FY 2010 Secretary of Defense Environmental Awards

Joint Base Lewis-McChord

Sustainability, Large Installation Non-Industrial

Introduction

Joint Base Lewis-McChord (JBLM) is located between the cities of Tacoma and Olympia in western Washington. This places the installation in the midst of the fastest growing region of the Pacific Northwest, bordered by commercial development and expanding suburban areas; the Nisqually Wildlife Refuge; the Nisqually Indian Reservation; and the Puget Sound. It is the home of I Corps and 62nd Airlift Wing.

On Oct. 1, 2010, a five-year process culminated in the merger of Fort Lewis and McChord Air Force Base as JBLM, one of 12 joint bases worldwide. JBLM-Lewis supports 33,000 military, 127,000 retirees, 56,600 Family members, and 10,700 civilians. JBLM-Lewis's 86,000 acres comprise 32 maneuver areas, four impact areas, 67 live-fire ranges, and 50 artillery or mortar firing points, a world-class Military Operations on Urban Terrain site and battle simulation centers. As the only power projection platform in the Pacific Rim, more than 106,130 Soldiers from 1,224 units (multiple times) have been mobilized and/or deployed in support of global military operations.

JUDGING CRITERIA

- PM — Program Management
- OM — Orientation to Mission
- TM — Technical Merit
- T — Transferability
- SI — Stakeholder Interaction

*On this page: JBLM staff partnered with The Nature Conservancy to conduct ecological burns designed to reduce flammable fuels, emulate natural disturbances, limit encroachment by exotic plants, and maintain desirable ecosystems such as the largest intact native prairie in Washington, located on JBLM. More than 1800 acres were burned in 2009. *Photo credit: Ingrid Barrentine*

Background

When Fort Lewis held its initial sustainability workshop in February 2002, leaders made a commitment to stakeholders to change the way we do business, ensuring a better tomorrow. Today JBLM remains true to that commitment despite the challenges of increased training needs, additional maneuver units and rapidly increasing development inside and outside of the installation fenceline.

The Installation Sustainability Program (ISP) is staffed by strategic cross-functional teams; is enabled by operational Environmental Management System (EMS) teams; and is overseen by a cross-section of senior leadership chaired by the Garrison Commander. JBLM uses ISO 14001 as the management system for environmental programs. Under these guidelines JBLM evaluated significant environmental aspects to include: vehicle and equipment use and maintenance; hazardous material use; fuel transfer, leaking, and burning; excavation, grading, clearing, and construction; water use; energy use; and disposal of material and waste.

Many sustainable concepts are now ingrained in JBLM business practices –the Soldier and Family Center of Excellence addresses risks related to high operational tempo and multiple deployments, and identifies and resources infrastructure and activities to assist Soldiers and Families; a category in the budget scrub point system gives sustainability projects higher priority; and the JBLM Environmental Regulation includes sustainability and the requirement for an Installation Sustainability Board (ISB). In addition, the sustainability program is being infused into the lines of operation of the Health and Resiliency Promotion Board, demonstrating how sustainability can directly affect Soldier well-being.

Program Summary

JBLM's ISP consists of six sustainability teams which are responsible for the achievement of eight goals. The ISB, chaired by the Garrison Commander, keeps the military and civilian leadership informed of the ISP's progress and provides a venue for active sustainability planning and decision-making by the board members.

JBLM Sustainability Goals:

- Reduce installation stationary source and non-tactical motor vehicle air emissions by 85 percent by 2025. *(Air Quality Team)*
- Reduce total energy consumption by 30 percent by 2015. *(Energy Team)*
- Sustain all activities on post using renewable energy sources by 2025.
- Create sustainable neighborhoods for a livable JBLM community that enhances the Puget Sound Region. *(Sustainable Community Team)*
- Cycle all material use to achieve zero net waste by 2025. *(Products & Materials Management Team)*
- Maintain the ability of JBLM to meet current and future military missions without compromising the integrity of natural and cultural resources, both on the installation and regionally. *(Sustainable Training Lands Team)*
- Recover all listed and candidate federal species in South Puget Sound Region.
- Treat all wastewaters to Class A reclaim standards by 2025 to conserve water resources and improve Puget Sound water quality. *(Water Resources Team)*

Accomplishments

The following list of recent JBLM accomplishments illustrates the depth and breadth of how sustainability touches the lives of JBLM personnel and supports the mission.

Green Procurement

Environmental personnel lead the daily planning of the Green Procurement Program and are advised by a Green Procurement Team representing major purchasing and specification organizations. To date, organizations assigned to JBLM have appointed green procurement officers,

completed green procurement awareness training, compiled matrices for tracking and managing their designated items, and made updated green procurement requirements accessible to their purchasers, contract officials and specifiers. Specifications of one janitorial contract have been enhanced to include the use of green products. This is a first step in a line of contracts that will have green procurement requirements incorporated into them. Another organization, Madigan Army Medical Center, recently won a "Partner for Change - With Distinction" Award from Practice Greenhealth in recognition of their environmental efforts, including the elimination of mercury from their purchasing. A portion of their success is attributed to their Green Team's partnership in the JBLM ISP goals and EMS objectives.

JBLM incorporates green procurement requirements into its design standards, contracts, and Government Purchase Card training; works with its base supply stores to offer environmentally preferred products; and partners with contracted design teams to ensure the supply of green furnishings and fixtures. The installation also operates a Hazardous Material Management Program that reviews, restricts, authorizes, and substitutes hazardous materials based on health and environmental considerations.

Environmental Management System

JBLM has fully implemented and uses ISO 14001 to manage environmental programs. Each participating organization is required to support annual objectives and targets that align with sustainability goals and E.O. 13514, and provide ownership and engagement by those responsible for daily operations. The Directorate of Public Works celebrated 10 years of ISO 14001 certification of their EMS. To ensure participation from the units, the Environmental Operating Permit (EOP) program was developed. Units are given a customized EOP that organizes all of their environmental requirements and makes compliance with environmental laws and regulations easier on the unit.

The most successful unit deployment waste diversion to date resulted in a 75 percent diversion rate or an estimated 11 tons. Unwanted personal items were donated or recycled. Donated items were first available to Soldiers and Families and the remainder was donated to a local non-profit organization.
Photo Credit: Ingrid Barrentine

Waste Diversion

JBLM has achieved an 87 percent diversion rate for waste (as reported in the 2010 Solid Waste Annual Report). This is up from a 66 percent diversion rate in 2008.

This diversion rate can be attributed to our comprehensive recycling program:

- Installation Composting Facility—Pre-consumer food waste is collected from dining facilities, child development centers and the commissary. The commissary alone diverted over 2 million pounds of waste using the recycling and composting program.
- Event recycling— Members of the Products and Materials Team are present for each major event to ensure the least amount of waste is generated. The JBLM 2010 Earth Day event had an estimated 600 participants and generated 1 cubic foot of trash; the rest was recycled or composted.
- Illegal Dumping Investigator—Efforts resulted in the collection of $53,000 from perpetrators.
- Comingled Recycling—JBLM implemented comingled recycling in January 2009 to make doing the right thing even easier.

Sustainable Master Plan

JBLM has approximately 65 Leadership in Energy and Environmental Design (LEED) certified or certifiable buildings and is currently developing a system to measure building performance and ensure the building is operating as designed.

Progress toward the five JBLM planning goals is depicted on snapshot charts; a neighborhood checklist results in scores based on meeting the intent and criteria for the 39 design principles of the Sustainable Master Plan. *Graphic credit: Tom Tolman and Lana Leiding*

True to the principles of sustainability, the ISP adopted a more holistic design approach that moved beyond facility construction. The Sustainable Community Team began by creating a shared planning vision: "In support of the mission, Soldiers and Families, we will create a sustainable community of walkable neighborhoods with identifiable town centers connected by great streets." This breaks with the usual planning model of urban sprawl and looks instead to utilize less land and natural resources; condense the community areas so that less infrastructure is needed; and encourage families to conveniently become active members of their communities.

To help establish this vision, the team organized charrettes, focus groups, and surveys that included planning and engineering firms as well as nearly 700 stakeholders from across the installation. Building on the planning vision, the final JBLM Master Plan incorporates specific design goals, including enhanced mission capabilities. The plan helps create a sustainable community by focusing development along transit corridors ensuring that pedestrians and bicyclists are given the same level of attention as automobile movement and creating neighborhood centers that make JBLM more livable. The plan is implemented through a form-based code and regulating plans for individual parcels, rather than typical land-use zoning that tends to encourage sprawl.

The team then developed a new measuring tool based on 39 design principles from the JBLM Master Plan, to objectively track progress toward those goals. The neighborhood design checklist assesses if the sustainability principles are being implemented. The checklist ties into the five planning goals, encourages LEED standards, and measures the progress of the installation's achievement toward the Army's triple bottom line plus. The neighborhood checklist uses metrics that allow the user to assign a numeric score for the design principles under each goal and each design principle is described with its intent.

The hub of the Master Plan is a new downtown, consisting of mixed-use facilities that contain commercial, residential, and recreational areas. Two companies are collaborating to build this cluster of buildings: The Army Air Force and Exchange Service will build the 600,000 square foot downtown core; Equity Residential is constructing the 256-unit Town Center. Based on assumptions provided by EPA and Washington Department of Transportation, the town center alone will result in an estimated savings in transportation costs of $1,500 per household as well as a reduction of CO2 emissions by 18 million pounds per year.

The long-term vision of the Master Plan can be continued through changes in command and personnel. The Master Plan is often used in planning charrettes to ensure the vision is carried through construction projects. The tools developed and the methods with which the JBLM Master Plan was developed are shared with other installations as well as organizations outside of the military to include the local chapter of the U.S. Green Building Council.

Teens brave their way through a trash audit at the Teen Zone as JBLM sustainability outreach coordinator, looks on. The teens were learning about the benefits of waste reduction. Other activities included Recycling Jeopardy and a video on the Great Ocean Garbage Patches.
Photo credit: Ingrid Barrentine

Sustainability Outreach

Outreach is crucial to achieving sustainability goals. JBLM leads through example and shares both the Army and the JBLM sustainability story through an extensive communications program that includes internal and external outreach. Our public relations campaign includes a website, video, and slogan. Special visits, briefings, and tours are conducted to inform federal, state, and other local representatives of our environmental performance and to enhance community partnerships. JBLM leaders set the standard for reaching out to our neighbors and stakeholders; educating and empowering others to take their first steps toward a sustainable future; and motivating our teams to reach beyond existing boundaries to achieve our 25-year goals.

Internal outreach includes participation in events such as Earth Day, America Recycles, Safety Day, and Kids' Fest; sustainability briefings to all new Soldiers and new government employees; and fun and educational events at child development centers.

External outreach includes media events; guest presentations at local colleges and community organizations; and public tours of JBLM sustainability initiatives.

JBLM also recognizes the importance of partnering with the Pacific Northwest community and is involved in organizations including: Federal Caucus of the Puget Sound Partnership; Washington Military Sustainability Partnership; EPA Region 10 Federal Green Challenge; local/regional water planning boards; Clean Cities Coalition; Federal Network for Sustainability; and Washington State Recycling Association.

Alternative Fuels and Transportation

In order to conserve resources and improve air quality, JBLM uses a variety of alternatively fueled vehicles. Some other alternative fuel projects include:

- Pilot project will reform methane into hydrogen for use in hydrogen fuel-cells to power 19 forklifts and a 37-foot shuttle bus.
- Alternative fuel station scheduled for completion in 2011 will be open to the general public and offer CNG, E85, and biodiesel. New fuel sources will be considered as they become available.
- Nearly 60 percent of the GSA fleet is alternative fuel capable; 25 of these are neighborhood electric vehicles. In addition, 25 government-owned NEVs are used by various on-post organizations.

The June 2009 West Coast Hydrogen Road Tour (from California to British Columbia) stopped at JBLM. Soldiers, family members, retirees, government employees and one State Representative test drove 12 hydrogen fuel cell vehicles and talked with Tour Experts. *Photo credit: Karli Merle*

- Comprehensive commute trip reduction program informs Soldiers and government employees of the Mass Transit Benefit Program and provides resources for carpooling, vanpooling, using public transit and biking. There are currently 42 registered vanpools on JBLM resulting in an annual reduction of almost 10,000 vehicle miles traveled (average of 24 miles, round-trip per commuter assumed as reported under the National Environmental Policy Act).

Energy Conservation

Under the Utilities Energy Service Contract (UESC), the Federal Energy Management Program is able to provide energy efficiency services, including energy auditing, energy efficiency and sustainability project development, as well as turnkey project implementation.

The Army has obligated approximately $14 million towards energy efficiency projects at JBLM. There are currently 16 projects underway, which could produce an annual savings of more than 6 million kWh in electric energy, 538,000 therms of natural gas and $1.6 million. The success of this program can be attributed to the partnership between local utility companies and JBLM and could be replicated at installations across the country.

Over 1,300 Oregon spotted frogs were released in October 2010. This project is the result of partnerships between JBLM, Evergreen State College, Department of Corrections, The Nature Conservancy and local zoos. *Photo Credit: Miriam Easley*

JBLM purchases a significant amount of Renewable Energy Certificates (green tags), and was reported as #6 on the EPA's "Top 10 Federal Government" Green Power Partners List published January 5, 2011.

> **"JBLM has been a keystone partner for conservation in South Puget Sound. Their early support of ecological values provided the critical mass to jumpstart a regional prairie and oak habitat program. JBLM's ongoing involvement has helped bring together all the necessary partners to build and maintain a vibrant regional conservation program."**
> **-Mason McKinley, Program Manager, The Nature Conservancy**

Sustainable Training Lands

Military training land is a substantial asset to the installation for supporting the training mission. Projects and initiatives to enhance training lands include:

- In 2009, over 230,000 plugs of native prairie species were planted. 70,000 of these were grown in the on-site Integrated Training Area Management greenhouse from seeds collected downrange.
- 78,643 trees were planted during 2008 and over 75,000 were planted in 2009.
- The Army Compatible Use Buffer program is one of JBLM's major conservation actions.
- Candidate Conservation Agreement (currently under negotiation between the U.S. Fish & Wildlife Service, JBLM, state agencies and private conservation organizations) and other on-going conservation actions on the installation will address listed, candidate, and other sensitive species and their habitats. Together, these actions spread the

responsibility of recovery across multiple ownerships and reduce the likelihood of a listing of candidate species.

- JBLM Forestry, Fish and Wildlife, Fire Department, and The Nature Conservancy work together to conduct ecological burns. With over 1,800 acres burned in 2009, wildfire intensity is managed to protect habitat for rare species, safeguard people, and conserve resources.
- Ten pair of western bluebirds were translocated to the San Juan Islands last year. This effort has been ongoing for the last five years and to date has resulted in 88 young in addition to the approximately 80 translocated birds.

Through these efforts, JBLM has decreased the chances that rare species will become listed species, which could hinder the ability to train on current or potential habitat of these species. Currently, less than 10 percent of training areas on JBLM have training restrictions.

Stormwater Filtration System

The centralized stormwater filtration system ties elements of the community, environment and mission together. The facility provides interpretive opportunities, including a wetlands education center, increased habitat for wildlife species, and a training area for Soldiers. Furthermore, benefits of the centralized facility include improving water quality of Puget Sound by reducing stormwater runoff and reducing acreage requirements for stormwater facilities on JBLM-North.

JBLM Stormwater filtration system is a collaborative project between the Water Quality Team and the Products and Materials Management Team.
Photo credit: Jennifer Smith

Conclusion

Sustainability is about benefits, both short- and long-term – from cultivating and maintaining community goodwill to identifying better logistical practices for our Soldiers and Airmen to take into operational contingencies. Sustainable practices highlight the importance of saving Army dollars from programs ranging from waste diversion to energy conservation. Sustainability has applications to every installation and JBLM sends this message through its outreach programs, participation in technical conferences and willingness to serve as a research and development demonstration site for technology innovations. JBLM also provides leadership as an early adopter of sustainable practices.

JBLM has been leading the way in sustainability since 2002. The goals already achieved and the goals yet to be reached promise a more sustainable, livable, and mission-capable installation in the coming years. Because of the commitment of our leaders, the dedication of the Installation Sustainability Program Teams and the support of the community members, we anticipate continued innovation and progress in sustainable development at JBLM.