



**Energy Efficiency Through Sustainable  
Planning & Implementation**



# Installation

# Sustainability Program



- **Senior Environmental Leadership Conference (SELC) expressed installation encroachment concerns - FORSCOM Response:**

- **Objective – Environmental Sustainability**

**“Environmental state of the installation” that**

- **supports the present installation mission without compromising ability to accomplish mission in the future -- and**
- **does not limit *our local communities*' abilities to have a productive future**

*“The focus of the FORSCOM Installation Sustainability Program is to answer this question at each installation: How do we decrease the total regional environmental footprint....to ensure that our installations can continue to train and deploy combat-ready troops...and that our communities have a productive future?”*

*- Major General James E. Donald, U. S. Army Forces Command  
Deputy Chief of Staff for Personnel and Installation Management*



# Installation

## Sustainability Program



- **Sustainability is an idea that is spreading throughout the US Army/FORSCOM and other branches of the service.**
  - **FORSCOM Sustainability Initiative includes:**
    - **Ft. Bragg, NC -- FY01**
    - **Ft. Lewis, WA -- FY02**
    - **Ft. Hood, TX -- FY02**
    - **Ft. Carson, CO -- FY02**
- **AR 200-1(Environmental Protection and Enhancement) is currently being revised -- rewrite contains guidance on sustainability**



# Why Sustainability?



- **Ensures that environment will support mission accomplishment for the long haul**
- **Proactively addresses long-range issues with mission impact** (*“Pay me now or pay me later”*)
- **Allows cooperative effort with community, regulators, other stakeholders on common issues** (*e.g., urban sprawl; noise; air and water pollution; energy use*)
- **Demonstrates leadership; enhances public perception of the military**
- **The right thing to do**



# The Approach

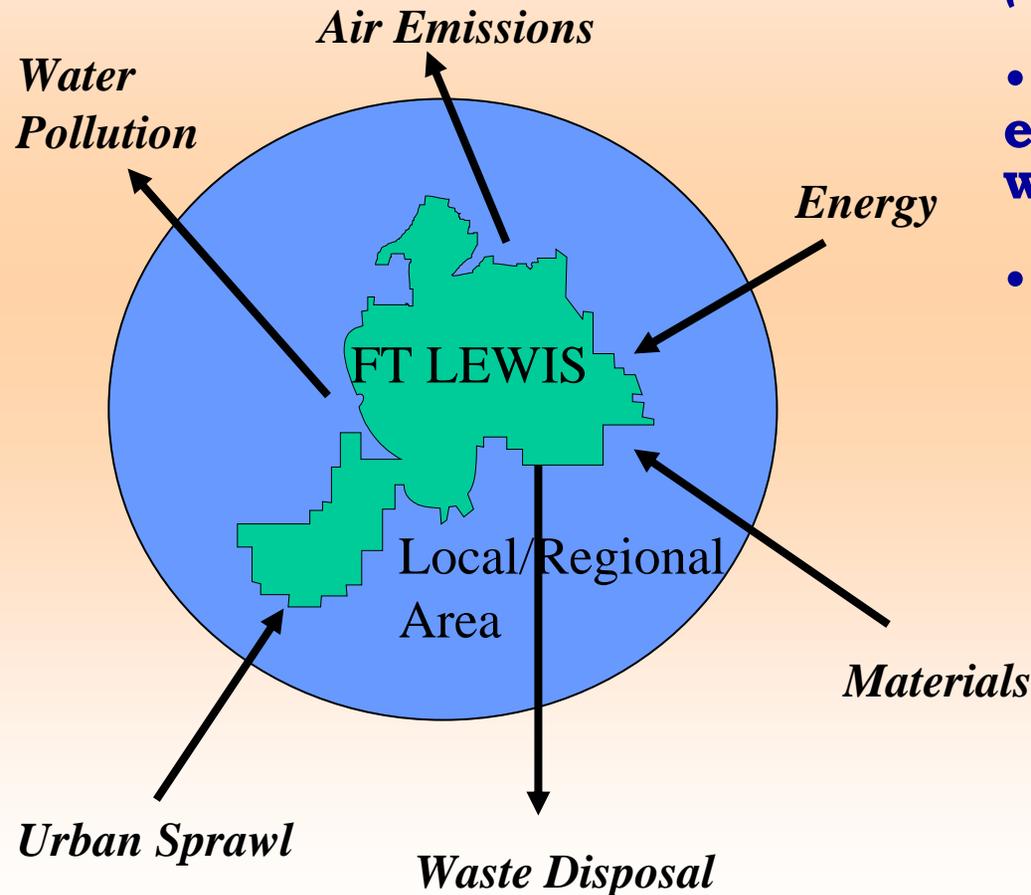


## (1) Establish the baseline (*Baseline Document*)

- Identify the environmental issues, and which are significant

- **Five Focus Areas**

- Sustainable training lands
- Infrastructure/Energy
- Air quality
- Water supply and quality
- Material procurement / management





# The Approach



## **(2) Address the issues** *(Installation Sustainability Workshop Feb 5-7, 2002)*

- **Stakeholders from within and outside Fort Lewis**
- **Defined desired end states and 25-year goals for each focus area**





# Fort Lewis Environmental 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 **SPiRiT Platinum standard** for sustainable facilities by 2025.
6. Cycle all material use to achieve **ZERO net waste** by 2025.
7. Obtain 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 by 2017.
9. Cascade water use to achieve **ZERO discharge of wastewaters** 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.



# **Sustainability-**

# **What's Next**



- **Monitor goal progress through the ISB and CG IPR**
- **Periodic reports to stakeholders**
- **Provide sustainability training for:**
  - **Strategic planning teams - workshops/conferences**
  - **Implementation organizations/activities - workshops, on-site training, short videos**
  - **Installation-wide - workshops, on-site training, video**
- **Continued Support from MACOM (FORSCOM)**
- **Federal Network for Sustainability**
  - **Fort Lewis is a member -- LTG Hill has signed the Statement of Unity**
- **EMS Multi-State Working Group**
- **Projects (expand existing and develop new)**



# **Infrastructure/Energy Team**



**Goal #1 - Sustain all activities on post using renewable energy sources and generate all electricity on post by 2025.**

## **Metric**

**Installation Energy Index (IEI) = Total energy consumed minus renewable energy consumed divided by energy generated on post (E-RE/EG)**



# **Infrastructure/Energy Team**



## **5 Year Objectives**

- **Generate 20% energy on post by FY 2008**
  - **Measure: % energy generated**
- **50% of electricity from renewable sources by FY 2008**
  - **Measure: % renewable energy consumed**
- **Initiate CHP projects**
  - **Measure: kWh generated**
- **Procure Green Power**
  - **Measure: 3% FY 03 – 12% FY 06**
- **Wind Power and PV assessments**



# **Infrastructure/Energy Team**



## **FY 04 Energy Projects**

- **Concepts design for co-generation project**
- **Waste to energy deasibility**
- **Identify site for 1MW PV project**
- **Initiate contract for purchasing 3% Green Power**
- **Install fuel cells in remote locations**
- **Install Direct Digital Controls at North Fort**
- **Complete study/benchmark for Predictive Maintenance (PDM)**
- **Install wireless steam trap monitoring**
- **Re-commission HVAC systems**
- **Install Micro-turbines (Bldg 2019 LEED EB Registered)**
- **Decentralize Heating Plant**
- **Solar Wall**



# **Infrastructure/Energy Team**



**Goal #2 - By 2025, all facilities will meet  
LEED Platinum Rating Criteria**

## **Metric**

**Building Sustainability Index (BSI) =  
Summation of (Leed Rating x square feet)  
for all buildings considered, divided by  
total square feet of all buildings  
considered**



# LEED™ Point Distribution



- Whole-building approach encourages and guides a collaborative, integrated design and construction process
- Optimizes environmental and economic factors, and evaluates and recognizes performance in accepted green design categories
- Four levels of certification
  - LEED Certified            26 - 32 points
  - Silver Level                33 - 38 points
  - Gold Level                 39 - 51 points
  - Platinum Level            52+ points (69 possible)



# **Public Works Sustainable Operations Policy**



- ❑ **Incorporating LEED design principles into installation planning & facility operation**
- ❑ **Meeting silver or better standards as defined by the LEED Green Building Rating System for all new buildings**
- ❑ **Meeting gold as defined by the LEED Green Building Rating System for all new buildings starting in FY03**
- ❑ **Making repair and major renovation projects improve the LEED rating of our facilities**



# **Public Works Sustainable Operations Policy**

- ❑ **Project decision based on total life cycle assessments including occupant health, recycling, energy conservation, air & water quality, biodiversity, and productivity improvements**
- ❑ **Providing design analysis that includes alternatives to improve the LEED rating**
- ❑ **Incorporating LEED into existing facility operations to include: whole building cleaning/maintenance, indoor air quality (IAQ), energy performance, water use, materials use and management, and grounds maintenance programs**



# **Infrastructure/Energy Team**



## **5 Year Objectives**

- **Develop a baseline LEED rating for all permanent buildings (BSI) by FY 2004**
  - **Measure: buildings rated**
- **Establish minimum LEED rating to be achieved on new construction**
  - **Measure: % completed**
- **Establish Sustainability rating for Residential facilities**
  - **Measure: % completed**



# **Infrastructure/Energy Team**



## **FY04 Infrastructure Projects**

- **Update Real Property Master Plan to include Sustainability**
- **Initiate baseline ratings**
- **Construct Sustainable parking lots (Garrison Area)**
- **Complete Platinum design criteria for Hammerheads, Garrison, Logistics Center Warehouses, Hangers**
- **Complete Gray Water Reutilization Study**
- **Replace Direct Digital Controls (DDC) in buildings 2020, 2019, 2021**
- **Prototype Photo-voltaic roof**



**Questions?**