Fort Lewis
Sustainability Annual Report
April 2003

Fort Lewis Joins Stakeholders to Adopt Sustainability Goals

In February of 2002, Fort Lewis hosted the three-day Installation Sustainability Workshop, bringing together regional stakeholders to understand the installation's sustainability challenges and to reach a consensus on long-term goals to address those challenges. From this workshop, Fort Lewis' 25-year sustainability goals were developed.

Planning Their Work

In the year since the workshop, sustainability teams from throughout the Fort Lewis professional community developed five year objectives with implementation plans for their respective goals. In this report you'll find summaries of this work and plans for future work.

The Cornerstone: Fort Lewis' Twenty-five Year Sustainability Goals

1. Reduce traffic congestion and air emissions by 85% by 2025
2. Reduce air pollutants from training without a reduction in training activity
3. Reduce stationary source air emissions by 85% by 2025
4. Sustain all activities on post using renewable energy sources and generate all electricity on post by 2025
5. All facilities adhere to the LEED/SPiRiT Platinum standard for sustainable facilities by 2025
6. Cycle all material use to achieve ZERO net waste by 2025
7. Attain healthy, resilient Fort Lewis and regional lands that support training, ecosystem, cultural and economic values by 2025
8. Recover all listed and candidate federal species in South Puget Sound Region
9. Zero discharge of wastewaters to Puget Sound by 2025
10. Reduce Fort Lewis potable water consumption by 75% by 2025
11. Fort Lewis contributes no pollutants to groundwater and has remediated all contaminated groundwater by 2025
12. Develop an effective regional aquifer and watershed management program by 2012

Fort Lewis Sustainability Vision Statement

Fort Lewis is committed to supporting a strong national defense, securing the integrity of our natural and cultural heritage, and conserving our natural resources for tomorrow's generations, while seeking choices that enhance our neighboring communities' ability to have a productive future.

Air Quality Strategic Goals and Supporting 5-Year Objectives

Strategic goals 1 through 3 relate to air quality

Strategic Goal #1

Reduce installation traffic congestion and traffic air emissions by 85% by 2025

5-Year Objectives

- Alternate Fueling Station in place for use by Fort Lewis and surrounding community by 2007
- Twenty-five Neighborhood Electric Vehicles (NEV) for on post use by 2007
- 50% GSA fleet will be alternate fueled vehicles by 2007
- 45% reduction in single occupancy vehicles and vehicle miles traveled by 2007

Strategic Goal #2

Reduce air pollutants from training without a reduction in training activity

5-Year Objective

Implement the use of environmentally friendly obscurants and dust control where feasible

Strategic Goal #3:

Reduce stationary source air emissions 85% by 2025

5-Year Objectives

- Compare/contrast environmental and financial lifecycle costs when making decisions for all new project designs
- Use of water-based CARC Paint on 90% of tactical vehicles and all miscellaneous metal and plastic parts
- Use of biodiesel for backup generators and boilers

Progress On Several Levels

The Air Quality Team has already begun reducing mobile air emissions at Fort Lewis. So far, Fort Lewis has purchased 13 Neighborhood Electric Vehicles (NEVs), zero emission vehicles that run on batteries. The NEVs are being used throughout the installation by soldiers and civilians.

In an effort to reduce air emissions, electrical vehicles such as the Electruck are being tested on Fort Lewis as replacements for gasoline-fueled vehicles.

The use of alternative fuels reduces the amount of gasoline being used, thereby reducing air emissions. Alternate fueling options are nearing reality at Fort Lewis with the construction of dispensing sites already underway for Compressed Natural Gas (CNG), Ethanol (E85) and Biodiesel (B20) at three separate locations on the installation. The use of alternative fuels will be limited to government vehicles at these sites, however a large Alternate Fueling Station open to both Fort Lewis personnel and the general public is also being discussed. In order to encourage use of the Alternate Fueling sites and justify the bigger station, Fort Lewis has mandated that only flex fuel and dual fueled GSA vehicles will be requested as leased vehicles are replaced.

Progress has also been made in the area of stationary source emission reductions at Fort Lewis. An Environmental vs. Lifecycle cost analysis process has been developed for purchasing new boilers. Through this process a beta test on a small low Nitrous Oxide burner is currently being conducted to demonstrate a new technology. The Directorate of Logistics on Fort Lewis is spearheading another pilot test on the use of water based chemical agent resistant coating (CARC) paint for tactical vehicles. Water based CARC paint will reduce air emissions compared to the traditional CARC paint. In addition, emissions from solvents used in the clean up of traditional CARC paint will also be reduced.

Energy & Infrastructure Strategic Goals and Supporting 5-Year Objectives

Strategic goals 4 and 5 relate to energy and infrastructure

Strategic Goal #4

Sustain all activities on post using renewable energy sources and generate all electricity on post by 2025

5-Year Objectives

- Encourage innovative use of energy systems by developers
- Encourage acceptance and use of innovative energy systems (IES)
- Reduce energy consumption
- Generate 20% energy on post by FY 2008
- 25% of electricity from renewable sources by FY 2008
- Develop land use criteria to minimize energy use, POV use, paved parking surfaces and impact on natural systems

Strategic Goal #5

All facilities adhere to the LEED/SPiRiT Platinum standard for sustainable facilities by 2025

5-Year Objectives

- Develop a baseline LEED/SPiRiT rating for all permanent buildings by FY 2004
- Establish minimum LEED/SPiRiT rating to be achieved on new construction
- Reduce impact to natural features on development/cantonment sites
- Plan facilities to reduce infrastructure
- Reduce potable water use
- Recharge all storm water on-site
- Use gray water
- Optimize views/aesthetics
- Prepare occupants for changes caused by sustainability initiatives
- Inform contractors, stakeholders, partners, and local community
- Adopt holistic delivery of facilities of systems

Partnering Provides Early Accomplishments

Early on the Energy/Infrastructure Team saw the value of planning and partnering. Maximizing outside funding became key to their accomplishments during 2002, which included:

- Partnering with Washington State University, Department of Energy (DOE), with funding from the Energy Savings Performance Contracts to conduct a feasibility study for combined heat and power, in which wasted energy is captured and recycled
- Partnering with the Center for Army Analysis to conduct a feasibility study for rooftop placement and effectiveness of solar panels on building 9660
- Submitting building 2019 to the Leadership in Energy and Environmental Design (LEED) Existing Building (EB) Pilot Program to ensure the LEED-EB rating system is practical and workable for application in real buildings
- Partnering through an Energy Savings Performance Contract to acquire a building energy management control system that integrates building Direct Digital Controls (DDC) in the Division area. This provides the Energy Coordinator and shop personnel control over heat use
- Partnering with US Army Construction and Engineering Research Laboratory and the Bonneville Power Administration to provide initial funding for a 3 Kilowatt methanol fuel cell being tested in building 2045
- Performing a scope of work with the Department of the Army for construction and operation of a 500KW natural gas fuel cell at Camp Roberts
- Conducting a LEED baseline assessment for buildings 2019 and 12435 funded by US Army Forces Command. This data will be applied to similar buildings on post
- A gap analysis was conducted by Pacific NW National Laboratories paid for by DOE to determine Fort Lewis' energy requirements for the year 2025
- Explored the feasibility of increasing Fort Lewis' 3% purchase of Green Power from Tacoma Public Utilities

In keeping with the Team's mission statement "…to effect a cultural change, set direction and monitor progress and success," we plan to facilitate sustainability practices in the coming year by:

- Hosting a 2003 U.S. Green Building Council LEED workshop for program-related PW personnel and stakeholders
- Providing in-house LEED training to Public Works employees
- Sponsoring training in 2003 for building operator certification for applicable PW personnel

Products and Materials Strategic Goal and Supporting 5-Year Objectives

Strategic goal #6 relates to products and material procurement

Strategic Goal #6

Cycle all material use to achieve zero net waste by 2025

5-Year Objectives

- Change procurement practices to introduce only cyclable materials to Fort Lewis
- Achieve 100% cradle-to-cradle hazardous material management
- Achieve 40% reduction in waste stream leaving Fort Lewis

Sustainable Forestry Practices

Fort Lewis is making an extra effort through selective and deliberate harvest of timber to develop diverse age class forests, promote conservation, protect native plant life and foster good relations with neighboring towns and Indian tribes.

In 2002 Fort Lewis earned the Forest Stewardship Council Certification, the ecofriendly seal of approval from SmartWood. This certification recognizes that an independent audit of the post's forestry program found it to be sustainable from an economic, ecological and social point of view.

Cultivating Cyclable Waste and Procurement Streams

Material management is not just about recycling, but about reducing the source of materials that eventually become waste. Therefore, the Products & Materials Management Team focuses both on product procurement and waste generation.

Co-mingled waste paper is one of many expanded opportunities provided by the new installation recycling program.

In the year since the Installation Sustainability Program began, the installation has completely revised the way its solid waste is managed. In September 2002, a solid waste management contract was implemented with LeMay, Inc. to proactively manage Fort Lewis's municipal solid waste streams. Through this contract, at least 40% of the installation's solid waste stream will be diverted away from landfill disposal by 2005. In addition, a mutually beneficial partnership has been formed that will enable Fort Lewis to achieve its strategic goal of zero net waste by 2025. This partnership enlists LeMay to maximize the company's resources to identify and market recyclables pulled from waste streams.

The Products & Material Management Team will work with procurement policy to move toward source reduction, through cycling products for reuse, manufacturer take-back and leasing programs, and purchase of recycled content materials. To date, the team has:

- piloted the use of recyclable/recycled carpet tiles
- engaged the services of a new dry cleaning process that eliminates the use of dry cleaning solvent
- implemented model motor pools that maximize the recycling of vehicle fluids
- tested the use of a non-hazardous vehicle battery
- expanded its hazardous material management practices to further reduce the waste of mismanaged and excess hazardous material

The products & material challenge is huge. We live in a "throw-away" society. Technology is moving at light-speed, meaning that what is new today, may be old next month. In addition, the availability and affordability of new products make it less desirable to reuse materials and be satisfied with products produced yesterday. Unfortunately, our natural resources cannot keep up with our desire for bigger, better, newer. Landfills are closing; new ones are difficult or impossible to permit. Resources are becoming scarcer. Sustainable development asks for the intelligent use of limited resources. This is our challenge.

Training Lands Strategic Goals and Supporting 5-Year Objectives

Strategic goals 7 and 8 relate to training lands

Strategic Goal #7

Attain healthy, resilient Fort Lewis and regional lands that support training, ecosystem, cultural, and economic values by 2025

5-Year Objectives

- Agree on language to be used and define natural resource conditions with Regional Partners
- Analyze Training Requirements on and off the installation
- Identify sites that may be eligible for inclusion on the National Register of Historic Places, historical cemeteries, and recognize traditional cultural places (TCPs)
- Identify and acquire three sites in regional proximity to installation to reduce encroachment, maintain training capability, and promote natural resources conservation
- Using existing management plans, coordinate and implement an integrated prairie and oak woodland management program

Strategic Goal #8

Recover all listed and candidate federal species in the South Puget Sound Region

5-Year Objectives

- Identify existing populations of Federal and State listed and candidate species in the region and identify causal factors for their decline
- Stabilize current populations of Federal listed and candidate species on Fort Lewis
- Determine impacts and means of augmentation of existing populations of Federal and State listed and candidate species in the region

Rapid Strides Towards Lands Team Objectives

The Sustainable Training Lands Team got off to a slow start after the initial conference in February 2002, going through a leadership change about halfway through the year. Since this change however, a core group of Fort Lewis staff comprising the Lands Team has met monthly to address their progress. The core group is made up of personnel from Range Control, the Integrated Training Area Management (ITAM) program, the training community, and the Environmental and Natural Resources Division.

The first order of business was developing 5-year objectives with implementing projects for each of the overarching 25-year goals. With assistance from working groups, the Lands Team has already made progress toward their objectives, such as:

- Conducting scotch broom removal
- Coordinating an integrated prairie and oak woodland management program
- Identifying historical cemeteries and other sites that may be eligible for inclusion on the National Register of Historic Places
- Potential sites adjacent to Fort Lewis and elsewhere in the region have been identified for possible purchase to conserve species and habitats, prevent incompatible development, and offer additional military training opportunities
- Exploring possibility of an inter-agency personnel agreement for inventorying species and causal factors for species decline in the region

The Lands Team held their first Land Advisory Group meeting in February 2003, with personnel from Fort Lewis organizations and State, Federal, and County agencies invited. Those regional partners in attendance learned of the team's progress for the year and were informed as to why and how they can help the sustainability movement.

Prairies on the installation represent some of the few remaining historic prairies in the region, as well as provide an excellent military training environment.

Water Resources Strategic Goals and Supporting 5-Year Objectives

Strategic goals 9, 10, 11 and 12 relate to water resources

Strategic Goal #9

Zero discharge of wastewaters by 2025

5-Year Objective

Zero discharge of wastewaters to Puget Sound by 2025

Strategic Goal #10

Reduce Fort Lewis potable water consumption 75% by 2025

5-Year Objective

Reduce potable water consumption 25% by 2007

Strategic Goal #11

Fort Lewis contributes no pollutants to Groundwater and has remediated all contaminated groundwater by 2025

5-Year Objectives

- Replace all eligible underground heating oil tanks on Fort Lewis by 2007
- Begin implementation of sustainable range and grounds management practices by 2007

Strategic Goal #12

Develop an effective regional aquifer and watershed management program by 2012

5-Year Objective

Develop an internal aquifer and watershed management program and be an active participant in established regional aquifer and watershed planning committee(s) by 2007

Water Team Lays Groundwork With Solid Progress

The Water Resources Team organized itself to address the four separate strategic water goals relating to water use, consumption, and discharge. The first task was to develop one-year and five-year objectives to support the 25-year strategic goals, and communication lines were opened with similar activities in the region. We are grateful for the support we have received from many organizations, especially to the City of Olympia and the Lacey-Olympia-Tumwater-Thurston County Wastewater Treatment Plant who provided a study on effectiveness of their water conservation programs, and also to the Washington State Department of Corrections, who provided valuable information concerning permitting for land application of effluent and biosolids.

As a result of the Water Team's efforts in 2002, several projects have been initiated into existing budgeting processes, such as upgrading the North Fort Washrack to use recycled water (this washrack currently uses potable water for washing and discharges to the sanitary sewer collection system). Additionally, a study has been funded to evaluate potable water consumption and use. A study to evaluate wastewater reuse and discharge alternatives is high on the unfunded requirements list and is currently being worked on by the Water Resources Team. Information from these studies will be used to develop alternatives for conservation and use and to develop a plan for project and conservation implementation. Further, the information will provide the basis for a wastewater reuse plan. The two plans are anticipated to be ready by the end of 2003, with some aspects already underway.

For the 25-year goal related to contributing no pollutants to groundwater, a request has already been submitted to Fort Lewis Public Works for removal of underground storage tanks containing heating oil. Additionally, the Water Team is targeting policies concerning types of chemical and fertilizer applications used on Fort Lewis.

The final strategic goal, related to aquifer and watershed management programs, will be achieved long before 2012. The Fort Lewis Environmental Water Quality Team continues to refine and consolidate the various water/stormwater/wastewater plans into active documents. Additionally, Fort Lewis actively participates on the Chambers Creek/Clover Park and Nisqually River watershed planning committees, and finally, Fort Lewis is taking an active role in the Central Puget Sound Regional Water Initiative being led by Mr. Jim Waldo, Governor Locke's Water Policy Advisor.

Drafting the 5-Year Sustainability Implementation Plan (SIP) was a milestone accomplishment for the Fort Lewis Sustainability Team during 2002. This plan is a critical step to ensuring the long-term sustainability of the Fort Lewis mission and overall environmental health of the installation. The SIP supports the achievement of the twelve strategic Installation Sustainability Goals and identifies the short-term objectives presented with each subject area within this report. The SIP also describes supporting actions for each goal and links these supporting actions with funding resources and implementing agencies.

During 2003, the Sustainability Team will continue to work and build toward "irreversible momentum" -- that synergy of collective initiatives and progress, of our commitment and achievements. We plan to launch projects identified in the SIP as funding is received; continue our communication efforts, especially as they relate to environmental awareness and behavior choices; and constantly work toward a higher level of sustainability competence through our trans-disciplinary, collaborative efforts with on- and off-post groups.

By 2004, we hope to:

- Offer CNG, E85, and B20 alternative fuel dispensing sites, reducing the amount of gasoline being used resulting in a reduction of air emissions
- See a pilot program that will assist in expanding LEEDs ratings to existing buildings
- Analyze data from completed studies (for water, energy, species populations, and cultural sites) to direct our next steps
- Fully convert from wet wash/standard dry cleaning to new CO_2 process, eliminating chemical and water use while extending life of clothing items, working toward zero net waste generation
- Reduce solid waste by 25% through increased recycling efforts
- Purchase land adjacent to Fort Lewis and elsewhere to conserve species and habitats, prevent incompatible development, and offer additional military training opportunities
- Obtain DA statement that projects supporting sustainability goals and objectives will be funded and executed using standard Army systems
- Integrate the interrelated and supporting pieces of three separate initiatives (Installation Sustainability Programs (ISP), ISO 14001 Environmental Management Systems (EMS) and the Balanced Scorecard/Strategic Readiness System (BS/SRS))

2002 was a great year for getting ourselves organized, setting direction, and taking the first steps toward a sustainable Fort Lewis. It's going to take a lot of work to reach our goals by 2025 - but all things considered, we're off to a great start!