alloys are often used to make batteries, ammunition, and other metal products. If not addressed, lead dust can cause stomach pain, nausea, headaches, and loss of concentration. How high the lead levels are allowed to be depends on who is breathing the air. If it is an adult, the permissible lead level is 200 parts per microgram; if it is a child, the level is 40 parts per microgram. Prior to a September 2015 memorandum from the ARNG Chief of Staff, COL Mark Strong, concerning possible lead dust in ARNG Readiness Centers, the ARNG's acceptable lead standard met the industry standard of 200 parts per microgram. Because ARNG Readiness Centers are open to the public, and sometimes rented out for community events where children are present, the facilities must now meet the lower threshold.

Testing and remediation efforts are costly. "The lead remediation costs were estimated as high as \$308 million at 1,257 locations over a five-year timeline (from fiscal year 2018 through fiscal year 2022). The ARNG was able to identify and distribute \$40 million in fiscal year 2017 funding to support 152 projects in 32 states,"

Mr. Barnard said. To fund the remediation efforts, the ARNG I&E has realigned program funding that would have supported the sustainment, restoration, and modernization of its facilities to support these efforts instead. "Going in to next year, we have prioritized close to \$300 million in funding for these projects. We are committed to this work," said COL Erik Gordon, Chief, ARNG I&E.

As long as target practice is conducted with traditional ammunition, there will be lead residue. Moving the practice outside moves the problem away from the facilities and the general public, but it does not solve the problem. In 2015, Camp Edwards in Massachusetts became the first ARNG installation to offer training with 5.56mm copper ammunition. "Both the Department of Army (DA) and the ARNG place a great emphasis on sustainability and are continually looking to improve sustainability practices while meeting mission requirements. The 5.56mm copper round is now in the inventory for all Army units and is expected to completely replace the traditional lead round as the legacy stockpiles are used. The DA is fielding a similar round for the 7.62mm weapons," said Steven Mechels, Senior Training Land Manager for the ARNG's Training Support Branch. Several States use artillery simulators to complement traditional training, a practice Mr. Mechels thinks can supplement, but not fully replace, traditional live firing. "Although virtual reality simulators can be valuable training tools, simulators cannot compare with an actual, live experience. This is true not only with weapon simulators, but also with any other simulator. While the ARNG is increasingly using simulators for familiarization and other training drills, it is doubtful that simulators will ever replace live weapons firing entirely," he said.

Using lead-free bullets or virtual reality simulators may prevent the same concern in the future, but at the moment, the ARNG's full attention is on addressing the elevated lead levels at the affected facilities to minimize Soldiers' and employees' exposure to the metal and to ensure their safety at all ARNG facilities. "Our Soldiers are safe in their Readiness Centers. When facilities are maintained to comply with published standards, lead dust poses very minimal risk to adults. We are actively working with each state to clean the Readiness Centers, institute regular housekeeping procedures, and inspect each facility annually," Mr. Forsythe concluded. ●●●



Building Out BUILDER

THE ARMY NATIONAL GUARD'S FACILITY INVENTORY INCLUDES MILLIONS OF ASSETS THAT MUST BE ASSESSED. TO CONFORM TO A STANDARD INSPECTION METHODOLOGY USED BY ALL MILITARY BRANCHES, **THE ARMY NATIONAL GUARD IS IMPLEMENTING THE U.S. ARMY CORPS OF ENGINEERS' SUSTAINMENT MANAGEMENT SYSTEM.**

"BUILDER is a priority for the National Guard Bureau. We have taken \$15 million this year from our budget to fund BUILDER. We are moving forward with BUILDER."

Mr. Arun Pankaj
ISR Program Manager

The Army National Guard's (ARNG) facility inventory includes millions of assets. To assess the quality, functionality and mission capacity of those assets the ARNG uses a system called the Installation Status Report (ISR). By collecting and analyzing data in ISR on the quality and functionality of its facilities, the ARNG is able to create a macro view of installation readiness and funding requirements.

The Active Army and the Army Reserve also use ISR to track their facility assets, while the other Services use a system called the Sustainment Management System (SMS), a set of software tools developed by the U.S. Army Corps of Engineers. In the 2012 National Defense Authorization Act, Congress expressed concerns that the Services—the Army, Marine Corps, Navy, Air Force and Coast Guard—were using inconsistent methods to calculate the quality—referred to as the Facility Condition Index (FCI) in SMS and the Q rating in ISR—of Department of Defense (DoD) facilities. To address this issue, the Under Secretary of Defense issued a memorandum in September 2013, requiring all Services to use the SMS. The SMS will enable the Services to conduct inspections in a consistent manner, validate the real property inventory, and uniformly compute FCI scores.

All DoD facilities operated and/or maintained by federal funds are required to transition to the SMS inspection methodologies by the end of the 2021 fiscal year. In early 2017, the Army leadership issued guidance to the Army components—the Active Army, Army Reserve, and the ARNG—to begin implementation of the SMS. In May 2017, ARNG Installations and Environment (ARNG I&E) leadership sent SMS implementation guidance to the 50 States, three Territories and the District of Columbia that make up the ARNG. The ARNG I&E's goal is to inspect 20 percent of all facilities each year for the next five years, completing all inspections by the end of the 2021 fiscal year. Realizing that with the delay in guidance the States may not be able to achieve the requirement for fiscal year 2017, the ARNG I&E leadership asked that the States at least formulate a plan by the end of fiscal year 2017 for how they will accomplish the inspections.

Initially conceived by the Department of the Army to track the quality, quantity and mission impact of the facility inventory Army-wide, the ISR has several different components. "On the infrastructure side, we physically inspect each of our 50,000 ARNG facilities and compute ratings for each facility—a quality rating and a function rating. The quality rating shows a facility's condition, and the function rating shows how well the facility supports the mission or the tenant of that facility," said Arun Pankaj, ISR Program Manager for the ARNG at the national level. "To give an example, a vehicle maintenance facility in good condition might have a Q1 rating, which is the highest quality rating. But if the maintenance bays are only eight feet wide because the facility was built 50 years ago when vehicles were smaller, and the vehicles they are servicing are 10 feet wide, the function rating could be an F4—the lowest rating—because although the bays are in excellent working condition, they cannot service the vehicles and the facility is not supporting the function."

Buildings represent the most numerous and complex real property assets which must be inspected and evaluated using the SMS. For these assessments, SMS uses a program called BUILDER. Unfortunately, it is not as easy as migrating the data that already exists in ISR to BUILDER. Instead, BUILDER requires new site visits for each structure in the ARNG facility inventory. In ISR, a layperson—often the tenant of the building—can do an inspection, but in BUILDER a licensed engineer must do the inspection, which runs up the cost. When asked if he thought an engineer-based inspection would result in a more thorough inspection, Mr. Pankaj said, "Yes. The idea is that you inspect the building once, and then, based on various industry standards, the software will calculate when repairs or a follow-up inspection are needed."

For the foreseeable future, BUILDER and ISR will run concurrently. Inspection data collected will be uploaded to BUILDER, and the resulting FCI will be transferred to ISR. Asked how well the two systems work together, Mr. Pankaj said, "We have to come up with some software patches so that BUILDER data can be accepted into ISR. That's what we're working through right now." Mr. Pankaj will remain as the ISR Program Manager and MAJ Lartisha Allen will be the Program Manager for BUILDER. At the state level, many of the state ISR managers are also being tapped to be the BUILDER implementation managers. "The biggest challenges have been learning and understanding BUILDER, and packaging the statement of work and the implementation guidance so that the States can secure contracting firms to perform inspections," MAJ Allen said.

The ARNG will continue to use ISR to assess assets not covered under SMS, and to assess function and mission capacity. "BUILDER will supply the Q (or FCI) rating for all buildings, but ISR will continue to supply the F rating for all buildings. We will also continue to use ISR for all non-building assets, such as parking lots, transformers, or ranges, for both the Q and F ratings," Mr. Pankaj said.

The ARNG has less than five years to implement BUILDER. "It's going to be a challenge to implement the system within the timeframe. Funding is another issue. We are estimating it will cost \$75 million to implement BUILDER. The Army has to come up with that funding," Mr. Pankaj said. So far, the ARNG has been taking funds from various initiatives to fund BUILDER. "It's fairly expensive to do the BUILDER inspections, and we're already at a funding deficit. That said, BUILDER is a priority for the National Guard Bureau. We have taken \$15 million this year from our budget to fund BUILDER. We are moving forward with BUILDER," he said.

The SMS has several different tools aside from BUILDER, such as ROOFER, which evaluates roofs, and PAVER, which evaluates roads. "DoD has not mandated our use of those tools, but it is possible that in the future, we will adopt some of those tools as well, which would increase the number of assets that are being evaluated using SMS," MAJ Allen said. "BUILDER and ISR complement each other. BUILDER provides a more accurate picture by identifying building components and those components' key life-cycle attributes, such as age, material, and capacity. Additionally, the BUILDER program can save the ARNG money, because it directs resources to the components that are most mission-critical. This prevents costly repair penalty costs, and manages risks of failure," she continued.

It's a big undertaking, but once implemented, the SMS will supply Congress with facility scores that are easy to compare across the Services. With these scores, decision makers will be able to make informed investment decisions that support the Nation's readiness.



UNDER INSPECTION
After Congress expressed concerns that the Services were using different methods to track their facility assets, the Under Secretary of Defense issued a memorandum to all Services, requiring them to use the Sustainment Management System for this purpose. In that system, all facility inspections must be done by licensed engineers.

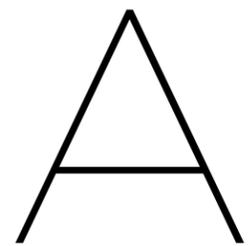
"The BUILDER program can save the Army National Guard money, because it directs resources to the components that are most mission-critical. This prevents costly repair penalty costs, and manages risks of failure."

MAJ Lartisha Allen
BUILDER Program Manager



The Restoration of Historic Armories

ACROSS THE COUNTRY, THE ARMY NATIONAL GUARD FACES THE CHALLENGE OF MODERNIZING ITS HISTORIC FACILITIES, **WHILE COMPLYING WITH FEDERAL GUIDELINES FOR HISTORIC PRESERVATION, ENERGY CONSERVATION, AND SECURITY**



The Illinois Army National Guard has 27 Armories that date back to the middle of the last century. Most are red brick structures of post-modern design.

INAUGURAL DUTY
The District of Columbia National Guard Task Force Parade prepares for the 58th Presidential Inauguration with the 257th Army Band in January 2017.

cross the country, the Army National Guard (ARNG) has many historic facilities still in operation. Most are from the mid-20th century, while some are much older, dating back to the last decade of the 19th century. Now, the ARNG faces the challenge of modernizing these historic facilities to meet the needs of a modern force.

Any restoration and modernization project of a historic facility must meet federal guidelines for historic preservation. The modernized facilities must meet federal energy conservation and sustainability guidelines and the Army's own sustainability policy. They must meet modern security standards and standards for accessibility. Most importantly, the facilities must meet the ARNG's modern mission, which is very different than it was when the facilities were built up to a century ago. It is a tall order, but across the country, ARNG offices manage to fulfill all requirements.

The District of Columbia's only Readiness Center, the 76-year old D.C. Armory, has long been in need of restoration. The 588,000-square foot facility is currently undergoing a comprehensive, multi-million dollar restoration and modernization project. "In 2001 to 2002, the District of Columbia ARNG (DCARNG) tried to obtain \$86 million to complete the renovation of the D.C. Armory. However, that request was not approved," said the DCARNG's Construction Facilities Management Officer (CFMO), COL Anthony Jackson. "In 2012, the CFMO staff and I set out to complete the renovation in phases. We are now 80 percent complete. We took on this project in order to address a number of failed or failing systems and life, health, and safety deficiencies. The restoration project will take place over multiple years and will renovate a large portion of the building, including the electrical, mechanical, plumbing, and heating, ventilation, and air conditioning (HVAC) systems, the building envelope, and the loading dock area. We will also perform asbestos abatement and lead remediation. The current total running cost is \$42.5 million, half of the projected cost," he said. The immediate concerns were the antiquated electrical and mechanical systems. "The previous electrical system was failing and broke down frequently. Two of the three high-voltage transformers were not in operation due to antiquated network protectors that were not available for replacement. One of the two boilers was not in operation. Our current hot water system performs poorly, and does not distribute hot water evenly across the large D.C. Armory. Plumbing fixtures do not have shut-off valves, resulting in large-scale system shut-down when something needs to be repaired," COL Jackson said.

As part of the restoration, all exterior windows are being replaced with new, energy-efficient windows. Section 106 of the National Historic Preservation Act of 1966 requires federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. The replacement windows are historically accurate, approved by the D.C. State Historic Preservation Office and National Capital Planning Commission. "We took a step forward and invited State Historic Preservation Office representatives to the Armory for a site visit. Their main



POST-WAR AND MID-CENTURY DESIGNS

The Illinois ARNG has several Armories that were built by the Works Progress Administration (WPA), such as the Urbana Armory, built in 1938 (top). The Illinois ARNG modernized the Urbana Armory and restored the building's exterior to its original look. With the exception of the Armories built by the WPA, most of the Illinois ARNG's historic Armories are red brick structures of post-modern design, such as the Litchfield Armory (bottom).



HISTORIC ROOMS
The District of Columbia Army National Guard is restoring the law center and the commanding general conference room at the D.C. Armory.

concerns are the exterior of the Armory, the roof, the four major lobbies, the commanding general conference room, and the monuments on the Armory grounds,” COL

Jackson said. Retrofitting a historic facility to meet current energy goals, while at the same time preserving the historical character, is costly. “Replacing all the windows cost over \$3.4 million, with approximately 120 additional windows still to be replaced,” COL Jackson said.

Seven hundred miles away, the Illinois ARNG’s (ILARNG) CFMO, COL Craig Holan, and his team work closely with the Illinois State Historic Preservation Agency. None of the ILARNG’s historic Armories are listed on the National Register of Historic Places, which is the federal government’s official list of districts, sites, buildings, structures, and objects deemed worthy of preservation. Even so, the ILARNG still coordinates with the State Historic Preservation Agency. “We have a memorandum of understanding as to how we are going to treat our potentially historic buildings. By ‘potentially’ I mean our Armories that are over 50 years old. We have agreed with the State Historic Preservation Agency to treat our Armories that are over 50 years old as if they were on the National Register of Historic Places. We submit our plans and come to an agreement on what we are going to do to the exteriors of the buildings. We try to accommodate what they are asking for in the best way that we can,” COL Holan said.

The Illinois State Historic Preservation Agency is mainly concerned with the exterior of the buildings, and the ILARNG has a lot more leeway with the interior. “I do not know that we have ever had anything denied us on the interior. We have several Armories around Illinois that were built by the Works Progress Administration (WPA). We have one in Urbana, built in 1938, which we modernized. We built new classrooms and offices on half the drill floor. The drill floor was originally built for a cavalry unit, so it was really big. We cut the space in half and built a three-story office complex on the one half, inside the building. Then we restored the building’s exterior to its original look,” COL Holan said. Sometimes the exterior needs to be altered to add a ramp or an elevator to comply with Americans with Disabilities Act (ADA) standards. “In those instances we work with the

State Historic Preservation Agency. We generally do not have too many problems with doing that. We just put an elevator in the Northwest Armory in Chicago. Oftentimes, ADA compliance is more of a concern indoors. Our bathrooms are generally too small and not handicap accessible. As a result, we have to replace the plumbing and expand the size of the bathrooms, which can be difficult and costly,” he said.

Historic Armories must also meet federal energy conservation guidelines, which can be difficult. “One of the problems with many of our historic



A PIECE OF HISTORY IN THE NATION’S CAPITAL

TOP: An aerial view of the D.C. Armory. **Built in 1941, the D.C. Armory is the District of Columbia’s only Readiness Center. RIGHT:** The monuments on the Armory grounds were of particular interest to the District of Columbia State Historic Preservation Office.

buildings, such as the Urbana Armory, is that they have low ceilings of poured concrete. When you are putting in modern HVAC systems to meet current energy requirements, it becomes difficult because there is not enough room for the ducts. We have dropped the ceilings in some areas. The windows in these buildings are very tall, so you need special window wells around the windows to fit it all in. We have also done a lot of variable refrigerant flow (VRF) systems, instead of ducting air from place to place. In a VRF system, a refrigerant moves through the building. Fan-coil units in each room take that refrigerant and mix it with air to make it hot or cold. Obviously, using pipes instead of big air ducts is much more compatible with a historic building,” COL Holan said. In terms of environmental hazards, COL Holan said many of the ILARNG

Armories contain asbestos, most commonly in the floor tiles, and sometimes in the ceiling tiles. “It has actually gotten fairly reasonably priced to mitigate asbestos. Lead paint we treat by encapsulating it or removing it,” he said.

The ILARNG has 27 Armories that date back to the middle of the last century. With the exception of the WPA buildings, which are white concrete, most are red brick structures of post-modern design. Over the years, the ILARNG has modernized those Armories to meet energy targets. “We have a lot of 1950s Armories that had single pane windows. We have replaced most of those with energy-efficient windows. The tricky part is they have to meet the energy guidelines, the Anti-Terrorism Force Protection (ATFP) standards, and match the historic profile of the originals. This makes for a very expensive window. Under ATFP standards, meeting even a low level of protection (based on explosive weight and standoff distance) requires a laminated glass of some kind, and meeting higher levels of protection requires further modifications. This can make the cost of these windows as much as three times the cost of regular windows. In most of our 1950s Armories, the drill hall is raised.



Sometimes we have worked with the Historic Preservation Agency to be able to use one piece of glass with faux mullions. It is not exactly correct, but from the ground it looks pretty good. Another façade issue is roofs. When we replace the roofs, we generally put on reflective, membrane-type roofs. When we can, we double or triple the insulation under the roofs. Since they are all hidden by the parapets of these buildings, we can generally do that without too much problem. It is a little more difficult to insulate the exterior walls,

but we have added insulation to interior walls in some instances.”

During the 20th century, Armories were often located in the middle of communities. Situated in the southeast quadrant of Washington, D.C., roughly two miles east of the U.S. Capitol, the D.C. Armory is surrounded by development. When asked what you can do to secure historic, downtown Armories, COL Jackson said, “We have installed a security fence and cameras around the D.C. Armory and we are employing a 24-hour security force. We currently do not have any other facilities than the D.C. Armory, but we are seeking to obtain another Readiness Center in southeast Washington D.C., with the security being the highest priority for that new facility.”

Insufficient parking and storage space are common concerns when retrofitting a historic Armory to fit the modern mission. The D.C. Armory supports training, administrative, and logistical requirements for the DCARNG. When asked about the biggest challenges for modernizing a historic building to meet the current mission, COL Jackson said, “The biggest challenges for the D.C. Armory is parking and storage. Changes in unit and mission, and storing and maintenance of new, oversize military vehicles pose a challenge. We currently keep all Modification Table of Organization and Equipment (MTOE) vehicles at Joint Base Anacostia–Bolling in Southwest Washington, D.C. We only have approximately 150 parking spaces at the D.C. Armory.” COL Holan echoed his concern. “Our historic buildings are not on big lots and they do not support modern military vehicle requirements. We have many locations that have remote lots, which is not a good thing. That is a problem with retrofitting—if we cannot fix the parking problem, we still have a problem. In addition, the vaults of these Armories are too small. We either have to add a second vault or enlarge the vault, which is expensive. With the exception of the large Chicago locations, almost every one of these older Armories are anywhere from 5,000 to 15,000 square feet too small, not even counting the lack of parking,” he said.

In the District of Columbia and in Illinois, the ARNG CFMO offices work to modernize their facilities to meet the requirements of a modern force, while complying with current guidelines and regulations. Despite the challenges posed by funding, location, and facility size, they are meeting the requirements, while preserving a piece of the ARNG’s history. ●●●

“We have agreed with the Illinois State Historic Preservation Agency to treat our Armories that are over 50 years old as if they were on the National Register of Historic Places. We submit our plans and come to an agreement on what we are going to do to the exteriors of the buildings.”

COL Craig Holan
CFMO for the
Illinois ARNG

“We took a step forward and invited the D.C. State Historic Preservation Office to the Armory for a site visit. Their main concerns are the exterior of the Armory, the roof, the four major lobbies, the commanding general conference room, and the monuments on the Armory grounds.”

COL Anthony Jackson
CFMO for the District
of Columbia ARNG

Mitigating Encroachment and Maximizing Training

TO CURTAIL ENCROACHMENT, PROTECT TRAINING LANDS, AND MAXIMIZE CURRENT AND FUTURE TRAINING OPPORTUNITIES, **THE ARMY NATIONAL GUARD TURNS TO THE ARMY COMPATIBLE USE BUFFER PROGRAM**

The Army's, and the Army National Guard's (ARNG), ability to conduct realistic live-fire training, weapons system testing, and essential operations is vital to preparing Soldiers for real-life combat. There is a direct relationship between realistic training and battlefield success.

At times, the military's need to conduct realistic testing and training is at odds with the surrounding land uses, especially in heavily developed areas. An installation is an economic driver. Communities spring up around formerly remote installations, slowly creeping closer to the installation until they are right against the fence line. Then incompatible land use issues may arise. There may be community complaints and concerns about potential accidents, noise, dust and smoke. Sometimes the installation has to restrict night vision training because of ambient light from the surrounding communities, and sometimes, in the interest of improving community relations, it voluntarily restricts its hours of operations or alters its flight paths to preempt noise complaints.

Further, urban development often leads to loss of habitat, forcing the installation to become an island of biodiversity and sometimes the only available habitat for threatened and endangered species. This leaves the military with significant management and recovery responsibilities for those listed species, which can curtail the military's ability to test, train, and operate on its lands.

Over the last two decades, the Army and the ARNG have become increasingly concerned about encroachment. Specifically, Army and ARNG installations face two main threats to their ability to test and train—incompatible development outside the installation boundary and environmental restrictions within the installation boundary. "A Department of Defense (DoD) Government Accountability Office report identified eight different types of encroachment: endangered species and designation of critical habitat, noise abatement, air quality, air space restrictions, frequency management, environmental legislations, and population growth with its resulting development," said Ms. Alisa Dickson, Team Leader within the ARNG Installations and Environment (ARNG I&E) Conservation Branch. "The impact of various types of encroachment is reduced flexibility in soldier training. That, in turn, impacts both the federal and state missions of the ARNG," she said.



THE PIONEERS

Camp Blanding Joint Training Center was the first Army National Guard installation to enter the Army Compatible Use Buffer program in 2003. Back row: Paul Callett, Joe Hagan, Ray Seth, Sean McKnight, Frank Durrance, George Cruce, Jacob Mancino, Matt Corby, and Jeff Ghinter. Front row: Kyle Madden, Barbara Golden, Mac Kendrick, Cynthia Balboni, Tim Carroll, Jessika Bliersch, and Randall Edenfield.

To prevent and mitigate increasing encroachment pressures, Congress enacted Section 2684a of Title 10, United States Code in 2002. This provision authorizes the DoD to engage in long-term and cooperative strategies to ensure military mission sustainability by limiting incompatible development around installations and ranges. Pursuant to this authority, the DoD and the Services fund cost-sharing agreements with state and local governments and conservation organizations to promote compatible land uses and preserve habitats adjacent to or near military installations and ranges. These efforts are implemented through the Army Compatible Use Buffer (ACUB) program and DoD's Readiness and Environmental Protection Integration (REPI) program.

Compared to the alternatives—replacing compromised ranges with new range construction, relocating missions, or increasing the sizes of the installations—the ACUB program is a very cost-effective approach to ensuring military readiness. The ARNG requires a 25 percent partner cost share, but the program far exceeds that requirement; the ARNG ACUB program as a whole has a partner



SUSTAINABLE MANAGEMENT
Camp Blanding Joint Training Center in northeast Florida is home to 40 federal- and state-listed animal and plant species, which the Florida ARNG needs to protect. Prescribed burns, shown here, are part of managing the lands in a sustainable manner.

match above 60 percent, with the responsibility of long-term maintenance, management, monitoring, and enforcement placed on the partner and not the installation. The partnerships provide direct benefits to both the installation and the partners, as well as the neighboring communities, through the preservation of green space and watersheds, improvements in air quality, and reductions in current and future training restrictions. These efforts contribute to the longevity of working farms, forests, and ranchlands; increase recreational opportunities for nearby residents and military families; and prevent mission relocations that would affect the local economies. Through ACUB partnerships, there is an increased level of communication and cooperation between military installations and the local communities, which strengthen the ties between the installations and the communities they serve.

Through the ACUB program, an Army or ARNG installation enters into a cooperative agreement with a private or public partner who purchases land or interests in land that benefits the training mission at the installation. Together with its partner, the Army or ARNG installation prepares an ACUB proposal, which includes a comprehensive encroachment analysis of the threat, risk, and solution. The proposal details a long-term partnership approach to protect prioritized lands at critical at-risk testing or training areas. The ACUB partner, not the installation, acquires the land interest from the landowner—either fee simple title, or a conservation or restrictive-use easement. The partner provides the necessary land management and easement monitoring and enforcement, while the Army or the ARNG retains the right to monitor or enforce, or transfer interest to another eligible partner if the partner fails to meet the terms of the cooperative agreement.

The ARNG ACUB program includes 14 ARNG installations. Ms. Dickson, who also serves as the ARNG I&E's ACUB Program Manager, walks interested installations through the ACUB proposal process, and helps them develop partnership agreements. Most importantly, however, she secures the funding for each project through REPI, ARNG Environmental funding, end-of-year funds, or partner contributions. "I have an unfunded program, so I really have to market the program and find the best partner cost-share in order to secure matching funds for each project. We secured close to 55 million dollars in 2017. The majority of that came from end of

year building funds. DoD REPI funded approximately 9.5 million," Ms. Dickson said.

While they all go through the same process, each project is different. Camp Blanding Joint Training Center, a 73,000-acre military training installation that can accommodate 3,000 personnel located in northeast Florida, was the first ARNG installation to enter the ACUB program in 2003. "In order to enter the program, the installation needs to have a training driver; it must support the training mission. There are certainly installations that want to enter the program, but are unable to show a direct link to how the ACUB tool would benefit the military training mission," Ms. Dickson said. As the primary military training base for the Florida National Guard, Camp Blanding also provides live-fire and maneuver training for Active and Reserve forces from around the country. It is vital to both the Florida National Guard's training mission, and that of the Army as a whole.

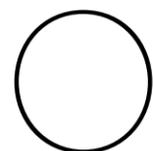
Camp Blanding's vast lands are also home to 40 federal- and state-listed animal and plant species. The importance of this habitat enabled the installation to establish its first ACUB partnership to acquire conservation lands and easements, primarily through the state's Florida Forever program. As a result of the easements and land conservation efforts, Camp Blanding has been able to lift training restrictions on post put in place in response to prior noise complaints. The installation is also part of the Camp Blanding-Osceola Greenway initiative, which aims to preserve 153,000 acres between Camp Blanding and Osceola National Forest. These efforts, which include the long-term goal of restoring longleaf pine habitats, will help sustain species that could potentially cause severe restrictions to be placed on Camp Blanding's training lands.

A shortage of available land, changes in force structure, and reductions in funding for operations, maintenance, military construction, and acquisitions means protecting existing installation and range assets and capabilities is more important than ever. "We're not increasing the size of our military training lands, so we need to maximize the acreage that we already have for training," Ms. Dickson said.

The relationships and the goodwill fostered by the REPI and ACUB partnerships will enable installations to continue to operate with the flexibility they require, while the communities will enjoy more recreational space and less noise and dust. In the end, everybody wins. ●●●

Cleaning the Water on Cape Cod

THE MASSACHUSETTS ARMY NATIONAL GUARD IS UNDERTAKING A LARGE-SCALE, LONG-TERM PROJECT TO ADDRESS CONTAMINATION IN THE DRINKING WATER ON CAPE COD



In the largest tract of undeveloped land on Cape Cod sits Camp Edwards, the Massachusetts Army National Guard's (MAARNG) major training site for military personnel. Located on state-owned land on Joint Base Cape Cod (JBCC), Camp Edwards makes up approximately 10 percent of Cape Cod's total area. Camp Edwards is integral to the MAARNG's mission, and an important staging ground for civilian first responders and law enforcement agencies in the Northeast. Unfortunately, Camp Edwards and JBCC have a legacy of contamination issues that affect the sole source of drinking water for Cape Cod.



TRAINING ON PREVIOUSLY UNUSABLE LAND

The restoration effort has expanded usable training lands at Camp Edwards. The installation is completing the clearance process of several hundred acres of previously unusable range. The Echo Range, pictured on the left, is a Military Pistol Qualification Course. The Sierra Range, on the right, is a Modified Record Fire Range.

Camp Edwards is located over the Sagamore Lens, one of the largest aquifers in the country and a source of public drinking water for Cape Cod. The sandy soil allows contaminants to quickly leach to the groundwater, which migrates at a rate of one to two feet per day, potentially threatening the area's public and private drinking water wells. To mitigate this threat and to protect public health and the environment, the Army National Guard's (ARNG) Impact Area Groundwater Study Program (IAGWSP) has implemented an aggressive, long-term environmental restoration and remediation effort at Camp Edwards. By doing so, the IAGWSP complies with

three Administrative Orders issued by the Environmental Protection Agency's Region 1 under the Safe Drinking Water Act against the Department of the Army, the National Guard Bureau, and the Massachusetts National Guard.

The IAGWSP has identified 14 sites on a total 15,000 acres, including burial and burn pits used for munitions, propellant, or explosives disposal; areas used for fireworks disposal or displays; areas used for training with high explosives; and areas used for disposal of raw explosives and perchlorate. The IAGWSP has focused on implementing and validating new treatment technologies, and treating the target areas. The program has also made a concerted



effort to reduce the use of new materials, prevent the destruction of natural habitat, and limit emissions from vehicles, pumps, and equipment. The program has installed 1,200 monitoring wells in over 600 locations and have collected and analyzed over 100,000 soil and groundwater samples. Sixteen treatment systems have been constructed for seven ground-

water plumes and remedies are in place for all sites. Groundwater treatment systems are cleaning more than 4.1 million gallons of groundwater per day and over 8.5 billion gallons of groundwater have been treated to date. More than 120,000 tons of soil have been excavated and treated or shipped off-site.

The restoration of Camp Edwards is a large-scale, long-term project. Since its start, substantial progress has been made and the IAGWSP has achieved several important remediation milestones. Treatment systems have come online, and source removal is nearly complete. Unexploded ordnance (UXO) removal processes have been refined to protect natural resources and habitats in the impact area. Several ranges have been cleared for fast-track investigation and cleanup, expanding the MAARNG's training capabilities. The people of Cape Cod are continuously updated on the project's progress. "The MAARNG and the IAGWSP work together to ensure the public is kept informed of the project, as well as on the training of our Soldiers through multiple community groups, regular briefings

The restoration efforts at Camp Edwards are integral to the Army National Guard's mission.

to local officials, and open houses," said COL Robert Dwan, Construction Facilities Management Officer for the MAARNG.

Typically, funding for large-scale environmental projects comes from the Defense Environmental Restoration Account, but because Camp Edwards is an operational range, the ARNG is funding 100 percent of the IAGWSP. Much of the metal debris recovered during UXO removal actions is recycled as scrap metal; approximately 500 tons of scrap has been recycled over the past two years. The proceeds of recycling offset costs associated with the project, and recycling eliminates an additional project waste stream. Utility costs have also been minimized by efforts made in overall energy efficiency. The total budget for the program is \$500 million. "We expect all final cleanup decisions to be made by the end of 2018. At that time, the 14 groundwater treatment systems will be running efficiently," said Mr. Shawn Cody, Program Manager for the ARNG.

Though cleanup continues throughout the installation, the IAGWSP has been able to clear parcels of land each year to resume activities. All gun and mortar positions have been cleared, and the installation is completing the clearance process of several hundred acres of previously unusable range. The restoration effort has expanded usable training lands at Camp Edwards and JBCC by hundreds of acres. The restoration staff works closely with trainers and range control to prioritize cleanup activities in areas that are most urgently needed for training. "New ranges being built, old ranges coming back online, and more acreage being made available for maneuvers and training will significantly increase training opportunities and allow Soldiers to train locally to the Army standard," said Camp Edwards' Commander, COL Patrick Keefe. In 2015, Camp Edwards became the first ARNG installation to offer training with the new 5.56 copper round. The MAARNG has also worked with State and Federal regulators to authorize the use of several new artillery simulators. "We hope Camp Edwards will be the premier training site in the Northeast and a model for other Army installations," COL Keefe said.

The environmental restoration efforts at Camp Edwards JBCC are integral to the ARNG's mission. Without these efforts, Camp Edwards would likely have ceased to exist as a training site. Instead, as the cleanup continues, the IAGWSP is regularly completing and closing out sites throughout the installation, effectively reopening those areas for training or other uses. ●●●

An Innovative Approach to Environmental Restoration

The environmental restoration work at Camp Edwards incorporates new technologies, streamlined processes, alternative energy use, and resource conservation.

ALKALINE HYDROLYSIS: One method used by the Impact Area Groundwater Study Program (IAGWSP) to treat contaminated soil is an alkaline hydrolysis method. This method uses lime and water to raise the pH levels in the contaminated soil, which destroys explosive particulates. The method is energy-efficient, produces no waste or emissions stream, and takes advantage of natural rainfall to help restore natural soil pH levels following treatment. In a matter of weeks, the soil is clean and can be reused in range restoration. Since the method allows the installation to treat and reuse the soil on site, it eliminates a waste stream and its associated disposal costs, and avoids the need to purchase new soil for backfill.

ENERGY EFFICIENCY AND ALTERNATIVE FUELS:

Low-energy pumps have been installed for all groundwater wells and remediation systems at Camp Edwards, reducing the systems' electric requirements by 50 percent. The IAGWSP team has conducted energy audits for all treatment facilities. In response to those audits, lighting fixtures have been upgraded for fluorescent bulbs, and extra windows have been added to reduce the need for artificial lighting. The team is currently renovating Camp Edwards' treatment plants to take advantage of the groundwater that constantly flows through the plants. Together with upgraded insulation, the groundwater flow will provide constant, year-round interior temperature control at approximately 55 degrees at the treatment facilities.

RESOURCE EFFICIENCY:

Reusable modular treatment units are regularly employed at water treatment plants at Camp Edwards. This allows the program to keep construction costs under the Military Construction (MILCON) threshold of \$750,000. The units are constructed in repurposed shipping containers and can treat 125 gallons of water per minute. The approach avoids construction of permanent treatment plants, and as each site is closed, the mobile units can be relocated to other places on post, providing great flexibility.

Readiness Center Divestitures

AS A RESULT OF CHANGES IN DEMOGRAPHICS, TRAINING, AND FORCE STRUCTURE, THE ARMY NATIONAL GUARD HAS READINESS CENTERS IN ITS INVENTORY THAT NO LONGER SUPPORT THE ORGANIZATION'S MISSION. **WHEN POSSIBLE, THE ARMY NATIONAL GUARD IS RETURNING THOSE FACILITIES TO THE COMMUNITIES.**

“We would like to stay in our rural communities, but it is becoming harder and harder to sustain larger units in those communities.”

COL Craig Jones
CFMO for the Colorado ARNG

LEGACY ARMORIES FIND NEW USES
CLOCKWISE FROM TOP, LEFT: The City of Shelton, Washington purchased the Shelton Armory from the Washington ARNG and converted it into a transit community center; The Washington ARNG's 100-year old Tacoma Armory was sold to an investor who leases it out for sports events and roller derby tournaments; The Washington ARNG's facility in Pullman was purchased by a private investor who turned it into condominiums, with a hot yoga studio on the ground floor; The Mars Hill Church purchased the Washington ARNG's Everett Armory in late 2012 for \$1.28 million and converted the facility into a church.

The National Guard, and the Army National Guard (ARNG), traces its roots back to 1636, to the colonial militias that became State militias upon the United States' independence. As long as the organization has existed, there has been a need for a place for its members to gather. “The early militias gathered in open spaces and public locations, such as taverns,” said COL Scott Ayres, Construction Facilities Management Officer (CFMO) for the Iowa ARNG (IAARNG). “Eventually the need for permanent facilities was recognized. Local buildings were chosen as meeting places and as places to store arms, and called ‘Armories.’ As the National Guard’s role as a reserve force formalized in the first few decades of the 20th century, the responsibility of its Armories remained with the States. The lack of a standard and the lack of federal funding resulted in a wide range of diverse facilities,” he said. This changed in the years after World War II, when federal funding to construct and support ARNG facilities was made available. A large number of standardized Armories were built as a result.

With time, the ARNG’s role changed, as the organization transformed from a strategic reserve to an operational force. ‘Armories’ were renamed ‘Readiness Centers’ to signify the change. “The name change coincided with an increase of size authorization that nearly doubled the actual size of the legacy Armories. The demand for building capabilities also changed. A Readiness Center now needed fiber for internet access, larger storage areas for equipment, and recognition of contemporary social and cultural needs conducive for training, such as workout facilities, recruiting offices, family support functions, and latrine facilities for both male and females,” COL Ayres said.

The federal funding that was made available in the years after World War II resulted in a wave of new Armories—facilities that are now old, undersized, and inadequate to the mission. Changes in force structure, demographics, and the financial burden of keeping up these aging facilities have made it necessary for the ARNG to divest excess facilities that cannot meet the organization’s mission. In some southern States, State law once mandated an Armory in every county. “We have some counties that had as many as three Armories, or more. Slowly over the years, we have returned some of these legacy Armories to the communities,” said the Mississippi ARNG’s (MSARNG) CFMO, COL Paul McDonald. “When I first started working in the MSARNG’s Construction Facilities Management Office in 2005, we were at 96 Readiness Centers. Now we are down to 77,” he said.

Most of the MSARNG’s Readiness Centers are from the 1950s and 1960s. The 19 facilities that the MSARNG has divested over the last 20 years were from that time period; small, simple brick buildings with spaces for offices and classrooms, a supply room, a vault, a big drill hall, latrines, and a kitchen. When those facilities were built Mississippi was more rural than it is today and people did not have the same means to travel. “Young people are much more willing to travel today. The average travel distance for a Soldier to get to drill is now around 60 miles,” COL McDonald said. The force structure has also changed since most of the MSARNG’s Readiness Centers were built. In the 1960s, the MSARNG had over 12,000 Soldiers. Now it is down to 9,600 Soldiers. “Our ideal number of Readiness Centers is somewhere between 50 and 55. How we arrived at the number is based on force structure and stationing.”

The MSARNG has 12 more Readiness Centers it is looking to divest. “We have many company-size units that are split between the company headquarters and the detachment. When you have the company headquarters in one town, and the company’s platoons 100 miles away, it makes it very



“The change in demographics within our State is what is driving our divestitures.”

COL Craig Jones
CFMO for the
Colorado ARNG

difficult to conduct training, carry out administrative duties, and maintain unit integrity. Many of our initial closures focused on bringing the detachment back to its parent headquarters. To collapse detachments is beneficial for training, command and control, unit cohesion, and readiness,” COL McDonald said.

Changes in force structure is a common reason for divestiture; changes in demographics is another driving force. In Colorado, the population clusters along the I-25 corridor, a 160-mile stretch from Pueblo to Fort Collins. “Eighty-five percent of Colorado’s population lives along that corridor. We’d like to stay in our rural communities, but it is becoming harder and harder to sustain larger units in those communities. Our recruitment base—persons between 18 and 30—live by and large along the I-25 corridor. We use the demographics from the State, the recruiting demographics from our recruiting and retention command, and the Installation Status Report data of our aging facilities in the search for sites for future Readiness Centers,” said the Colorado ARNG’s (COARNG) CFMO, COL Craig Jones, referring to the reporting system the ARNG Installations and Environment Directorate (ARNG I&E) uses to assess the conditions of the facilities in its inventory. The COARNG is presently in 19 communities. It has roughly six legacy Armories it would like to divest. “The change in demographics within our State is what is driving our divestitures,” COL Jones said. His deputy, LTC Rick Burt, added, “We are trying to consolidate. The old model of a single-unit Readiness Center is not economically feasible anymore. Newer buildings are just more expensive to run.” COL Jones agreed, “We really want to have a Readiness Center at the corner of First and Main and be a part of the community. The only problem is we cannot afford First and Main. That, paired with Anti-Terrorism/Force Protection concerns, prevents us from being there. What we are trying to do is get ahead of the curve and purchase land in sites where demographics studies tell us we should be in the future. Currently there are no communities there and we will be the little fort on the prairie. But in 25 years, we are hoping to be an anchor point in a community that is building up around us. We are also trying to build what I call ‘three vaults’ type facilities, where we can put three units to give future command teams some flexibility on how they want to lay out the force 20 to 30 years from now.”

The process of divestiture

How a Readiness Center is divested depends on how it was funded in the first place. If the land was purchased with federal funds, it must return to the federal

government. If it was purchased with state funds, it may return to the community. Some States are allowed to sell excess facility inventory, while others are not allowed to profit from a sale. Some States can sell a facility for a nominal sum, while others cannot accept an offer under the facility’s appraised value. “By law, the MSARNG is not allowed to sell its excess Armories,” COL McDonald said. “Most of our armories are on long-term, 99-year leases, with a reversionary clause in the lease that the land and all improvements revert to the original leaseholder at the expiration of the lease. In the majority of cases in Mississippi, the land originally belonged to either the city or the county. In one case, in Grenada, the land belonged to an association. The original lease had a reversionary clause that said should the National Guard no longer need the land and the facility, it should be donated to the adjacent public high school, which had been funded by the association. The school was very, very happy to receive the Readiness Center. The building was in good shape. It was just excess to our requirements. In a couple of instances, in Prentiss for example, the State did own the property. In lieu of selling it, the State Legislature voted to deed that property to the City of Prentiss. It is now the town’s police department. The former Collins Readiness Center is now part of the local fire academy. The local Emergency



A NEW PURPOSE
TOP: The Colorado ARNG sold the Readiness Center in Boulder for just over \$10 million—funds the organization will use to acquire new sites for future builds without additional funds from the State. BOTTOM: The Colorado ARNG’s former Readiness Center in Durango (left) now serves as administrative space for the county sheriff, and the organization’s former facility in Grand Junction (right) is now a veterans’ one-stop shop for Colorado’s Western Slope.

“The old model of a single-unit Readiness Center is not economically feasible anymore. Newer buildings are just more expensive to run.”

LTC Rick Burt
Deputy CFMO for the
Colorado ARNG

Management Agency in Quitman approached us about the Readiness Center in their community. Due to force structure changes we did not have a unit stationed there, and we had put the facility into a caretaker status. We returned the facility to the city, which then granted it to the county to be used by the local Emergency Management Agency,” he said.

The IAARNG has divested 20 Readiness Centers over the last 20 years. “If the land where the Readiness Center sits was donated, the building goes back to the original donor. Our most recent was the Algona Armory, which was situated on land donated by the city. The agreement said it would revert to the city, should the National Guard no longer have a use for it. It will house the city’s economic development office,” COL Ayres said. “If the agreement for the land is not with the city then it is ours to sell. Unfortunately, since most of our Readiness Centers have been closed because of shifting demographics there has not been much appetite for purchasing a 15,000-square foot building that may be 50 years old. We’ve been able to sell one Readiness Center and we sold it for about \$100,000,” he continued. A former IAARNG Readiness Center is now a local museum, and a couple of other facilities have been repurposed as small manufacturing plants. Out of the 20 Readiness Centers the IAARNG has divested, five were replaced with new Readiness Centers. The IAARNG currently has 42 Readiness Centers in its inventory and it may divest more.

The COARNG has fared better in the real estate market. In the last three years, the COARNG has divested two Readiness Centers, in Boulder and Durango. The Durango Readiness Center was situated on county property, and the COARNG returned the facility to the county, which will turn it into administrative space for the county sheriff. “It was a mutually beneficial arrangement for us to divest a property that was underperforming from a recruiting and retention standpoint and difficult to operate because of its remote location, and for the sheriff’s department to receive much-needed office space,” LTC Burt said.

The COARNG was able to sell the Boulder facility. The proceeds from the sale were just over \$10 million, funds the COARNG will use to procure future Readiness Center sites. “Colorado’s legislation enables us to retain the funds generated from real estate transactions. With those funds we can acquire new sites for future builds without additional funds from the State. Those funds will likely pay for the land for the expansion of our Tri-Force Headquarters, as well as the partial acquisition of land south of Denver, and potentially also the state share for an expansion

of one of our existing Readiness Centers. We want to stretch every one of those dollars out to as many acres as possible,” COL Jones said.

The State of Colorado agreed to let the ARNG sell the Boulder Readiness Center, but it decided to retain and reuse a Readiness Center in Grand Junction. “We built a new Readiness Center in Grand Junction in 2009 that replaced an older facility. We divested the old facility, but it stayed in the State of Colorado inventory. The Department of Military & Veterans Affairs (DMVA) got appropriated funds to renovate the building and convert it into a veterans’ one-stop shop for the Western Slope,” COL Jones said.

The COARNG is allowed to sell excess facilities, but it cannot sell those facilities under the appraised value. “One interesting aspect of Colorado law is that the State is required to get at least the appraised value of the property. We cannot just give it away for a dollar. If an appraiser says it is worth \$400,000 that is our floor in negotiating the sale. That can be a challenge. We have a Readiness Center in Las Animas that is difficult for us to maintain. The DMVA is having a hard time divesting it, because the realtor says the facility is worth way more than we can likely get on the market,” COL Jones said.

Similar to Iowa and Colorado, the Washington ARNG (WAARNG) is allowed to sell facilities in its inventory it no longer needs. “When we sell the facilities, the proceeds go into a divestiture account. It is a revolving flow of funds—we divest a facility, place the proceeds in the divestiture account, go through the land search process, identify a location, and use the funds in the divestiture account and State funds to procure the land to posture us to compete on the national level for a future Military Construction (MILCON) project. During my tenure as CFMO the past four years, and previous assignment as Deputy CFMO, we’ve sold five facilities,” said LTC Adam Iwaszuk, CFMO for the WAARNG. The WAARNG had 48 Readiness Centers 12 years ago. The State is now down to 33 Readiness Centers. “We carried out a drastic divestiture plan from 2004 to 2009. Ideally, we would have 36 Readiness Centers. Approximately six of those would be what we call ‘regional anchor’ Readiness Centers, co-located with a Field Maintenance Shop. Right now, our State only has a couple of those,” he said.

The average age of the facilities the WAARNG divested was 75 years old at the time of divestiture. “Most of these facilities were built on state-owned land with federal funds, which means they were state-owned. The State can decide to sell or take over a state-owned facility. For example, a few years ago



BACK TO SCHOOL
TOP: The Mississippi ARNG’s facility in Grenada was turned over to the local high school, which now uses it as classroom space. BOTTOM: The new Readiness Center in Vicksburg, Mississippi was modeled on the community in which it resides.

“The Readiness Center Transformation Master Plan is critical to us obtaining the operational environment that we need in order to provide our Soldiers with modern facilities.”

LTC Adam Iwaszuk
CFMO for the
Washington ARNG



A REGIONAL ANCHOR

The Armories in Puyallup (top) and Olympia (bottom) in Washington will be replaced by the Tumwater Readiness Center, once that facility is completed in 2020. The 86,000-square foot facility will be what the Washington ARNG refers to as a regional anchor, co-located with a Field Maintenance Shop.

“The Readiness Center Transformation Master Plan reinforced our forced stationing and demographic decisions. It endorsed what we had determined on our own.”

COL Scott Ayres
CFMO for the Iowa ARNG

the State decided to transfer ownership of one of our facilities to a Boys & Girls Club instead of allowing us to sell the facility and use the money to buy land for future construction. The State has that ability to do that because the Readiness Centers are state-owned facilities on state-owned land,” LTC Iwaszuk said.

The facilities LTC Iwaszuk and his team have been allowed to sell have sold relatively quickly. “Depending on where the facility is located we get a lot of interest. Some densely populated areas are very attractive. One large facility, the 100-year old Tacoma Armory, was sold to an investor who leases it out for sports events and roller derby tournaments. Another facility turned in to a transit community center. Our Readiness Center in Everett was appraised for about a million dollars, and a church purchased it for \$1.28 million, just over the appraised value. Our facility in Pullman was purchased by a private investor who turned it in to condominiums, with a hot yoga studio on the ground floor,” he said.

At one point, the WAARNG had an overage of space. Now it has a space deficit. “We have a 429,000-square-foot deficit of Readiness Center space. Our model has been to divest of one or two old, degraded facilities as we build a new one. In some cases, a new facility, such as a Joint Forces Headquarters, may replace multiple buildings, but our traditional Readiness Centers are unit-oriented and typically replace one or two facilities. At this point, we do not have a lot of facilities to divest, because we have already gotten down to the bone. We have one or two left. One is in a location that does not fit with our master plan. We will most likely take the proceeds from that sale and purchase land in another part of the State where we see growth potential and opportunity, and where we do not already have a presence,” LTC Iwaszuk said.

When asked what happens if a facility does not sell, the IAARNG’s COL Ayres said, “So far we have been lucky. I believe out of the 15 that we’ve divested, only one facility has been torn down. The rest have been repurposed and used within the community. We have had a change in philosophy that we would try to recoup some funds via sales. We only tried it once, and we got \$100,000 out of it. The building was appraised for a lot more money, but just because a building is appraised at an amount it does not mean that there is anyone that is willing to pay that much for it. Prior to that sale, the local economic conditions were such that we made agreements to return excess Readiness Centers to the community.”

When one of the WAARNG’s facilities did not immediately sell, the organization leased out the facility

for a year. “That way it generated some type of income for the State. We have not had a facility we were not able to sell. If that were to happen, which I do not think it will, I am sure we could work out a deal to return the facility to the community,” LTC Iwaszuk said. “Before we put up a facility for sale we make sure it is structurally sound and aesthetically appealing. We do not pour money into a facility just to divest it, but we make sure the facility is in good condition. We go through an appraisal process. We get an idea what it is worth, and then we advertise it. Typically, we get a lot of interest from investors,” he added.

In Mississippi, where the MSARNG is prevented from selling its excess facilities, the MSARNG has put some of its Readiness Centers in caretaker status. “That means we do not have units stationed there and we are doing the minimum maintenance. Our utility bills in those cases are almost negligible, but the deferred maintenance can be significant. My experience has been that even if the local communities do not want the facilities now, eventually they will figure out a good use for them,” COL McDonald said.

A roadmap for the future

Readiness Centers are critical to the ARNG’s mission. Readiness Centers are where Soldiers train, and where response missions are staged in the event of a disaster. In 2011, the Senate Armed Service Committee directed the ARNG to carry out a study of the state of its Readiness Centers. Over three years, the ARNG I&E collected and analyzed data on all Readiness Centers across the country to assess each facility’s adequacy in terms of location and size, role in training, and in the ARNG’s overall mission.

The resulting report, titled the Readiness Center Transformation Master Plan (RCTMP), found an aging facility inventory in need of modernization and an alarming shortage of space. The RCTMP showed the ARNG’s Readiness Centers going from Fair to Poor condition by fiscal year 2018 and from Poor to Failing condition by fiscal year 2027. At present, the ARNG has Readiness Centers in 2,312 locations. The RCTMP set the optimal number of locations at 1,689—most of which already have an ARNG presence. Despite the number of Readiness Centers, the ARNG suffers from a space deficit nationwide; at present, the organization is approximately 43 million square feet short of authorized space.

The States have used the results from the RCTMP to validate their own results from previous studies and to develop a long-term plan. “The RCTMP reinforced our forced stationing and demographic decisions. We had been doing our own version

of the RCTMP for some years, using five-year plans. The RCTMP provided us with a 15-year plan. The RCTMP did not accelerate our plan. It just endorsed what we had determined on our own before the RCTMP,” COL Ayres said.

The MSARNG arrived at 55 as the optimal number of Readiness Centers as a result of the RCTMP. “The factors that went into that were force structure, demographics, recruiting, population centers, travel distance, military occupational specialty, facility age and condition, land, and land availability. All those things that went into the RCTMP impacted the decisions. Readiness Center divestiture nests with the RCTMP as a whole,” COL McDonald said. The COARNG’s LTC Burt said the RCTMP has provided his State with a good roadmap. “We continually refer back to the original study as a guidepost for why we plan on divesting certain facilities. We overlay the RCTMP’s findings with current projected demographic data to determine which facilities we want to divest and the communities where we want to expand,” he said.

The ARNG I&E has provided Congress with four scenarios for a 15-year investment plan, based on four different funding levels of MILCON and Sustainment, Restoration and Modernization (SRM) funding. The program has not yet been funded. “The RCTMP program is critical to us obtaining the operational environment that we need in order to provide our Soldiers with modern facilities. It will vastly improve our ability to construct Readiness Centers and geographically align those facilities in the areas where we need to be. It will expedite the current MILCON program so that we can build facilities at a more rapid rate than our current model supports. In our State, we have multiple sites of land that are ready if we are provided with the design and construction funds. Our most important project is a \$65 to \$80 million Joint Forces Headquarters. We will never get there with the current MILCON program,” LTC Iwaszuk said.

Community outreach

Sometimes the decision to divest is met with trepidation by the local community. “Oftentimes, the communities do not want to lose the Guard presence,” COL McDonald said. “We need to reassure them that we are not abandoning them. We stand by the Guard’s motto, ‘Always ready, always there.’ Even if we reduce the number of MSARNG Readiness Centers to 55, or even 50, no citizen in Mississippi will be further than 40 miles away from a Readiness Center. If there is a natural disaster, we will still be able to respond. Our inventory is just smaller, more diverse, and

more strategic. We do not need to leave small-town America—that is the roots of the Guard—but we do not need to be in every town. We need to be available to every town. Where we station ourselves is based on demographics, force structure, and recruiting. It is based on the ability to serve and the willingness to serve,” he said.

To get that message across, COL McDonald and his team regularly meet with community representatives. “We are very engaged across the spectrum of political leadership in Mississippi. I think that communication is key. We recently met with the Mississippi Association of Supervisors, which is the collective association of all the county boards of supervisors. We communicated to them a 25-year look into the future of the Guard, as laid out in the RCTMP. The upside of that is we have had two communities approach us about us acquiring land in their communities. In the town of Carthage in Leake County the city council voted to give us 20 acres of land for future development. We still have a small, land-locked 1950s Readiness Center in the same town. We do not yet have the funding to build a new Readiness Center, but we have the land agreement. When we do receive funding we will return our current Readiness Center to the community. It fits perfectly with the RCTMP,” COL McDonald said. “Similarly, the town of McComb in Pike County voted to give us 24 acres in a new industrial park that is right off the interstate. It is a tremendous opportunity for future growth when new MILCON funding becomes available. I think it is very important to get the local buy-in. I think the more the communities understand the overall plan, the better for all.”

Most of the Readiness Centers the MSARNG is returning to the communities are valued between \$2 and \$3 million—a significant investment for many small, rural towns. “Just because something is valued at \$3 million does not mean it would sell for the same price. In most of these rural communities, there are no buyers. The buildings would sit on the market for years,” COL McDonald said. “If the local communities can put these buildings to use as community centers or city offices, that means a lot of political goodwill in those communities. The reason they did not have enough classroom space at the high school in Grenada is because they did not have the money. Now that high school is a great place for recruiting. The long-term community relations benefits are equally important as the short-term revenues a sale would have brought, would we have been allowed to sell the buildings. It makes me feel good when our Readiness Centers are repurposed and the communities benefit from those facilities. To me, it is the right thing to do.” ●●●

“Where we station ourselves is based on demographics, force structure, and recruiting. It is based on the ability to serve and the willingness to serve.”

COL Paul McDonald
CFMO for the
Mississippi ARNG



NOW A COMMUNITY COLLEGE

The Iowa ARNG has divested 20 Readiness Centers in 20 years, among them the Readiness Centers in Eagle Grove (top) and Burlington (bottom). The facility in Eagle Grove is now a community college, and the facility in Burlington is used for police and public works storage.



Award Winners

ARMY NATIONAL GUARD INSTALLATIONS AND ENVIRONMENT PROGRAMS ACROSS THE COUNTRY ARE RECOGNIZED FOR **EXCELLENCE IN FACILITY MANAGEMENT, ENERGY EFFECTIVENESS, WATER CONSERVATION, AND RECYCLING**

“We preemptively reach out to Army staff and regulators and share information. I think that goes a long way in terms of building relationships.”

Jonathan Edgerly
Environmental Program
Manager for the MIARNG

Over the past year, several Army National Guard (ARNG) offices around the country were recognized by government agencies for their work to increase energy efficiency, reduce cost, and preserve natural resources. The ARNG received several awards in the areas of energy effectiveness, water conservation, and recycling. The ARNG Installations and Environment Directorate (ARNG I&E) also presented its own awards to ARNG programs that excel in the areas of facilities management and environmental stewardship.

The Secretary of the Army recognizes energy effectiveness and water management projects in Mississippi and Virginia

In recognition of her efforts to cut costs by conserving energy, the Mississippi ARNG's (MSARNG) Ms. Madison Thomas received the Secretary of the Army Energy Award for Energy Program Effectiveness (Individual Category). As the MSARNG's Energy Manager, Ms. Thomas re-energized the MSARNG's Command Energy Council, found billing errors that saved the MSARNG \$350,000 in 2016, and

developed a utility conservation program that saved the MSARNG a total \$190,000 that same year.

The Secretary of the Army also selected the Virginia ARNG (VAARNG) to receive the Secretary of the Army Energy and Water Management Award for Renewables and Alternatives (Installation Category). The VAARNG installed two solar arrays at Fort Pickett in fiscal year 2015, with a projected annual savings of \$212,000 in electricity costs.

Energy efficiency and water conservation efforts in New Jersey and Colorado win recognition by the U.S. Department of Energy

The U.S. Department of Energy and the Federal Interagency Energy Management Task Force selected the New Jersey ARNG to receive the 2016 Federal Energy and Water Management Program Award for outstanding contributions in the areas of energy efficiency, water conservation, and the use of advanced and renewable energy technologies at federal facilities in fiscal year 2015. The same agency also awarded Mr. Brett Jackson of the Colorado ARNG the 2016 Federal Energy and Water Management Career Exceptional Service Award for outstanding contributions

ENVIRONMENTAL STEWARDS

LEFT: Each year, the ARNG Installations and Environment recognizes the organization's best-performing Environmental program through the Environmental Stewardship Award. In 2016, that recognition went to the Michigan ARNG.

in the areas of energy efficiency, water conservation, and the use of advanced and renewable energy technologies at federal facilities in fiscal year 2015.

The Environmental Protection Agency acknowledges recycling and energy efficiency projects in Texas and Maine

The U.S. Environmental Protection Agency (EPA) recognized the Texas Army National Guard (TXARNG) as a national winner in the Federal Green Challenge, which encourages federal facilities to reduce the government's environmental impact. The TXARNG nearly doubled the amount of waste diverted for recycling at construction projects across Texas, from 1,763 tons in 2014 to 3,506 tons in 2015, saving over \$157,000 in waste disposal fees. “The TXARNG shows that reducing environmental impact is a win-win, saving taxpayer money by wasting fewer resources,” said EPA Regional Administrator Ron Curry as he presented the award to the TXARNG at the EPA's Federal Facilities Training Symposium in August 2016. “They set a great example for other federal agencies to follow.”

Later that same year, EPA recognized the Maine ARNG (MEARNG) as a 2016 Energy Star Combined Heat and Power (CHP) Award Winner. The MEARNG's Bangor Army Aviation Support Facility's CHP system, designed by Innovative Construction and Design Solutions, includes a natural gas-fired Aegis Energy Services internal combustion engine generator that produces up to 75 kW of electricity. Heat from the engine—which would otherwise be wasted—is recovered and used to produce hot water to radiantly heat the facility's hangar, maintaining the operational readiness of the aircraft in a region where facilities need to be heated for most of the year. With an efficiency of 73 percent, the system requires approximately 32 percent less fuel than would be used in the conventional production of electricity and hot water. With this system, an estimated 100 tons of carbon dioxide emissions are avoided annually. For comparison, the generation of electricity to power 14 homes would result in roughly the same amount of emissions. A 40 kW photovoltaic panel further reduces energy costs and carbon emissions.

The Michigan ARNG wins the ARNG's Environmental Stewardship Award

The ARNG I&E recognizes the organization's best-performing Environmental program through the Environmental Stewardship Award, which is awarded annually. When selecting a program for the award, the ARNG I&E considers areas such as budget execution, timelines, and continuous efforts to meet and exceed environmental standards in compliance with environmental regulations. In 2016, the Environmental Stewardship Award went to the Michigan ARNG (MIARNG).

When asked what it takes to build a successful Environmental program, the MIARNG's Environmental Program Manager, Mr. Jonathan Edgerly, responded, “Communications is a big factor. We work very well and openly with Army staff and with regulators. We don't hold anything back. We preemptively reach out and share information with Army staff and regulators. I think that goes a long way in terms of building relationships.” Mr. Edgerly said the Environmental program's primary duty is to support the ARNG's overall mission. “We understand our role in the greater cog. Working with our staff, we put professionalism and mission first at all times. We are here to support training. Our main challenge is working in concert with the military on their ever-changing battle structure. As they're changing their training needs and objectives, we try to work with them and adjust our work to fit their objectives,” he said.

The Virginia ARNG receives the Fred Aron Award for Excellence in Facilities Programs

Each year, the ARNG I&E recognizes the best-performing facilities program in the nation. After evaluating the performances of the 50 states, three territories and the District of Columbia in eight different areas—Military Construction (MILCON) Program Execution, Financial Management, Budget Estimate, Real Property Management, Construction Facilities Management Officer (CFMO) Certification, Energy Management, ESS Program, and Installations Status Report submission—it presents the Fred Aron Award for Excellence in Facilities Programs to the program with the highest score. In fiscal year 2016, that recognition went to the VAARNG.

Through their work to increase energy efficiency, preserve natural resources, and exceed environmental standards the ARNG Environmental and Facilities Management award recipients also manage to reduce cost, creating a win-win for all parties. By encouraging sustainable practices, the ARNG will sustain its future mission. ●●●



AWARD WINNERS

TOP AND MIDDLE PHOTOS: The Honorable Katherine Hammack, Assistant Secretary of the Army (Installations, Energy, and Environment), and LTG Gwen Bingham, Assistant Chief of Staff for Installation Management, honor the Mississippi ARNG's Ms. Madison Thomas (top photo) and representatives from the Virginia ARNG (middle photo) at the Army Energy Manager Training Workshop in August 2016. (Photos by LTC Chris Tatian) BOTTOM PHOTO: Mr. Brett Jackson of the Colorado ARNG holds the plaque presented to him at the award ceremony for the Department of Energy's 2016 Federal Energy and Water Management Career Exceptional Service Award for outstanding contributions in energy efficiency, water conservation, and renewable energy technologies.

Good Stewards

THE SECRETARY OF THE ARMY RECOGNIZES **CULTURAL AND ENVIRONMENTAL PROJECTS IN ALABAMA, HAWAII, MINNESOTA, PENNSYLVANIA AND VIRGINIA**

The Secretary of the Army recognized several Army National Guard (ARNG) Environmental and Cultural Resources offices at the 2016 Secretary of the Army Environmental Awards, praising the offices for their continuous work to conserve precious resources and to record and preserve the ARNG's cultural legacy. The Environmental and Cultural Resources offices in Alabama, Hawaii, Minnesota, Pennsylvania and Virginia were singled out for their important contributions in the environmental and cultural fields.

The Alabama ARNG's (ALARNG) Cultural Resources Management Team was recognized for its creative leadership to initiate a regional tribal consultation approach. Instead of holding independent annual meetings, the 19 federally-recognized tribes with ancestral ties to Alabama now hold joint meetings with the ARNG. The joint meetings represent a cost saving, both for the tribes and for the ARNG.

The ALARNG hosted the first Southeastern Regional Native American Consultation in 2007, with representatives from 11 of the 19 Alabama tribes. Also present at that meeting were the Florida ARNG, Georgia ARNG, the National Guard Bureau, and the Alabama Historical Commission. "Rather than attending three to four separate meetings, the tribes were able to meet with all representatives at once," said Ms. Heather Puckett, Historical Archaeologist and Cultural Resources Manager for the ALARNG. The meetings have since expanded to include the ARNGs in neighboring states. The meetings are rotated among the participating states, and includes two days of consultation. Command staff, including General Officers and the Adjutant General from the host state, participate in most meetings. This year, the Georgia ARNG is hosting the meeting, and aside from the tribes, participants include ARNG representatives from Alabama, Florida, Mississippi and Tennessee. The participating ARNG states share the cost of the regional meetings—an approach which saves the ALARNG approximately \$210,000 annually.

Alabama ARNG's Cultural Resources Management Team is also leading efforts to identify locations that were relevant to the Civil Rights movement and the experiences of African Americans associated with the ALARNG. "In 2007, the ALARNG successfully completed a study of the role of the National Guard in the Civil Rights Movement. The Civil Rights Movement serves as a platform for examining African American history in Alabama. During recent consultation with the Alabama Historical Commission, the ALARNG was requested to examine African American history in relation to the properties the ALARNG manages. This effort was the result of combined integration

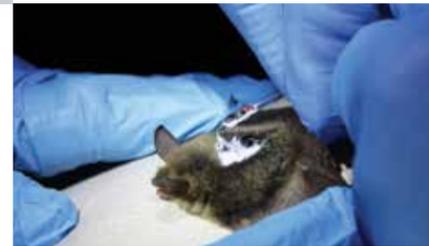


of cultural resources data with Geographic Information Systems capabilities, most notably using Light Detection and Ranging technology to create hillshade data, and a partnership with the Natural Resources Conservation Service to use Ground Penetrating Radar on ALARNG lands," Ms. Puckett said. By combining historic maps, archival records, and archaeological survey results, the ALARNG was able to identify a World War I area associated with African American laborers that worked on the initial construction of Camp McClellan in 1917; a World War II area associated with a "Buffalo Soldier" training camp; and anomalies in unmarked African American graves at the New Mount Sellers Cemetery on the Fort McClellan Army National Guard Training Center.

The Hawaii ARNG (HIARNG) has taken a creative approach to clearing its rugged terrain of shrubbery. Using a herd of 194 goats, the HIARNG regularly clears 46 acres of rugged training area that would be difficult for machines to access. By using animals instead of machines, the HIARNG has also eradicated herbicide use. The approach has eliminated the need for contract labor, which has resulted in cost savings of 90 percent. The HIARNG also diverted over 46 tons of paper and 42 tons of cardboard from landfills through its recycling vendor, Secure Solutions (Goodwill Contract Services), and recycled 13 tons of batteries in 2015, generating around \$5,000 for the Qualified Recycling Program. "The HIARNG has seen recycling become a habit, which is great. Now I'd like to see if we can reduce the waste generated. For example, rather than printing documents and recycling the paper, it would be great if we did not print at all. Digital signatures have helped with this initiative. However, like all change, behavioral changes take time to implement," said Ms. Leslie Chau, Environmental Program Specialist for the HIARNG. The

HIARNG won the Sustainability (Non-Industrial Installation) category in the 2016 Secretary of the Army Environmental Awards for its creative use of animals and its successful recycling program.

The Minnesota ARNG's (MNARNG) Camp Ripley Training Center won the Natural Resources Conservation (Large Installation) category for its leadership in completing 39 Army Compatible Use Buffer (ACUB) land transactions. The transactions, which encompassed 3,457 acres of land, were completed with \$1.2 million in state funding from The Minnesota Board of Water and Soil Resources (BWSR), at no cost to the MNARNG. Since Camp Ripley's ACUB program's inception in 2004, the installation has been uniquely successful in promoting and expanding the holdings within the three-mile ACUB buffer. To date, over 22,000 acres have been completed through the MNARNG and its partner agencies. Currently, 406 landowners representing over 27,000 acres have indicated interest in participation, particularly in establishing permanent conservation easements rather than outright acquisition. Partners in this effort include BWSR, Department of Natural Resources, United States Fish and Wildlife Service, The Nature Conservancy, regional conservation groups, Natural Resources Conservation Service, and neighboring city and county governments. "Encroachment does not only pose a threat to training capacity, but also to natural resources and critical habitat. Camp Ripley remains one of



the largest tracts of undeveloped land in the region, and as a result, its biological diversity far surpasses that of neighboring areas," said Mr. Jay Brezinka, Environmental Program Manager at Camp Ripley.

Additionally, Camp Ripley and its partners have tracked "Ripley," a golden eagle, on her migration 1,800 miles north to the Arctic Circle and back to the installation. These tracking efforts have been integrated into local school curricula to raise conservation awareness. In addition to the golden eagle, Camp Ripley environmental staff are capturing and monitoring northern long-eared bats, Blanding's turtles and gray wolves. "Over the past 20 years Camp Ripley environmental staff have captured and radio-collared wolves on Camp Ripley to determine pack size, movements, causes of mortality, and possible effects of military training," Mr. Brezinka said.

The Pennsylvania ARNG (PAARNG) made huge strides in recycling in 2015. The PAARNG's Sustainability Team diverted 580,825 pounds of material from the PAARNG waste stream through the United States Property and Fiscal Office (USPFO) and Defense Logistics Agency (DLA), and reduced its waste by 44 percent through the Qualified Recycling Program. "We have a good working relationship with our DLA Disposition Services Office. The DLA assists us with the routine recycling of different types of fluorescent lamps and

batteries, and the reutilization of old compressed gas cylinders and above-ground heating oil storage tanks. Aside from that partnership, PAARNG has partnered with several local companies and routinely recycles expended brass shell casings from live fire activities, utility poles and other treated wood material, and scrap military tires," said the PAARNG's Environmental Manager, Ms. Dreama O'Neal. Next, the PAARNG is targeting the recycling of more construction and demolition materials, more composting, and possibly glass recycling.

The team also replaced 90 percent of its heating oil tanks with natural gas tanks. Natural gas is a cleaner, more affordable fuel source with a reduced spill risk. The natural gas tanks minimize the need for permits, inspections, and repairs. The PAARNG also diverted close to 704 tons of bio solids in 2015, resulting in just over \$41,000 in disposal cost savings. The different efforts earned the PAARNG recognition in the Sustainability (Team) category.

Finally, the Virginia ARNG's (VAARNG) Camp Pendleton won the Cultural Resources Management (Small Installation) category for successfully incorporating sustainability updates on buildings listed in the National Register of Historic Places (NRHP) while preserving their historic significance. Asked to describe the unique qualities of Camp Pendleton that merited the inclusion on the NRHP, Ms. Susan Smead, Cultural Resources Program Manager for the VAARNG, said, "Primarily it is Camp Pendleton's long history as

RAISING CONSERVATION AWARENESS
Gray wolves, northern long-eared bats, and golden eagles are among the species monitored by Camp Ripley environmental staff.

a military installation, from the establishment in 1912 by the State of Virginia as the State Rifle Range. In addition to the current rifle range, which dates back to the late 1920s, the installation also has a collection of World War II barracks, dining halls, and associated buildings with a good amount of integrity. Camp Pendleton also includes a secondary residence

used by Virginia's governors after World War II, which adds another dimension to Camp Pendleton's historic military importance."

The Sustainability and Cultural Resource Management staffs collaborated on upgrading Camp Pendleton's World War II-era buildings while still maintaining aesthetic integrity. "The immediate concern when upgrading a historic property is to assess the building envelope and address any heating and cooling loss while being mindful of impacts to the historic fabric. The building is typically outfitted with new systems (HVAC, plumbing, and electrical, including IT support). The main challenge is to incorporate energy efficiency, which typically requires the introduction of new materials and system components, without impacting the historic characteristics of the building," Ms. Smead said. According to Mr. Jim Rufo, VAARNG Sustainability Branch Chief, the upgrades have resulted in about \$160,000 a year in savings, projected to increase to nearly \$300,000 in annual saving by 2036.

By protecting the ARNG's lands through conservation and sustainable practices, ARNG Environmental staff ensure the availability of training lands for future generations. Under the stewardship of these award recipients, the ARNG is preserving its natural resources and cultural legacy. ●●●

Cleaning Up

USING THE LATEST TECHNOLOGIES, THE ARMY NATIONAL GUARD CLEANS UP THE HAZARDOUS SUBSTANCES, POLLUTANTS, AND CONTAMINANTS LEFT BY PREVIOUS GENERATIONS AT ITS ACTIVE AND FORMERLY USED INSTALLATIONS

As science has advanced, it has become clear that some practices and materials commonly used in the past caused damage to the surroundings, posing a threat to the environment and human health. Now, it is up to the Army National Guard (ARNG) to clean up the hazardous substances, pollutants and contaminants left by previous generations at its active and formerly used sites.

The Department of Defense (DoD) began cleaning up contamination in 1975 under the Installation Restoration Program (IRP). In 1980, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as Superfund, in response to alarming hazardous waste and management practices in the 1970s. In 2001, DoD established the Military Munitions Response Program (MMRP) to address sites known or suspected to contain unexploded ordnance, discarded military munitions, or munitions constituents. Through the IRP and MMRP, DoD complies with environmental cleanup laws, such as CERCLA. The cleanup of the ARNG's active and formerly used installations is done through the Defense Environmental Restoration Program (DERP), which is managed and supervised by the Office of the Secretary of Defense (OSD), through the Deputy Under Secretary of Defense for Installations and Environment, Environment, Safety, and Occupational Health Directorate.

Mr. Mark Leeper, Restoration/Cleanup Program Manager at the ARNG Installations and Environment (ARNG I&E), leads the ARNG I&E's DERP efforts. His team works closely with the Office of the Assistant Chief of Staff for Installation Management (OACSIM), the Deputy Assistant Secretary of the Army for Environment, Safety, and Occupational Health (DASA-ESOH), OSD, the Environmental Protection Agency (EPA), State regulators, and ARNG offices around the country. Mr. Leeper said the most common hazardous substances, pollutants, and contaminants that he and his team encounter are military munitions and munitions constituents, as well as petroleum constituents. "We are currently working on many types of remedial projects, including remedial investigations for MMRP sites, groundwater investigations, and soil contaminant destruction or removals. At any given time, we are working at least 50-75 sites all over the



REMOVING MUNITIONS CONSTITUENTS AT CAMP WITHYCOMBE

Starting in the 1920s, Soldiers carried out munitions training at the base of a hill at Camp Withycombe in Oregon. The ARNG I&E's Cleanup and Restoration team just concluded the remedial investigation to identify munitions and any other contaminants that might be underground at Camp Withycombe.

country. At this snapshot in time, I would say there are more munitions projects than anything else, but it runs the gamut," he said.

One high-profile project is at Camp Ravenna in Ohio, the former site of an Army ammunitions plant. Some of the processes that were used in the past caused contamination at several sites within the Camp's footprint. The Missile Defense Agency (MDA) is currently considering Camp Ravenna as one of three potential sites for building a new facility. "There are a number of areas of concern at Camp Ravenna that we are cleaning up through the CERCLA process in conjunction with the Ohio EPA. We do not want the cleanup effort to be a deterrent for the MDA coming to Ravenna," Mr. Leeper said.

Together with the Ohio EPA, Mr. Leeper's team came up with a plan to put the sites in the footprint at the top of the review list to secure funding for the cleanup. "Both the ARNG I&E and the Ohio EPA are putting all their efforts and cooperation into getting these sites moved through the system quickly, while still protecting human health and the environment," Mr. Leeper said. The team



REMEDIATING THE SOIL AT CAMP RAVENNA
A Vapor Energy Generator (VEG) is used to eliminate Poly-Aromatic Hydrocarbons at Camp Ravenna, Ohio. The VEG allows the ARNG I&E's Cleanup and Restoration team to remediate the soil and keep it onsite, rather than sending it to a landfill.

consists of ARNG I&E, the Army Corps of Engineers, the Ohio EPA, public stakeholders, and contractors, who do the field work.

When asked to describe the work in the field, Mr. Leeper said, "It depends on what the contaminant is. For the most part, we focus on Poly-Aromatic Hydrocarbons (PAHs) and metals in the soil. Depending on the amount that we have to remove, we sometimes use a special machine called a Vapor Energy Generator, or VEG. That allows us to remediate the soil and keep it onsite. That way, we do not have to pay to send the soil to a landfill and everything gets reused onsite. We try to use that technology for all of our soil

"Today's mission is conducted in a much more sustainable way and we take all the necessary precautions to ensure that we are not making those same mistakes."

Mr. Mark Leeper
Restoration/Cleanup Program
Manager for the ARNG I&E

remedial jobs. If the project does not warrant the use of the VEG we have to dig up the soil and send it to a landfill. Most of the MDA sites fall into that category, where there are enough contaminants to trigger a response, but not high enough concentration to warrant the use of the VEG. Typically, if the amount of soil that needs to be removed is under 3,000 cubic yards we do not use the VEG because of the cost of bringing the machine onsite. Any project above 3,000 cubic yards is where we find that we can save a lot of money by using the VEG." The project started in February 2016, and a number of sites that are within the footprint have already been cleaned up. "We will probably have everything wrapped up, or at least have a Record of Decision, by the end of fiscal year 2018," Mr. Leeper said.

The VEG has helped Mr. Leeper's team save both time and money. Another time- and cost-saver is a method called High Resolution Site Characterization (HRSC). "HRSC entails using a mobile lab onsite. It allows us to be very specific in our data collection,

and we can get lab results within 20 to 30 minutes. If you are looking at a groundwater plume it allows you to track that plume from real-time data. In the past, we would put in four or five wells, collect the data, review it, and have to go out again. What the mobile lab does is it allows us to be out in the field for a short amount of time, collect data in real time, and put wells in areas that we can see based on what we have just submitted. HRSC is taking advantage of all the new technologies that we have today that we did not have 20 years ago. We use HRSC whenever possible, as it provides us with a better conceptual site model and at lower cost compared to traditional investigative methods," Mr. Leeper said.

The most common concerns the ARNG I&E's Cleanup and Restoration team encounters are contamination caused by munitions. The team is currently doing a munitions project at Camp Withycombe, outside Portland, Oregon. "It is a time-critical removal action munitions project that dates back to the 1920s. Soldiers used to do munitions training at the base of a big hill at Camp Withycombe. They would set up their targets and shoot, and as a result there is small arms munitions in the foot of the hill. Then, during World War II, they did different types of training with 37mm guns. There is also a possibility that rockets were fired into the mountainside. Now the land has been transferred we are doing our due diligence to make sure that the munitions are cleaned up," Mr. Leeper said. The team uses different types of geophysical equipment to identify anything that might be underground. "In this case we have a field team of four people collecting data and a number of safety personnel present just in case the team finds something hazardous. If they do find something that is considered dangerous, they actually blow that round, or rounds, in a prescribed manner to eliminate the hazard," Mr. Leeper said.

As the ARNG I&E's Cleanup and Restoration team cleans up contamination caused by past practices, the ARNG's commitment to sustainability deepens. Today, the organization goes to great lengths to ensure that its operations will not burden future generations. "I think we've learned a lot from our past mistakes. Today's mission is conducted in a much more sustainable way and we take all the necessary precautions to ensure that we are not making those same mistakes," Mr. Leeper said. ●●●



Acts of Nature and Domestic Response

TO PREPARE FOR DISASTERS, THE ARMY NATIONAL GUARD EMPHASIZES **CONTINUOUS DISASTER TRAINING AND GOOD RELATIONSHIPS WITH LOCAL AUTHORITIES AND OTHER FIRST RESPONDERS**

WHEN DISASTER STRIKES

In September 2016, a tornado struck the Minnesota ARNG's Camp Ripley Training Center, leaving behind a narrow path of destruction. Four buildings were total losses, including the 160-person transient company headquarters building (top three photos). The 2016 Atlantic hurricane season was the most active and expensive hurricane season in Florida since 2005. The Florida National Guard's Judge Advocate General's Office remains unoccupied due to structural compromise caused by Hurricane Matthew (bottom photo).

The National Guard has a unique dual mission, with both federal and state responsibilities. The president of the United States can activate the National Guard to participate in federal missions. In a state emergency, the governor can call the National Guard into action. When disaster strikes, National Guard units stand ready to assist residents affected by hurricanes, tornados, floods, and fires. To maintain preparedness, Army National Guard (ARNG) units around the country perform continuous disaster response training and build and maintain good relationships with local authorities and other first responders. For the Minnesota ARNG (MNARNG), that training was put to the test one evening in September 2016.

On September 7, 2016 around 10:30 in the evening a tornado struck Camp Ripley Training Center, the MNARNG's premier training center located in central Minnesota, near the city of Little Falls. The F1 tornado stayed on the ground for several miles, leaving behind a narrow path of destruction. "The tornado crossed our boundary, went through one of our military vehicle parking lots, over our airfield, through a billeting area, and finally through our local utility's 10 megawatt solar field. The distance across post was about two and a half miles, but thankfully about two miles of that was nothing but runway and forest. The swath of damage on our installation was only about 50 meters wide," said the MNARNG's Construction Facilities Management Officer (CFMO), LTC Sol Sukut.

There was no warning and the installation's sirens did not go off. "The initial response came from post security, and Soldiers and State Highway Patrol members who were staying in the billeting area, including the officer quarters, which lost its roof. Fortunately, no one was on the second floor at the time. We were lucky that it happened on a weeknight. Just a couple days later and all the beds of those buildings would have been occupied," LTC Sukut said. "Together, they cleared the two damaged billeting structures and gained a 100 percent accountability check. In the end, only one civilian from the State Highway Patrol had a minor injury from glass."

Within 30 minutes, Minnesota Department of Public Works (DPW) personnel arrived and began shutting down power, gas, and water in the affected buildings. Over the next 48 hours, the DPW team, along with MNARNG architects and engineers, completed the majority of the work to secure the buildings. Four buildings were total losses, and over 60 buildings were damaged. The major damage was to the roofs of three structures. The roof of a 160-person transient company headquarters building was torn off and a part of the roof landed in the road. Another part punctured the exterior concrete masonry unit wall of a company supply building across the street. A 40-room transient officer quarters nearby also lost its roof. Both of these buildings suffered significant water damage from fire suppression lines that ruptured when the roofs came off. The roof from a company maintenance building landed in Camp Ripley's system of photovoltaic panels, about 200 meters away. Owned by Minnesota Power, the solar field was near completion when the tornado hit Camp Ripley and a ribbon-cutting ceremony was scheduled nine days later. The solar field sustained \$2.5 million in damages and the completion was delayed by 30 days. "The DPW team put temporary covers on the roofs and replaced or put temporary covers on the broken windows. Meanwhile, the architects and engineers did building assessments and took pictures to help us document the damage and prepare

“For the last couple years, we have done a natural disaster response training scenario at Camp Ripley to rehearse this type of event. I believe that made the response and coordination on the ground a lot easier on everyone. Everyone knew what to do.”

LTC Sol Sukut
CFMO for the Minnesota ARNG

the NGB420s, so that we could submit for Act of Nature (AoN) funding,” LTC Sukut said, referring to the paperwork that ARNG offices submit to the National Guard Bureau (NGB) for funding assistance in disasters. The tornado struck Camp Ripley in September, at the end of the federal fiscal year, when most funds had already been obligated. “Despite that, the NGB immediately sent us some fiscal year 2016 AoN funding to get us started on material requests and purchase order repairs. It took some time to get the full damage assessment together and we submitted our cost estimates first thing in October, when the new funding became available,” LTC Sukut said.

The estimated replacement cost for the four buildings that were completely destroyed is about \$30 million. “With NGB and Department of the Army Staff Agencies support we are attempting to fund the rebuilding of those structures by reprogramming leftover fiscal year 2013 Military Construction funds. The buildings are in the design phase, and will be ready to bid and award before the end of fiscal year 2017. They will take about 18 months to build,” LTC Sukut said. Other damage included broken shingles, windows, and pieces of trim in 60 other structures. “We used our in-house design team to prepare those documents and have bid both asphalt and steel roof projects. We expect those roofs to be complete before winter,” he said.

LTC Sukut described the cleanup work as fairly simple, with only one minor challenge. “It may be a surprise to hear this, but it was just keeping people out of the way the next morning and the days after the storm, so that our DPW and engineers could assess the damages. There was broken glass, boards with nails, and sharp metal spread over an area the size of a few city blocks. The solar field in particular was dangerous due to glass and ‘hot wires.’ As with any accident, we had people who wanted to get close and take pictures. In the event of an accident or a disaster, maintaining control over the area for public safety is important,” he said.

In the end, the damage was relatively localized. Off-post, the damage was limited to downed trees. No emergency response was required off-post, and no Soldiers were called out on state active duty. Camp Ripley suffered the brunt of the damages, but even there, the damages were limited to the tornado’s narrow path; some buildings within 25 meters of the four buildings that were completely destroyed received no visible damage.

When asked how the MNARNG prepares for events such as tornados, LTC Sukut said, “For the last couple years, we have done a natural disaster response training scenario at Camp Ripley to rehearse this type of event. I believe that made the response and coordination on the ground a lot easier on everyone. Our list of whom to call at the DPW was ready and current. Everyone knew what to do.”

The Florida ARNG’s (FLARNG) readiness was tested in October 2016 when Hurricane Matthew approached the Florida coastline—at the time the strongest hurricane to affect northeast Florida since 1898. “The 2016 Atlantic hurricane season was the most active and expensive hurricane season in Florida since 2005,” said COL Dwayne Jarriel, CFMO for the FLARNG. “Hurricane Hermine became the first major hurricane in 11 years to make Florida landfall, while Hurricane Matthew posed the most significant threat to Florida lives and property since Hurricane Wilma 11 years prior.”

Hurricane Hermine, a Category 1 hurricane when it struck the Florida panhandle on September 2, 2016, provided an excellent opportunity for the Florida National Guard (FLNG) and the State Emergency Response Team (SERT) to introduce a relatively new team to tropical storm response operations. “While the Hermine response provided some new outstanding observations and ‘lessons learned,’ our Matthew response valued the lessons learned from Hurricane Wilma, more than a decade ago. Without continual training and cooperation with our civil authorities, we would not have been as well postured as we were. People come and go and it is really important to maintain disaster preparedness skills. We carry out annual hurricane exercises with other emergency responders to maintain the training and preparedness of our FLARNG Soldiers,” COL Jarriel said. Key to that preparedness is close cooperation with other authorities. “The FLNG never lost sight of the importance of maintaining close relationships with the SERT, and earning the trust and confidence of the Commander in Chief, Governor Rick Scott, and the State Coordinating Officer (SCO), Mr. Brian Koon. Those relationships, forged through inter-agency training events, coupled with competent, experienced leaders and staffs throughout the joint force, contributed to a successful ‘Operation Matthew,’” he said.

At the peak of the operational TEMPO, the FLNG had in excess of 3,200 Soldiers on state active duty performing a variety of missions. The FLNG forces provided military support to civil

authorities, including security and high-water vehicle support, search and rescue/reconnaissance teams, aviation support, command and control support, traffic control, shelter manning, State Emergency Operations Center manning, point of distribution missions, logistics staging areas, and support to the State Logistics Response Center and local shelters.

Due to the unpredictability of the storm’s track and the close proximity of the storm to the FLNG Joint Force Headquarters in St. Augustine, which was squarely in the impact zone, Florida’s Adjutant General, MG Michael Calhoun, and the Director of Military Support (DOMS) decided to carry out the Continuity of Operations Plan and relocate the Emergency Operations Center from St. Augustine to the Camp Blanding Joint Training Center in Starke prior to the storm’s arrival. “The peak strength of the hurricane was felt by Haiti and Cuba, where the storm made landfall as a Category 4 storm. The storm did not landfall the Florida coast; it paralleled the Florida coast as a Category 1+ storm. The northeastern counties of Flagler, St. Johns, and Duval Counties experienced the largest storm surge. The scope and cost of damage of ARNG facilities as a result of Hurricane Matthew was minimal. The most significant damages were assessed to be in St. Johns County, to the FLNG Headquarters,” COL Jarriel said. “Our Headquarters is located on the Bayfront in St. Augustine. During the storm, peak surges as much as nine feet above normal were recorded at Fernandina Beach, and flooding in the St. Augustine area saw water levels up to two and a half feet,” he said. The Post of St. Augustine and its buildings, including the Saint Francis Barracks, which date back to the mid-1700s, were exposed to maximum wind speeds of 76 miles per hour with up to seven inches of rainfall.

Within two days of the storm, the FLARNG CFMO team responded with damage assessments for its facilities, from Homestead in the south to Jacksonville in the north. All but the St. Augustine Headquarters were spared major damage. Multiple buildings in St. Augustine were damaged, including flooding, wind damage, broken pipes, and damage to the building foundations. “Since many of the structures were state-supported, the State Quartermaster was able to implement repairs using state funds. The CFMO office conducted contract engineering assessments on all buildings to ensure structural integrity and safety prior to their re-occupation by staff and employees. The storm clean-up, drying out, and minor repair needed at the United States Property and Fiscal Officers (USPFO) building was handled with CFMO funds, without having to go to the NGB for AoN funds,” COL Jarriel said.

Today, most repairs have been completed and the Post of St. Augustine is operational. One facility, the Judge Advocate General’s (JAG) Office, remains unoccupied due to structural compromise. After the storm, the U.S. Army Corps of Engineers District, assessed that the seawall in front of Saint Francis Barracks had been undermined. The CFMO office is currently seeking a grant from the Corps of Engineers to rework the seawall, and the disposition of the JAG Office is undetermined at this time.

Hurricane Matthew raised discussions within the FLARNG on the number of facilities needed to carry out a disaster response mission, and the capabilities those facilities need to have. “We determined that one of our major subordinate headquarters is our redundant location for communication. In other words, if our communications capabilities get knocked out in St. Augustine, our redundant location is in the state capital, Tallahassee, where our major subordinate command is located. We are still having discussions on the level of capabilities at our major subordinate commands. We are also determining the need for emergency generators; which facilities need one, and how large those generators need to be,” COL Jarriel said. When asked if his team has changed anything in its procedures for the 2017 hurricane season, COL Jarriel responded, “We have a well-defined role post landfall, where we go out and do damage assessments. I think there are some preemptive things we can do; we have information we can provide our commanders prior to landfall that may help them determine the safest and most effective locations to stage Soldiers. Then there is the continuous work of education and refining what our capabilities should be in the future.”

Continuous training, experienced leadership and good relationships with other first responders are vital to identify, assess, and respond to emergencies and natural disasters. “The FLNG re-emphasized many lessons learned from previous storms, including the importance of teamwork; trust and confidence within the SERT; and the requirement to mobilize prior to landfall in order to avoid being ‘late to need.’ Senior leader and SERT support, realistic training, and experienced leadership enabled the FLNG’s timely response and operational successes during Hurricanes Hermine and Matthew in support of the Governor and the citizens of Florida,” COL Jarriel concluded. ●●●



STRUCTURALLY COMPROMISED
The Florida National Guard’s Judge Advocate General’s Office, remains unoccupied due to structural compromise caused by Hurricane Matthew. After the storm, the U.S. Army Corps of Engineers, Jacksonville District, assessed that the seawall along the bay front in front of Saint Francis Barracks had been undermined and required restoration. The CFMO office is currently seeking a grant from the Corps of Engineers to rework the seawall.

“Without continual training and cooperation with our civil authorities, we would not have been as well postured as we were. People come and go and it is really important to maintain disaster preparedness skills.”

COL Dwayne Jarriel
CFMO for the Florida ARNG

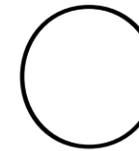


In the Eye of the Storm

CLEARING DEBRIS

Texas ARNG Soldiers from the 386th Engineer Battalion pick up large debris following Hurricane Harvey in Victoria, Texas. More than 1,200 Texas National Guard members partnered with Emergency first responders to support hurricane rescue missions throughout the coastal areas of Texas in August 2017. (Photo by CPT Martha Nigrelle)

IN A DEVASTATING HURRICANE SEASON, ARMY NATIONAL GUARD SOLDIERS COME TOGETHER TO HELP THOSE AFFECTED BY THE STORMS



In the evening of August 25, 2017, Hurricane Harvey made landfall as a Category 4 storm near Rockport on the Texas coast. Its slow movement caused catastrophic flooding throughout the southeast portion of the state, forcing thousands of residents from their homes.

Over the course of three days, Texas Governor Greg Abbott activated approximately 12,000 Texas National Guard Soldiers and Airmen to assist in search and rescue efforts in the region. Other states quickly provided resources and troops through the Emergency Management Assistance Compact (EMAC). By August 31, the number of deployed from all States reached 24,000. Their operations were concentrated in the Houston and Beaumont areas where the heaviest flooding occurred.

The Texas National Guard has several Readiness Centers located in the affected areas, and was fortunate that nearly all facilities remained in usable condition after the storm. Soldiers and staff prepped the buildings prior to Harvey's landfall, and were able to maintain the integrity of all utilities. As soon as was safely possible, the Texas National Guard began staging operations out of their facilities located in Bryan, Huntsville, Brenham, Corpus Christi, Northwest Houston, El Campo, Rosenberg, Camp Swift, Camp Bowie, and San Antonio. However, some of the facilities were not immediately reachable due to extreme flooding. This, coupled with the large number of deployed troops, meant the Texas Military Department had to reach out to local communities, private companies, and the Reserves to locate additional staging and housing areas. The public and private sector both provided an invaluable service to the relief efforts by giving the Texas National Guard areas to stage convoys, house Soldiers, provide showers and laundry, and to land aircraft.

Throughout a three-week period, the Texas National Guard conducted 1,585 storm response missions. They assisted in the rescue of more than 16,000 people and 1,200 animals. More than 340 rescues were conducted by hoist operation in aircraft.

Twelve days after Hurricane Harvey's landfall in Texas, a devastating storm moved in on Florida. As it tracked across the Leeward Islands in the Caribbean, Hurricane Irma reached category 5 status with winds of up to 185 miles per hour. Irma made its first U.S. landfall on September 6 by crossing the Florida Keys as a Category 4 storm. It then made a second landfall at Florida's Marco Island as a Category 3 storm, with recorded wind gusts up to 135 miles per hour.

Florida Governor Rick Scott activated upwards of 7,000 Florida National Guard Soldiers and Florida Air National Guard personnel to assist emergency authorities in dealing with the impacts and aftermath of the storm. Florida National Guard units executed numerous missions assigned by the State Emergency Response Center in Tallahassee. Those missions included search and rescue, evacuations using high-wheeled vehicles in flooded areas, establishment of logistic staging areas and points of distribution, security missions, and debris clearing. Due to the size of the storm and its track along Florida's western coast, National Guard missions extended from Key West in the south to the Florida Panhandle in the north.

Twelve days after Irma, Hurricane Maria swept across Puerto Rico. The strongest storm in 80 years to hit Puerto Rico, it bisected the island with 155 mile-per-hour winds and dumped 30 inches of rain on the island. At the time of writing, Hurricane Maria's full impact is yet to be determined, and the Puerto Rico National Guard's response mission is still ongoing.

When disaster strikes, National Guard units stand ready to assist residents affected by storms, floods, and fires. As the National Guard takes on greater responsibilities in operations abroad, the organization's domestic mission is never forgotten.



A MOMENT OF REST

An Oklahoma ARNG Soldier from Task Force 179 takes a moment to rest in Beaumont, Texas. Task Force 179 is supporting the Texas National Guard with Hurricane Harvey relief efforts. (Photo by SSG Zach Zepp)



RESCUE MISSIONS

LEFT: 1SG Ron Schroeder of the Nebraska ARNG's Company G, 2-104th General Support Aviation Battalion, helps rescue a woman and her dogs in Orange, Texas. (Photo by SGT Anna Pongo) RIGHT: Staff at the North Carolina Joint Force Headquarters prepare to respond to Hurricane Irma. FAR RIGHT: Water and supplies are stored at a Texas ARNG Flight Facility in Austin before they are sent to recovery areas.



LEFT: Light medium tactical vehicles with the 253rd Transportation Company line up in the staging area prior to deployment to Florida. (Photo by Mark Olsen) RIGHT: Soldiers from Alpha Company, 1-124th Infantry Battalion interact with mobility impaired evacuees in Florida. (Photo by MAJ Colleen Krepstekies)



RIGHT: General Joseph L. Lengyel, Chief of the National Guard Bureau, receives a briefing on efforts along the Texas Gulf Coast from MG John F. Nichols, Adjutant General of Texas, and BG Patrick M. Hamilton, Commander of the Domestic Operations Task-Force, during a visit to Camp Mabry, Texas, on August 28, 2017.



SOLIDARITY AMONG STATES

FAR LEFT: The New Jersey ARNG sent 130 Soldiers to support the Florida National Guard in anticipation of Hurricane Irma. (Photo by Mark Olsen) LEFT: Virgin Islands National Guard members establish communications between islands using a satellite after Hurricane Irma affected traditional communications at the Joint Forces Headquarters in St. Croix. RIGHT: The Nebraska ARNG sent 100 Soldiers and four aircraft to Florida to take part in Hurricane Irma relief and recovery operations. (Photo by 1LT Edward Bosland)





WASHINGTON

A NEW READINESS CENTER REPLACES THE 108-YEAR OLD TACOMA ARMORY

Opened in January 2017, the Washington Army National Guard's 80,666-square-foot Pierce County Readiness Center replaced the outdated Tacoma Armory, built in 1909. The new \$29 million facility, located on Camp Murray in Tacoma, Washington, is the new home to five units totaling 334 Soldiers. In addition to the Readiness Center, there is also a new 16,222-square-foot Vehicle Storage Building. The facility was built to Leadership in Energy and Environmental Design (LEED) Silver certification standards and includes on-site storm water disposal, use of local and regional building materials, insulating concrete form construction, LED interior and exterior lighting, daylighting and views for 90 percent of regularly occupied spaces, electric vehicle charging stations, and efficient mechanical systems.



NEW AND OLD

The Pierce County Readiness Center (large photo) replaced the outdated Tacoma Armory (small photo).

CONNECTICUT

A NEW COMBINED SUPPORT MAINTENANCE SHOP SUPPORTS THE CONNECTICUT ARMY NATIONAL GUARD'S SURFACE MAINTENANCE MISSION

In the fall of 2015, the Connecticut Army National Guard (CTARNG) held a ribbon-cutting ceremony to open its new Combined Support Maintenance Shop (CSMS). The 112,000-square-foot facility replaced a 23,000-square-foot CSMS and six other support buildings—all at least 50 years old, not sized for present-day equipment, and lacking modern safety or environmental designs. The new CSMS, built to Leadership in Energy and Environmental Design (LEED) Silver standards at a cost of \$29 million, supports the CTARNG's statewide surface maintenance mission. It also supports 3,500 Soldiers, about 1,500 pieces of rolling stock, and armament, optics, calibration, and Chemical, Biological, Radiological and Nuclear (CBRN) equipment. The facility has 12 Automotive work bays, nine Special Purpose work spaces, and a paint booth. There are two 15-ton cranes, two 7.5-ton cranes and six one-ton cranes in the facility.



NEW JERSEY

A NEW REGIONAL TRAINING INSTITUTE TRAINS SOLDIERS IN LEADERSHIP

Opened in June 2017, the New Jersey Army National Guard Regional Training Institute at the National Guard Training Center in Sea Girt, New Jersey provides the 254th Regiment (Combat Arms) with a modern, state-of-the-art instructional complex. Here, National Guard Soldiers are provided Military Occupational Specialty sustainment training and leadership training. The 86,000-square-foot facility includes an administration and classroom building with 10 classrooms, a library, an auditorium with seating for 225 personnel, and a student billeting building.



PUERTO RICO

THE PUERTO RICO ARMY NATIONAL GUARD OPENS SIX NEW BUILDINGS ON FORT BUCHANAN

In July 2015, the Puerto Rico Army National Guard opened six new buildings on Fort Buchanan. The buildings include a Readiness Center, a classroom building, a unit storage building, a gym, a maintenance building, and a controlled waste handling facility. Totalling over 157,000 square feet, the facilities support elements of the Puerto Rico National Guard Joint Forces Headquarters (Personnel/HRO), Recruiting and Retention, the 1011th EN CO, 1014th EN CO, 225th MP CO, 92nd SIG CP, 840th MC, 1473rd QM CO, and the 22nd CST. The Readiness Center has 274 spaces available for the units to use. Authorized strength is approximately 1,100 Soldiers. Total cost of construction was \$38.4 million for all six facilities. Built in accordance with Leadership in Energy and Environmental Design (LEED), the buildings received a Silver Certification by the U.S. Green Building Council. The Readiness Center consists of an assembly hall, administrative office areas, classrooms, a library, a learning center, a recruiting office, training aid storage, a kitchen, a break area, a vending area, toilets and showers, table and chair storage, and a family readiness office. "Green" features include digital light controls with occupancy sensors, DuPont Corian solid surfaces, no materials emitting Volatile Organic Compounds (VOC), water-efficient landscaping, and light pollution reduction.



COLORADO

THE HIGH-ALTITUDE ARMY AVIATION TRAINING SITE TEACHES FLIGHT TECHNIQUES IN HIGH-DENSITY ALTITUDE AND MOUNTAINOUS OPERATIONS

The Colorado Army National Guard's High-Altitude Army Aviation Training Site (HAATS) 2, located in Gypsum, Colorado, opened in April 2013. At a cost of \$35.7 million, HAATS is a graduate-level flight training school that trains Active and Reserve components of the Department of Defense, Department of Homeland Security, and NATO allies to master helicopter power management and environmental flight techniques in high-density altitude and mountainous operations. HAATS trains approximately 420 pilots on a yearly basis. It also provides local search and rescue operations, community support missions, and air support for State Emergency Management. The building is 101,000 square feet in size and contains administrative areas, offices, classrooms, flight planning, allied shops, a library, 34 billet rooms, and a fitness room. Additionally, the hangar can accommodate either eight Blackhawk helicopters or four CH-47 Chinooks. The facility received a Leadership in Energy and Environmental Design (LEED) Silver certification for new construction by the U.S. Green Building Council. Features include solar domestic hot water and heated hangar floors. The south-facing classrooms were oriented to overlook the surrounding mountain peaks to facilitate student training. A central heating, ventilation, and air conditioning plant allows for economical heating and cooling.



HIGH ALTITUDE FLIGHT TRAINING
CLOCKWISE FROM TOP: The Colorado Army National Guard's High-Altitude Army Aviation Training Site in Gypsum is a graduate-level flight training school. The facility contains hangars for aircraft maintenance, a library, and a space for flight planning.

MICHIGAN

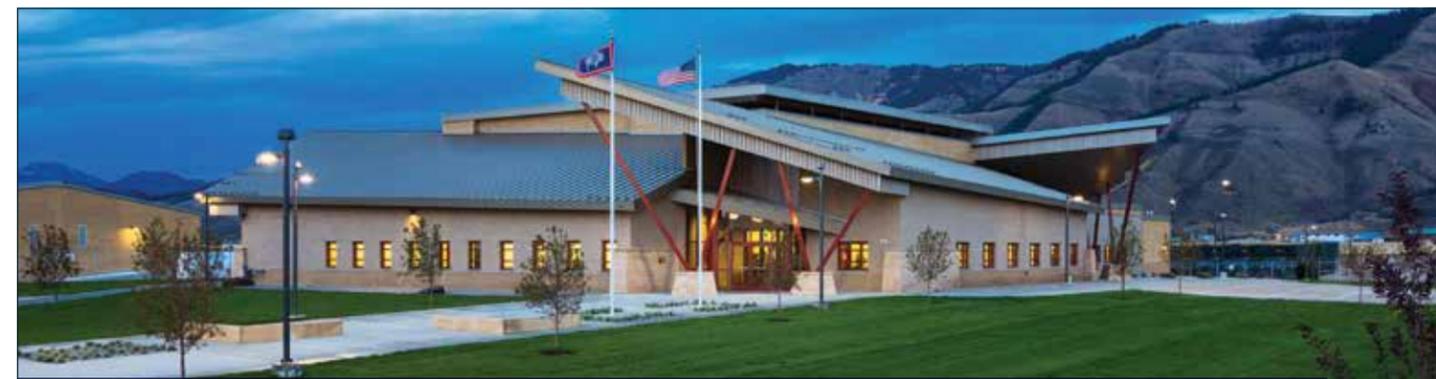
CAMP GRAYLING'S LAND HABITAT MANAGEMENT HELPS BRING BACK ENDANGERED BIRD

Kirtland's warbler (*Setophaga kirtlandii*) is one of the rarest members of the wood warbler family. It depends on the Jack Pine Ecosystem and has highly specific habitat needs; its nests are generally in mixed vegetation of grasses and shrubs below the living branches of five- to 20-year old jack pine. Kirtland's warblers are found primarily in the northern Lower Peninsula of Michigan, and in lower densities in parts of the Upper Peninsula, Wisconsin, and in Canada. Due to population declines caused by habitat degradation and cowbird nest parasitism, the bird was listed as "endangered" by the U.S. Fish and Wildlife Service in 1967. In 1961 there were roughly 1,000 breeding pairs of Kirtland's warblers documented during survey efforts. Thanks to conservation efforts, in particular by the Kirtland's Warbler Recovery Team, the birds have been increasing in number for several years. In 2011, 1,828 breeding pairs were documented. Since then, the species has continued to rebound.



Jack pine stands are managed by logging, burning, seeding, and replanting on a rotational basis to provide approximately 38,000 acres of productive nesting habitat at all times. By carrying these stands to a 50 year rotational age, nesting habitat can be maintained with little sacrifice to the commercial harvest of jack pine. The Michigan Army National Guard (MIARNG) has played a crucial part in the Kirtland's warbler's comeback. A large part of the bird's habitat is on the MIARNG's Camp Grayling. As a result of the MIARNG's successful land habitat management and similar efforts, there are now 5,000 Kirtland's warblers, and the bird could come off the endangered species list within a few years.

SUCCESSFUL LAND MANAGEMENT
 Kirtland's warbler was listed as "endangered" by the U.S. Fish and Wildlife Service in 1967. Now, thanks to successful land habitat management, the species is recovering and could come off the endangered species list within a few years.



WYOMING

THE NEW AFTON READINESS CENTER REPLACES A FACILITY FROM 1956

The Wyoming Army National Guard celebrated the opening of the new \$14 million Afton Readiness Center on September 11, 2015. The facility, which is home to 55 Soldiers from the C/1-297th Infantry Company, was funded with \$3.3 million in State dollars. The remaining funds were federal dollars, used as part of the Future Years Defense Program budget process. The new 42,655-square-foot facility includes a detached Motor Vehicle Storage Building (MVSB). It replaces an Armory built in 1956 that had 19,000 square feet of usable space. Construction of the new facility followed Leadership in Energy and Environmental Design (LEED) guidelines and is Silver Certified by the U.S. Green Building Council. The Readiness Center has LED lighting throughout the facility, uses well water exclusively for landscape irrigation, and fully retains all storm water runoff.



MONTANA

THE MONTANA ARMY NATIONAL GUARD NAMES NEW DINING FACILITY AFTER ITS FIRST FEMALE COMMAND SERGEANT MAJOR

On January 11, 2012, the Montana Army National Guard's (MTARNG) Fort Harrison Transient Dining Facility P0303 was destroyed by fire as a result of an electrical problem with a bathroom heater. The MTARNG's Construction Facilities Management Office (CFMO) Plans & Programming Branch submitted a request for Unspecified Minor Military Construction (UMMC) funding through the National Guard Bureau for a building replacement. UMMC projects correct life, health, or safety deficiencies and are limited to less than \$3 million in construction cost. The CFMO Design & Project Management Branch was granted design authority in April 2015.

Working with Montana-based Mosaic Architecture, the Design & Project Management Branch designed the entire project in three and a half months, including three full review submittals. The draft for the new facility's kitchen layout was also reviewed by the Army Center of Excellence, Fort Lee Joint Culinary Center. The project was advertised for bid in September 2015 and the construction Notice to Proceed was issued to Golden Eagle Construction in October 2015. The \$2.6 million facility was constructed with minimal change orders, resulting in a cost increase of less than one percent from the original construction contract. The new 2,602-square-foot Fort Harrison Dining Facility opened on November 16, 2016, and the dining facility was put to use in February 2017.

The new facility includes a large kitchen with separate preparation areas for meats, salads, and bakery food. The building provides warm, well-lit spaces with large windows to the south. Concrete flooring stores passively-gained heat. The facility includes a variety of dining options. Partially shaded outdoor seating areas on the south and east sides of the building extend the seating area during warm months of the year. The dining facility is designed to feed 260 people per hour.

The building is certified Leadership in Energy and Environmental Design (LEED) Gold. The building's heating, ventilation, and air conditioning system includes an efficient non-refrigerant evaporative cooling system. Local beetle-killed blue pine wood was used for the dining room ceiling finish. The low maintenance landscaping requires no irrigation. Accessible parking (in compliance with the Americans with Disability Act) on the north side of the building is paved with pervious concrete, which reduces a potential parking area heat island effect (where the area has a higher average temperature than its surroundings) and storm water runoff.

On December 3, 2017 the new dining facility was dedicated to CSM Ronda Sue Scott as the Command Sergeant Major Ronda Sue Scott Memorial Dining Facility. CSM Scott was the MTARNG's first female Command Sergeant Major and an Iraq veteran. She died of cancer in 2016.



INDOOR AND OUTDOOR SEATING OPTIONS AND A LARGE KITCHEN

The Command Sergeant Major Ronda Sue Scott Memorial Dining Facility features well-lit indoor seating and shaded outdoor seating, and a large kitchen with separate preparation areas for meats, salads, and baked goods.



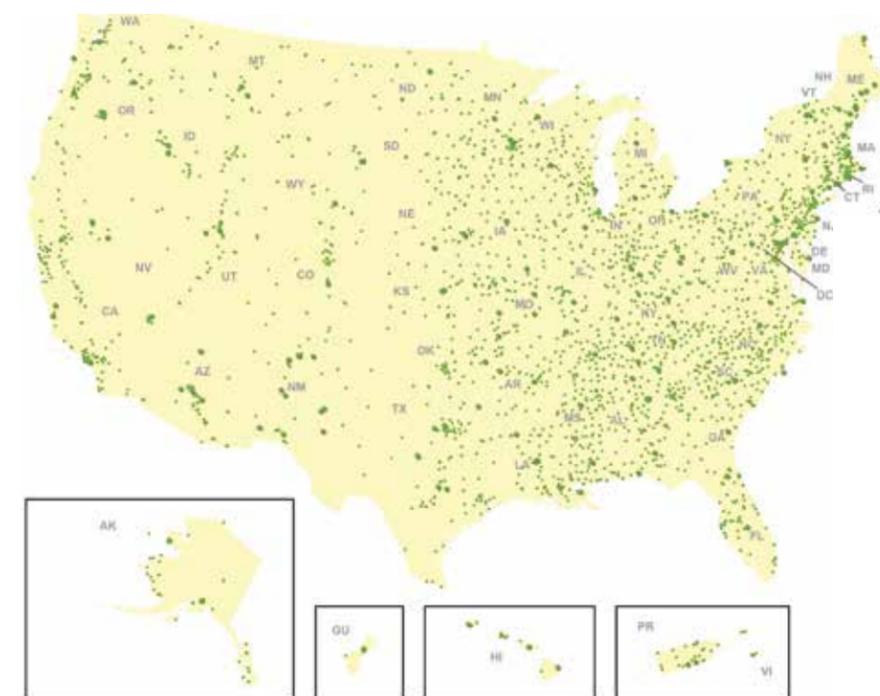
ARMY NATIONAL GUARD INSTALLATIONS AND ENVIRONMENT

ACROSS THE UNITED STATES, 172 MILLION SQUARE FEET OF FACILITIES ON TWO MILLION ACRES OF LAND

The Army National Guard (ARNG) maintains facilities in 2,464 communities in 50 States, three Territories, and the District of Columbia. There are 2,736 active ARNG sites, 138 enclave sites, and 36 Armed Forces Reserve Center tenant sites adding up to a total 2,910 sites. There is no standard facility, as all structures are tailored to the unique needs of the units. The organization's total 3,229 land parcels include 2,312 Readiness Centers/Armed Forces Reserve Centers, 2,342 Training Buildings, 817 Ground Vehicle Maintenance Buildings, 297 Aviation Support Facilities, 4,058 Warehouse Storage Buildings, 2,955 Barracks, and 481 Dining Facilities. Combined, the ARNG's buildings total close to 174 million square feet. The total plant replacement value of the ARNG's facilities is \$56.5 billion.

INSTALLATIONS AND ENVIRONMENT

The ARNG Installations and Environment leadership gather for a group photo. Top row: LTC James Crowley, LTC Doug White, LTC Anthony Bryant, Mr. Robert McCabe, and LTC Paul Crigler. Bottom row: Mr. Phil Dao, Ms. Beth Erickson, Mr. Hal Brazelton, COL Erik Gordon, Mr. Robert Spoo, and LTC Chris Tatian.



- 2,910 SITES IN 2,464 COMMUNITIES**
- 2,312 Readiness Centers/Armed Forces Reserve Centers
- 2,342 Training Buildings
- 817 Ground Maintenance
- 297 Aviation Support Facilities
- 2,955 Barracks
- 481 Dining Facilities
- 2,080 Administrative Facilities
- 4,058 Warehouse Facilities
- 9,927 Other Facilities

(Larger dot indicates NGR 5-3 Training Center)

TOTAL FACILITY FOOTPRINT
 173.6 million square feet
 2 million acres
 \$56.5 billion plant replacement value