

# *FLEET READINESS CENTER EAST*

DOD VERTICAL LIFT CENTER OF EXCELLENCE



**North Carolina Economic Development Board**

12 March 2010

**Col L. S. Loch  
Commanding Officer**



**Col M. A. Bauman  
Executive Officer**



# AGENDA

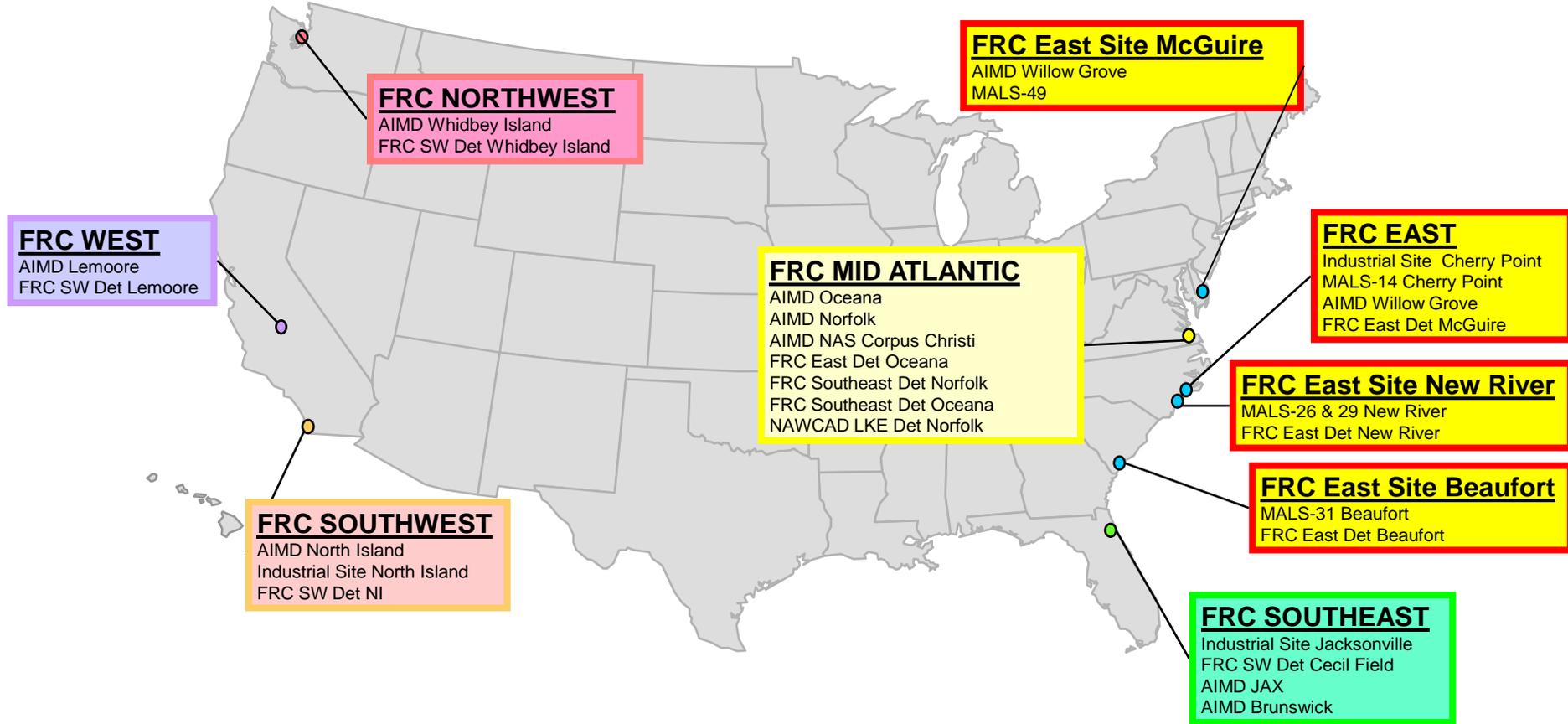


- Who We Are
- What We Do
- Vertical Lift Center of Excellence
- A Look to the Future



# *Who We Are*

# Naval Aviation Enterprise Fleet Readiness Centers





# Facilities



FRC East is a tenant of the Marine Corps Air Station, Cherry Point, North Carolina

<b>Acres</b>	<b>147</b>
<b>Future Acres</b>	<b>104</b>
<b>Assigned Facilities</b>	<b>122 (6 Joint)</b>
<b>Buildings (sq. ft.)</b>	<b>1.9 million</b>
<b>Production Space (sq. ft.)</b>	<b>1.34 million (71%)</b>
<b>Est. Replacement Value (Equipment and Buildings)</b>	<b>\$1.18 billion</b>
<b>Average Age of Facilities</b>	<b>40 years</b>

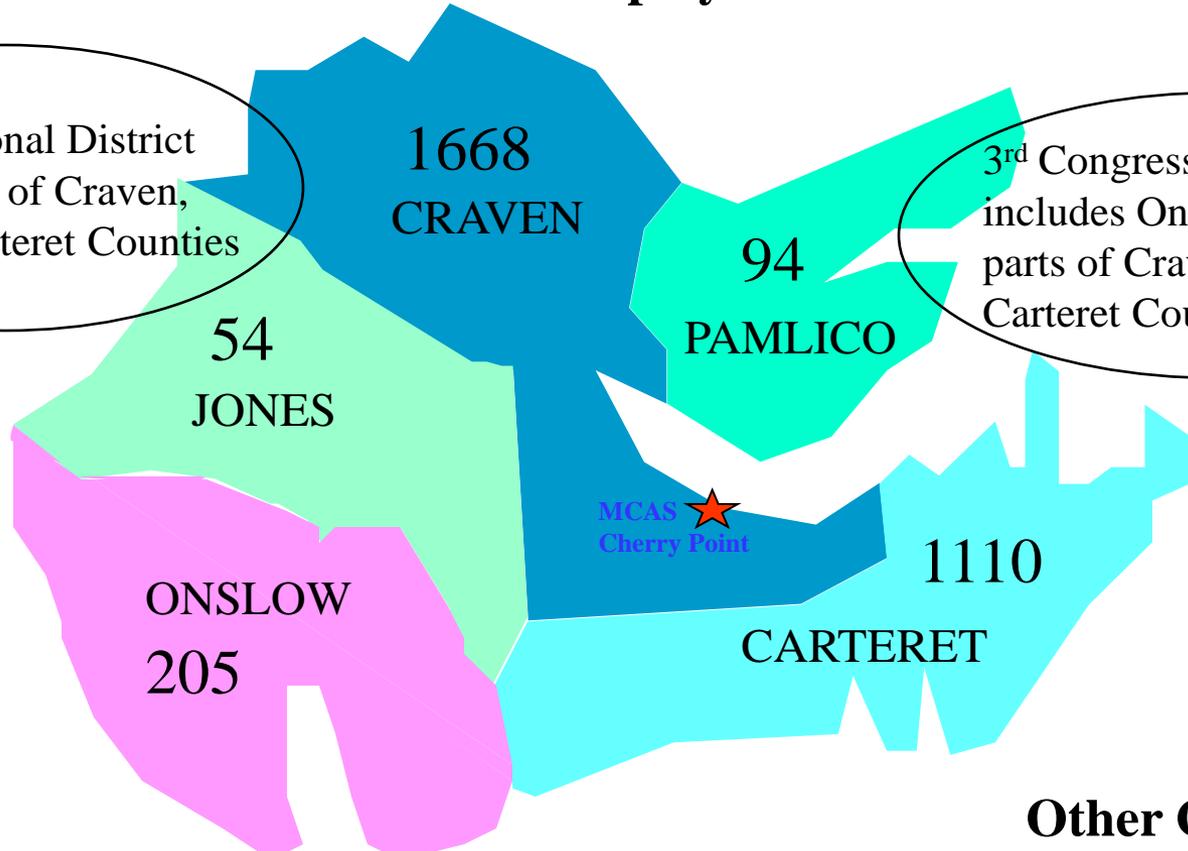


# Where We Live

**Total Civilian Employees = 3265**

1<sup>st</sup> Congressional District  
includes parts of Craven,  
Jones and Carteret Counties

3<sup>rd</sup> Congressional District  
includes Onslow, Pamlico, and  
parts of Craven, Jones and  
Carteret Counties



**Other Counties = 134**

***Average Salary: \$62K***



# *What We Do*

# Our Customer





# What We Do





# Scope of Operations



## *FY10 Budget Projections*

**Direct Labor  
Hours:**

**3.03M\***

**Revenue:**

**\$609.9M**

**Employment:**

**3,206\***

**Payroll:**

**\$286.9M**

**Local Contract Support Services  
(Engineering & Logistics):**

**\$28.8M**

***FRC East Cherry Point Is North Carolina's Largest Industrial Employer  
East of I-95***

***\*Includes civilian, contractor, and military personnel.***



# CH-53 AMARG



- Seven 53Es and one 53D put back in service to date.
- One 53E in work. March 2010 completion.
- One 53D in work. April 2010 completion.

As of 26 Jan 10



# AV-8 Crash Damage Recovery





# AH-1 Whiskey to Zulu



- AH-1W disassembled and turned into AH-1Z “ship set” consisting of:
  - Refurbished and modified AH-1 cabin and reused/forward-fit (W to Z) components
- Tasked by PMA-276 to deliver 168 Ship Sets to Bell Helicopter, Amarillo by FY2020
  - 18 Ship Sets have been delivered since beginning program in 2003
- FY10 projected workload: 8 ship sets; 48,727 labor hours



# Deployed Support Rapid Response Team (RRT)



Established in 2005 in order to help sustain high utilization rates of USMC aviation assets in the harsh desert environment of Iraq.



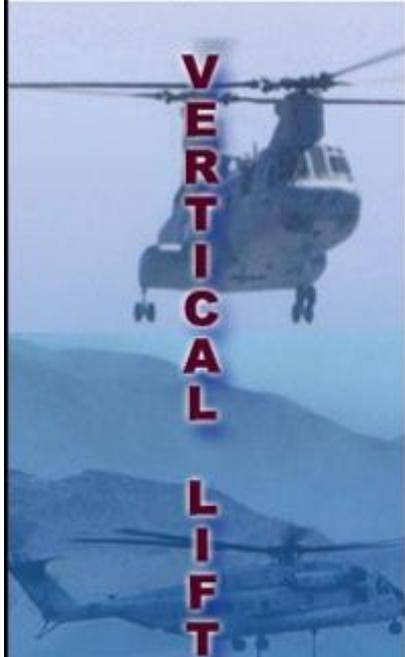
**645 Aircraft Repaired  
2005-2010**

- Developed only DoD Depot Rapid Response Team Deployable worldwide in 24-72 hours
- 134 Artisans, P&Es, Engineers, NDI Techs, Composite Repair, Sheet Metal, Airframes, Electricians



# *Vertical Lift Center of Excellence (VLCOE)*

**FLEET READINESS  
CENTER EAST**



**CENTER  
OF  
EXCELLENCE**



# **VLCOE**

***Created by Fiscal Year 2004 Department Of  
Defense Authorization Bill:***

“Funding is provided for planning and standup of the Vertical Lift Center of Excellence (VLCOE) at the Naval Air Depot and the Naval Air Depot – Institute for Aeronautical Technology (IAT) link.”

## ***Partnering With:***

- Academia*
- Industry*
- Other Governmental Agencies*

## ***In Order to:***

***Set the standard for long-term sustainment, environmental excellence, and cost effective maintenance and repair for vertical lift aircraft within the Department of Defense***



# VLCOE Vision



## ➤ SET THE STANDARD FOR:

- Maintenance, Repair, and Overhaul (MRO) Quality
- Efficiency
- Cost Effectiveness

**FOR ALL DoD VERTICAL LIFT AIRCRAFT**

## FOCUS ON:

- MRO Technology Development
- Long-Term Sustainment
- Workforce Education and Training

**A BEACON REACHING OUT TO FEDERAL, STATE,  
ACADEMIC, AND INDUSTRIAL INSTITUTIONS**



# VLCOE Funded Projects



## ➤ Office of Naval Research

- Future Naval Capabilities - Rotor Blade Protection
  - United Protective Technologies - Charlotte
- Congressional Adds [funding limited to Research & Development (R&D)]
  - FY 2008 NCSU (Institute for Maintenance Science and Technology)
    - Direct staff hires
  - FY 2009 Combat Displays (New Bern)
  - FY 2010 Combat Displays
  - FY 2010 International Technology Corporation (Raleigh)
- FY 2011 Potential Programs
  - VX Aerospace (Morganton, NC) - Composite Repair
  - United Protective Technologies - Coatings



# VLCOE Projects



## ➤ NCSU

- Additive Manufacturing - Produce Parts from Powder
- Atmospheric Plasma - Removal of Potting Material
- Capacitance Measurement of Bearings
- Composite Repair Curing
- Large Area Inspection of Composites
- Tele-Maintenance - Real Time Pictures to Determine Damage
- Predictive Maintenance of Industrial Plant Equipment

## ➤ Combat Displays

- Environmentally Sealed, Ruggedized Avionics displays

## ➤ International Technology Corporation

- Nanofluidic Lubricants for Increased Fuel Efficiency in Heavy Duty Vehicles

## ➤ Stratasyss

- Low Cost, Efficient Tooling Manufacture



# VLCOE Academic Partners



- University of North Carolina General Administration
  - Memorandum of Agreement
    - Share Requirements of VLCOE with UNCGA
    - UNCGA Shares R&D Efforts of University System
    - Collaborate for Solutions
      - Associative Memory, UNC Chapel Hill
      - Large Area Inspection of Composite Material - NCSU
      - Alternative Energy Sources for Industrial Facilities - NCSU
- North Carolina State University
  - Institute for Maintenance Science and Technology
- Craven Community College
  - Student Career Experience and Train the Trainer Programs



# North Carolina Economic/Academic Affiliates



- Advantage West Economic Development Group
- All American Defense Business Association
- Charlotte Regional Partnership
- City of Monroe Economic Development
- Craven County Economic Development Commission
- Eastern Region Council
- Golden LEAF
- Greensboro Economic Development Alliance
- Henderson County Economic Development Corporation
- IMST
- North Carolina Advanced Composites Consortium
- North Carolina Advanced Materials Cluster
- North Carolina Aerospace Alliance
- North Carolina Military Business Center
- North Carolina Military Foundation
- North Carolina's Community Colleges
- North Carolina's Eastern Region
- North Carolina's Eastern Region Defense/Aerospace Advisory Committee
- North Carolina's Northeast Commission
- North Carolina State University Aerospace Initiative
- Piedmont Triad Partnership
- The University of North Carolina at Chapel Hill



# North Carolina Business Opportunity



- VLCOE Requirements Forums
  - VLCOE Web site
  - Technology Showcase - April 28-29 at FRC East
- Academic Opportunity
  - R&D developed to meet the science and technology requirements
- NC Business Opportunity (focal point)
  - Advance science and technology to marketable product/service to meet requirement
- Potential for NC Business to Build and Market Solutions



# *A LOOK TO THE FUTURE*



# Emerging Workload



- V-22
  - Integrated Maintenance Concept (IMC) Events
  - A to B Modifications
  - Component Capability Establishment Underway
- Fire Scout Unmanned Vehicle
  - First Aircraft Events Coming in April



# Emerging Workload



- Joint Strike Fighter
  - Airframe
    - Primary for Navy/Marine Corps variants
    - Alternate for Air Force Variant
  - Lift Fan
  - Component Assignments
    - Still Under Negotiation within DoD
- H-1 Y/Z
  - Airframe and Component Assignments



# QUESTIONS



*BACK UP*



# *BEST BUSINESS PRACTICES*





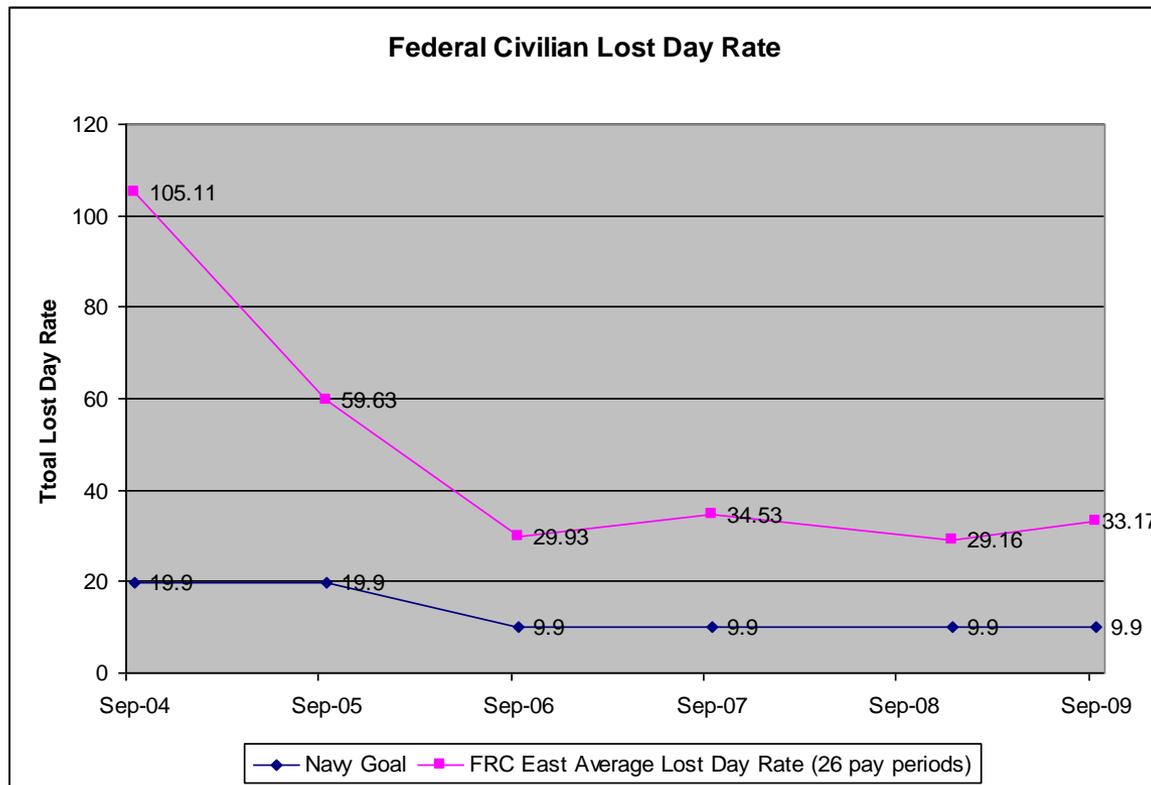
# Voluntary Protection Program (VPP)



## ➤ Partnership with Occupational Safety and Health Administration

Recognizes organizations with superior safety programs

- Must exceed OSHA guidelines for occupational safety and health management system
- Must reduce occupational illness and injury





# Shaping FRC East's 21<sup>st</sup> Century WorkForce

## Employee Development and Training

### Wage Grade Developmental Programs



### WG Programs

- Co-op
- Apprentice
- Multi-Trade
- Helper-to-Worker
- Worker-to-Journeyworker
- Journey-to-Journey

### Academia Partnerships

- Institute Aeronautical Technology
- 26 Educational Institutions

### Recognition

- NAVAIR Commander's Award
- NC Dept of Labor Outstanding Program Award
- NC College Tech Prep Partnership Award



# Public-Private Partnering Initiatives



<b>PBL Initiative - Current Involvement</b>	<b>Length of Contract</b>	<b>EST \$ Value</b>	<b>Award Date</b>
APUs with Honeywell	10 years	\$107M	June 2000
FA-18 E/F Pneumatic Components with Boeing	5 years + 5 option years	\$4.4M	May 2001
H-53/H-46 APUs with Hamilton-Sundstrand	10 years	\$82M	December 2003
H-1 Y/Z Remanufacture (Work-share) w/BHTI/PMA	10 years	\$135M	April 2004
H-46 Dynamic Components w/Boeing	5 years	\$75M	March 2006
H-53 Dynamic Components w/Sikorsky	10 years	\$30M	March 2006
Follow-on F/A-18E/F Components/Boeing	5 years	\$9.4M	February 2006
AV-8B Platform Components/Boeing	10 years	\$37M	June 2007
T64 Engine Components-ROR/PBL w/GE	1 year/10 years	\$30M	October 2006
Boeing V-22 B Block Mod	5 years	\$10M	March 2009
V-22 Airframe Components w/Bell and Boeing	5 years	\$2.7B	Fall 2010 (est)



# AIRSpeed



## Continuous Improvement

A Committed Work Force in Tune to the Needs of the Customer and the Increased Operational Tempo

**LEAN**

Value for the Customer

Managing the WIP

Kitting

**Six Sigma**

Buffers

Critical Chain Project Management

Sustainment

**TOC  
ATOC**

**ISO 9001, AS9100, ISO 14000, OHSAS18000**



# AV-8B PMI Line



## Before



January 2005

## After



August 2005 to Present



# Awards and Recognition



- 2009 CNO Environmental Award (Sustainability Industrial)
- 2009 Employer of the Year Award (Large Business) for Carteret County
- 2009 North Carolina Awards for Excellence (NCAfE) Level III
- 2008 SECNAV Environmental Quality Team Award (Industrial)
- 2008 CNO Environmental Quality Award (Industrial)
- 2008 N.C. Sustainability Award ~ “The Greater Good”
- 2008 Robert T. Mason Depot Maintenance Excellence Award (H-1 aircraft line)
- 2008 Shingo Prize – Silver Medallion (AV-8 aircraft line)
- 2007 CNO Environmental Quality Award (Industrial)
- 2007 Shingo Prize – Gold Medallion (H-1 aircraft line)
- 2007 Joint Depot Maintenance Excellence Award (H-1 aircraft line)
- 2007 Charles B. Ryan Maintenance, Repair & Overhaul Award for Business Innovation
- 2006 CNO Environmental Quality Award (Industrial)
- 2006 N.C. Department of Labor Excellence in Training Master Craftsman
- 2006 Membership into the National Environmental Performance Track
- 2005 CNO Environmental Quality Team Award
- 2005 SECNAV Environmental Quality Team Award
- 2005 N.C. Sustainability (Pollution Prevention) Award