SUSTAINABLE FORT LEWIS

Annual Report



Progress Report for April 2003—April 2004

The 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. They are:

- 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™ 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

The Work

In the two years since the workshop, sustainability teams from throughout the Fort Lewis community have been working on projects, refining objectives, and implementing plans for their respective goals. Summaries of their progress are inside this report.



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' abilities to have a productive future.

BUILDING UPON THE FRAMEWORK:

Partnerships and Planning Documents Helped to Focus Efforts

Leadership Kept up Momentum

The success of the Fort Lewis Installation Sustainability Program (ISP) depends on the guidance and support of its senior leadership. The challenge for leaders in 2003-2004 was to find a way to channel the excitement built during the program's first year into the hard work of writing and refining detailed plans, and then taking the next step toward implementation.

To that end, the Installation Sustainability Board (ISB) played an important role in keeping unit- and

directorate-level military and civilian leadership informed of sustainability progress, and provided a venue for active sustainability planning and decisionmaking by the board members. During this time period, the ISB was chaired by the I Corps and Fort Lewis **Deputy Commanding** General and Chief of Staff, Major General James Collins, Jr.



Major General Collins demonstrates fueling with Compressed Natural Gas

Photo credit: Mary Charbonneau

First Sustainability Implementation Plan (SIP) Published

Publication of the first SIP in October 2003 was a milestone for the Fort Lewis Sustainability Team. The SIP 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.

The Network Expanded

Fort Lewis' ISP received encouragement and assistance from many directions—grassroots all the way up through Presidential Executive Orders. Some of the partners that actively supported the ISP in the past year included:

AIR TEAM PARTNERS

- Biodiesel Roundtable
- Clean Cities Coalition
- Intercity Transit
- Pierce Transit
- Puget Sound Clean Air Agency
- Puget Sound Energy
- U.S. General Services Administration (GSA) Fleet, Northwest/Arctic Region (Region 10)

SUSTAINABLE TRAINING AREAS TEAM PARTNERS

- The Nature Conservancy
- Nisqually Indian Tribe
- Pierce and Thurston County Noxious Weed Boards
- U.S. Fish and Wildlife Service
- Washington State Department of Fish and Wildlife
- Washington State Department of Natural Resources
- Washington State Native Plant Society
- Washington State Natural Heritage Program

ENERGY/INFRASTRUCTURE TEAM PARTNERS

- Cascadia Club
- U.S. Department of Energy
- ♦ U.S. Green Building Council
- Pacific Northwest National Laboratories

PRODUCTS AND MATERIALS MANAGEMENT TEAM PARTNERS

- McChord Air Force Base
- Pierce County Solid Waste Advisory Committee
- U.S. Environmental Protection Agency
- Washington State Recycling Association

WATER TEAM PARTNERS

- Chambers-Clover Creek Watershed Planning Committee
- Muck Creek Council
- Nisqually River Council
- Nisqually Watershed Planning Unit
- Sequalitchew Creek Council

AIR QUALITY TEAM:

Inspiring Alternate Fuel Culture Change Throughout the Region

2003 Focus

The focus of the Air Team's efforts in 2003 was on transitioning toward the usage of alternate fuels to help reduce air emissions.



A future alternative fuel user "test drives" one of Fort Lewis' NEVs at Armed Forces Day

Photo credit: Sherri Whiteman

Currently, Fort Lewis is transitioning to alternate fuels only into the government's non-tactical vehicle fleet. However, there is widespread support for a future Alternate Fueling Station located on or adjacent to the installation that would be open to both Fort Lewis personnel and the general public. A strategy for this project is being developed.

Obscurants

The nature of obscurant training is in the process of changing Army-wide. At this point in time, Fort Lewis has submitted recommendations and is awaiting further guidance.

Major Accomplishments: Strategic Goals 1, 2, 3

REDUCE TRAFFIC-RELATED AIR EMISSIONS (#1)

- Added an Electruck to the Neighborhood Electric Vehicle (NEV) fleet
- Opened a temporary Compressed Natural Gas (CNG) fuel site
- Opened a temporary 20% Biodiesel (B20) fuel site
- Established a CNG usage policy letter
- Required all new GSA vehicle procurements to be flex-fuel or dual-fuel
- Developed a method to calculate vehicle emissions to establish a vehicle emission baseline
- Developed a method for calculating emission reductions based on alternate fuel usage

REDUCE TRAFFIC CONGESTION (#1)

- Submitted a proposal for an on-post mass transit service to be powered by CNG
- Added four vanpools

REDUCE STATIONARY SOURCE AIR EMISSIONS (#3)

- Conducted a Low-Volatile Organic Chemical (VOC) paint demonstration
- Requested and received approval to use waterand solvent-based low-VOC Chemical Agent Resistant Coating (CARC) paints on tactical vehicles

Goals for 2004-2005

85% Ethanol fuel (E85): Locate an E85 station at building 9635 for use by all E85 GSA leased vehicles; complete installation by the end of the summer 2004

On post transit shuttle system: Determine the need for a shuttle system to include the best locations for shuttle stops and time intervals; a shuttle system could reduce single occupancy vehicle use on post, allow travel options for Fort Lewis employees and Soldiers who carpool or vanpool, and eliminate some parking issues

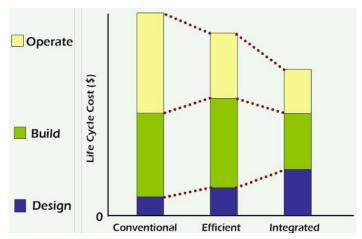
Hydrogen: Participate in a pilot project for hydrogenation of CNG-fueled vehicles using retrofitted GSA vehicles

ENERGY/INFRASTRUCTURE TEAM:

Research Laid the Foundation for Long-Range Success

2003 Focus

If one word summed up the activity of the Energy/ Infrastructure team during the past year, it might be "research."



Source: The Costs & Financial Benefits of Green Buildings, Greg Kats – October 2003

Building Performance Indicators

Fort Lewis participated in a technical advisory group along with Pacific Northwest National Laboratories in conducting a building performance study. The goal was to develop an easy to use set of performance indicators and a measurement protocol for identifying cost and performance differences of operating sustainably designed buildings, as compared to traditionally designed buildings.

Because the government expects long-term usage of all facilities, there is a strong economic incentive to reduce operations and maintenance costs. The graphic above shows how a greater investment during the design phase—as advocated through Leadership in Energy and Environmental Design (LEEDTM)—pays off over time.

Major Accomplishments: Strategic Goals 4, 5

SUSTAIN ALL ACTIVITIES THROUGH RENEWABLE OR SELF-GENERATED ENERGY (#4)

- Assessed potential for solar and wind power at Fort Lewis and Yakima Training Center
- Increased Fort Lewis' purchase of Green Power from Tacoma Public Utilities to 5%
- Installed super-efficient Light Emitting Diode (LED) technology in traffic signals and crawlspaces

BUILD TO LEED[™] STANDARDS (#5)

- Sponsored two internal intermediate-level LEED workshops
- Selected to participate in the LEED Existing Building (EB) Pilot Program — an Army first
- Completed 65% design on the Fiscal Year 2004 Whole Barracks Renewal project — Fort Lewis' first large construction project to be registered through the U.S. Green Building Council with the intent of obtaining LEED certification
- Established The Installation Sustainable Facility Construction and Operations Policy, which requires the application of LEED principles to all projects
- Rewrote the roofing contract to incorporate LEED principles, such as including materials that are EPA Energy StarTM-certified
- Hosted product demonstrations to learn about permeable concrete; compact stormwater filter systems; and alternative flooring materials like bamboo, linoleum, cork, and palm wood
- Toured area LEED facilities (The Evergreen State College Seminar II Complex, Honda, and IslandWood) to see tangible results of others' successes
- Hosted a Sustainability/LEED information meeting for our current Architecture and Engineering contracted firms

Goals for 2004-2005

Obtain LEED certification for the EB Pilot Project at Building 2019

Obtain LEED certification at the Gold level for FY04 MCA Barracks project

Continue energy conservation efforts while developing plans for significant improvements in equipment efficiencies and sustainable energy generation

PRODUCTS AND MATERIALS TEAM:

Unified Procurement and Disposal Initiatives at a Macro Level

2003 Focus

The Products and Materials Management Team focused on unifying seemingly disparate efforts toward product procurement and waste generation, which had previously been managed independently.

Assessing and Confronting Waste

During the summer of 2003, an environmental consultant analyzed Fort Lewis' waste stream. The results were used to focus and synchronize the efforts of the Products and Materials Team and the Fort Lewis Solid Waste Advisory Committee, resulting in key revisions to the Integrated Solid Waste Management Plan.

Standardizing Practices

Several policies for standardizing recycling and Hazardous Material (HM) procurement management were developed for consideration by senior installation leaders.

Deconstruction Workshop

A deconstruction workshop was held in the spring of 2004. Deconstruction is the process of building disassembly in order to recover the maximum amount of materials for their highest and best reuse. Because a significant number of buildings are scheduled for demolition over the next 5-10 years, this workshop provided an opportunity to evaluate the costs and benefits of deconstruction (reuse) against demolition and recycling.

Major Accomplishments: Strategic Goal 6

CYCLE ALL MATERIAL USE—Introduce Only Cyclable Materials

- ♦ Joined the Federal Electronic Challenge Program
- ♦ Expanded use of recyclable/recycled carpet tiles
- Researched and developed plan for pilot testing other renewable floor products, including cork and bamboo
- Developed a supplemental module on Affirmative Procurement (AP) for existing training for government credit card holders

CYCLE ALL MATERIAL USE—Cradle-to-Cradle HM Management

- Established a closed-loop antifreeze program
- Established a pick-up and delivery service for HM to encourage reuse and proper disposal rather than unnecessary and/or Hazardous Waste (HW)

CYCLE ALL MATERIAL USE—Reduce Waste Stream

- Added collection points to recycle shrink wrap and toner cartridges
- Provided on-site assistance and expanded hours for customers at the Fort Lewis Recycling Center
- Established procedures for diverting waste concrete, asphalt, and masonry from the landfill for reuse as aggregate in road and construction projects
- Developed requirements for contractors to develop Waste Management Plans that document and encourage the diversion of construction waste from the landfill



Mitigating illegal dumping on Fort Lewis costs the installation hundreds of thousands of dollars every year

Goals for 2004-2005

Procure oil filter crushers to reduce HW and increase recycling

Study problems associated with illegal dumping

Pilot a composting project

Offer installation-wide training on AP to inform government buyers of AP requirements and HM restrictions

Document the Hazardous Material Control Center's delivery program success

Revise design standards to improve construction and demolition reuse, diversion, and recycling

Conduct recycling awareness training

SUSTAINABLE TRAINING AREAS TEAM:

Forging Ahead, Securing the Objectives

2003 Focus

In 2003, the Sustainable Training Areas team moved forward on encroachment issues, enhanced our training lands through noxious weed removal, and prepared ourselves and regional partners to tackle harder objectives.

Partners Were Key to Success

Following the meeting in February 2003 with our regional subject matter experts, the Sustainable Training Areas Team worked towards completing near-term projects and redefining 5-year objectives. Assistance from working groups was crucial to the team's success on many projects, such as defining prairie quality protocol, identifying potential encroachment buffers, and management of endangered species.



A bald eagle soars over old growth forest at Fort Lewis. In the background is Mount Rainier.

Photo credit: Jeff Foster

Major Accomplishments: Strategic Goals 7, 8

ATTAIN FORT LEWIS AND REGIONAL LAND CONDITIONS (#7)

- Developed draft standards for monitoring prairies, oak woodlands, and rare species
- Evaluated nine land parcels adjacent to or in close proximity to the installation for possible acquisition to reduce encroachment, maintain training capability, and promote natural resources conservation
- Submitted Army Compatible Use Buffer (ACUB) proposal, outlining best three land parcels for acquisition
- Completed and distributed oak woodland and prairie management plans
- Participated in a working group with State and other Federal employees to develop a regional protocol for defining quality of prairie
- Performed training land maintenance through prescribed burns on 1227 acres
- Mowed 1570 acres of Scotch Broom
- Located and abated other noxious weeds

PROTECT CULTURAL RESOURCES (#7)

 Tested five archeological sites for National Register of Historic Places eligibility (two were determined eligible and will receive continued protection; three will be opened for military training)

RECOVER LISTED AND CANDIDATE SPECIES (#8)

- Completed inventory of federal and state species on Fort Lewis
- Developed a cooperative position between the Washington State Department of Fish and Wildlife and Fort Lewis to coordinate and implement recovery efforts and plans for South Puget Sound rare species

Goals for 2004-2005

Test at least three archeological sites for National Register of Historic Places eligibility

Develop regional candidate conservation agreement between U.S. Fish and Wildlife Service and Fort Lewis

Complete cooperative agreements with land-purchase partners and begin acquisition of buffer lands

Enhance at least 3000 acres of land for maneuver training and native ecosystem vitality

Implement prairie and oak woodland plans

WATER RESOURCES TEAM:

Strategy Revamped and Revitalized

2003 Focus

During the last year, the Water Resources Team made significant progress toward achieving their long-term goals. The water program completely revamped its strategy with new objectives and projects to support them, which concentrate on enhancing and improving existing processes and infrastructure.

Coordinating with Our Neighbors

Fort Lewis continues to be a valued player in regional and local watershed planning councils and committees. We are helping to lead the way in actually implementing the results of these planning efforts by incorporating the plans developed by the committees into our management documents, including our Integrated Natural Resources Management Plan, and our Water Comprehensive Plan.



New headworks equipment at the wastewater treatment plant Photo credit: Mary Charbonneau

Major Accomplishments: Strategic Goals 9, 10, 11, 12

ZERO DISCHARGE OF WASTEWATER (#9)

- Replaced 3000' of 36" line (concrete), eliminated 1800' of 24" clay sewer line, and replaced 7 manholes
- ◆ Lined 1000' of 24" line, 500' of 21" line, 2500' of 15" line, and 2500' of 12" line
- Replaced 5000' of side sewer 4" and 6" and lined 36 manholes
- Wastewater plant equipment and process upgrades resulted in improved treatment efficiency and pollutant removal
- Started work on a new water conservation program that will result in lower wastewater flows

REDUCE POTABLE WATER CONSUMPTION (#10)

- Implemented conservation and best management practices
- Developed new objective to construct and operate a non-potable water system designed to use Class A reclaimed water

REMEDIATE CONTAMINATED GROUNDWATER (#11)

 Instituted a thermal treatment program that heats the ground under the Logistics Center to boil out Petroleum, Oils, and Lubricants (POL) products and Trichloroethylene (TCE)

INTEGRATED DESIGN FOR WATER MANAGEMENT (#12)

 Hosted a Low Impact Development (LID) workshop to teach engineers, planners, and environmental and natural resource managers how to incorporate efficient water management systems in construction, renovation, and landscaping projects

Goals for 2004-2005 (and beyond)

Complete development of a wastewater pretreatment program (2004) and implement the program (2005) Implement water conservation plan and measures (2004-2005)

Before 2012, construct infrastructure to treat current effluent to Class A standards, and construct a distribution system so that the reclaimed water can be used for irrigation and other non-potable uses

By 2015, re-inject any remaining discharge into the ground; this will only be necessary if insufficient uses are found for the Class A reclaimed water, and will be used to bring our discharge to Puget Sound to zero

BEYOND INSTALLATION BOUNDARIES:

Reaching Out to Share Lessons Learned with Others

Washington State Senior Military Leaders Education Conference

At the request of Fort Lewis and I Corps Commander, LTG Edward Soriano, Fort Lewis hosted a sustainability education conference for senior military and civilian leaders from all branches of the military throughout Washington



Attendees visited Fort Lewis team displays and vendor booths in between sessions

Photo credit: Mary Charbonneau

State. The one-day seminar and training session took place in October 2003.

The purpose of the conference was to help educate military leaders at other installations on the concept of sustainability, and how/why it applies to what they do. Fort Lewis served as a case study for how to get a sustainability program started at a military activity.

As a result of this conference, the Joint Regional Flag Officer Council is sponsoring an initiative called the Washington Military Sustainability Partnership to identify common sustainability goals, and specifically, those goals that can benefit from collaboration on

a regional basis. The goal is for this partnership to become a tool for sustaining military readiness in balance with responsible environmental, economic and social practices.

 $Conference\ speakers\ included:$

The Honorable Gary Locke, Washington State Governor

Mr. John Howard, Federal Environmental Executive

Mr. John Iani, Region 10 Administrator, U.S. Environmental Protection Agency

Ms. L. Hunter Lovins, cocreator of the Natural Capitalism concept

Ms. Sarah Severn, Director of Sustainable Development, Nike Inc.

Presentations and Displays

At the invitation of various groups, Fort Lewis shared ISP lessons learned on how to quickly get a sustainability program up and running. Key personnel delivered presentations at the following venues:

- ♦ The 2003 Sustainability Forum, Portland, OR
- Real World Clean Air Symposium, Seattle, WA
- Joint Regional Flag Officer's Council Biannual Meeting (hosted by senior military leaders throughout WA)
- Brigade Combat Team Environmental Management Team Meetings—Stryker Program (Fort Lewis, WA; and Fort Polk, LA)
- 8th Annual Joint Services Pollution Prevention and Hazardous Waste Management Conference and Exhibition, San Antonio, TX
- University of Washington EMS Seminar series, Seattle, WA
- National Association of Environmental Professionals Annual Conference, Portland, OR
- ♦ Elementary schools (local)

An ISP display was set up at the following information fairs:

- Washington State Department of Ecology Earth Day Activities
- Pierce County
 Livable Communities Fair
- Armed Forces
 Day activities at Fort Lewis

ISP team members were privileged to exchange ideas about sustainability



The Fort Lewis display at the Washington State Department of Ecology

Photo credit: Mary Charbonneau

with policymakers and other senior leaders visiting Fort Lewis, including:

- ♦ A Trilateral (United Kingdom, Australia, and Canada) Sustainability Environmental Management System Summit
- Dr. Mario Fiori, Assistant Secretary of the Army for Installations and Environment
- COL Debra Lewis, Commander, U.S. Army Corps of Engineers, Seattle District

THE PROGRAM IN THE SPOTLIGHT:

Initiatives Garnered Local, Regional, and National Attention

Awards

In 2003, the U.S. Army Forces Command Installation Sustainability Program (ISP) received the **2002 Secretary of the Army Environmental Award for Pollution Prevention**.

According to one judging panel member, the ISP "is one of the best examples of comprehensive forward thinking in the environmental field...in years." Two subsequent panels agreed—the ISP also won the **Secretary of Defense Pollution Prevention Team Award** and the **White House Closing the Circle Award.** As one of the first two installations to embrace sustainability as a comprehensive strategic planning tool, Fort Lewis is proud to have been a part of this group effort.

Fort Lewis also received several individual awards for specific ISP initiatives, including:

2003 Award for Environmental Excellence in Weapons System Acquisition—Presented by the Office of the Secretary of the Army. As a supporting member of the US Army Brigade Combat Team Project Management Office, Fort Lewis contributed

TOWN TOWN TOWN TOWN THE CHILD

input leading to a design change in the Stryker vehicle that allowed for recovery/ recycling of fluids from the hull.

Champion for Environmental Leadership and "Green" Government Innovation—Presented by EPA Region 10.

Power Player Award—Presented by Seattle City Light, Bonneville Power Ad-

ministration, and the Seattle Regional Office of the Department of Energy, to recognize the long-term accomplishments of Fort Lewis to make the environment more sustainable and bring in alternative sources of energy.

Environmental Management Excellence Award-

Presented by the National Association of Environmental Professionals, a 5,000 member strong group of environmental scientists and professional planning experts.

Alternative Fuels Sustainable Commitment Award—Presented by the Puget Sound Clean Cities Coalition.



Media coverage

The ISP and/or its individual programs were featured in radio and print media in Washington State and at the national level in the past year. Highlights include:

- KPLU, the Tacoma, Washington-based National Public Radio station, aired a long feature on the program in May 2003, and also regularly cited Fort Lewis as an example of innovation when covering environmental issues of relevance to the entire Puget Sound region
- FedTech magazine, March 2004, examined Fort Lewis' participation in the Federal Electronics Challenge initiative
- Fort Lewis' official newspaper, The Northwest Guardian, began a series of articles featuring the ISP and related activities in the fall of 2003, which is continuing through the fall of 2004
- The U.S. Environmental Protection
 Agency frequently showcased military initiatives (including the Fort Lewis ISP) in its environmental bulletin,
 "FedFacs"
- The U.S. Army Environmental Center, based at Aberdeen Proving Ground, Maryland, routinely highlighted Fort Lewis program successes in several of their publications

ONWARD AND UPWARD:

Education and Outreach Efforts Will Target a Wider Audience

Taking Implementation to the Next Level

A great deal of progress has been made during the past two years in terms of organizing and energizing work teams, establishing objectives and targets, and planning and executing projects. Up to this point, much of the work has been accomplished internally by the teams themselves. Still, we are committed to energizing all of Fort Lewis' workforce and residents in order to obtain the widespread support that will be critical for the program's overall success.

A full-time Sustainability Outreach specialist joined the coordination team to assist with educating the Fort Lewis community on how every person's actions, no matter how small, make a difference. Specific examples where these outreach efforts are already focusing include recycling, and alternate fuels usage.



Fort Lewis Encourages its Residents and Workforce to Make Sustainable Choices in 2004-2005, such as:

- Participate in a vanpool to reduce traffic congestion and air emissions
- Buy local to reduce the amount of transportation required and support the local economy
- Actively seek
 ways to incorporate the R's when ever possible: Reduce, Reuse,
 Repair, and Recycle
- When purchasing, seek out items made of recycled materials (plastic lumber, flooring, clothing, cardboard, paper products); also look for products with recycled/ recyclable or bio-degradable packaging
- Use the Fort Lewis alternate fuel sites when filling up GSA vehicles to help reduce air emissions



- Conserve energy—turn off equipment and lights when not in use; lower thermostats; look for and purchase Energy Star[™]-rated appliances and office equipment
- Landscape with native plants, bushes, and hedges (rather than fences and walls); they require little to no manual watering, and support wildlife habitat
- Conserve water by watering lawns only as necessary (1"/week is adequate), and prevent water runoff onto sidewalks and streets
- Practice good environmental stewardship—consider organic pest control; mulch grass clippings back into the lawn
- If planning to purchase a new auto, consider a hybrid or other model with high fuel efficiency
- Volunteer for Stream Team and other local and grassroots watershed protection and enhancement efforts



The first of a number of barracks construction projects to incorporate sustainable design

Photo credit: Mary Charbonneau

Upcoming Events

Special sustainability events Fort Lewis plans to recognize in the coming year include:

- Completion of first Soldier barracks designed/constructed with "green building" principles—June 2004
- E85 Temporary Fueling Site Grand Opening—August 2004
- Rideshare Weeks—Fall 2004
- U.S. Green Building Council International Conference and Expo—November 10-12, 2004
- America Recycles Day—November 15, 2004
- Earth Day—April 22, 2005

Fort Lewis Sustainability Team Contacts

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