

July 28, 2014

NTSSC This Week

U.S. Army Garrison Natick Publications Office



Award recipient says Natick equipment worked

Also inside:

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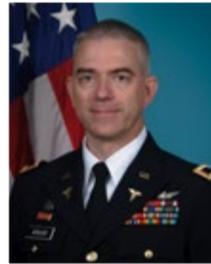
Commander's Corner

Col. Thomas G. Eccles III
Commander, U.S. Army Research Institute of Environmental Medicine



Hello, Readers!

As the newest commander of the U.S. Army Research Institute of Environmental Medicine, I wanted to take this opportunity to introduce myself to the Natick family and say how excited I am to be here.



Natick has some of the finest researchers in the world. I am thrilled to be a partner with you as part of USARIEM's efforts to improve Soldiers' health and physical performance, both now and in the future.

A little about my background. I am a New Englander at heart. I grew up in Simsbury, Connecticut, and went to MIT for my undergraduate and graduate studies. I did most of my ROTC training at Fort Devens and Camp Edwards. Since then, the Army has taken me many places, including Aberdeen Proving Ground, Walter Reed, Germany, Hawaii, and a few trips to Iraq. After living in all those places, coming to Natick feels like coming home.

As a Soldier, Army physician, and now commander of USARIEM, I am deeply interested in research to improve the diagnosis and treatment of mild Traumatic Brain Injury and Post-Traumatic Stress Disorder in veterans. This issue of *NSSC this Week* highlights the "Run to Home Base" at Fenway Park. This annual event is a fundraiser aimed at creating awareness and support for the treatment of PTSD and mTBI. I know I can speak for Natick when I say we are all very proud of our Soldiers and civilians who participated in this event! Great Job!

As Brigadier General Cole has said, we at Natick are all working collaboratively to give our service members the technology that will give them the edge in future battles. I know the mission we have here is as challenging as it is important, but our people are up to that task. I look forward to my time at USARIEM and to meeting you over the coming months.

Col. Thomas G. Eccles III
Commander, U.S. Army Research Institute of Environmental Medicine

NSSC This Week

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About this newsletter

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On the Web: www.army.mil/natick

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Outside the Gates

Kansas Street Construction

Construction on the Kansas Street Improvement Project began last week.

The \$2.5 million, state-funded construction project is a cooperative effort between the [Town of Natick](#), the [Commonwealth of Massachusetts](#) and the [Natick Soldier Systems Center](#). The project, which will upgrade the roadway that leads to NSSC, should aid traffic flow.

The project should be completed by June 30, 2015.

The main enhancements will include repaving the entire street, improved intersections and turning lanes, upgrading traffic signals with actuating sensors, a new multi-use path for pedestrians and bicycles, [Americans with Disabilities Act](#) accessible/compliant sidewalks, new landscaping and streetscape features, embossed red brick asphalt crosswalks, better drainage, and a new water main.

Employees should expect frequent changes in traffic patterns. They should also allow extra time to travel to and from the installation and watch for construction crews and vehicles.

"It may take you longer to access the post," said Rob Mackson of the [Directorate of Public Works](#) at U.S. Army Garrison Natick. "So just plan ahead."

Upcoming Events

Red Sox Tickets

The Civilian Welfare Fund has Red Sox tickets available for the Aug. 15 game at Fenway Park against the Houston Astros.

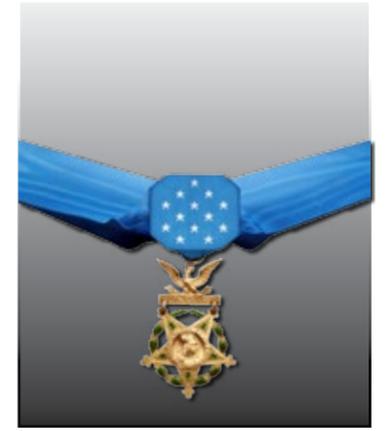
The grandstand seats go for \$39 apiece.

For more information, contact Duane Young at ext. 5609.



Photo: Lisa Fendinando, Army News Service

Honor Bound



Award recipient says Natick equipment worked

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (July 23, 2014)

About an hour north of [Natick Soldier Systems Center](#) resides the nation's latest [Medal of Honor](#) recipient.

Ryan Pitts, a 28-year-old former staff sergeant from Nashua, N.H., was honored July 21 by President Barack Obama for what he did against a superior enemy force in Afghanistan July 13, 2008 as part of Chosen Company, 2nd Battalion (Airborne), 503rd Infantry Regiment, [173rd Airborne Brigade](#).

The story of that day has been told many times, but Pitts has never wavered from insisting that the real heroes at Observation Post "Topside" near Wanat Village in Kunar Province were fallen Chosen Co. members Spc. Sergio Abad, Cpl. Jonathan Ayers, Cpl. Jason Bogar, 1st Lt. Jonathan Brostrom, Sgt. Israel Garcia, Cpl. Jason Hovater, Cpl. Matthew Phillips, Cpl. Pruitt Rainey, and Cpl. Gunnar Zwilling.

Pitts expressed that sentiment again July 22 in a media roundtable held at the [Pentagon](#).

"I think about it every day," Pitts said. "I think about the guys more often. Most of the time, I just think about what we did together. And I'm always kind of awestruck.

"I was there. I saw some of these guys do what they did. It's still ... unbelievable to me."

The families of those men were on hand for the White House ceremony. Pitts called each of them to make sure they knew that he wanted them there.

"I told them I meant it when I said this (honor) isn't mine, that your loved one helped bring me and us home," Pitts recalled. "And I'm not just saying that because they're gone. It's the truth.

"I communicated ... that it was important to me that their loved ones brought me home, some of them indirectly with their actions and many of them directly. And so they had an absolute right to be there."

A graduate of Souhegan High School in Amherst, N.H., and the University of New Hampshire at Manchester, Pitts left the active-duty Army in 2009. He now works in business development for a Burlington, Mass., computer software corporation.

"I love the military, and it really shaped a lot of who I am," Pitts said. "And I don't think there'll ever be a point where I'm transitioned (to civilian life), because it's kind of the benchmark against which I measure all other experiences that I have."

A Lowell, Mass., native who grew up in Mont Vernon, N.H., Pitts decided early on what path his career would take.

"I had always wanted to serve, from the time I was very young," Pitts said. "As my senior year (in high school) drew to a close and I started thinking about what I wanted to do with my future ... I just thought what better way to spend my time than serving my country?"

Asked how equipment researched and developed at Natick performed on that day, when 27 Soldiers were wounded in addition to the nine killed, Pitts responded positively, especially about the Advanced Combat Helmet.

"I mean, (Corporal Jonathan) Ayers took a round in the helmet and was able to continue fighting," Pitts said.

Ayers, 24, died later in the fight. He was posthumously awarded the [Silver Star Medal](#).

"I've known, personally, probably at least two other Soldiers that their helmets had withstood rounds," Pitts continued. "Body armor was great. I didn't have any issues with equipment on that day."

Pitts was critically wounded during the battle and spent a month in the hospital and a year in physical therapy, but he downplayed his wounds.

"The aftereffects for me are pretty minor," he said. "I think there's a lot of service members that have been wounded a lot more seriously than I was."

Pitts acknowledged that a sense of responsibility came with the Medal of Honor.

"For me, my family comes first," Pitts said. "And then this responsibility is very important to me. I'm sure it's going to take time for me to find out what that balance is.

"I absolutely feel a responsibility – first, to the guys, the guys that didn't come home, the guys who can't tell their story. Next, to everybody else that was there with me that day, to tell our story."

And Pitts included all the other service members who have been involved in the War on Terrorism.

"I think we all feel a connection," Pitts said. "I feel a responsibility to them."

Despite that, Pitts remains the reluctant hero.

"I never wanted anything," Pitts said. "The awards are just metal and cloth, and I know what we did that day. And I know it's more than an award. And that's always been enough for me."

Making Room for Moms

USARIEM completes exclusive space in response to new law

By Kelly Field, USARIEM Public Affairs / NATICK, Mass. (July 28, 2014)

Recently, the [U.S. Army Research Institute of Environmental Medicine](#) completed a room exclusively for new mothers. Called “[Nursing Mom Room](#),” this space is reserved for any USARIEM employee or guest who needs to lactate for their new baby.

The Nursing Mom Room provides nursing mothers a private, comfortable and clean space to express milk. Mothers also have a designated refrigerator to exclusively store their milk throughout the day without fear that it could be contaminated.

USARIEM created this room in response to a new law under the [Affordable Care Act](#) that says employers are required to provide a space to express milk as frequently as needed by the nursing mother, for up to one year following the birth of the employee’s child. The space provided by the employer cannot be a bathroom, and it must be shielded from view and free from intrusion by co-workers or the public.

Capt. Michelle Mastrobattista, USARIEM military detachment commander, who is expecting her second child later this summer, helped to make this room happen. She said it was the updated law plus requests from other USARIEM mothers and personal experience that led her to spearhead this project.

“When I first took command, I heard a few people asking about where their lactating guest could go; we didn’t have a space other than the bathroom,” Mastrobattista said. “I remembered my own personal experiences of having to use a bathroom and how

uncomfortable it was. When I found out that providing an appropriate non-bathroom space was a law, I recommended to the institute command team how we could be in compliance.”

The room has two private stations, each with a comfortable chair, foot stool, side table and electrical outlet. Each station has its own privacy door. In the common space, there is a new refrigerator to store expressed milk and there are hooks to hang garments or jackets on. Mastrobattista said she personalized the room based on what she knew that a new mother would need.

“As far as design, I had a few requirements based on my experience, as well as feedback I received from other mothers in the organization,” Mastrobattista said. “One thing many people noted was that the color should be soothing instead of plain white. The color is a spa sea-green hue, and I’ve only heard good things about the color.”

“Two other small details of the room which may not seem obvious which we included were the foot stools and electrical outlets,” Mastrobattista said. “Most pumps which nursing mothers use are electrical, not manual, so we needed each station to have that. As far as the foot stools, they add an extra level of physical comfort to the mother. Most nursing rocking chairs come with stools, which add to the relaxing environment.”

Mastrobattista said that the room was created to support new moms so that they may continue to successfully meet the organization’s

mission while ensuring their personal needs are being met during duty hours.

“The room is important because it shows USARIEM civilians and military members that we care about them,” Mastrobattista said. “USARIEM has afforded the space and resources for this project because becoming a new parent, whether for the first or fifth time, is a joyous time which requires support not only from family and friends, but also from employers and supervisors.”

Although the Nursing Mom Room was Mastrobattista’s idea, she commends the USARIEM command team for supporting the project.

“The law doesn’t state we need a nice and inviting room,” Mastrobattista said. “It doesn’t say that we need a permanent room at all, but that we need to provide non-bathroom space as needed for mothers. I think the level of commitment the command has to its employees is reflected in this room.”

Mastrobattista is proud of the mark she has left on USARIEM and hopes mothers use it for years to come.

“The room is a permanent fixture in the building,” Mastrobattista said. “Instead of waiting for a nursing mother to raise her hand and request special space, USARIEM has already provided such a space so that mothers may use it at will during their duty day.”

“The room is important because it shows USARIEM civilians and military members that we care about them. USARIEM has afforded the space and resources for this project because becoming a new parent, whether for the first or fifth time, is a joyous time which requires support not only from family and friends, but also from employers and supervisors.”

Capt. Michelle Mastrobattista, USARIEM



Photos: Philip Engleau, NSRDEC Strategic Communications

MORE Nutrients for Soldiers

Enhancing rations to
improve performance

By Yolanda R. Arrington, Health.mil / July 23, 2014



Photo: U.S. Army

Warfighters trekking through cold, mountainous regions or sweating through hot, dry conditions have new rations to keep them energized. Army researchers discovered that many service members were losing weight in combat situations, despite having regular access to field rations. The rough terrain and strenuous activity requires service members to consume as much as an additional thousand calories per day. A new food source is helping these troops reload on nutrients.

What is MORE?

Army regulations require that [Meals, Ready-to-Eat](#) provide a minimum of 3,600 calories per day, which they do. That is assuming soldiers eat all of the food in them, but many of them don't. "We know that there are certain environmental conditions and stressful events where warfighters need additional calories," said Julie Smith, an Army senior food technologist at the [Natick Soldier Research, Development and Engineering Center](#) in Massachusetts. Smith's team has spent years looking at the nutritional needs of warfighters and devised a way to make getting an energy boost quick and easy. Enter the Modular Operational Ration Enhancement.

The ration enhancement supplements the service member's daily caloric intake by providing a carefully researched offering of foods. The packets include carbohydrate-dense snacks, chewing gum and caffeinated treats. The latter are part of a caffeinated dosing strategy in combat environments that aids cognitive function. The packets are lightweight and ready-to-eat. The service member doesn't have to stop and prepare anything. Just open and eat.

The Modular Operation Ration Enhancement "is a bag of snacks to supplement your meal. Having that supplemental snack bridges the gap," said Dr. Scott Montain, an Army research physiologist at the [U.S. Army Research Institute of Environmental Medicine](#), referring to periods when service members aren't getting all the calories they need to maintain performance. "It's not nutrition if it's not eaten," noted Lt. Col. Christine Edwards, an Army Medicine nutrition consultant.

The Need

"These service members are doing physical labor. They are relying on the MRE, but they

are eating only as time permits," Montain said, adding that they usually eat too little. One of the goals of the ration enhancement is to enable them to snack on the go, improve their energy and aid in recovery from the demands of battlefield life. The ultimate goal of the nutrient reload is optimal performance readiness for the warfighter, a tenant of the [Army's Performance Triad](#).

The Modular Operational Ration Enhancement allows the service member to have snacks in between meals so he doesn't get tired and have to slow down. It keeps energy levels where they need to be throughout the day. "If you're not eating well, you are dependent on a break to recover. [The ration enhancement] gives us a tool for helping them eat on the go, so they are less dependent on the recovery period. They can refuel and recover," said Montain.

Researchers sought feedback from service members to create the ration enhancement packs. Focus group testing revealed that soldiers want comfort foods like chocolate and muffins while deployed. Smith and her team took those findings into account when devising what would go into the ration enhancement. The packets are designed to meet shelf-life requirements in extreme conditions. They last two years at 80 degrees Fahrenheit and six months at 100 degrees Fahrenheit. The ration enhancements are tailored for cold and hot weather conditions. Service members deployed in high altitude or cold climates will receive the packets that include a carbohydrate beverage, applesauce in a pouch, caffeinated chocolate pudding, an energy bar, beef jerky, and caffeinated chewing gum.

Those in hotter climates will receive ration enhancement packages that are focused on sustaining hydration and energy. The hot weather ration enhancement packets include two carbohydrate-electrolyte beverages, caf-

feinated chocolate pudding, dried berries, mixed berry energy gel, and cheese-filled pretzels.

Smith and her team created varied combinations of snacks, coming up with three different versions of the packet for both types of weather. Each food item has been carefully selected to provide a balance of calories, carbohydrates, protein and fat.

What's Next?

So far, a small number of Marines and soldiers have used the Modular Operational Ration Enhancement packs in combat. The next step for Smith is to devise a Modular Operational Ration Enhancement pack that's solely for recovery from strenuous activity. Smith is in the first year of that project with focus groups coming soon. The evolution of the ration enhancement pack is a critical element to supporting the Performance Triad's mission of empowering the soldier-athlete. Ultimately, researchers want the warfighter to be able to easily identify what to eat and when to eat it for best performance.

"This is life or death we are talking about, so we want the soldier to be as ready as possible at all times. The idea of a recovery ration is taking advantage of the metabolic recovery that goes on after strenuous exercise. We want them to fuel as they go; don't wait for recovery," Edwards stressed.

In an effort to put nutrition at the fingertips of the service member, the Army is also collaborating with the [Human Performance Resource Center](#) to create a public website that will provide up-to-date and easy-to-access nutrition information on all combat rations. Smith said she hopes to launch the initial phase of the site by the end of the summer.

Crossing home plate to combat silent injuries

5th annual 'Run to Home Base' raises \$2 million

By John Harlow, USAG-Natick Public Affairs / BOSTON (July 22, 2014)

In just its fifth year, the ["Run to Home Base"](#) continues to grow and help military members who suffer from [post-traumatic stress](#) and [traumatic brain injuries](#).

The [Home Base Program](#) is a joint effort of the Red Sox Foundation and Massachusetts General Hospital, which has treated more than 1,000 Iraq and Afghanistan veterans and their families from all parts of New England.

The concept came from Red Sox Chairman [Tom Werner](#), after the Red Sox made a 2004 visit to Walter Reed Medical Center. It has grown from there.

The Run to Home Base has grown in its five years to a record number of 2,600 runners and walkers, which included 500 active duty service members this year. It was estimated that this year's 9-kilometer run/3-mile walk raised \$2 million for the Home Base Program.

"It is as important today as it was five years ago," said Werner. "The genesis of this was our understanding of how widespread post-traumatic stress and traumatic brain injuries are, and we felt we could make a difference and provide not just care, but a place where the whole family could go to. The Veterans Administration deals with the Soldier, but it doesn't deal with the whole family. We feel that if the Soldier serves, the whole family serves."

The Home Base program fills a need for veterans in New England, and is sharing that with programs throughout the country.

"We've seen a 30 percent growth each year based on the need," said retired [Brig. Gen. Jack Hammond](#), the executive director of the program. "As the war winds down completely, and as these hundreds of thousands leave the service, within five years nearly 80 percent of the Soldiers who served in Iraq and Afghanistan will be in the civilian sector,

and will start to realize some of their issues coming to light as they transition.

"We've provided clinical training to more than 10,000 clinicians from all 50 states so far," Hammond continued. "We're working with four or five different academic medical centers to replicate this program in other regions of the country."

Not only did 2,600 runners and walkers hit the start line on Yawkey Way and cross home plate at [Fenway Park](#), more than 1,000 took part in a shadow Run to Home Base, at Bagram Airfield, Afghanistan. Also, 83 runners took part in the first shadow run at Guantanamo Bay, Cuba.

In the five years of the run, more than \$11 million has been raised for the Home Base Program.

To learn more about the Home Base Program, visit www.homebaseprogram.org.

Shadow Run Guantanamo hold own 'Run to Home Base'

By Sgt. Kenneth Tucceri, 109th Mobile Public Affairs Detachment / GUANTANAMO BAY, Cuba

Though deployed service members of [Naval Station Guantanamo Bay](#) and [Joint Task Force Guantanamo](#) are away from home for months at a time, that doesn't prevent a part of home from coming down to GTMO.

For the [Massachusetts National Guard](#) 747th Military Police Company, what could be more iconic than a home plate from Boston's legendary Fenway Park?

The plate was brought down as part of the "Run to Home Base Shadow Run" July 19 in which participants finished by rounding the bases at the Cooper Field Sports Complex and crossing Fenway's own home plate.

The nine-kilometer run, which was organized by Capt. Tyler Field, commander of the 747th based out of Ware, Mass., was intended to give the runners a similar experience to those running in the Boston race. It was even held on the same day at the same time.

"We set up a shadow run of the Run to Home Base that is being held in Boston ... We tried to start the race off at the same time as the one in Boston," said Field.

In setting up the run here, Field was able to bring an event that was a reminder of home for his company and create awareness for the charity aspect of Boston's Run to Home Base for the rest of the participants.

"My company is from Massachusetts," said Field, a native of Bridgewater, Mass. "So the fact that it has a Red Sox theme to it, I kind of wanted to do it for the company, but as well I wanted to generate awareness for the Home Base Program that helps veterans back home dealing with things like PTSD and TBI."

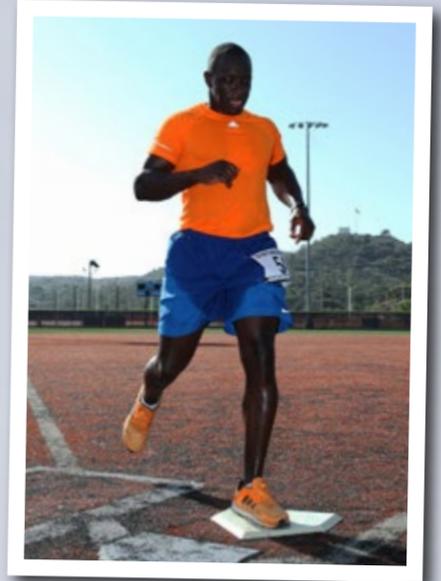
Encouraged by her peers, Navy Petty Officer 1st Class Natasha Ortega, a JTF Sailor, said the run marked her first road race.

"I'm a trauma nurse at home, and I deal with a lot of patients with TBIs," said Ortega. "A lot of patients come in from a car accident but have PTSD from a long time ago. So their former PTSD comes into play whenever they are in a traumatic situation, so I experience at home on a daily basis of what it entails."

Of the almost 100 participants, there were seven Soldiers from 346th MP Company, an Army Reserve unit out of Fort Riley, Kan.

"The fact that they actually got a home plate from Fenway Park in Boston, that's cool," said Sgt. Gerry Perzee of the 346th. "Especially with the all the stuff that's been happening in Boston like the bombing with the Boston Marathon, even after that, the following year, everyone was still there doing it. And now you got this and that's putting emphasis towards the Soldiers, the Sailors, the Airmen, the Marines and the Coast Guardsmen."

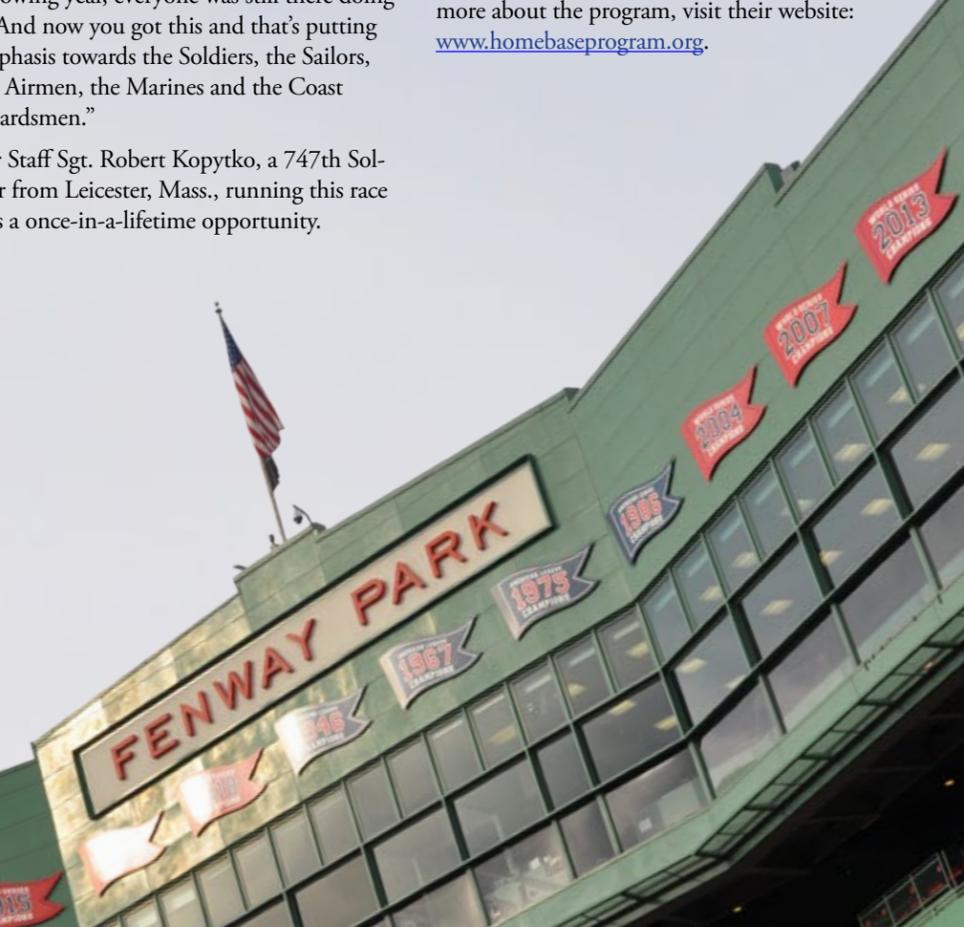
For Staff Sgt. Robert Kopytko, a 747th Soldier from Leicester, Mass., running this race was a once-in-a-lifetime opportunity.



Photos: Sgt. Kenneth Tucceri

"The Red Sox are the champions, and the United States Army are champions, and I think we are all one team, one fight," said Kopytko. "It's just a good thing Capt. Field put this together."

The Red Sox Foundation and Massachusetts General Hospital Home Base Program helps Iraq and Afghanistan veterans and their families heal from PTSD and TBI. To learn more about the program, visit their website: www.homebaseprogram.org.



Photos: John Harlow, USAG-Natick Public Affairs

Pocket Spy

NSRDEC developing nano UAV

By Jeffrey Sisto, NSRDEC Public Affairs / NATICK, Mass. (July 21, 2014)

Researchers at the [U.S. Army Natick Soldier Research, Development and Engineering Center](#) are developing a pocket-sized aerial surveillance device for Soldiers and small units operating in challenging ground environments.

The Cargo Pocket Intelligence, Surveillance and Reconnaissance program, or CP-ISR, seeks to develop a mobile Soldier sensor to increase the situational awareness of dismounted Soldiers by providing real-time video surveillance of threat areas within their immediate operational environment.

While larger systems have been used to provide over-the-hill ISR capabilities on the battlefield for almost a decade, none of those delivers it directly to the squad level, where Soldiers need the ability to see around the corner or into the next room during combat missions.

When Soldiers and small units need to assess the threat in a village, or in thick canopy terrain where traditional ISR assets cannot penetrate, the CP-ISR can be deployed to provide that capability.

“The Cargo Pocket ISR is a true example of an applied systems approach for developing new Soldier capabilities,” said Dr. Laurel Allender, acting NSRDEC techni-

cal director. “It provides an integrated capability for the Soldier and small unit for increased situational awareness and understanding with negligible impact on Soldier load and agility.”

NSRDEC engineers investigated existing commercial off-the-shelf technologies to identify a surrogate CP-ISR system.

[Prox Dynamics’ PD-100 Black Hornet](#), a palm-sized miniature helicopter weighing only 16 grams, has the ability to fly up to 20 minutes while providing real-time video via a digital data link from one of the three embedded cameras and operates remotely with GPS navigation. Tiny, electric propellers and motors make the device virtually undetectable to subjects under surveillance.

The size, weight and image-gathering capabilities of the system are promising advancements that fulfill the burgeoning requirement for an organic, squad-level ISR capability, but more work still needs to be done.

Several efforts are underway to develop three different aspects of the technology to ensure it is ready for the Soldier and small unit.

The first of these efforts is focused on a redesign of the digital data link to achieve compatibility with U.S. Army standards.

The second focuses on developing and integrating advanced payloads for low-light imaging, allowing for indoor and night operations.

Lastly, researchers are continuing to develop and enhance guidance, navigation and control, or GNC, algorithms for the CP-ISR surrogate system. This will allow the airborne sensor to operate in confined and indoor spaces, such as when Soldiers advance from room to room as they are clearing buildings.

In November 2014, NSRDEC will collaborate with the [Maneuver Center of Excellence](#), the [Army Research Laboratory](#) and other organizations to support the [Army Capabilities Integration Center’s](#) Manned Unmanned Teaming (Ground) Limited Objective Experiment, or LOE, by demonstrating the current capabilities of mobile Soldier sensors.

While the final system could be different from the surrogate system, NSRDEC is focused on proving the basic capability first.



Photo: Prox Dynamics



Army engineers are working to create 3-D solid models and prototypes from computer-aided design data. These prototypes enable researchers to evaluate and detect component and system design problems before fabrication.

The U.S. Army [Natick Soldier Research, Development and Engineering Center](#) Computer-aided Design and Rapid Prototyping Laboratory uses an additive manufacturing process of selective laser sintering, known as SLS. The printer relies on lasers to sinter, or melt, powdered, nylon materials layer upon layer into a prototype.

Over the years, researchers have created numerous prototypes and product components. NSRDEC engineers created prototypes for the pack frame of the Modular Lightweight Load-carrying Equipment system and fabric attachments for the [MOLLE](#) pack itself. Engineers also created a battery case, as well as the individual electronic components contained in the case, which were later tested and used in the field.

“We’ve built components that could interface with unique equipment like chemical gear,” NSRDEC engineer Gary Proulx said.

Engineers also use the lab to develop testing tools and meters, some of which aid in testing of equipment in Natick’s climatic chambers.

Rapid prototyping helps engineers find design issues early on and strive for continuous prototype improvement, Proulx said.

“With some items, it is how it feels,” NSRDEC engineer Karen Buehler said. In the case of a snap-type closure buckle on your backpack...it’s about how it snaps. Just a little bit off on a dimension can really change how it feels or how it works. If you have four or five ideas, you can pop them in there and make a couple of each and go try it and touch it and test it. Then you can make important changes that make sense.”

“It’s much easier to do things with this process than to mold it and build it,” Proulx said. “You can build something one day and put it in someone’s hand the next and then make your changes and then reiterate. It’s a short cycle to do so, and it’s relatively inexpensive.”

The results are high-quality rapid prototypes.

“It provides a better way to interface with industry,” NSRDEC engineer Matthew Hurley said. “We can give them parts that are 80 to 90 percent ready to be produced.”

The engineers also create prototypes and scale models for illustrative purposes.



Photo: PEO Soldier

Natick puts rapid in prototyping

By Jane Benson, NSRDEC Public Affairs / NATICK, Mass. (July 11, 2014)

“We do a lot of prototyping of emerging concepts for demonstrations,” Hurley said. “We’re bridging the gap between concept and field-ready equipment.”

“So many people are visual in terms of understanding information,” Buehler said. “You touch it. You see it. It’s not necessarily words that get through. ‘Oh, I get it now. I’ve seen that. It looks like this. I can envision what the future looks like. Or at least now I have an idea of what it can do.’”

In the near future, engineers hope to add a new 3-D printer with will add multimaterial

stereolithography capabilities. The process uses ultraviolet cured liquid resin to form layers that comprise the prototypes.

“With the new machine, we can mix hard and soft materials,” Buehler said. “We will be able to make a button. Or I can make something where I can press something and make it turn on and off.”

“We will be able to produce more types of models to find errors in different applications because we have that wide range of mechanical properties,” Hurley said.



Natick takes shelter ballistic protection to the 'X' level

By Jane Benson, NSRDEC / Natick, Mass. (July 17, 2014)

Sometimes going ballistic is a good thing; particularly, if it means working to enhance ballistic protection where Soldiers live, work, sleep and eat.

Researchers at the [Natick Soldier Research, Development and Engineering Center](#), or NSRDEC, with help from the [Advanced Structures and Composites Center](#) at the University of Maine, have developed the Improved Modular Ballistic Protection System, or MBPS-X.

Compared with the Modular Ballistic Protection System, or MBPS, the MBPS-X offers

increased armor protection. The MPBS-X protects against threats that are most likely to hit a base camp, and it provides significantly more protection from direct fire and munitions fragments than the MBPS.

"The MBPS has been perfected with the MBPS X, which has a lot more protection," said Karen Horak, lead program engineer, [Collective Protection Systems Team](#), Expeditionary Basing and Collective Protection Directorate at NSRDEC.

In addition to improved protection, the MBPS-X has all the benefits of MBPS, which

was also developed by NSRDEC and the University of Maine. Both systems provide protection for personnel and equipment in expeditionary base camps. Both systems include highly mobile, re-deployable, reusable, quickly erectable, lightweight panels that provide ballistic protection to Soldiers in a variety of shelters.

Neither system requires any special tools to assemble.

"We wanted to look into what can we do to protect the individual tents, as opposed to just the perimeters," Horak said. "There are sandbags, but sandbags take a lot of time and a lot of manpower to put up. And sometimes (sandbags) don't get put up in certain scenarios or immediately upon arrival — or if they think they are going to be moving quickly. So the challenge is, what can you put up quickly?"

"Our goal is to give them the equivalent protection of their body armor the first day they are there," Horak added. "So, think about it: You get in your tent, and you take off your body armor, you take off your helmet and you want to go to sleep. We want to give them something that, from the very first night, they can wrap around their tent and feel that they have some decent protection. If you've slept through the night and you felt safe, you're going to be able to function better."

The system consists of a panel with a strut behind it that can be strapped to other panels. The panels do not attach to the shelter, so the system can be used with any type of shelter to protect personnel and equipment.

"We test and test and test," Horak said. "We want the Soldiers to know what they have and be confident in what they have."

The technology has also been incorporated into other types of buildings.

"The MBPS technology has been leveraged to protect embassies and consulates around the world," Horak said.

The MBPS-X is expected to be fielded in 2016, and the MBPS technology has also been incorporated into the development of the elaborate Overhead Protection System for the roofs of shelters.

"It's a rewarding program to work on because we're protecting Soldiers in places where sometimes they don't have protection," Horak said. "We can feel good about the fact that if we can give them peace of mind on day one of their deployment, it gives them comfort and it makes them better Soldiers."



Natick captain participates in 'Solarium 2014'

By Bob Reinert, USAG-Natick Public Affairs / NATICK, Mass. (July 18, 2014)

A Natick Soldier was one of 105 captains from around the Army who participated in "Solarium 2014," which sought to identify the service's most pressing problems and suggest solutions to them.

Solarium 2014 concluded July 9-11 at [Fort Leavenworth](#), Kan., when the captains presented their ideas to Chief of Staff of the Army [Gen. Raymond T. Odierno](#).

"I felt very honored to be a part of the process," said Capt. Jeffrey M. Bernard, aide de camp to Brig. Gen. William E. Cole, deputy commander of the Research, Development and Engineering Command and senior commander of the [Natick Soldier Systems Center](#). "All of us walked away feeling it was a very positive experience and very worth our time."

Bernard, chosen to attend by [Army Materiel Command](#) through [RDECOM](#), worked as one of 13 captains in one of two groups that looked at talent management. Other groups

focused on Army culture, branding and development, mission command, training and education.

Bernard's group began discussing their issue online in May. By the time they came together at Leavenworth, they had sharpened their focus considerably.

"It was the best-structured small group I've ever experienced," said Bernard, a 31-year-old Hollister, Calif., native. "All members of the group were able to participate and frame the problems."

"It was the first time I was ever in a group of peers that everybody was locked in on the same subject. All information presented was relevant. Everybody was very professional."

At the center of his group's recommendations was the development of a "dashboard" for more effective career management.

"It's basically making a user-friendly system,"

Army Chief of Staff Gen. Ray Odierno makes a few remarks after listening to captains' views and suggestions on mission command at the 2014 Solarium, held July 9-11, 2014, at Fort Leavenworth, Kan.

Bernard explained. "Right now, you have a hodge-podge of things that aren't very user friendly and aren't really up to the generational interface."

Bernard, who earned a bachelor's degree in political science from California State University, Fresno and is pursuing a master's degree in management and leadership from Webster University, said he had no preconceived notions about Solarium 2014.

"I went in not knowing what to expect," he said. "I just wanted to go in with an open mind. I wanted to keep my ears open and my mouth shut, so to speak, and then just kind of develop ideas and then present them to the group when the opportunity presented itself. I came in basically a blank slate."

Bernard relished the three days with his peers, who seemed to mostly agree about what direction in which the Army should head.

"Everybody focused on the human aspect of it," Bernard said. "You don't need to reinvent the wheel."

None of the captains sought micromanagement or more guidance, according to Bernard, who has been deployed four times.

"No one wanted to be told what to do or how to do it," he added. "They just truly wanted to be given a left and right limit, and then be supported on their decision. We want to know it's OK to make a mistake, as long as our intentions were good."

Bernard said that the captains seemed to align rather closely with Odierno's thought process.

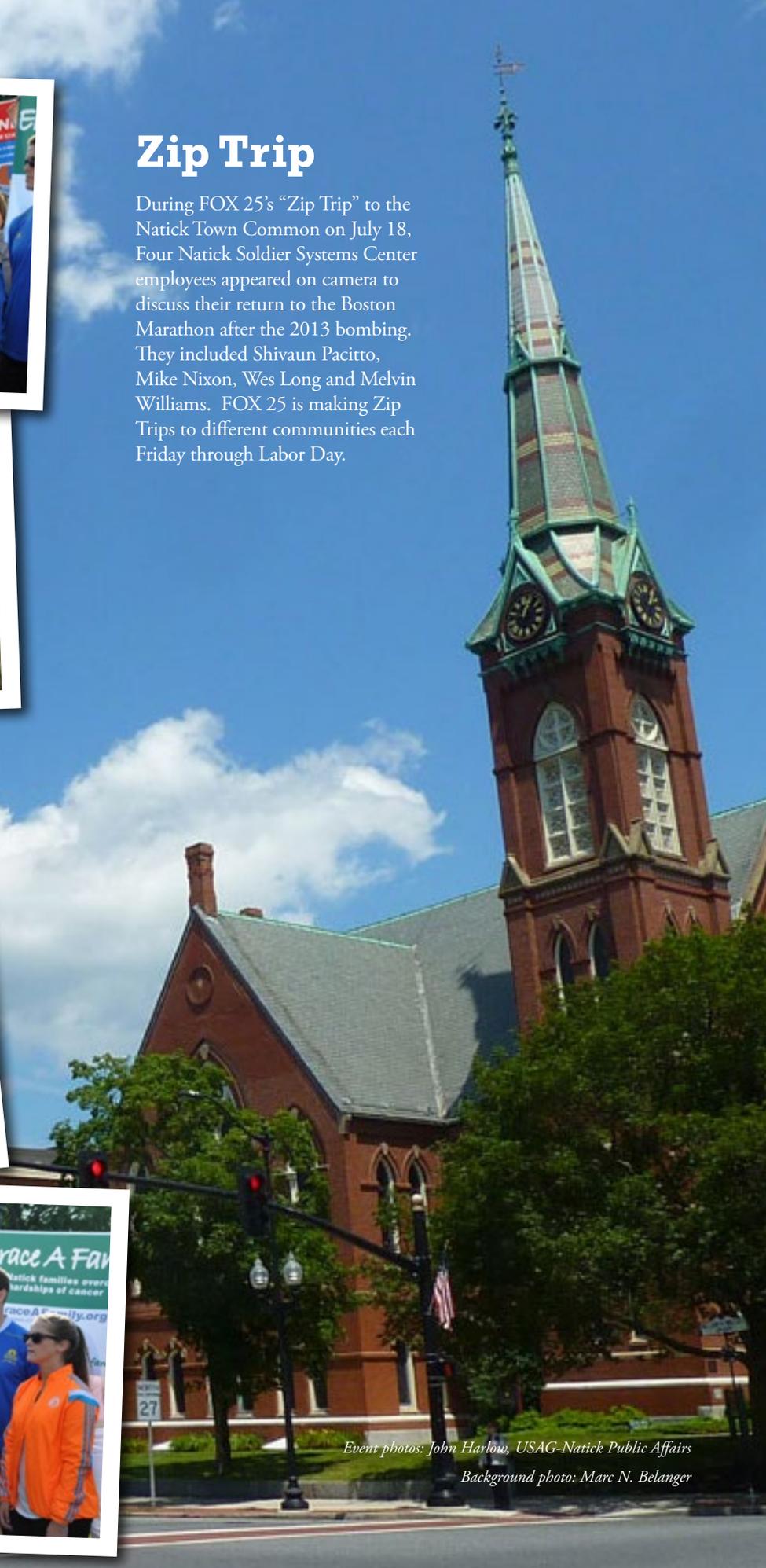
"General Odierno's response to everything was very positive," Bernard said. "He appreciated all the hard work we did."

Based on [Project Solarium](#), which [President Dwight D. Eisenhower](#) held in 1953 in response to Soviet expansionism, Solarium could become an annual event involving Soldiers from different ranks. Bernard was just happy to be part of the first edition.

"I just felt fortunate that my command chose me," Bernard said. "(I) would like to do it again."

Zip Trip

During FOX 25's "Zip Trip" to the Natick Town Common on July 18, Four Natick Soldier Systems Center employees appeared on camera to discuss their return to the Boston Marathon after the 2013 bombing. They included Shivaun Pacitto, Mike Nixon, Wes Long and Melvin Williams. FOX 25 is making Zip Trips to different communities each Friday through Labor Day.



Event photos: John Harlow, USAG-Natick Public Affairs

Background photo: Marc N. Belanger