

Environmental Management System



The Road to A Sustainable Future

Random Thoughts



- ❖ Why EMS?
- ❖ What Does Sustainability Mean to You?
- ❖ Who is Responsible for EMS?
- ❖ Isn't This Just Another Environmental Program?
- ❖ I'm Not the EMS Officer
- ❖ Who Cares -- I'll Be Gone in 2 Years.
- ❖ This is the DPW's Mission
- ❖ BRAC 2005 and Beyond

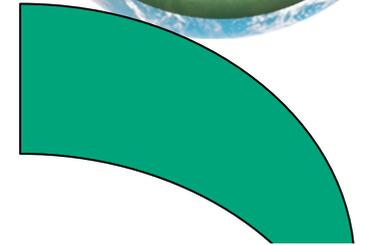
The Right Way....The Green Way....All the Way!

Fort Bragg

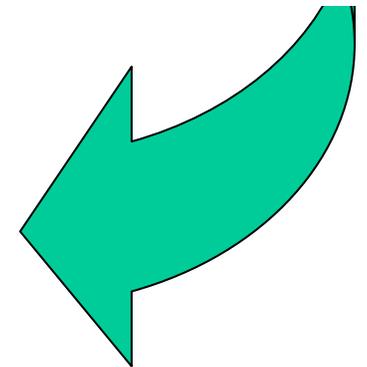


WHY EMS

- ❖ Finite Resources
- ❖ Training Restrictions
- ❖ Encroachment/Incompatible Land Development
- ❖ Availability/Degradation of Training Lands
- ❖ NOV's –
- ❖ Enforcement Actions/Fines
- ❖ Mobilization/Deployment Considerations
- ❖ Mission Accomplishment
- ❖ Quality of Life
- ❖ It's the Right Thing to Do!



METT-TCE



Environmental Consideration Should Be Second Nature

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Sustainability



What is sustainability?

Sustainability is a ***philosophy and approach*** for meeting the needs of the present community without compromising the ability of future generations to meet their own needs.

What is sustainability to the military?

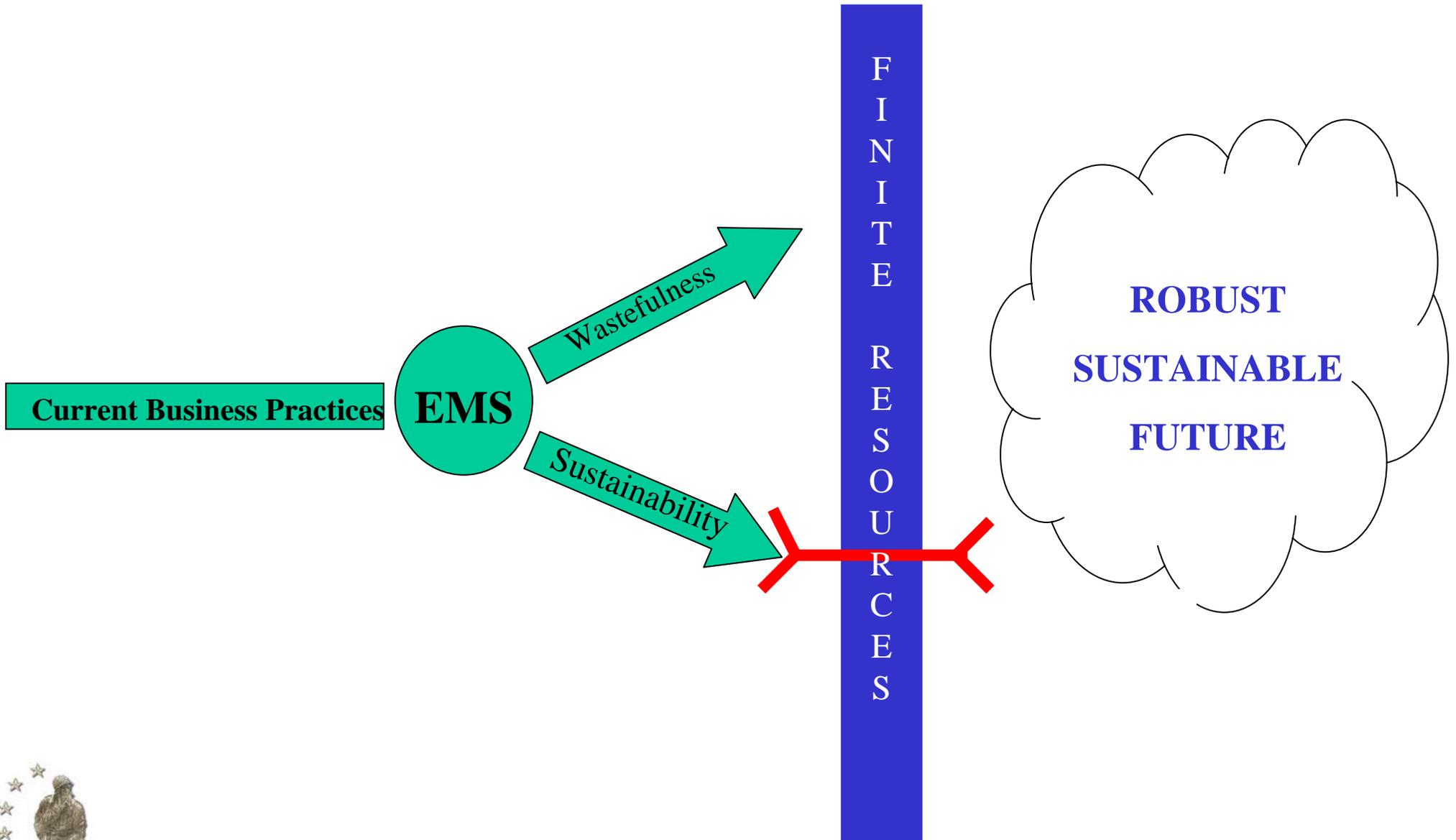
A pro-active approach to ensure the ***long-term viability*** and integrity of the mission by ***minimizing*** resource needs, ***reducing*** environmental impacts, and ***managing*** resources while ***providing*** realistic training environments.

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EMS Decision Point



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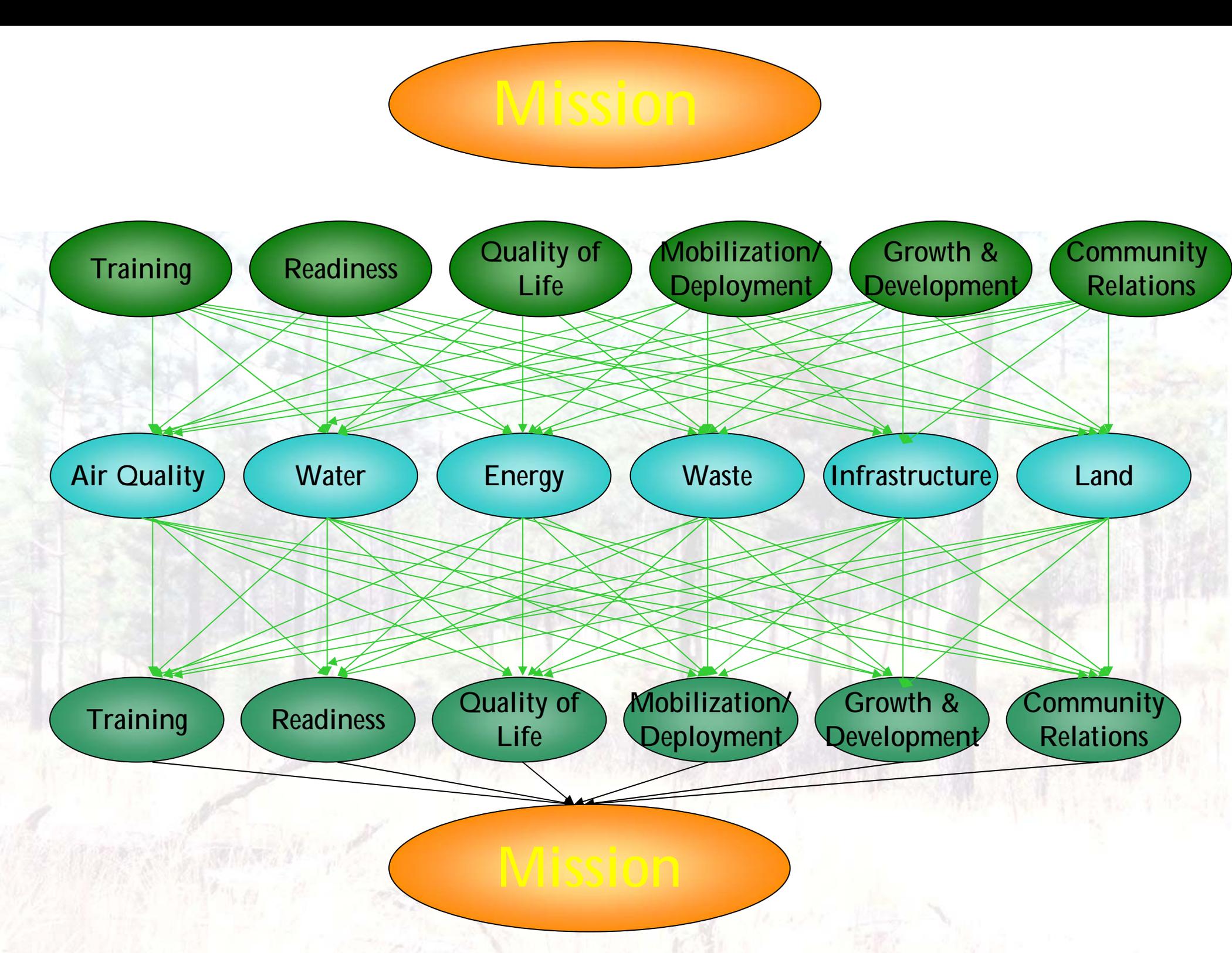
Mission

Training Readiness Quality of Life Mobilization/Deployment Growth & Development Community Relations

Air Quality Water Energy Waste Infrastructure Land

Training Readiness Quality of Life Mobilization/Deployment Growth & Development Community Relations

Mission



EMS -- Progress Against Goals

- **Original Goal:**
 - integrate EMS into existing sustainability program using ISO 14001 standard
- **Actual:**
 - Education and buy-in of top management and process owners on applicability of using an EMS to accomplish sustainability.
 - EMS framework in place
 - Evaluated all installation core business practices
 - Most significant aspect – water quality
 - Incorporated into the Installation Sustainability Program



EMS Top Management Involvement

- **Garrison Commander**
 - Signed Environmental Policy
 - SMS is listed as one of the 8 installation priorities in the Installation Strategic Plan
- **Core Business Process Owners – Business Center Directors & Sustainability Team leaders**
 - Attended awareness training
 - Identified Significant Aspects
 - Identified Operational Controls, Monitoring and Measuring Processes
 - Identified current training and gap analysis.
 - Developed corrective actions



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SMS Policy

Sustainable Fort Bragg.....securing the legacy of Fort Bragg for soldiers, families, and the community through the Sustainability Management System.



**SUSTAINABLE
FORT BRAGG**

The Right Way...

Obey environmental laws

The Green Way...

Practice pollution prevention

All The Way...

Keep improving

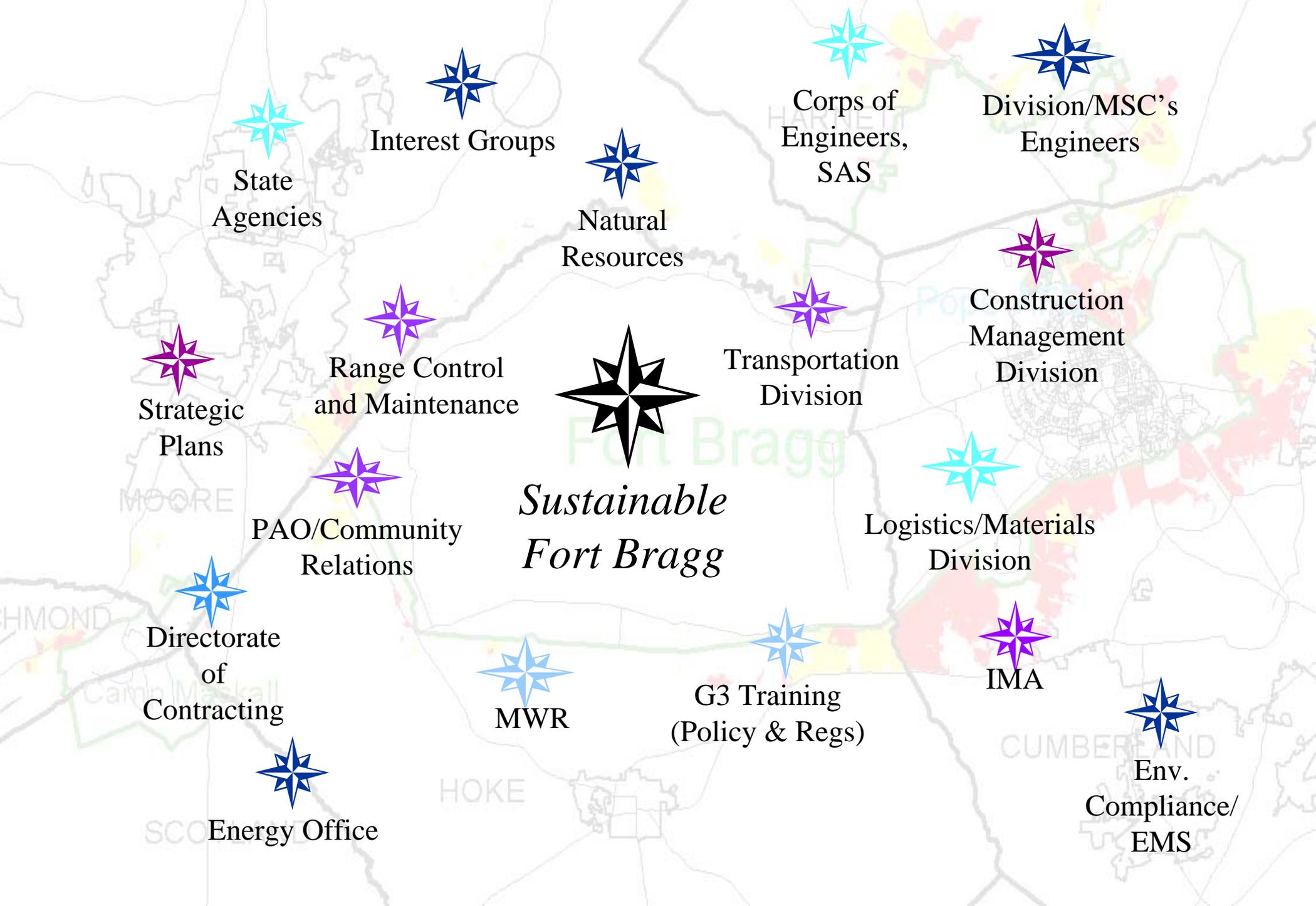
Visit the Sustainable Fort Bragg website at www.bragg.army.mil/sustainability

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EMS -- Integration of all Critical Activities



Command

Aligns organizations and activities to the Army strategy.



Strategic Plan

Defines how the installation will support the future mission

Identifies and plans for external variables that could impact mission (environment, community, economic)



Management and correction of the implementation of the strategic plan with respect to the environment



Installation Sustainability Process

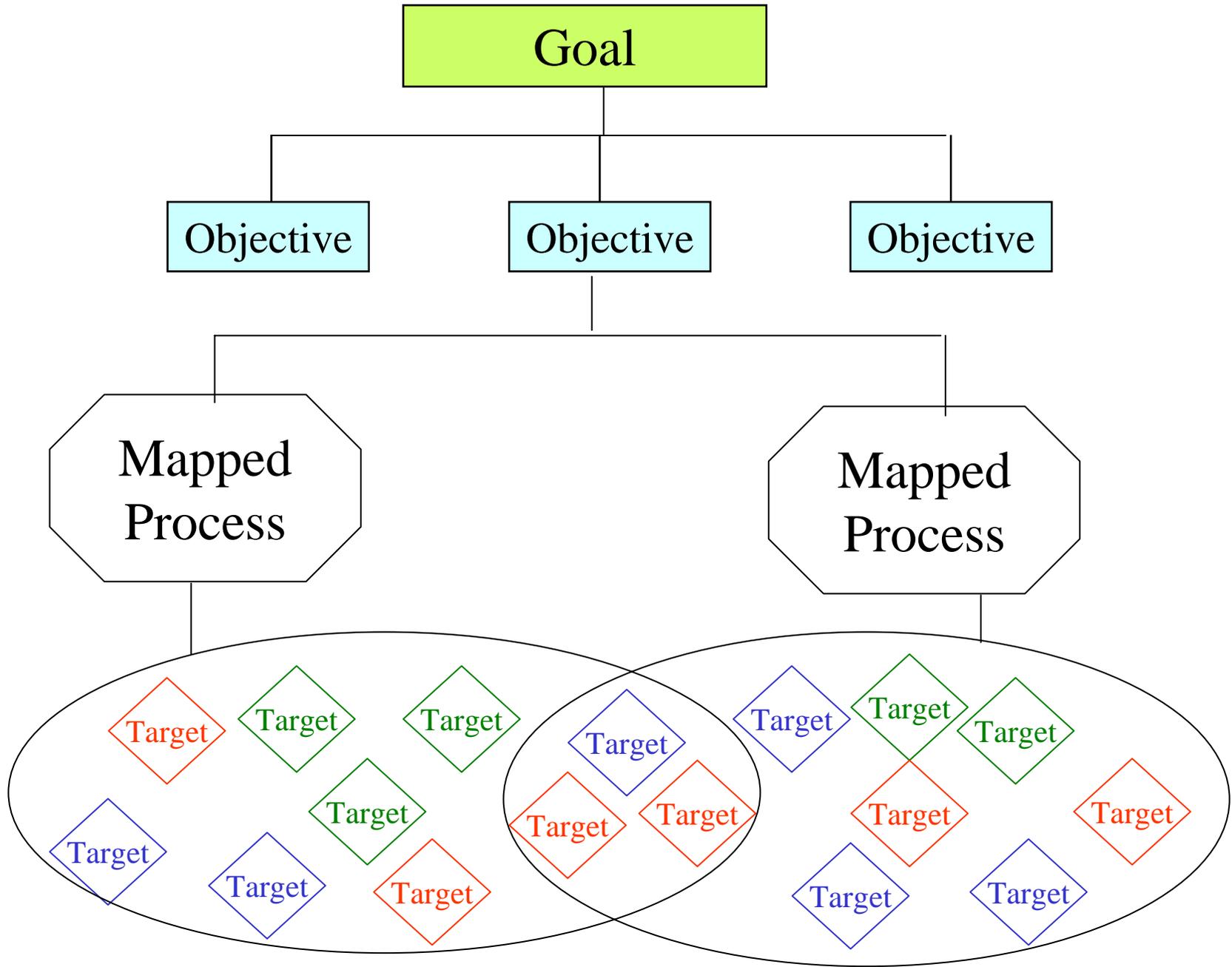


Environmental Management System

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EMS Project Highlights – Implementation Plan

ISO 14001 EMS Requirements	How requirement met	Responsibilities	Timeline
<p>4.2 Environmental policy Top management shall define the organization's environmental policy and ensure that it</p> <p>a) is appropriate to the nature, scale and environmental impacts of its activities, products or services;</p> <p>b) includes a commitment to continual improvement and prevention of pollution;</p> <p>c) includes a commitment to comply with relevant environmental legislation and regulations, and with other requirements to which the organization subscribes;</p> <p>d) provides the framework for setting and reviewing environmental objectives and targets;</p> <p>e) is documented, implemented and maintained and communicated to all employees;</p> <p>f) is available to the public.</p>	<p>Environmental Policy is within the Installation Strategic Plan. Attachment A contains the Installation's policy.</p> <p>The policy is embedded in contractual requirements and contractors are required to communicate the policy to their employees.</p> <p>The policy is available to installation employees and the public on the Fort Bragg web site at http://www.bragg.army.mil/sustainability.</p> <p>It is also part of the in-processing sustainability brief given to new soldiers.</p> <p>It is distributed to all employees yearly via email.</p> <p>It is shown on Bragg TV once per year.</p> <p>Additional details delineating how the policy is communicated to all employees are included in the Training Procedure 001. (add on to the boiler plate – “ will comply and communicate the SMS environmental policy to employees”</p> <p>Place an article in the Paraglide, installation newspaper, after revisions are made.</p>	<p>SMS Rep.</p> <p>Atlanta contracting office/cover letter from GC- SMS Rep.</p> <p>Sustainability Planner</p> <p>Sustainability Trainer/Planner</p> <p>ITBC</p> <p>Env. Community Relations</p> <p>Sustainability Planner/SMS Coordinator</p> <p>Env. Community Relations</p>	<p>Mar 04</p> <p>May 04</p> <p>Oct 03</p> <p>Mar 04</p> <p>Oct 03</p> <p>Oct 03</p> <p>Mar 04</p> <p>Dec 03</p>

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SMS: What It does

- Provides a structured approach for proactively managing environmental issues and responsibilities
- Establishes the framework for *continual improvement* of environmental performance
- Success depends on commitment from all levels and functions



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Links to Established Army Management Processes

- ❖ Sustainable Fort Bragg Linked to the Installation Strategic Plan
 - ◆ Performance Tracked and Reviewed by Senior Management Board on a Quarterly Basis;
 - ◆ Listed as one of 6 key installation processes;
 - ◆ Included as one of 7 installation goals;
- ❖ Sustainable Management System will be built using Sustainable Fort Bragg as the platform
 - ◆ Impacts and aspects identified in the goals and plan;
 - ◆ Targets and objectives are incorporated in the plan;
 - ◆ Utilizes existing processes (Senior Management Board; Strategic Plan; EQCC)
 - ◆ Procedure development ongoing



EMS Project Approach

Relevant Outreach Activities

- EQCC used to inform top management and unit representatives on SMS
- Status of Sustainability Program/SMS briefed quarterly to Senior Management Board
- Publication and distribution of the environmental policy
- Coins/mouse pads
- Newspaper articles
- Bragg TV
- SMS is a major component of all environmental briefings/classes



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Benefits

- Provided structure to all environmental programs
- Identified gaps in Integrated Strategic Sustainability Plan
- Highlighted the need for Process Data Mapping for Environmental Compliance.
- Continual improvement and environmental considerations in all decision/actions
- Significantly increased environmental awareness
- Integral component of internal audit program
- Facilitated cultural change



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Future Actions

- Revalidate Goals – reevaluate significant aspects and impacts
- Ensure objectives support the significant aspects
- Map each process to include previously identified targets
- Identify process gaps and develop additional targets address gaps
- Assign ownership of targets to sustainability team members
- Ensure that compliance program's targets support sustainability (this is done through the Internal EPAS audit)
- Monitor progress through monthly EQCC meetings and quarterly reports to the Installation Senior Management Board.
- Sustainability will be audited through the annual Internal EPAS and tri-annual external EPAS.(Management Review)

Plan – Do – Check - Act

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Key Lessons: Recommendations

- Start by making a very specific plan.
- Identify the right people and train them.
- Capture what you already have then start the improvement process.
- Start small - one significant impact at a time.
- It is impossible for one person to create an SMS -
- requires "buy in" at all levels.
- Leadership involvement is the key to success.



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**Environmental Management System:
The Bridge to An Enduring Installation**

IRON MIKE
IN HONOR OF
AIRBORNE TROOPERS
WHOSE COURAGE,
DEDICATION, AND
TRADITIONS MAKE THEM
THE WORLD'S FINEST
FIGHTING SOLDIERS

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FORT BRAGG - "More Than A City"

Size: 251 Square Miles (160,789 Acres)

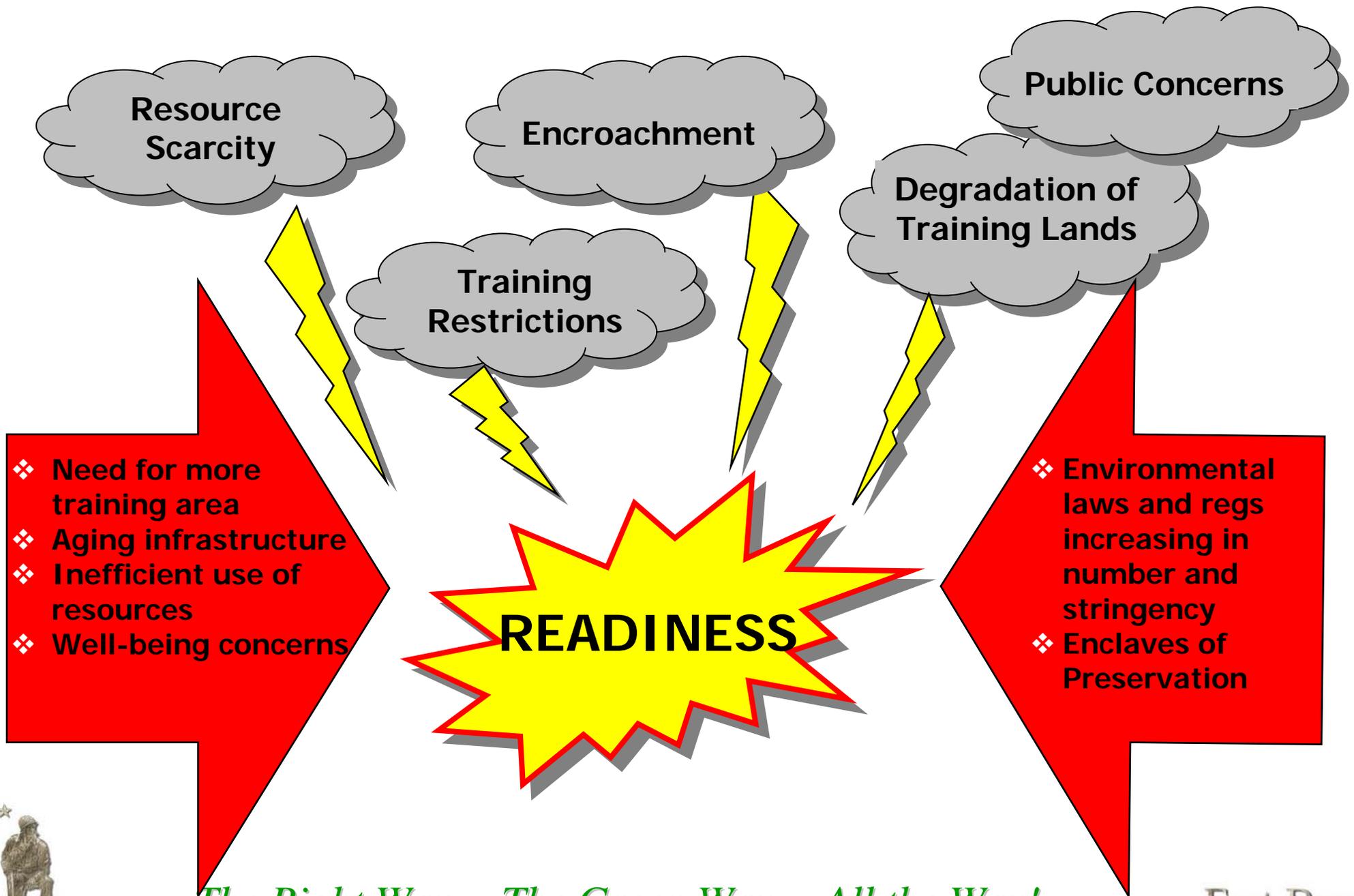
- ❖ **Office Buildings: 30.2M SF**
- ❖ **Shopping Centers: 11**
- ❖ **Restaurants: 28**
- ❖ **Railroad Lines: 19 miles**
- ❖ **Roads and Utilities**
 - ◆ **784 Lane Miles Paved Roads**
 - ◆ **Utilities: Water, Waste Water, Electricity, Natural Gas**
- ❖ **IT Structure**
 - ◆ **511 miles fiber optic cable**
 - ◆ **11,281 miles copper cable**
- ❖ **Simmons Army Airfield**
- ❖ **Camp Mackall**
- ❖ **Museums: 2**
- **Hospital: 1**
 - **Medical Clinics: 4**
 - **Dental Clinics: 5**
- **Schools**
 - **Elementary: 7**
 - **Junior High/Middle: 2**
- **Army Family Housing**
 - **4,643 On-Post**
 - **250 Off-Post**
- (Approximately 27,000 Soldiers Reside Off-Post)
- **Churches: 11**
- **Consolidated Library: 1**
- **Child Care Centers: 4**
- **Recreational Facilities: 183**

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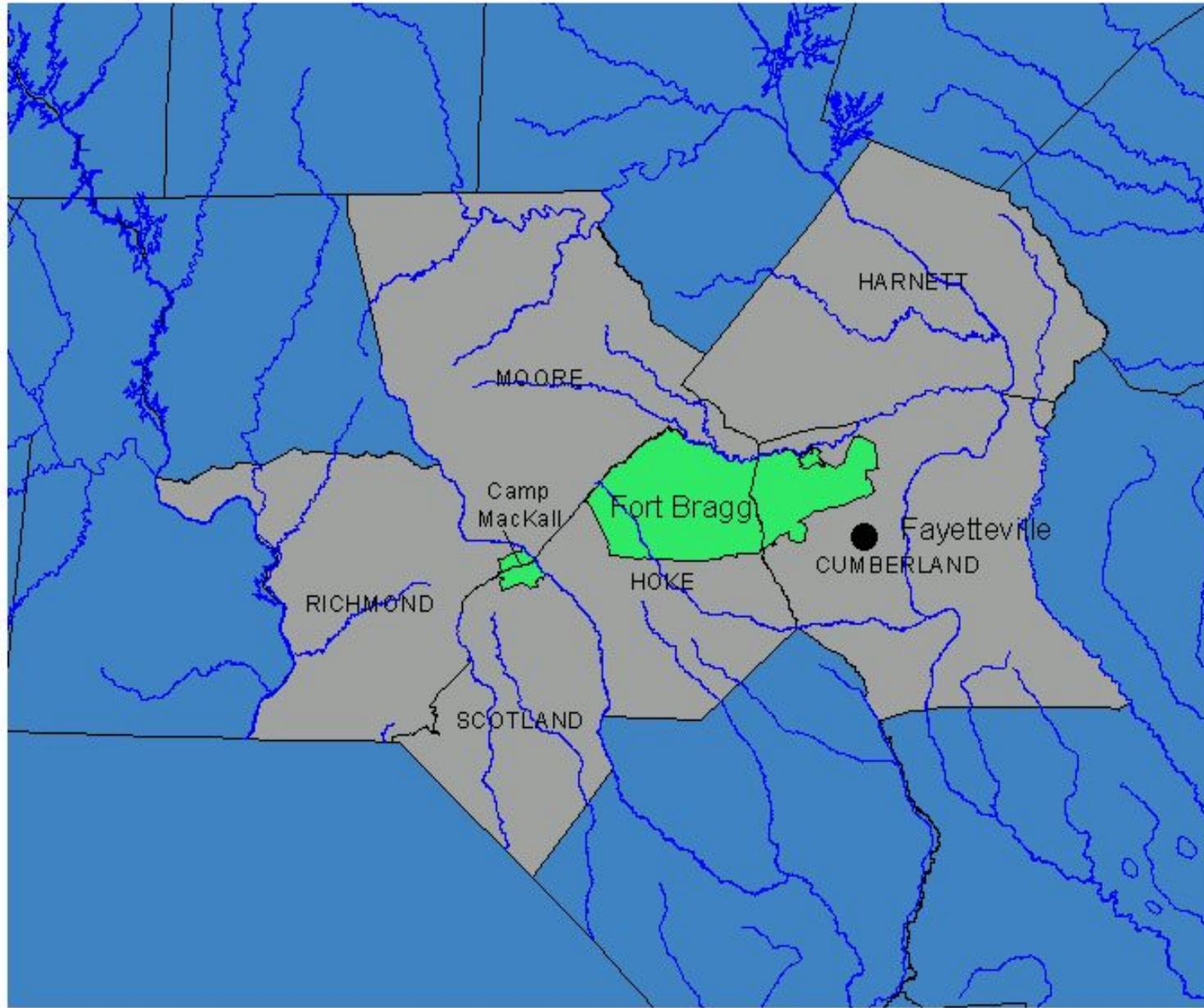
The Situation



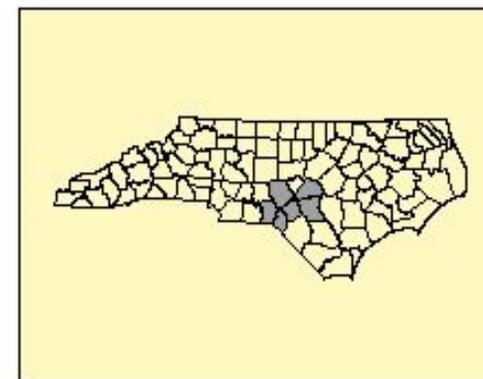
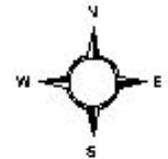
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Area of Operations / Area of Interest



-  Major Rivers
-  Area of Operations
-  Area of Interest
-  NC Counties



Sustainability



What is sustainability to Fort Bragg?

A pro-active approach to ensure the long-term viability and integrity of the mission by minimizing resource needs, reducing environmental impacts, and managing resources while providing realistic training environments.



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Resource Issues That Could Threaten the Mission

- ❖ Annual \$30 million bill for for electricity, natural gas and heating oil;
- ❖ Permitted operations that produce ~380 tons of regulated air pollutants/year;
- ❖ Cumberland County has exceeded 8-hour ozone levels and will soon be designated non-attainment;
- ❖ Generated over 218K tons of solid waste in FY00, over 350K tons in FY01 and 600K tons in FY02;
- ❖ Consumes over 3 billion gallons of water from the Little River each year;
- ❖ Discharges almost 2 billion gallons of treated effluent to the Little River annually; and
- ❖ Has an estimated 125,000 acre training shortfall.



The Fort Bragg Legacy



**Fort Bragg is the world's premier
power projection platform**

**Environmental challenges, if ignored, could
impact our ability to train and deploy
soldiers**



**How do we preserve the
Fort Bragg legacy?**

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Sustainable Ft. Bragg – A Meaningful Solution



Based on an integrated approach that includes all stakeholders – military, civilian, communities, regulatory agencies....

To achieve a meaningful consensus and ensure **READINESS**.

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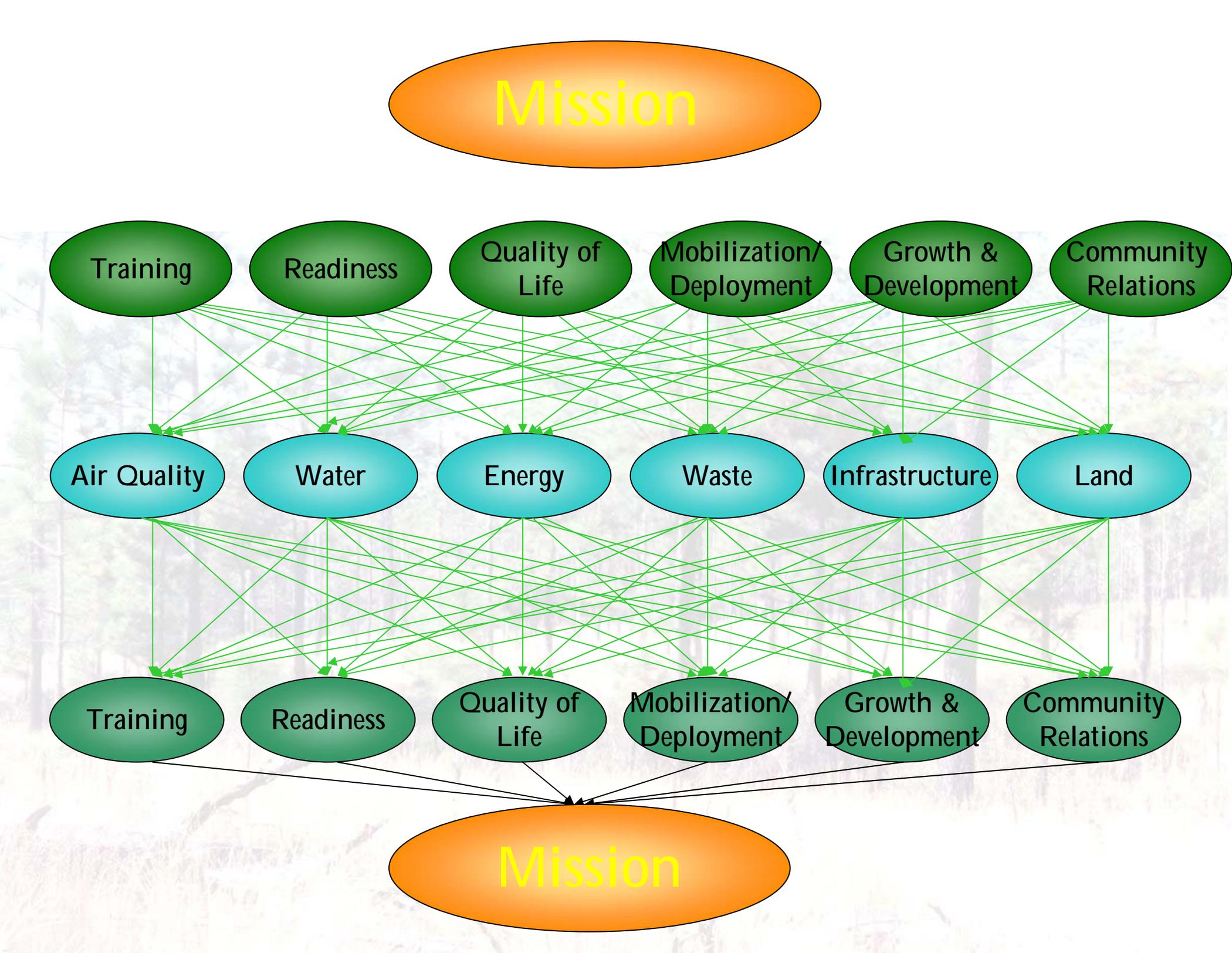
Mission

Training Readiness Quality of Life Mobilization/Deployment Growth & Development Community Relations

Air Quality Water Energy Waste Infrastructure Land

Training Readiness Quality of Life Mobilization/Deployment Growth & Development Community Relations

Mission



A Challenge

“Examine the baseline issues, determine the end-state we want to achieve, set aggressive, attainable, and quantifiable goals; and pull together teams that engage the right stakeholders to ensure Fort Bragg’s history of proud service to the nation, and the world, continues indefinitely.”

*COL Addison Davis
U.S. Army Fort Bragg
Garrison Commander*



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Sustainable Fort Bragg Vision

- ❖ In order to maintain the Fort Bragg legacy and to continue to train troops to standard, it is necessary to integrate long-term sustainable planning into the day-to-day operations of the installation. Our vision is an installation that will:
 - ◆ Provide soldiers with the necessary training to ensure mission success without compromising local or regional environmental quality;
 - ◆ Be recognized as a world leader in practicing global citizenship and promoting sustainability values;
 - ◆ Continuously seek new technologies, share lessons learned, and promote the exchange of ideas with the region and communities;
 - ◆ Restore and protect these valuable assets for future generations, as nationally recognized stewards of significant cultural and natural resources; and
 - ◆ Be an integral part of a healthy and thriving region, where all enjoy a high quality of life and access to vital resources.



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Goals

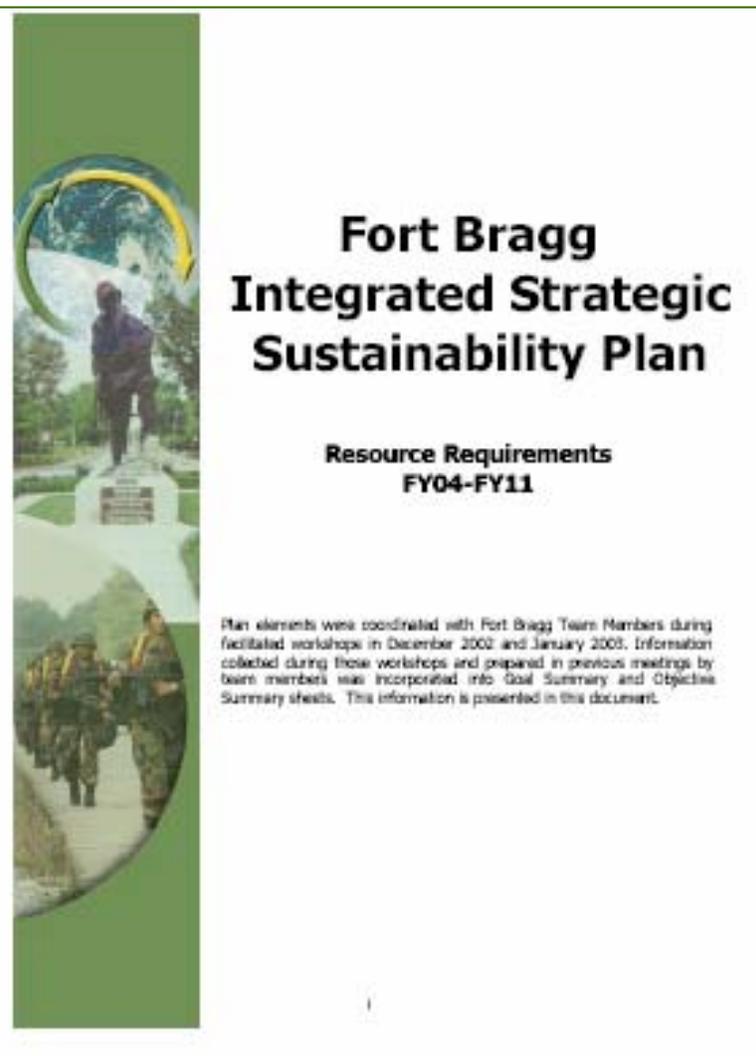
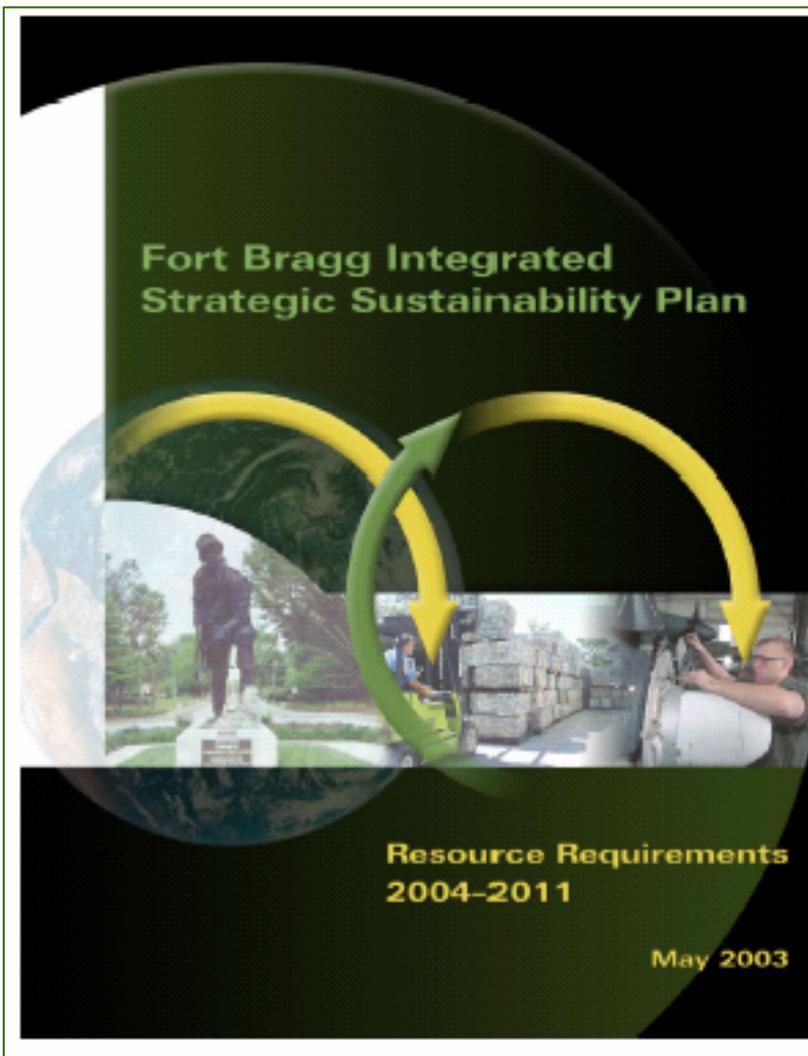
1. Reduce amount of water taken from Little River by 70% by 2025, from current withdrawals of 8.5 million gallons/day. (PWBC)
2. All water discharged from Fort Bragg will meet or exceed North Carolina state high quality water (HQW) standard, by 2025. (PWBC/RBC)
3. Landfill waste to be aggressively reduced toward 0 by 2025. (PWBC)
4. Meet minimum platinum standard for all construction by 2020 program, and renovate 25% of all existing structures to at least a bronze standard by 2020 (using the Sustainable Project Rating Tool – SPiRiT). (PWBC)
5. Adopt compatible land use laws/regulations with local communities by 2005. (PWBC/RBC)
6. Reduce energy use in accordance with Executive Order 13123. (PWBC)



Goals (continued)

7. Develop and implement an effective regional commuting program by 2015. (RBC/PWBC)
8. Reduce the use of both gasoline and diesel in the non-tactical fleet by 70 percent by 2015 and 99 percent by 2025. (RBC/PWBC)
9. Develop an integrated environmental education program for Fort Bragg, its surrounding communities and interested parties. (RBC)
10. Work towards 100% Environmentally Preferred Purchasing by 2025 for all purchases, including government purchase card, contract, and military requisition. (RBC/DOC)
11. Create and enhance sustainable training areas that ensure mission readiness. (RBC/PWBC)





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Goal Details

GOAL



Goal 1: Reduce the amount of water taken from the Little River by 70 percent by 2025; and
Goal 2: All water discharged from Fort Bragg will meet or exceed the North Carolina State High Quality Water (HQW) standard by 2025.

Challenge

Potential sources for Fort Bragg's water consumption have been steadily declining (both in quantity and quality) due to overuse. Contamination of regional water resources, particularly by sediments, is a critical concern to North Carolina because of the economic impacts associated with destruction of fish habitats, treatment of water to drinking quality, and the decrease of drinking water reservoir loading capacity. How can Fort Bragg reduce its dependence on these vulnerable sources and provide premium quality drinking water, as well as the "right" quality of water for other uses, without aggravating future regional water supply issues? How can Fort Bragg minimize the future costs and potential operational restrictions associated with water pollution, while improving regional water quality?

Where is Fort Bragg today?

- Fort Bragg's primary drinking water source is the Little River, part of the Cape Fear River Basin.
- All water currently used in the containment area (except one of the two golf courses) is potable water drawn from the Little River.

- Fort Bragg's water consumption has increased 30 percent without an increase in population.
- Fort Bragg does not have a formal water conservation program to monitor real-time demand, to optimize distribution systems, to educate the public, and to control peak consumption.
- Fort Bragg does not have all the data needed to quantify our water sources.
- A severe regional drought in 2002 caused a significant decrease in the Little River, and as a result, the installation purchased water from city of Fayetteville to meet mission and quality of life requirements.
- The water treatment plant (WTP), which was built in 1918 and upgraded in 2000, has a plant capacity of 36 million gallons/day.
- Fort Bragg's drinking water distribution system contains 600 million linear feet of pipe.
- Fort Bragg's wastewater treatment plant (WWTP) was built in the 1990s and rebuilt in 1991. It currently operates at a maximum daily flow of 2.5 million gallons/day and discharges approximately 5.3 million gallons/day to the Little River, which is one mile downstream of the drinking water treatment plant.
- The WWTP has a history of non-compliance with its National Pollutant Discharge Elimination System (NPDES) Permit.

Fort Bragg Integrated Strategic Sustainability Plan:
Resource Requirements – FY04-FY11

May 2003

I-1

Challenges

Current Conditions

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Expected Future Challenges

Water Resources

- The WWTP serves a population of 88,000, and it collects and treats sewage from the cantonment area (11,670 acres), Simmons Army Airfield, and Pope Air Force Base.
- The wastewater collection system contains over 2 million linear feet of pipeline and 10 major lift stations.
- The capture and treatment of storm water was not part of the design of the WWTP.
- The amount of storm water generated by the installation and its impacts on the environment are currently unknown.
- Unless intercepted, all storm waters ultimately enter surface waters that lead to the Little River (a major drinking water source), drinking water storage lakes, and eventually the Cape Fear River.
- Sedimentation caused by the erosion of soils, the overuse of land due to military training, and construction activities is a significant pollutant. Soil erosion causes significant damage and incurs repair costs in various areas throughout the installation.
- Fort Bragg operated under an administrative order issued by North Carolina Department of Environment and Natural Resources (NCDENR) from February 1994 to September 2000, which required the installation to remediate highly eroded areas (drip zones) and to submit erosion control plans for construction sites.

- Upper Cape Fear River Basin to Neuse River Basin in support of enormous urban growth.
- Loss of capacity from Little River may necessitate the development of ground water sources for drinking water; however, the Upper Hicklenobel Aquifer is considered to be polluted beyond drinking water limits.
- Privatization of Fort Bragg water systems may cause an increase in price of water as rates are commercialized.
- Pushing the filter creates 450,000 gallons per day of backwash that are currently sent to the wastewater treatment plant.
- New barracks design includes individual bathrooms, which will increase water consumption.
- If the Total Maximum Daily Load (TMDL) requirements or discharge limits change with respect to the Little River, the WWTP will need to meet the more stringent limits.
- The WWTP currently operates at 68 percent capacity and is estimated to reach 77 percent capacity in 3 years. At 80 percent capacity, Fort Bragg may be required to conduct an engineering study and submit the study to the NCDENR.

What are Fort Bragg's future challenges?

- An adequate supply of clean water is becoming an increasing concern in the state and a priority area for the NCDENR. As a result, Fort Bragg will see increased regulatory and public scrutiny placed on water protection programs throughout the state.
- North Carolina has proposed a project for inter-basin transfer to divert water from

How will Fort Bragg achieve its strategic goal?

Specific objectives to protect and enhance our water resources are:

Objective 1: Develop and implement a comprehensive water resources management program (quality and quantity).

1. **Target:** Complete an integrated water resources management plan by 2005.
2. **Target:** Characterize watershed in urban areas and ranges by 2007.
3. **Target:** Develop a balanced water inventory to identify available water sources; its intended uses; quality and quantity needed; and its cost by 2008.

How Will You Reach the Goal?

Objective

Targets

Fort Bragg Integrated Strategic Sustainability Plan:
Resource Requirements – FY04-FY11

May 2003

I-2

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Objective Details



Goal 1: Reduce the amount of water taken from the Little River by 70 percent by 2025.

Goal 2: All water discharged from Fort Bragg will meet or exceed the North Carolina state high quality water (HQPW) standard by 2025.

Team Leader: Craig Lamb, Water Quality
David Hains, Water Supply

1.0 Objective 1: Develop and implement a comprehensive water resources management program (quality and quantity).

1.1 Objective POC: TBD

1.2 Resources Required:

Estimated Cost Over FY04 (FY04-FY11)									
Project	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	Total
1	0	\$200,000	\$100,000	\$200,000	\$210,000	\$200,000	\$200,000	\$200,000	\$1,210,000
2	\$400,000	\$400,000	\$400,000	\$400,000	\$1,000,000	\$20,000	\$20,000	\$20,000	\$2,660,000
3	0	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	0	0	\$100,000
4	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$140,000
5	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$140,000
6	\$200,000	\$200,000	\$200,000	0	0	0	0	0	\$600,000
7	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$20,000	\$140,000
TOTAL	\$770,000	\$1,140,000	\$1,270,000	\$880,000	\$1,060,000	\$745,000	\$745,000	\$745,000	\$7,325,000

Funding will be used to procure the following:

- 1 FTE to support development and implementation of preventative erosion sediment program.
- 2 CRISE Interns to provide monitoring, to support characterization of the water resources, to maintain GIS data layers, and to support the objective generally.

Fort Bragg Integrated Strategic Sustainability Plan:
Resource Requirements – FY04-FY11
A-1

1. Provides detailed information on PROJECTS

2. Continuity between program managers

3. Easily transferred to EPR's, 1391's etc....



Identify & Execute Early Successes

“Those who say it can't be done are usually interrupted by someone doing it.”



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Freedom City-Salvage \$uccess Story



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50 Salvaged Sea Land Containers Disguised
as the Entrance to an Iraqi Village

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Recycled products used for this project:

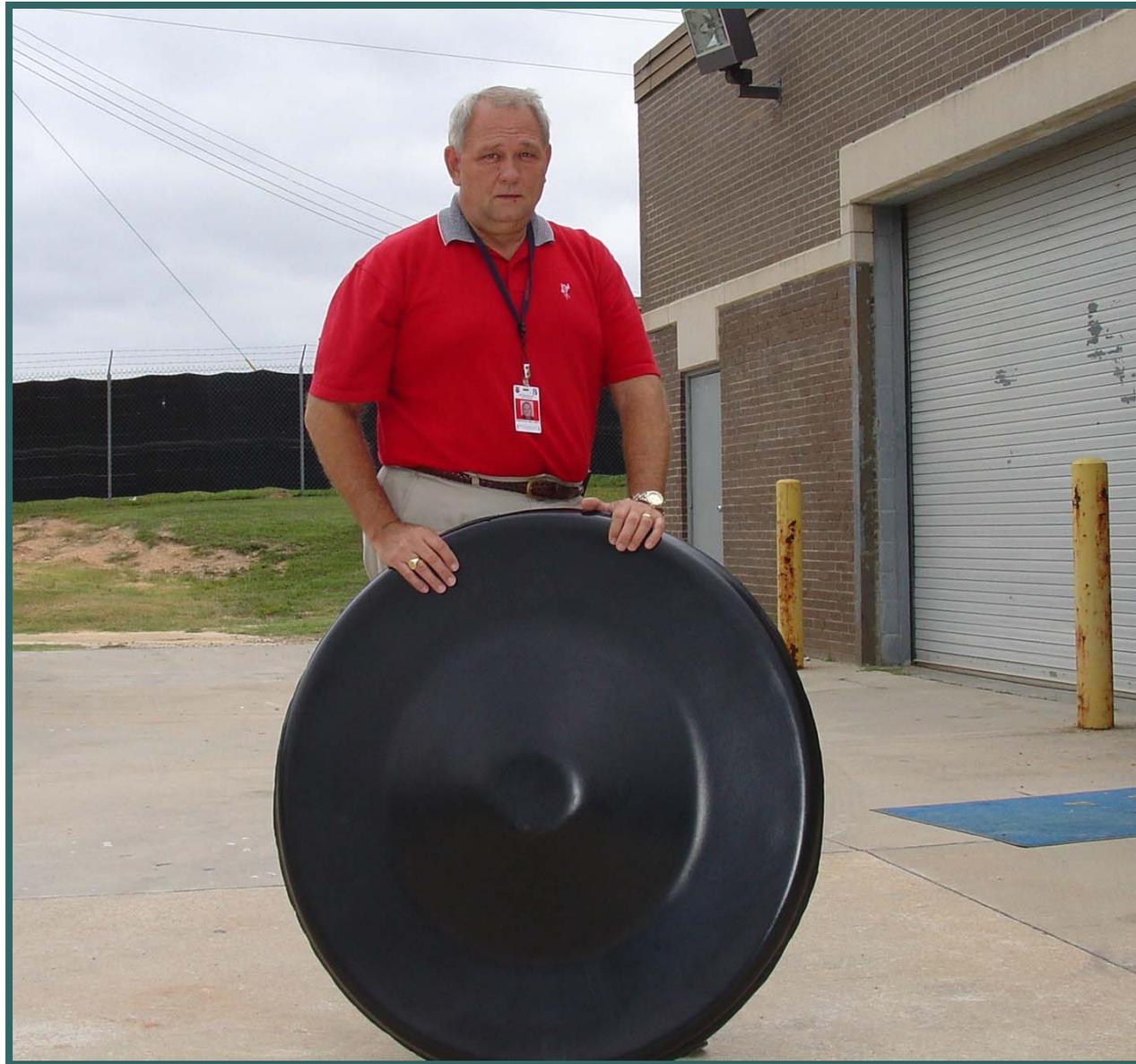


Eight each 30" 20 ft long cast iron pipes from landfill	\$6,400
Ten concrete culverts from landfill	\$2,000
One hundred gallons salvaged paint	\$1,000
Thirty five hundred tons crushed concrete	\$31,500



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Range Chief Bill Edwards with a recycled fox hole cover that RBC uses to support installation goals

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Salvaged aircraft pallet in use at mortar position



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Water Supply/Quality

- 120 recycled plastic rain barrels purchased for reduced water runoff and reuse
- Initiated feasibility study for reclaimed treated wastewater in non-potable irrigation system in FY01;
 - Preliminary system design completed in FY02;
 - Phase II of system design initiated in FY03.



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Water Quality

- 2,500 storm drain markers ordered and will be installed across the installation by volunteers
- Computer model developed to predict sedimentation impacts from construction activities. (Expansion of WETO project that evaluated sedimentation in watersheds in training areas.)



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Water Supply

- Waterfree urinals save 1.25 gallons per use and up to \$2,000 in water and wastewater treatment costs per unit
- Reduced potable water consumption by 30% in 2002.

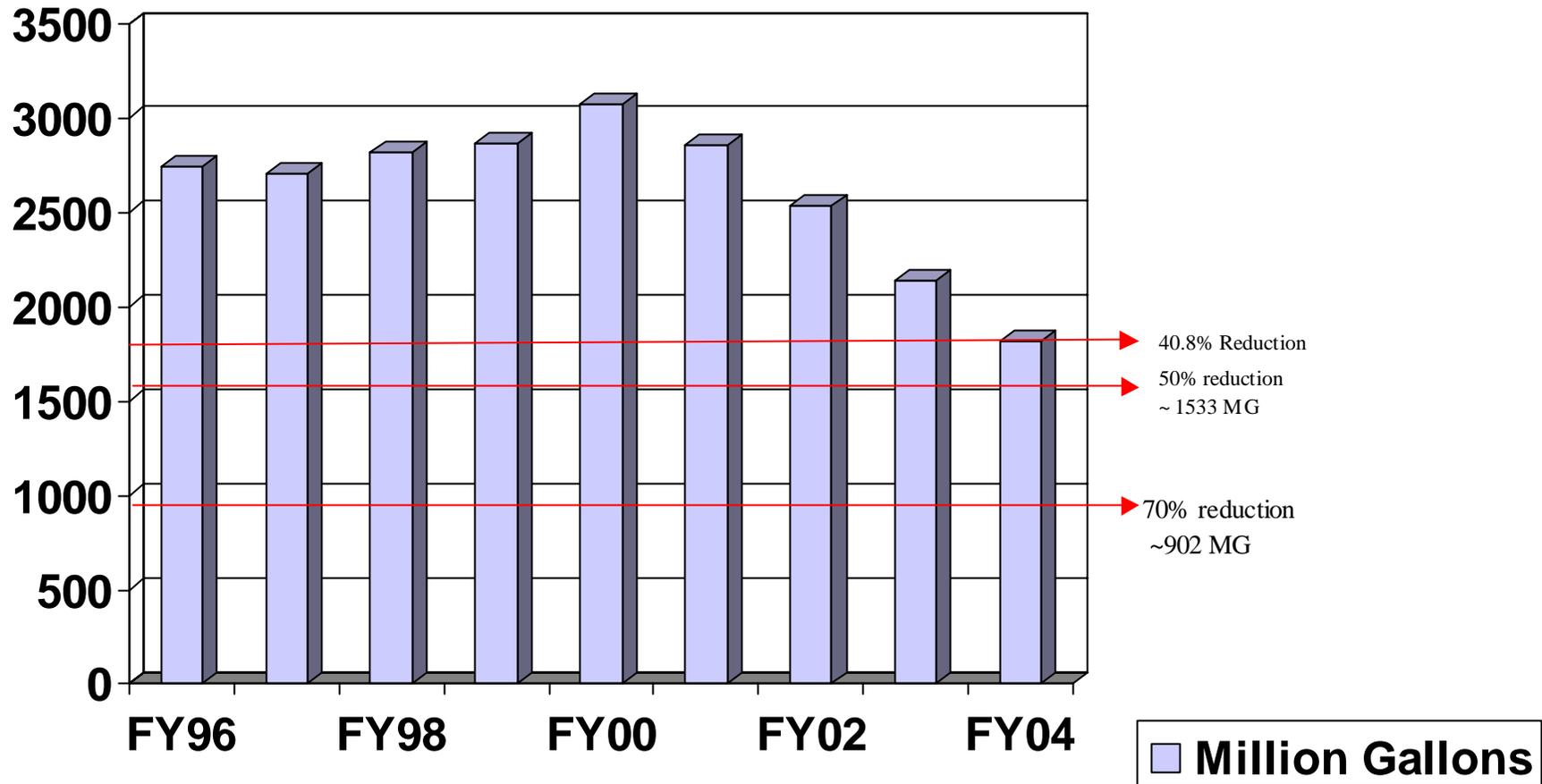


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Fort Bragg Water Consumption



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Zero Waste

- Five neighborhoods participated in phone book recycling drive
- More than 500 tons of scrap metal collected for recycling in FY03

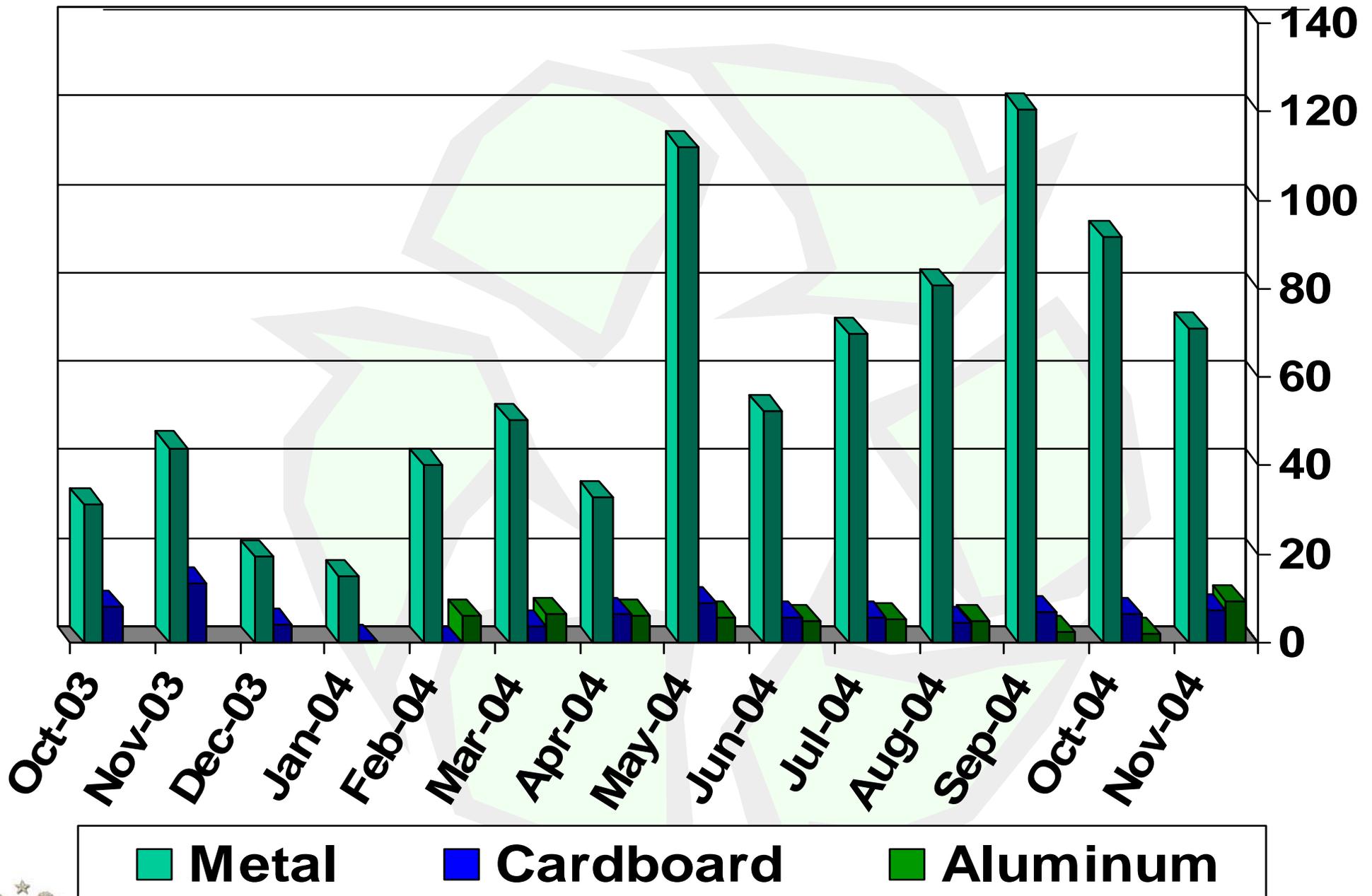


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LAMONT RECYCLING STATS



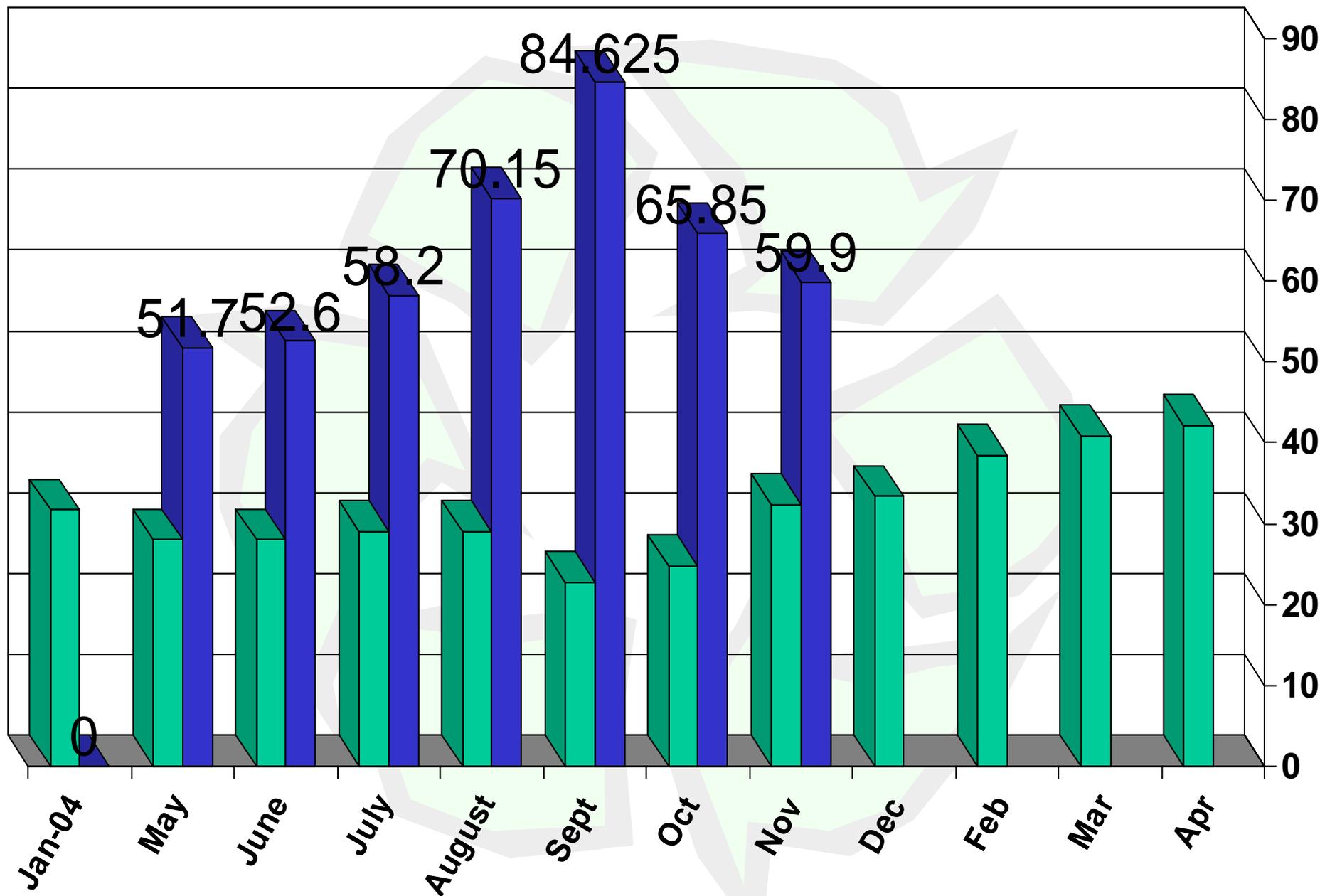
Figures in Tons

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TROOP CARDBOARD RECYCLING STATS



Figures in Tons

2003 2004

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Sustainable Design

- Golden Knights SPiRiT “gold” facility completed.
- 16th MP Barracks SPiRiT “gold” complex scheduled for completion in FY06.
- Demonstration project using Sustainable Design Standards for storm water and pervious pavement management in FY 2002-03.



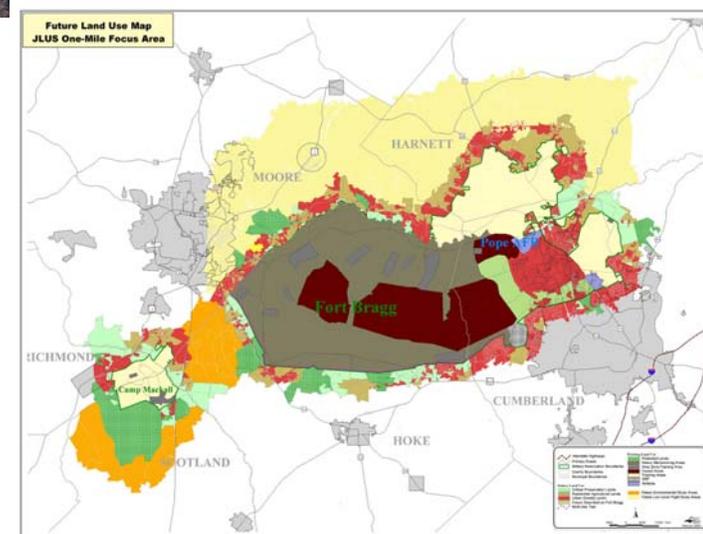
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Fort Bragg



Land Use/Training Lands:

- ❖ Predictive modeling for future land-use along the installation boundary to support on-going Joint Land Use Study and future land use decisions.
- ❖ Development of a 6-county (and Fort Bragg) GIS for use by all county and municipality planners to assist in land-use decisions and target conservation opportunities.
- ❖ 25-Year Predictive Modeling with Fort Future and CERL



Fort Bragg/Pope Air Force Base Proposed Future Land Use Map

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2000

Ammunition Dump



Military Boundary Line

Reilly Road

New elementary school
and residential development

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St. Mere Eglise Drop Zone

2000

Military Boundary Line

US 401

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Energy Team:

- ❖ Partnering with RPI to develop efficient lighting for Force Protection
- ❖ Development of web-based energy awareness training module in partnership with local university.
- ❖ Installation of solar/wind powered lighting at remote access control point.
- ❖ Working with RCI partner to develop energy awareness program and energy efficient family housing designs that meet SPiRiT requirement



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Transportation/Fuel Use

- Use of electric bikes by Military Police saves fuel and improves air quality.
- Implementation of an internal bus system to support mobilized reservists (now with Saturday service to Cross Creek Mall!)
- Bragg School Bus System Awarded -\$50K grant to install pollution control device on up to 50 school buses (Diesel-Oxidation Catalysts)



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Training & Outreach

- Honorary speakers at Campbell University MBA seminar series
- Sustainable Fort Bragg video complete and introduced in training classes across post
- Outreach with Boy Scouts, Fort Bragg schools and environmental clubs



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Materials (EPP)

- Green Procurement Policy being staffed as a Fort Bragg Regulation
- Green Procurement training by DLA to be given to installation staff 19-20 October 04



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All Goals

- Ryder Golf Course the first in the Army to achieve Audubon International certification in Environmental Planning and Wildlife and Habitat Management.
- Full certification in all six categories expected in 2005.



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Mission

Training Readiness Quality of Life Mobilization/Deployment Growth & Development Community Relations

Air Quality Water Energy Waste Infrastructure Land

Training Readiness Quality of Life Mobilization/Deployment Growth & Development Community Relations

Mission



We must walk consciously only part way
toward our goal,
and then
leap in the dark to our success.

Henry David Thoreau