

2006 Munitions Executive Summit

Phoenix, AZ
"The Winds of Change - Altering the Munitions Landscape"

7-9 February 2006

Onsite Agenda

Wednesday, 8 February 2006

Welcome and Opening Remarks, by BG(P) Paul Izzo, USA, Program Executive Officer, Ammunition
Keynote Address, by LTC William E. Mortensen, USA, Deputy Commanding General, Army Materiel Command
Industry Keynote, by Mr. Harold Yoh, III, Chairman & CEO, Day & Zimmermann
Public-Private Partnering, by Mr. Ronald Davis, Jr., Chief Industrial Operations, AMC
Warfigher Perspective: OIF/OEF Munitions Engagements / Performance, by LTC Steve Russell, USA, Battalion Commander
OSD Perspective, by Mr. Anthony Melita, Deputy Director, OUSD (AT&L), Defense Systems, Land Warfare and Munitions
Lunch Presentation, by Mr. Gregory L. Kee, Deputy Chief of Staff for Strategy, Plans and Policy, G-5

Panel*:* Acquisition Cross-Service Panel
Chair:
· BG (P) Paul S. Izzo, USA, PEO Ammunition

Panel:
· MajGen Kevin Sullivan, USAF, Commander, OGDEN Air Logistics Center
· Mr. Robert Crawford, Deputy, Munitions and Logistics Readiness Center, JMC
OSD Perspective, by Mr. Anthony Melita, Deputy Director, OUSD (AT&L), Defense Systems, Land Warfare and Munitions
Army Ammunition Budget Priorities & Outlook, by COL Mike L. Waclawski, USA, Chief Congressional Budget Liaison, SAFM-BL
Congressional Perspective, by Mr. Dick Ladd, CEO, Robinson International, Inc.
ICAP / NDIA Panel "Industry Status Report", by BG William R. Holmes, USA(Ret), President and CEO, Day & Zimmermann Munitions and Defense

Thursday, 9 February 2006

Health of Industry (Wall Street Vantage), by Mr. Pierre A. Chao, Senior Fellow, Center for Strategic & International Studies

Panel*:* PM Panel - Acquisition Programs & Priorities
Chair:
· Mr. Jim Sutton, Deputy PEO Ammunition

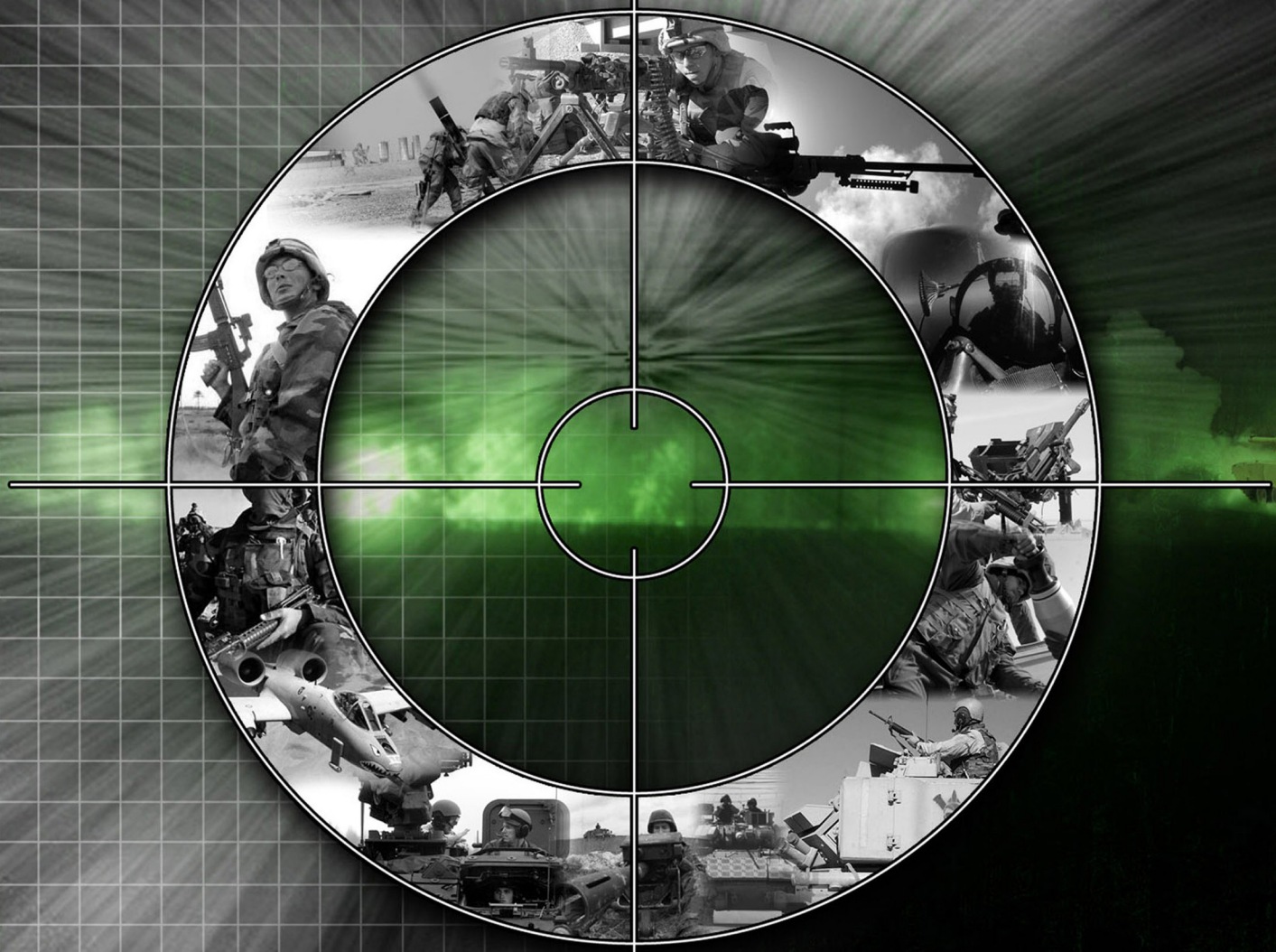
Panel:
· COL Jeff Gwilliam, USA, PM Joint Services
· COL Mark Rider, USA, PM Maneuver Ammunition Systems
· COL Jack Koster, USA, PM Close Combat Systems
· COL Ole Knudsen, USA, PM Combat Ammunition Systems
- Recent Testing *(Video)*
Industrial Base, by Mr. Matthew T. Zimmerman, Associate PEO Ammunition, Industrial Base and Mr. Allan Beuster, Chief Industrial Preparedness Division, MLRC, JMC

- A Good Partner *(Video)*

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

NDIA

ONSITE AGENDA



Munitions Executive Summit

The Sheraton Crescent Hotel, Phoenix, AZ

February 7 - 9, 2006 • Event # 6650

OVERVIEW

The National Defense Industrial Association in conjunction with the US Army's Program Executive Officer for Ammunition and the Army Field Support Command announce the 2006 Munitions Executive Summit. The 2006 Summit will be held on February 7 - 9, at the Sheraton Crescent Hotel in Phoenix, Arizona.

The theme of this Summit is "The Winds of Change–Altering the Munitions Landscape". The objective is to examine key areas required of the government and industry teams to ensure the ammunition enterprise is current. This will include the resourcing, forecasting, acquisition, production and supply of ammunition to the war fighter.

Senior representatives from the U.S. Government, U.S. Armed Services and Industry will be sharing their perspectives on the actions needed to meet the current and future force ammunition requirements. The Summit will consist of individual and panel presentations that will provide a forum for information exchange and discussion.

CORPORATE SPONSORSHIP OPPORTUNITIES

Maximize your organization's participation and visibility in this summit by sponsoring an event. The sponsorships available are as follows:

- Coffee and Soda Break - $3,000 (Two opportunities available)
  - One complimentary registration
  - Placement of your company's logo in the on-site agenda handouts
  - Signage outside the particular event sponsored
  - Sponsor ribbon on badges

- Continental Breakfast - $5,000 (Two opportunities available)
  - Two complimentary registrations
  - Placement of your company's logo in the on-site agenda handouts
  - Signage outside the particular event sponsored
  - Sponsor ribbon on badges

- Luncheon - $5,000 (Two opportunities available)
  - Two complimentary registrations
  - Placement of your company's logo in the on-site agenda handouts
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For further questions, please call Phyllis Edmonson at 703-247-2577

Tuesday, February 7, 2006

4:00PM - 6:30PM — On-site Registration

5:00PM - 6:30PM — Reception (Cash Bar)

Wednesday, February 8, 2006

7:00AM — Registration and Continental Breakfast

8:00AM — Welcome / Administrative Remarks
Mr. Tim Bagniefski, Chair, NDIA, Munitions Technology Division, Vice President, Marketing, General Dynamics-OTS / ***MG Barry D. Bates, USA (Ret)***, Vice President, Operations, NDIA

8:15AM — Program Executive Officer Ammunition – Welcome and Opening Remarks
BG (P) Paul S. Izzo, USA, PEO Ammunition

8:30AM — Keynote Address
LTG William E. Mortensen, USA, Deputy Commanding General, Army Materiel Command

9:00AM — Industry Keynote
Mr. Harold Yoh, III, Chairman & CEO, Day & Zimmermann

9:30AM — Public-Private Partnering
Mr. Ronald Davis, Chief Industrial Operations, AMC

10:00AM — Break

10:30AM — Warfighter Perspective: OIF/OEF Munitions Engagements / Performance
LTC Steve Russell, USA, Battalion Commander

11:00AM — OSD Perspective
Mr. Anthony Melita, Deputy Director, OUSD (AT&L), Defense Systems, Land Warfare and Munitions

11:30AM — **MES Awards**

11:45AM — **Luncheon Presentation**: TBD

1:00PM — Acquisition Cross-Service Panel
Chair: ***BG (P) Paul S. Izzo, USA***, PEO Ammunition

Panel: ***MajGen Kevin Sullivan, USAF***, Commander, OGDEN Air Logistics Center
BG Samuel M. Cannon, USA, Program Executive Officer, Missiles and Space
RADM Archer Macy, Jr., USN, Commander, Naval Surface Warfare Centers
Mr. Robert Crawford, Deputy, Munitions and Logistics Readiness Center, JMC

2:45PM — Break

3:00pm G-3 Ammunition Requirement Management
COL Greg Cusamano, USA, Chief Army Munition Mangement Office

3:30PM Army Ammunition Budget Priorities & Outlook
COL Mikc L. Waclawski, USA, Chief Congressional Budget Liason, SAFM-BL

4:00PM Congressional Perspective
Mr. Dick Ladd, CEO, Robinson International, Inc.

4:30PM Munitions Technology and Integration Forum
Ms. Barbara J. Machak, Associate Technical Director, System Concepts and Technology, US Army ARDEC

5:00PM ICAP / NDIA Panel "Industry Status Report"
Chair: ***BG William R. Holmes, USA (Ret)***, President and CEO, Day & Zimmermann Munitions and Defense

5:30PM - 7:00PM Hosted Reception

Thursday, February 9, 2006

7:00AM Registration and Continental Breakfast

8:00AM Administrative Remarks
Mr. Tim Bagniefski, Chair, NDIA, Munitions Technology Division, Vice President, Marketing, General Dynamics-OTS

8:15AM Health of Industry (Wall Street Vantage)
Mr. Pierre A. Chao, Senior Fellow, Center for Strategic & International Studies

8:45AM Break

9:15AM PM Panel - Acquisition Programs & Priorities
Chair: ***Mr. Jim Sutton***, Deputy PEO Ammunition

Panel: ***COL Jeff Gwilliam, USA***, PM Joint Services
COL Mark Rider, USA, PM Maneuver Ammunition Systems
COL Jack Koster, USA, PM Close Combat Systems
COL Ole Knudsen, USA, PM Combat Ammunition Systems

10:30AM Industrial Base
Mr. Matthew T. Zimmerman, Associate PEO Ammunition, Industrial Base and ***Mr. Allan Beuster***, Chief, Industrial Preparedness Division, MLRC, JMC

11:15AM Summary – Wrap Up

11:45AM Summit Adjourned - Boxed Lunches Provided

1:00PM GOLF TOURNAMENT BEGINS

Special Thank You to the Munitions Executive Summit Sponsors

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Ni

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Contact Phyllis Edmonson at pedmonson@ndia.org / (703) 247-2577
for additional information

Join us next year at the
2007 Munitions Executive Summit
February 4 – 8, 2007
Hyatt Regency, Crystal City, VA

DEFENSE – INDUSTRIAL INITIATIVES GROUP

CSIS

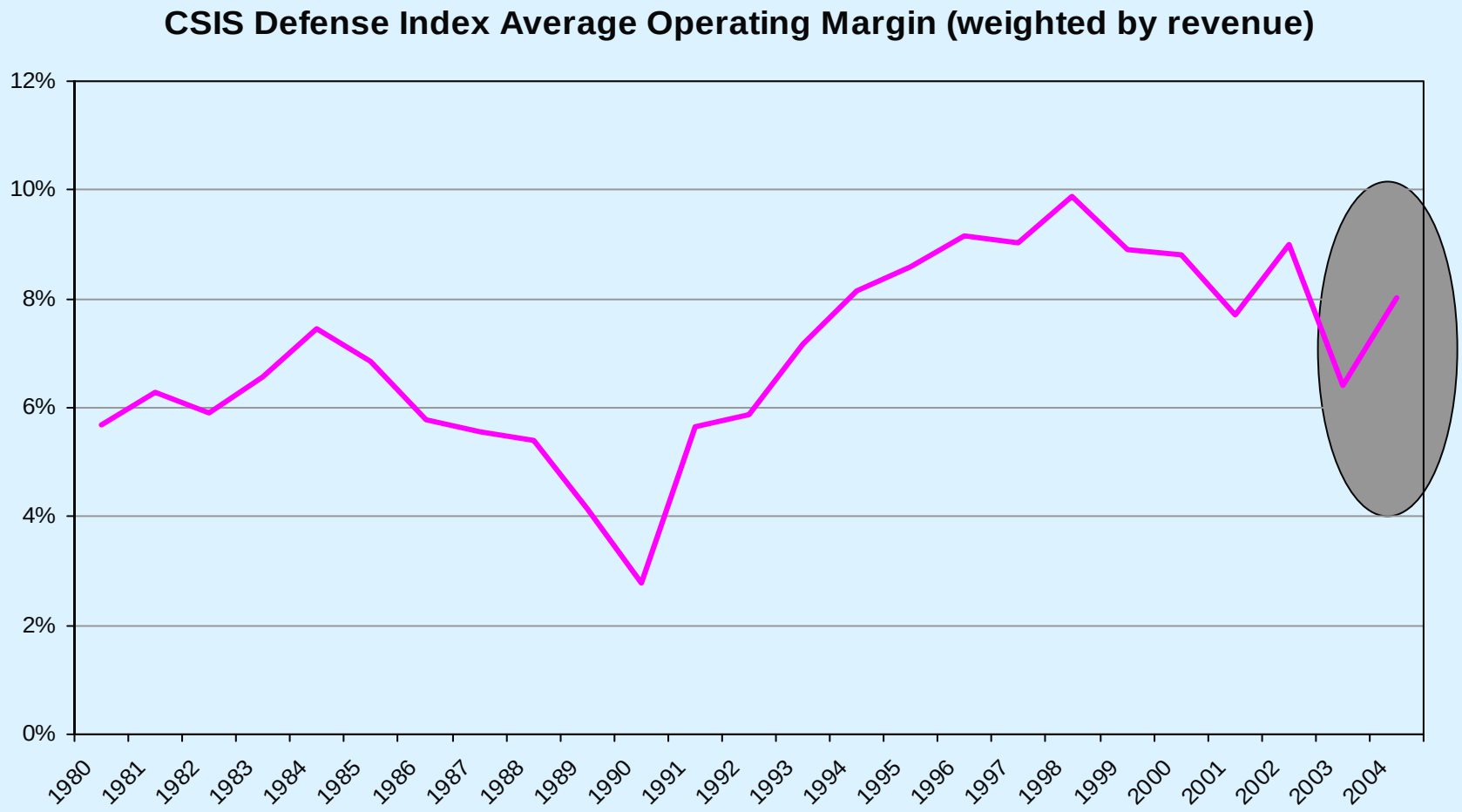
Health of the Industry:
A Wall Street and K Street Perspective

National Defense Industrial Association
2006 Munitions Executive Summit
"Winds of Change - Altering the Munitions Landscape"
Phoenix, AZ

February 9, 2006

Pierre A. Chao
Senior Fellow and Director Defense-Industrial Initiatives
202-775-3128 / pchao@csis.org

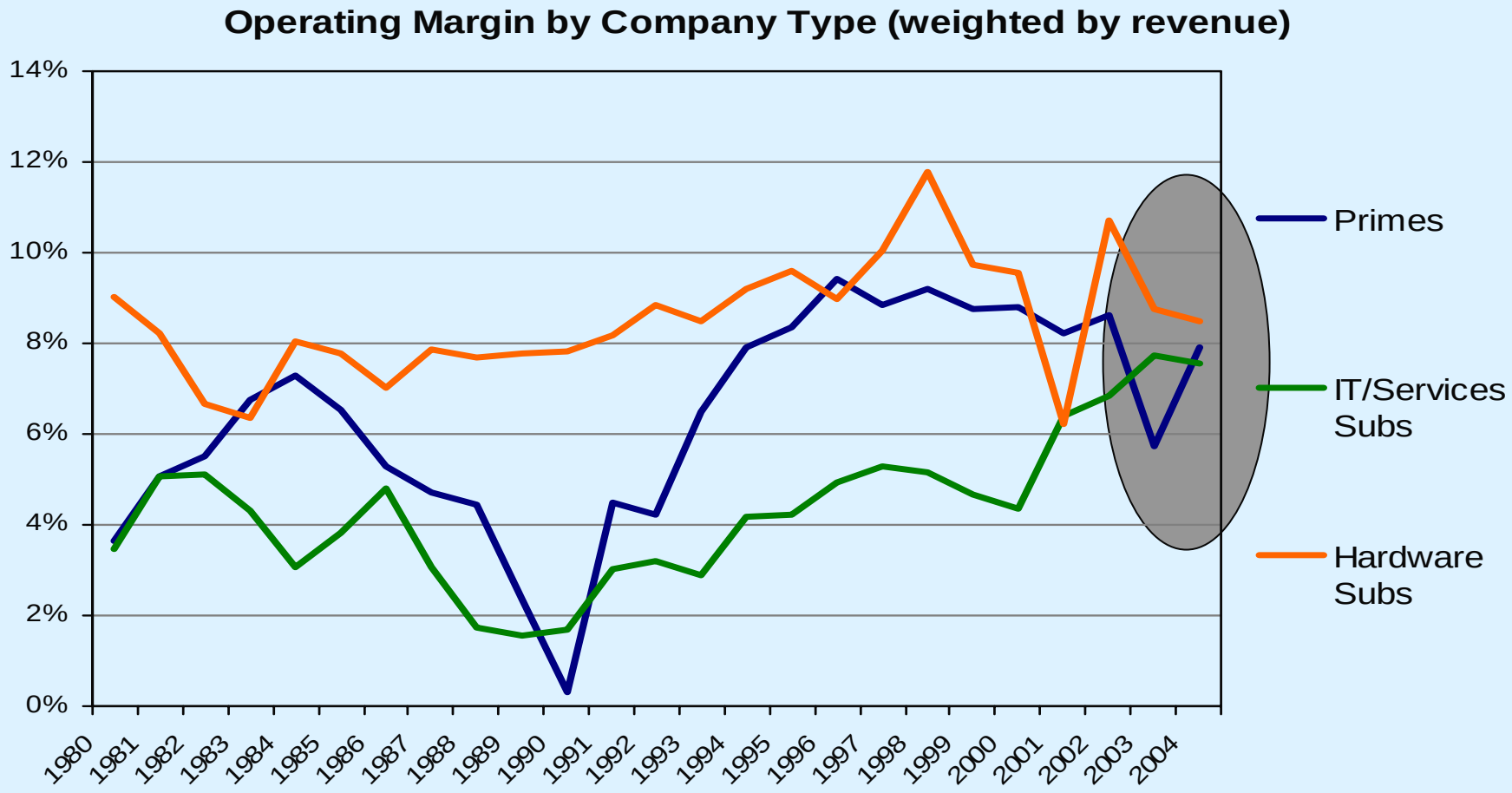
Defense Industry Margins Have Improved . . .



Sources: FactSet, Company Reports, CSIS Analysis.

Note: CSIS Defense Index comprises 36 publicly-traded companies with majority revenues derived from US defense business. Boeing Military results have also been included here.

From A Return Standpoint, Second Tier Does Better…

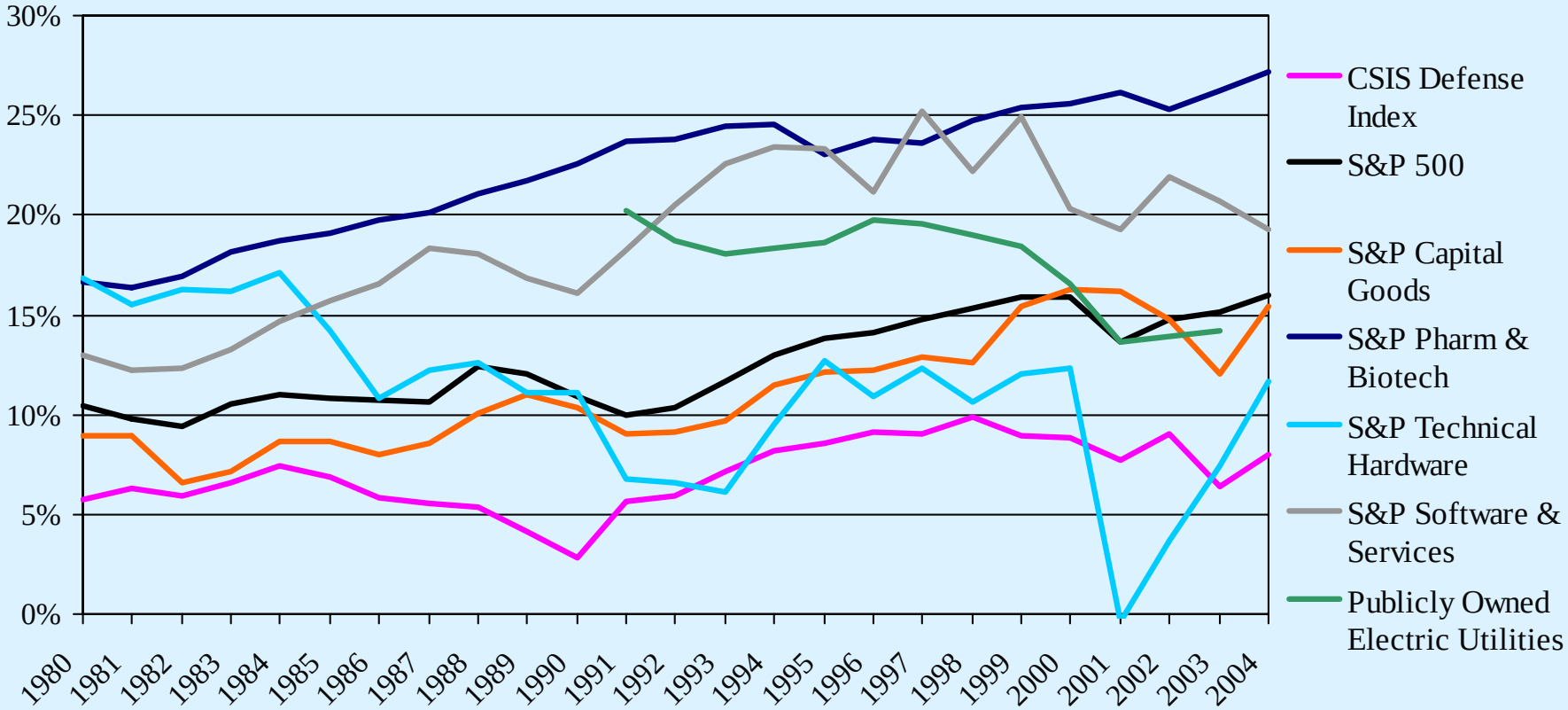


Sources: FactSet, S&P Compustat, Company Reports, CSIS Analysis.

Note: CSIS Defense Index comprises 36 publicly-traded companies with majority revenues derived from US defense business. Boeing Military results have also been included here.

The Industry Continues to Have Lowest Returns…

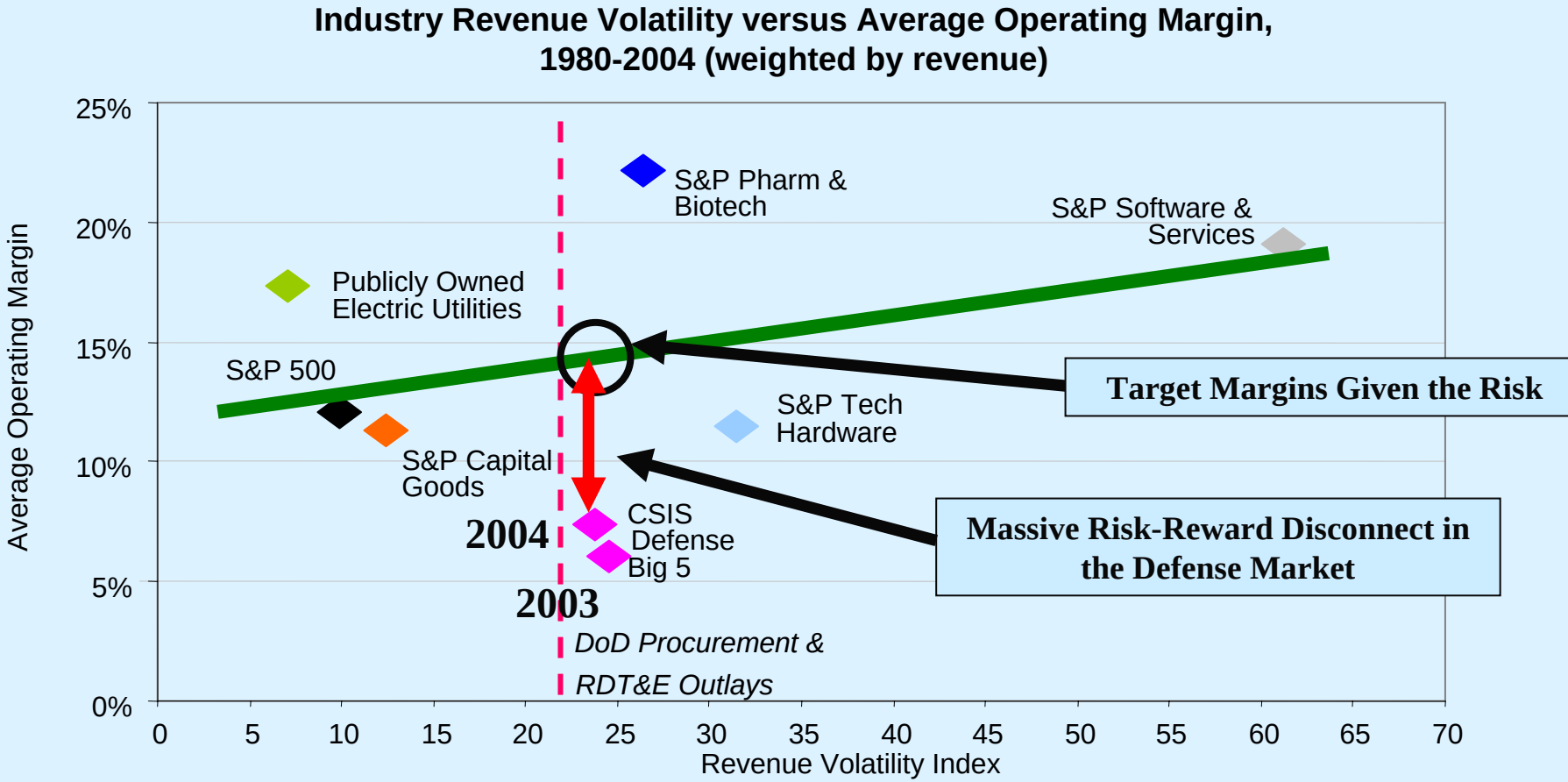
Industry Average Operating Margin, 1980-2004 (weighted by revenue)



Sources: FactSet, S&P Compustat, Energy Information Administration, Company Reports, CSIS Analysis.

Notes: 1) CSIS Defense Index comprises 36 publicly-traded companies with majority revenues derived from US defense business. Boeing Military results have also been included here.
(2) S&P Sub-sector constituents accurate back to 1994; composition held constant for years 1980 to 1993.

Risk-Reward Disconnect in the Defense Business...

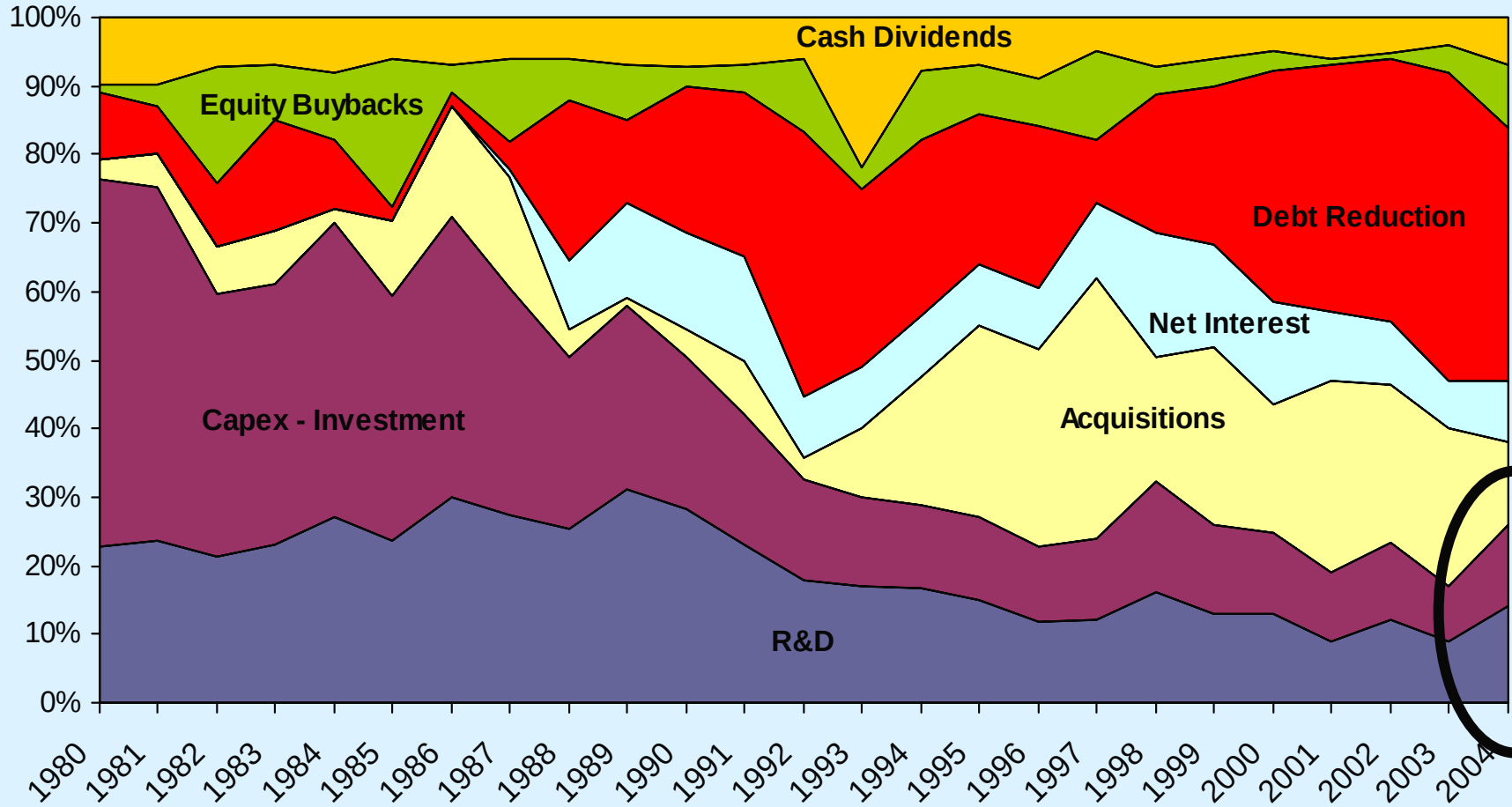


Sources: FactSet, S&P Compustat, Energy Information Administration, National Defense Budget Estimates for FY2004, Company Reports, CSIS Analysis.

Notes: 1) CSIS Defense Index comprises 36 publicly-traded companies with majority revenues derived from US defense business. Boeing Military results have also been included here.
2) S&P Sub-sector constituents accurate back to 1994; composition held constant for years 1980 to 1993.

Financial Response to the Policy and Market Realities...

Defense Industry Cash Outflows, 1980-2004



Sources: FactSet, S&P Compustat, Energy Information Administration, Congressional Reports, CSIS Analysis

Aerospace & Defense Stock Performance…



Wall Street Continues To Value the Sector As Having Growth...

Market Value to EBITDA

	Current	Year End 2005	Year End 2004	Cycle Range
Alliant Tech	8.8x	8.8x	10.7x	
General Dynamics	8.1x	8.0x	8.7x	
Defense Average	8.2x	8.2x	9.3x	4 - 10x

Sources: Credit Suisse

Issues Of Our Time:

Acquisition Reform

Recent/Current Studies...

- CSIS Beyond Goldwater Nichols Phase 2
- DSB 2005 Summer Study: Assessment of Transformation – Defense Industry and Acquisition Subpanel
- Defense Acquisition Performance Assessment Panel
- Quadrennial Defense Review
- Others (GAO roundtable, Congressional roundtables and hearings, internal DoD studies, etc.)

BGN - Defense Acquisition Overview

- Restore Service Chiefs' authority over PEOs/PMs
  - SAEs report to Service Chiefs & Secretaries, not USD (AT&L)
- Restore strategic direction to defense acquisition by elevating DDR&E function in AT&L
  - Re-named USD (TL&A) to underscore priority given to how technology can enable future capabilities to meet joint needs
- OSD acquisition focus limited to acquisition policy guidelines and milestone decisions for select major programs and acquisition policy guidelines
  - Sharply reduce AT&L personnel levels
- Expand and fund rapid acquisition process

BUT

- Must be combined with robust process for determining joint capability needs
  - Only the CoComs have operational requirements

BGN - Defining Joint Capability Needs

- **Build a COCOM-centric process for identifying and advocating joint capability requirements that has the following elements:**
  - **Identify and prioritize short-term joint capability requirements through an enhanced IPL process**
    - **Enhanced J-8 capability in the Commands**
    - **CJCS responsible for aggregating and prioritizing joint requirements**
  - **Functional commands take lead on determining longer-term capability needs in their respective areas**
  - **As interim step, create a Washington-based, JFCOM capability, headed by a 3-star, to determine and advocate the longer-term joint capability needs of the regional commands**
    - **Decide after two years whether a Joint Capability Command is necessary for this critical function**

BGN - Defining Joint Capability Needs

- **To build a truly joint, demand-oriented JROC, replace the Service Vices with the COCOM Deputies and add civilian representation**
  - **Provides a clean division between advocacy of the supply and demand side of the process**
    - **Military Services and Functional Commands compete on how best to meet the operational requirements of the Combatant Commands**
- **Implement Phase 1 recommendation for a refocused OSD (PA&E) that both manages a NSC-like process for making strategic choices and provides analysis to inform those choices; make PA&E a member of the JROC**
- **Also add refocused OSD (AT&L) and OSD (Policy) to bring a defense-wide, demand-side and technology-push perspective**

BGN - Defining Joint Capability Needs

- **Implement BG-N Phase 1 recommendation to form a JTF with budgetary and acquisition authority for Joint C3**
  - **Defense-wide funding line**
    - **Take Title 10 authority away from Services for C2 down to the tactical level**
  - **Either STRATCOM or JFCOM, but not both, which could create a horizontal "seam"**
    - **UCP 02 assigns "Global C2" to STRATCOM**
      - **Under BRAC, plans to merge DISA and JTF for Global Network Operations and co-located with NSA**
    - **JFCOM given responsibility for "Theater C2" and organizing and training JTF headquarters**
      - **Could use DISA to ensure seamless interoperability from strategic to tactical**
    - **Need to revisit division of labor in UCP**

Restore Strategic Direction to OSD Acquisition

- **Before 1986, DDR&E was #3 OSD official and the strategic architect for how technology could enable step-level increases in future capabilities**
  - **Served as SecDef's Chief Technology Officer and drove investments that led to current U.S. military dominance (e.g., precision, stealth, etc.)**
  - **Reforms of 1986 eclipsed this function with process management**
- **Elevate DDR&E function to primacy in an Under Secretary for Technology, Logistics & Acquisition**
  - **DDR&E as Principal Deputy**
  - **With a DoD-wide budget line to promote transforming investments and enhanced approval authority over service S&T programs**
  - **Seat on JROC**

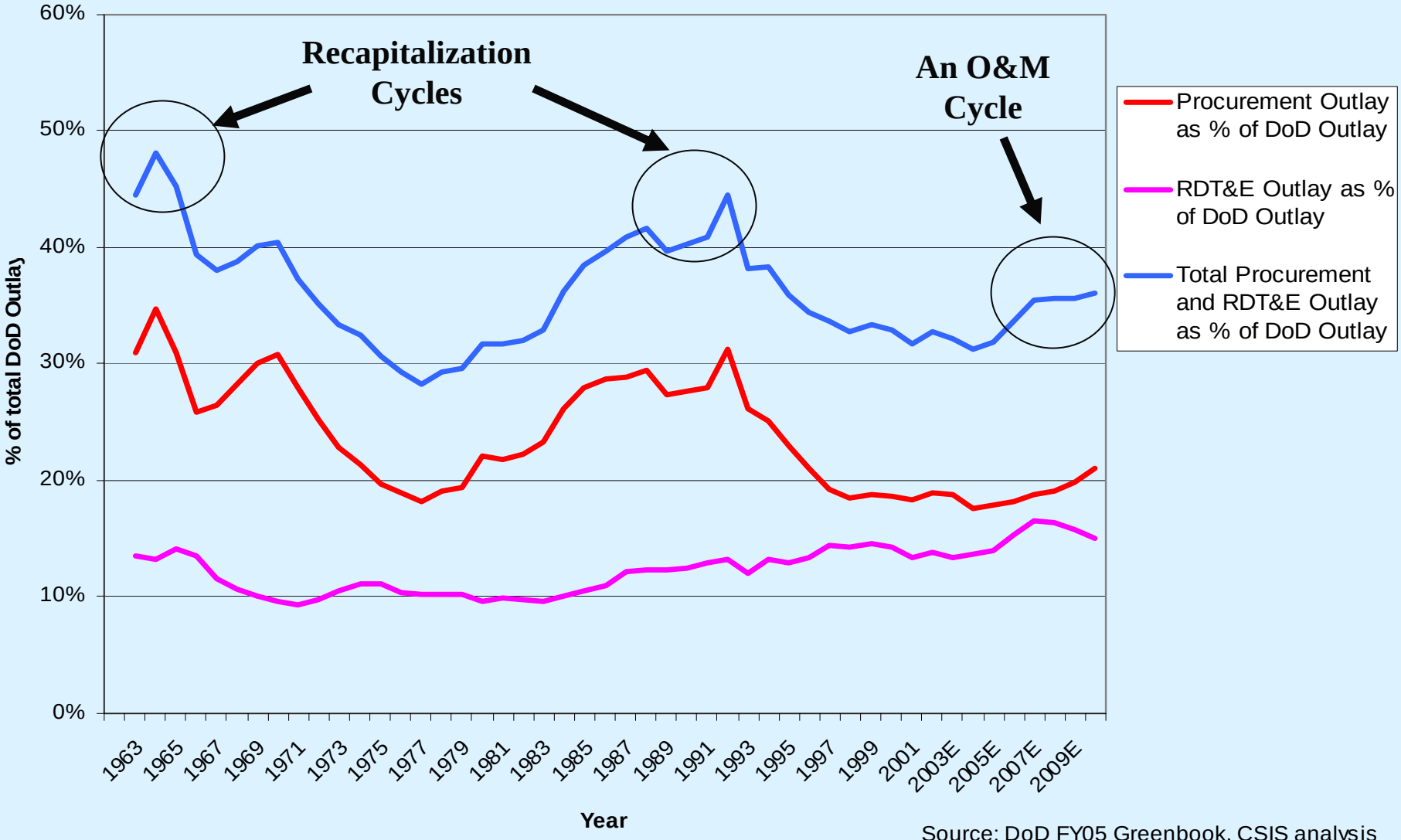
Issues/Findings: Acquisition Reform

- **DAPA Panel (Gold and Red Team)**
  - **Return acquisition to military**
  - **Add USD (AT&L) to JROC**
  - **Create acquisition stabilization account and management reserve**
  - **SAE – 5 year terms**
  - **Pool of pre-cleared people**
  - **Budget to 80% level**
  - **Replace JCIDS with COCOM led process**
  - **Time as independent variable**
  - **Risk based source selection**
- **DSB 2005 Summer Study: Assessment of Transformation – Defense Industry and Acquisition Subpanel**
- **QDR**

Issues Of Our Time:

Defense Budgets

Cycle Continues…



Source: DoD FY05 Greenbook, CSIS analysis

Issues Of Our Time:

Globalization

Issues...

- **Rising protectionism**
  - **Buy America / Berry Amendment / Fortress Europe**
- **Technology transfer/export controls**
  - **Improvements in processing times**
  - **No progress on the broader strategic issue**
- **Offsets**
  - **Rising %'s, increased "bureaucratization"**
- **The "China Dilemma"**

About CSIS

For four decades, the **Center for Strategic and International Studies (CSIS)** has been dedicated to providing world leaders with strategic insights on—and policy solutions to—current and emerging global issues.

CSIS is led by John J. Hamre, formerly deputy secretary of defense, who has been president and CEO since April 2000. It is guided by a board of trustees chaired by former senator Sam Nunn and consisting of prominent individuals from both the public and private sectors.

The CSIS staff of 190 researchers and support staff focus primarily on three subject areas. First, CSIS addresses the full spectrum of new challenges to national and international security. The **Defense Industrial Initiatives Group (DIIG)** is part of the CSIS International Security Program and focused on issues related to the global defense-industrial enterprise. Second, we maintain resident experts on all of the world's major geographical regions. Third, we are committed to helping to develop new methods of governance for the global age; to this end, CSIS has programs on technology and public policy, international trade and finance, and energy.

CSIS is private, nonpartisan, and tax-exempt. CSIS receives funding from public and private entities. CSIS does not take policy positions, the views in this presentation are those of the author.

Munitions Executive Summit

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Joint Munitions Life Cycle Management Command

JM LCMC Commander
MG Jerome Johnson



Integration of Life Cycle Management Supporting Joint Requirements

- RDECOM
  - ARDEC
  - ECBC
- SERVICES

- Technology Development
- Develop Ammunition
- Capturing Requirements
- Acquisition of Ammunition
- Production of Ammunition
- Stockpile Management
- Distribution CAM
- Maintenance Of Stockpile
- Demilitarization Of Ammunition





PEO AMMO
BG (P) Paul S. Izzo

CG JMC
BG James Rogers

PM Joint Services
COL Gwilliam

MCAAP Commander
COL Gary Carney

PM Maneuver Ammunition Sys
COL Rider

CAAA Commander
COL Todd Smith

PM Combat Ammo Systems
COL Knudson

BGAD Commander
COL Rick Mason

PM Close Combat Systems
COL Koster

Tooele AD
COL Anne L. Davis

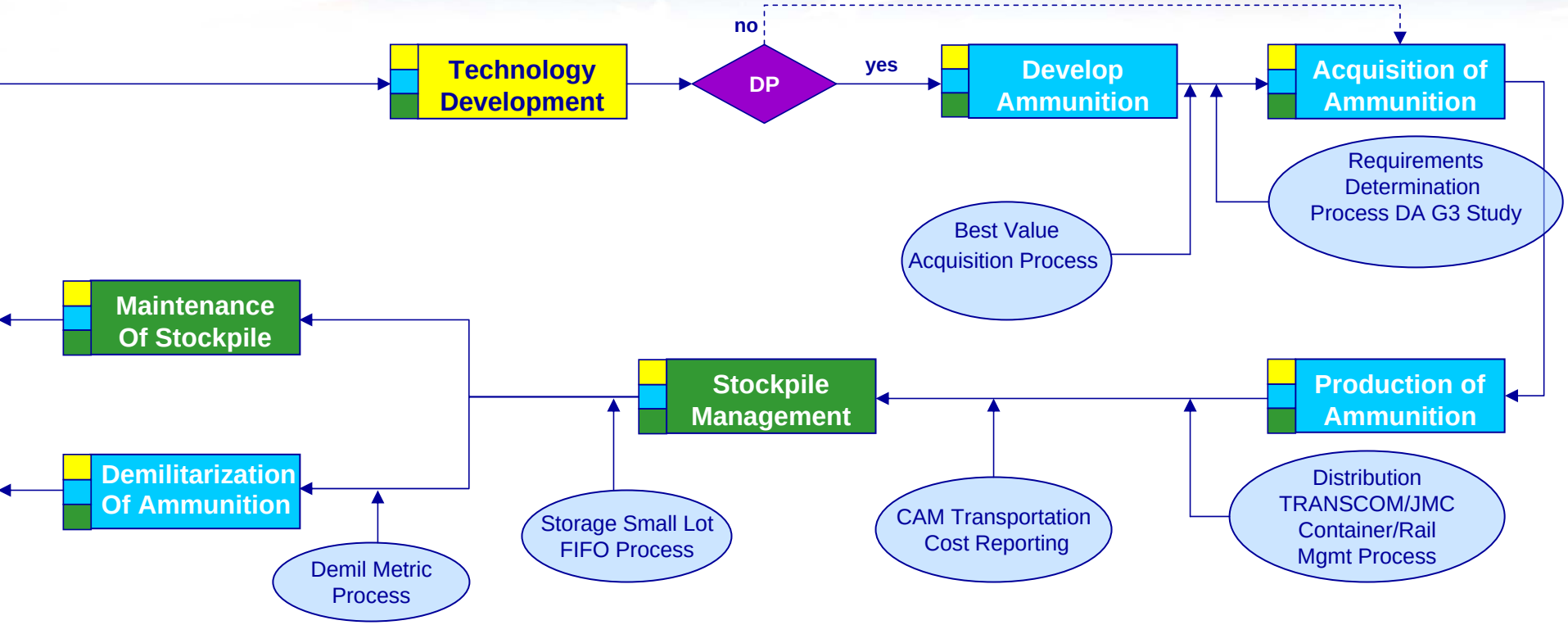
Strategic Goals

1. Grow world class people, teams & partnerships
2. Leverage and integrate Joint Service activities
3. Improve integrated Life-Cycle Management
4. Communicate effectively with Stakeholders

Executing LCMC

- ✓ Joint Warfighter Readiness
  - ➢ Current Fight
  - ➢ Training Requirement
  - ➢ Future Fight
- ✓ Requirements Determination Integrator
- ✓ Ammunition Life Cycle Management
- ✓ Single Manager for Conventional Ammunition Executor and Field Operating Activity

LSS -Driving Ammunition Life Cycle Process Improvement



- Utilizing LSS to tackle strategic level processes
  - ie: Requirements Determination
- Creating LSS culture within JM LCMC
- Expect same commitment from ammo producers

JM LCMC

Joint Munitions Life Cycle Management Command

Vision: ***Battlefield Dominance for the Warfighter with Superior Munitions***





Core Competencies

- **DOD Common Service Provider for Munitions**
- **Global Contingency Operations Support**
- **Joint Worldwide Asset Posture**
- **Munitions Readiness Reporting**
- **Industrial Base Management & Transformation**
- **Centralized Ammunition Management**
- **Enterprise Readiness**
- **Munitions Logistics Assistance**

JM LCMC

Munitions Development

Requirements Determination

Acquisition

Production

Stockpile Management

Distribution

Maintenance

Demilitarization

Single Logistics Provider for JOINT Munitions Readiness

Manage Joint Conventional Ammunition

Field Operating Activity for the Single Manager

Conventional Ammo Value $ 22.2B

We:

Manufacture

Procure
Operate the Industrial Base

Store
Train
Maintain
Inventory
Surveillance

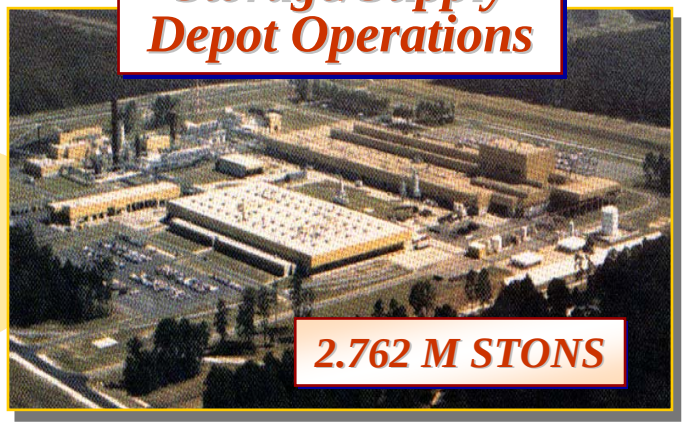
Distribute
Training
War Reserve

Demil
All Services
393K STONS
= 20%
of Storage

To Do That There Are:



Storage/Supply Depot Operations



OCONUS

- Direct Support to All Combatant Commanders
- 702K STONS War Reserve
- Army Prepositioned Stocks



FY2004 Examples:

- Maintenance Performed on 12.4K tons
- Demilitarized 41.4K tons
- Shipped 162K tons
- Received 208K tons

JM LCMC Joint Ammo Support

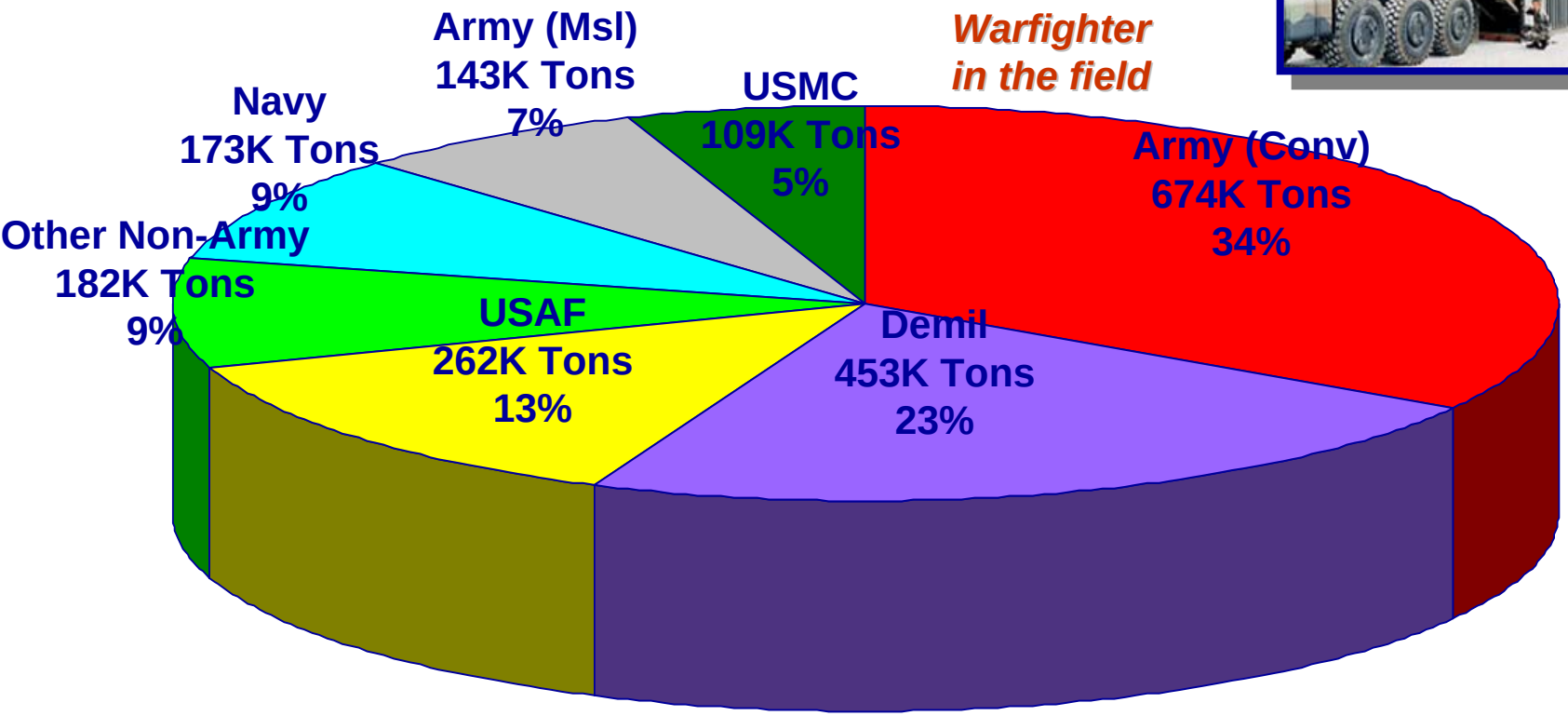
Logistics



From Production in the Industrial Base…



…to the Warfighter in the field



Munitions Readiness Report (MRR)

Ammunition Readiness Requirement

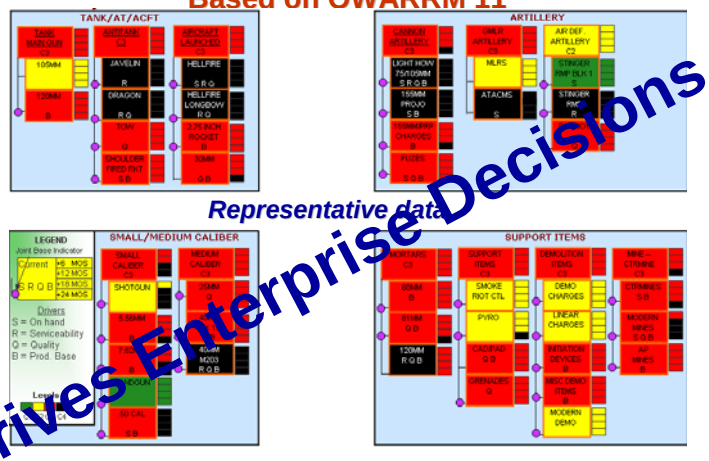
Warfighter

Ammunition Readiness Solution

Ammunition Enterprise Acquisition, Logistics, or Technology Solution

MRR Worldwide View

Based on OWARRM 11



Representative data

Drives Enterprise Decisions

- ✓ **9-11-01 highlighted need for common method to assess munitions readiness**
- ✓ **MRR assesses readiness for current time period, and at 6 month intervals out to 24 months**
- ✓ **Only measurement system in place for consumable supplies**
- ✓ **Improvements in process to respond to CSA comments**

Centralized Ammunition Management (CAM)



From Production in the Industrial Base…



…to the Warfighter in the field

"10 months without supply issues due to CAM & JMC Item Manger support"
Tim Barnhart, FORSCOM, G3
AAAC Conference Aug 05

CAM implemented at 78 CONUS sites

Background:

- ✓ Training/War Reserve not fully funded
- ✓ No visibility of assets at retail level
- ✓ Needed ability to optimize distribution
- ✓ CSA LTTF Initiative #22

Vision:

- ✓ Manage wholesale & retail ammunition stockpile as a unified whole
- ✓ Institute proactive logistics process
- ✓ Consolidate ammo supply
- ✓ Enhance strategic mobility and deployability
- ✓ Reduce logistics costs
- ✓ Maintain warfighting capability/readiness

Meeting Customer Required Delivery Dates!

Centralized Ammunition Management

Concept of Operations

TAMIS-R Training Authorizations

DAART Basic Load Requirements

SAAS-MOD Stock On Hand

Garrison Ammo Manager

Joint Munitions Command

Determine Delta/ Optimize Inventory

HQ, DA G3 & G4 MACOM Training & Deployment Requirements

Regional Defense Munitions Center

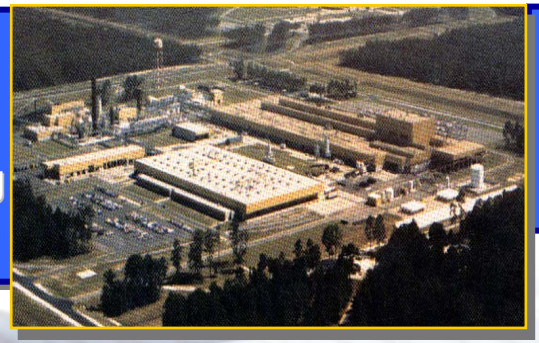
Consolidated Resupply

Ammo Supply Point

Pick up Ammo

Process begins and ends with the soldier

- Enhance strategic mobility/deployability
- Reduce the sustainment footprint
- Reduce cost of logistics while maintaining warfighting capability and readiness



Long Term Benefits

Readiness ↑ Cost ↓



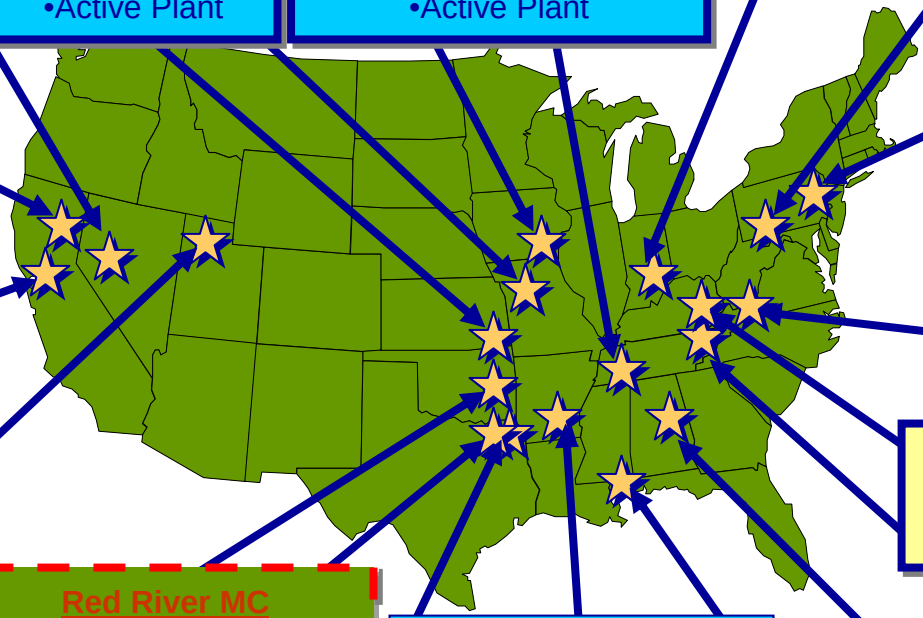


Summary

- ✓ **Warfighter Readiness Focused**
- ✓ **Executing LCMC**
  - ➢ **Total Life Cycle (RDECOM/PEO/JMC)**
  - ➢ **JM LCMC MOU is our Implementation Plan**
- ✓ **Continuous Improvement**
  - ➢ **Lean/Six Sigma**
  - ➢ **Strategic Planning**

Munitions Locations

= Army Ammunition Plant
= Army Depot
= Munitions Center



Kansas AAP
•Sensor Fuzed Weapon
•Active Plant

Iowa AAP
• Missile Warheads
•Load, Assemble and Pack
•Active Plant

Crane AAA
•Produce Navy Items
•Supply Depot Operations
•GOGO

Letterkenny MC
•Tactical Missiles
•Navy/Air Force Missiles
•Conv Ammo Storage

Hawthorne AD
•Western Area Demil facility
•Contractor Operated
•Supply Depot Operations

Lake City AAP
•Small Caliber
•Active Plant

Milan AAP
•Load, Assemble and Pack
•Active Plant

Scranton AAP
•Projectile Metal Parts
•Active Plant

Sierra AD
•Supply Depot Operations
•Demil Storage

Radford AAP
•Propellants
•Explosives
•Active Palnt

Riverbank AAP
•Processing Metal Parts
•Active Plant

Blue Grass AD
•Chemical Defense Equip
•Supply Depot Operations

Tooele AD
•Supply Depot Operations
•Ammunition Peculiar Equip
•MC Training Ammo Storage

Holston AAP
•Explosives RDX/HMX
•Active Plant

Red River MC
•Supply Depot Operations
•Demil Storage

Pine Bluff Arsenal
•White/Red Phosphorus
•Smoke/Obscurants

McAlester AAP
•Bomb Production
•Supply Depot Operations
•GOGO

Lone Star AAP
•Load, Assemble and Pack
•Active Plant

Mississippi AAP
•Cargo Grenade Metal Parts
•Semi-Active Plant
•Available to Private Sector

Anniston MC
•Supply Depot Operations
•AMCOM Missiles
•DA Missile Recycling Cntr

= BRAC sites

U.S. Army Materiel Command

Public-Private Partnerships With Industry

Advance Planning Briefing to Industry (APBI)
8 Feb 2006

Ronald J. Davis, Jr.
DCS Business Transformation
G-7, HQ U.S. Army Materiel Command

"Need to be faster, more agile, less bureaucratic – Need to fight this every day"

What is a Public-Private Partnership?
-P3-

Army-owned and operated facilities…
-Maintenance depots
-Manufacturing arsenals
-Ammunition plants
-R&D facilities/labs
-Engineering Centers

❖Contractual agreement between an Army-owned and operated facility and one or more private industry or other entities to perform work or utilize the Army's facilities and equipment.

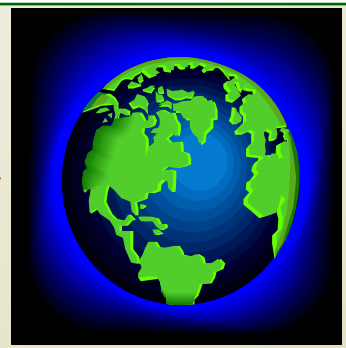
❖Includes one or more of the following:

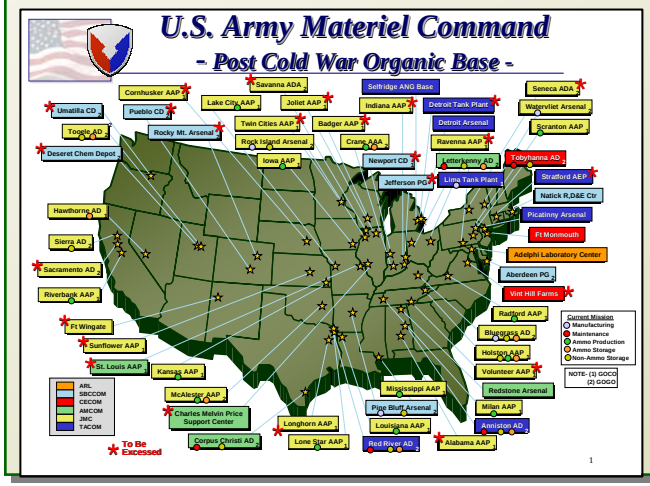
- ✓ Articles or services to industry.
- ✓ Industry leasing equipment or facilities to perform work for public or private sector.
- ✓ Work sharing arrangements.
- ✓ Teaming arrangements where Army facility and industry contract jointly .

State of the World

- *Transformation*
- *Global War on Terrorism*
- *Market & Defense Globalization*
- *Increased Joint Operations*

Critical Global Industrial Base for the 21st Century





Organic Industrial Base Evolution



"Need to be faster, more agile, less bureaucratic – Need to fight this every day"

Benefits to Industry

Benefits:

- ✓ Access to advanced technology industrial production machinery.
- ✓ Access to new chemical processes for metal finishing.
- ✓ Use of hard to receive hazardous waste permits.
- ✓ Minimize process flow.
- ✓ Long term use agreements.
- ✓ Avoid duplicate investment cost on short/long term contracts.
- ✓ Decrease in capital investment cost.

Statutory Authorities

General Statutory Authority

10 USC 2474: Designated Centers of Industrial and Technical Excellence (CITEs).

Participate in Public Competitions

10 USC 2208j

10 USC 2470

Section 8032 PL 108-37

Lease or Use Army Property

10 USC 2667

10 USC 2474

Sale of Articles and Services to Persons Outside DOD

10 USC 2208(h)

10 USC 2539b

10 USC 4543

22 USC 2770

Other

- **Armament Retooling and Manufacturing Support (ARMS) Initiative**

  10 USC 4551-4555

- **Arsenal Support Program Initiative (ASPI)**

  PL 106-398

- **Providing Government Property to Contractors**

  FAR Subpart 45.3

15 USC 3710a, Cooperative research and development agreements

Statutory Restrictions/Constraints

- **10 USC 2474… Establishes Centers of Industrial and Technical Excellence (CITE) and partnering authorities**
- **10 USC 2208(j)… Working Capital Fund (WCF) authority for sales of articles and services**
- **10 USC 2470… authority to compete for maintenance and repair workloads of other Federal agencies**
- **10 USC 2667… Leasing of non-excess equipment and facilities, Enhanced Use Leasing**
- **10 USC 2208h.. Supplies from a working capital funded inventory may be sold to contractors to for use in performing DOD contracts.**
- **10 USC 4543… Sale of articles and services by facilities that manufacture cannons, gun mounts, etc.**
- **22 USC 2770… may manufacture, procure, or sell defense articles to any United States company for incorporation into end items**
- **10 USC 2469a …Competitive procedures for contracting at BRACed depots**
- **10 USC 2563… Sales of articles and services by industrial facilities (other than 10 USC 4543)**

- **P.L. 103-337… Initial depot maintenance partnering law Sec 337**
- **10 USC 4553… Armament Retooling and Manufacturing Support Initiative**
- **P.L. 106-398… maintain the viability of the Army manufacturing arsenals and the unique capabilities of these arsenals to support the national security interests of the United States**
- **FAR, Subpart 45.3… Conditions and limitation for providing equipment material and facilities to a contractor or subcontractor**

- **15 USC 3710a & 10 USC 2539b … R&D, Laboratories, engineering centers…**
- **10 USC 7300… Naval shipyard sale of articles and services for fulfillment of contracts for nuclear ships**
- **22 USC 2754… Sale of articles and services to be sold or leased for Foreign Military Sales (FMS)**

AMC's Public-Private Partnership Goal and Objectives

Intent:

Create a partnership fostering atmosphere between government facilities and private entities that benefits all parties.

Goal:

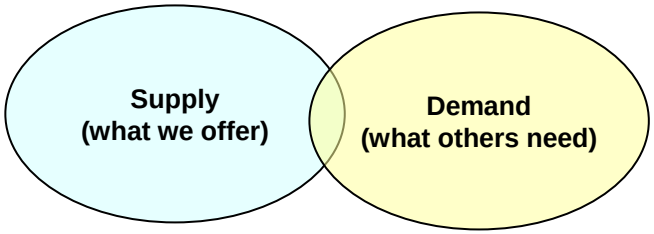
Improve the output and performance of AMC organic facilities through increased participation with the private sector via industrial partnerships or cooperative activities.

Objectives:

- ✓ Enhance support to the warfighter via stronger cooperative partnership relations with industry
- ✓ Leverage industry's best practices
- ✓ Improve organic operations efficiencies
- ✓ Reduce and offset cost of ownership of organic facilities
- ✓ Leverage private investment in Army facilities

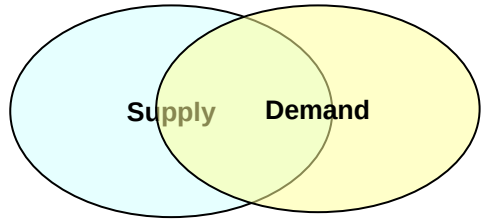
Partnership Strategies

As-is



Partnerships exist in the overlap

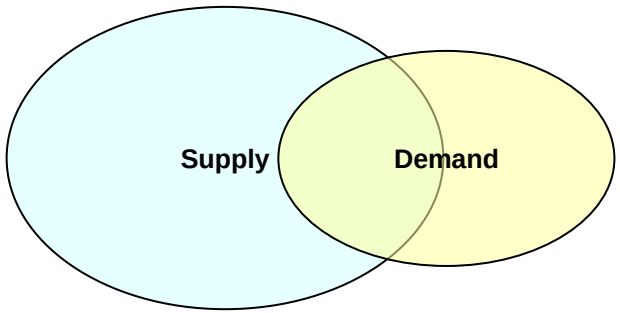
Strategy #1: Make Partnerships Easier



How? Remove barriers

- **Shape enabling legislation**
- **Create supportive regulations and policies**
- **Drive decisions down based on common business rules**

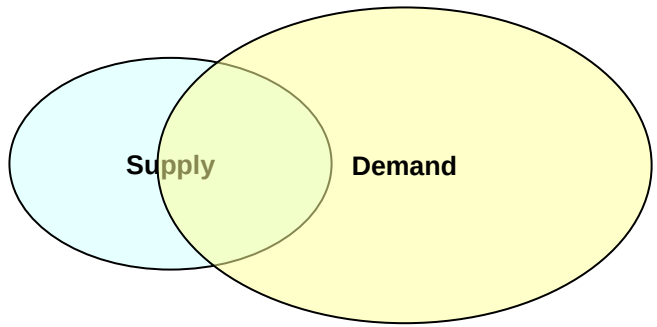
Strategy #2: Improve Market Position



How? Be a more attractive partner

- **Enhance capabilities**
- **Decrease costs**
- **Increase agility**
- **Improve innovation**

Strategy #3: Stimulate Demand



How? Promote partnership opportunities

- **National campaign**
- **Enterprise-wide partnership matching**
- **Speed of delivery**

HQ AMC's
Actions to Support Partnerships

Main thing to remember from briefing

❖ **Private Industry Awareness**

✓Established a publicly viewed webpage (http://www.amc.army.mil/partnering/) to create awareness of partnership opportunities, to include: POCs, facility links, legislation.

✓Participate in Advance Planning Briefings to Industry.

✓Champion Partnering through Industry Forums.

✓Developing capabilities distribution list. Want to be on list? Email POC from above webpage.

Leverage Industry's Strengths

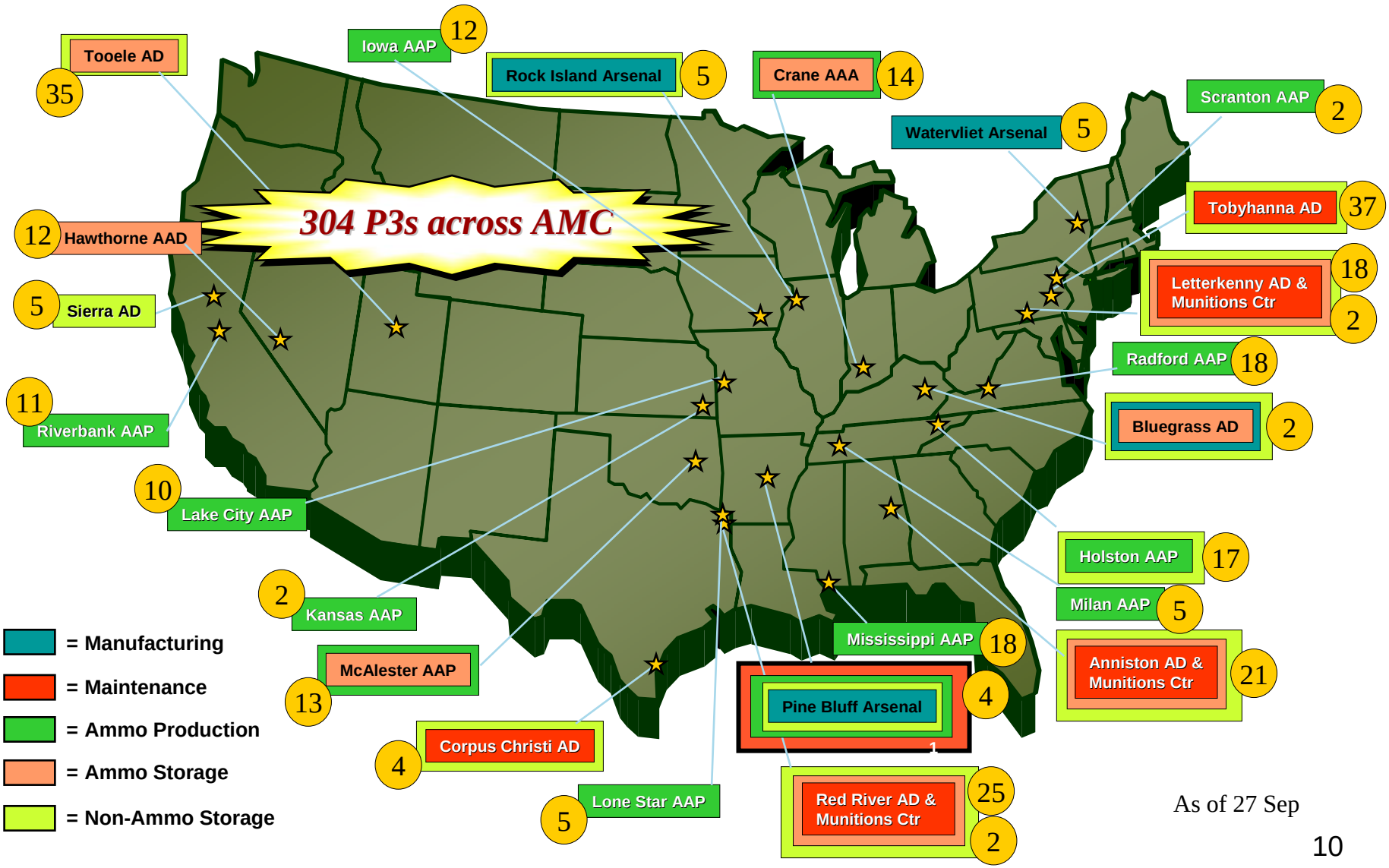
❖ **AMC Facility Support**

✓Update Army Knowledge On-Line Partnership Knowledge Center (https://www.us.army.mil/suite/kc/881063).

✓Support Partnership Legislation.

✓Conduct on-site Partnership Tutorials at Army Materiel Command installations.

Number of Public-Private Partnerships Across AMC's Industrial Facilities



As of 27 Sep

AMC Partnership Examples

❖ Maintenance Army Depots (ADs)

- ✓Anniston AD
  - • General Dynamics, BAE, Honeywell
- ✓ Corpus Christi AD
  - • Sikorsky Aircraft Corp, GE Aircraft Engines, The Boeing Company
- ✓ Letterkenny AD
  - • Lockheed Martin JAVELIN Joint Venture, Lechmotoren US, Edgewood Chemical Biological Center (ECBC)
- ✓ Red River AD
  - • BAE, Marvin Land Systems, GS Engineering
- ✓ Tobyhanna AD
  - • Northrop Grumman, Engineering & Professional Services, BAE

❖ Manufacturing Arsenals

- ✓ Pine Bluff Arsenal
  - • Lindsay & Osborne, Battelle,
- ✓ Rock Island Arsenal Joint Manufacturing and Technology Center
  - • Alliant Tech Systems, Grainger Tools, PB-NAMMO Demil LLC
- ✓ Watervliet Arsenal
  - • Egyptian Co-Production, Hartchrom Inc, GD Land Systems

❖ **Ammunition Storage**

- ✓ Anniston Munitions Center
  - • AMTEC
- ✓ Blue Grass AD
  - • Lockheed, Air Force
- ✓ Hawthorne AAD
  - • Space & Missile, Marines Dockery
- ✓ Letterkenny Munitions Center
  - • ADK, BAE Deep Digger
- ✓ Red River Munitions Center
  - • RRAD, DDRT, TRMD
- ✓ Tooele AD
  - • General Atomics, Technical Ordnance, Dyno Nobel

❖ **Mobility Facility**

- ✓ Sierra AD
  - • FEMA, Tyonek, Highland Engineering

❖ Army Ammunition Plants (AAPs)

- ✓ Crane Army Ammunition Activity
  - • SNC Canada, Gradient Technologies
- ✓ Holston AAP
  - • Railcar Solutions, Transit Mix, Kingsport Railcar Services
- ✓ Iowa AAP
  - • General Dynamics, L3, U.S. Army Corps of Engineers
- ✓ Kansas AAP
  - • Dyno Nobel, Lindsey & Osborn Partnership
- ✓ Lake City AAP
  - • Stealth Garments, Valentec, Fort Osage School
- ✓ Lone Star AAP
  - • American Dehydrated Foods, TEC Liners, Area Z Recreation
- ✓ McAlester AAP
  - • Boeing, General Dynamics, National Forge
- ✓ Milan AAP
  - • Ordnance Systems Inc, SNC TEC, American Ordnance
- ✓ Mississippi AAP
  - • Boeing, Power Dynamics, Dept. of Energy
- ✓ Radford AAP
  - • New River Energetics, Alliant Painting, U.S. Cellular
- ✓ Riverbank AAP
  - • Cingular, Sierra Railroad, Medical Relief Foundation
- ✓ Scranton AAP
  - • DCAA, Pennsylvania Environmental Partnership

Conclusion

- **The U.S. Army Materiel Command is committed to strong and mutually beneficial working relationships with our Industry Partners.**

- **The Public-Private Partnership process has proven to be a dynamic and effective tool in forging such relationships.**



AMC Point of Contact:

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Email:rick.riney@us.army.mil







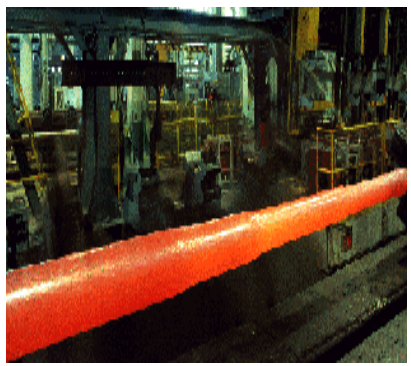


BACK UP INFORMATION

Watervliet Arsenal

This reduces Army's cost of ownership, preserves critical mission skills, Permits modernization of faculties and infrastructure

- Arsenal Support Program Initiative (ASPI):
  - ✓ Site Manager Partnership Contract with Arsenal Business and Technology Partnership for two years at no cost. ABTP markets unused and underutilized space and assets to commercial/Government customers, negotiates agreements and acts as facility manager.
  - ✓ Partnering Contract with Hartchrom Albany, Inc
  - ✓ Cooperative Research and Development Agreement partnership to provide WVA space to two research and development companies
  - ✓ Oak-Mitsui Inc facility utilization and purchase of service by WVA workforce
  - ✓ Elmhurst Research Inc rental of office space.
  - ✓ CRADA arrangements with Benet Labs supports partnering for space and services on-site with two Research and Development Companies - Oak Mitsui and Elmhurst Research
  - ✓ Extreme Molding is leasing space for a start-up injection molding business with future expansion plans
- Direct Sales
  - ✓ General Dynamics - M256 cannon for the Korea K-1 Tank upgrade program,
  - ✓ General Dynamics - M68A1 Cannon for the Army Stryker vehicle Mobile Gun System
  - ✓ Wilburt & Company - Thin foil booms



- **Hartchrom Albany, Inc. – Chrome plating barrels/components, as of 19 Aug 05**

Rock Island Arsenal (RIA)

Using ASPI

Identified foundry, plating, heat treat and forge operations as potential areas for expansion of our ASPI program

❖TDF Corporation provides computer support to various tenants at Rock Island Arsenal.

❖Quad City Area Labor Management provides in-kind training for Rock Island Arsenal employees.

❖General Dynamics Ordnance and Tactical Systems provides a wide variety of services to the Joint Munitions Command.

❖Modular Furniture, Inc tears down and sets up office systems on Rock Island Arsenal.

❖5 T Office Services provides computer repair services to Rock Island Arsenal and its tenants.

❖FR Countermeasures provides a wide variety of services to the Joint Munitions Command.

❖Work with the Quad City Development Group on an agreement that allows them to market the facility. This will reduce processing time, cost of multiple leases, and enhance marketing efforts.

❖ Success with the ASPI program … 7 facility use contracts in place, 5 are for administrative space, 1 for storage space, and 1 for production space.

Rock Island Arsenal (RIA)

Numerous Success Stories with Public-Private Partnering Agreements

- **United Defense Limited Partners… Production of turrets and crew production baskets on the BMP-2 Opposing Forces Surrogate and for the upgrade of gun mounts for the M109 Howitzer**
- **CMRED…Center for Manufacturing Regional Economic Development for the sale of various supplies and services not commercially available in support of area businesses.**
- **Depot Systems… For the sale of various supplies and services for both DOD and commercial application.**
- **Alliant Techsystems… For the sale of gun mounts and spare parts for the M1A1.**
- **Focus Hope… Mobile Parts Hospital development and production.**
- **Log Value… Government security qualification**
- **Pendulum Management… Government security qualification**
  - **–90 BPAs in place with local vendors to provide additional capacity, as of 19 Aug 05**

Ground Systems Industrial Enterprise



TACOM/GSIE has significant successes with partnering. This is a Basic Ordering Agreement for ArmorWorks to send work to five Army facilities.

• Partner: ArmorWorks, Tempe, AZ uses state-of-the-art ceramic and composite materials to construct high tech armor systems.





•Subcontract for metal manufacturing to:

- **•Anniston Army Depot**
- **•Red River Army Depot**
- **•Sierra Army Depot**
- **•Joint Mfg & Technology Ctr-Rock Island Arsenal**
- **•Joint Mfg & Technology Ctr-Watervliet Arsenal**

Corpus Christi Army Depot (CCAD)

CCAD is leveraging their CITE designation to create depot workload and provide for private sector use of their facility.

Apache
Chinook
Blackhawk
T700
T55

❖ Use Memorandums of Agreement to develop a number of Original Equipment Manufacturing Partnering efforts.



❖Partners include:

- ✓Sikorsky Aircraft Corporation
- ✓General Electric Aircraft Engines
- ✓Honeywell International Corporation
- ✓Boeing Company Aerospace Support

❖These agreements represent three major weapon systems and two major engines that CCAD overhauls.

Letterkenny Army Depot

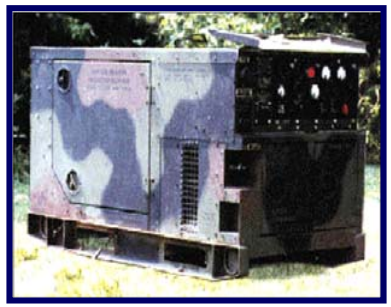
AM General

•Provides powertrains and unique parts for HMMWV



Melton Industries

•Provides engines for power generation systems



Penn Metal Fabricators

•Metal components and trailers for mobile kitchens



Military Systems Group

•Gun mounts and engineering for special operations vehicles



Edgewood Chemical Biological Center

•Biological shelters and filters



AAI

Shadow 200 UAV



McAlester Army Ammunition Plant



- Harpoon Warhead
- High Speed Anti Radiation Missile (HARM)
- Joint Standoff Weapon (JSOW)
- Extended Range Guided Munition (ERGM)
- Commercial Explosive Charges
- 500 lb. Bombs
- 1000 lb. Bombs
- 2000 lb. Bombs
- Demilitarization
- Pallets

Centers of Industrial and Technical Excellence (CITES)

- ***10USC2474…*** **Depots can enter Public-Private Partnerships to perform work related to maintenance core competencies.**

- ***Secretary of Army Designations…***
  - ✓ **Anniston Army Depot**…Combat Vehicles (Except Bradley), Artillery, & Small Caliber Weapons
  - ✓ **Corpus Christi Army Depot**…Rotary Wing Aircrafts (Less Avionics)
  - ✓ **Letterkenny Army Depot**…Air Defense & Tactical Missile Ground Equipment (Less Missile Guidance & Control), and Mobile Electric Power (MEP) Generation Equipment
  - ✓ **Pine Bluff Arsenal**…Chemical & Biological Defense Equipment
  - ✓ **Red River Army Depot**…Tactical Wheeled Vehicles, Small Emplacement Excavator, Bradley Fighting Vehicle Series, Multiple Launch Rocket System chassis, Patriot Missile recertifications, & Rubber products for Sustainment & support to U.S. & Allies & Agencies.
  - ✓ **Tobyhanna Army Depot**…Communications & Electronics, Avionics, & Missile Guidance & Control

SecArmy Designated…
21 Aug 01,
24 Oct 02, & 27 Sep 05

General Purpose bombs

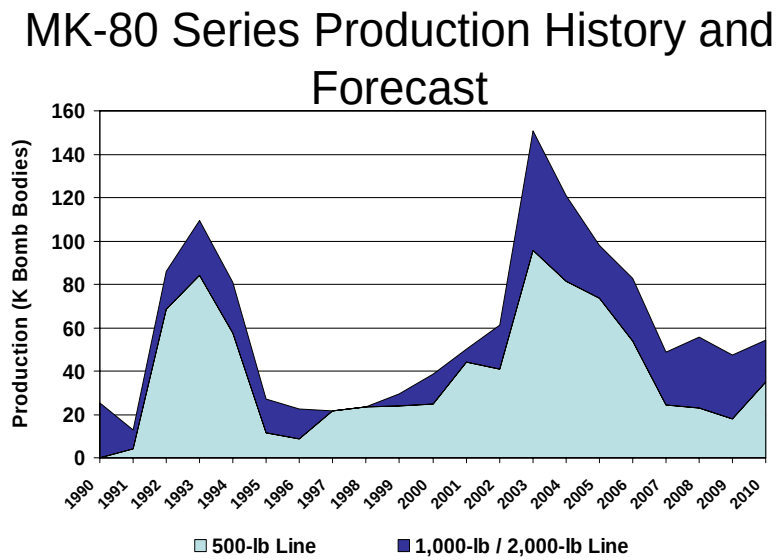
Insensitive Munitions

- Example: FY07 USAF MK 84 $50M programmed
- Explosive cost TNT $2.5/lb vs MNX 795 -/+ $9/lb
- 975lbs in a MK 84
- *Unintended Consequences-* Increased cost ⇨ reduced Qtys ⇨ increase unit cost

Programmed dollars are fixed!
- **145% increase in Unit price**
- **$8.5M in facilitzation cost**
- **59% Reduction in quantities**

Requirements

- Significant swings in production
- Precision guidance will reduce demand



Munitions Executive Summit

Industrial Committee of
Ammunition Producers
Update

February 8, 2006

ICAP Background

• ICAP Established in 1981. Yesterday was 84^{h} Meeting. Normal schedule is 3 meetings per year

• ***Purpose*** – To provide a forum for the open exchange of Government and industry views relating to the Department of Defense ammunition area.

Review and discuss government ammunition acquisition policies, procedures and actions.

Report on the health of the various sectors of the ammunition industry

Identify impediments to sustaining a responsive ammunition industrial base.

Provide a platform for cooperation and collaboration in resolving issues related to the ammunition life cycle, from development through disposal

ICAP Composition

Participants

Government Representatives

NDIA Industry Members

NDIA Leadership

MIBTF

Government Participants

- PEO Ammunition
- PEO Tactical Missiles
- CG, Joint Munitions Command
- APEO Ammunition Industrial Base
- Deputy G3, JMC
- AFSC PARC
- PM, Joint Services
- PM, MAS, CAS, CCS (Rotate Annually)

Industry Members

Sector	Representative	Term
ICAP Industry Chair	Dean Bartles (GD-OTS)	2008
Demilitarization	Ralph Hayes (El Dorado Eng)	2007
Fuzes/Timers	Joe Homko (L-3/BT Fuzes)	2007
GOCOs	Joel Gregory (American Ordnance)	2007
Large Cal/Bombs	John Maniatakis (Norris Industries)	2007
Prop & Explosives	Jerry Hammonds (BAE Explosives)	2008
Pyrotechnics	Bob Harris (Esterline/ARMTEC)	2008
Small/Med Caliber	Mark DeYoung (ATK)	2007
Systems and Sensors	Jim Riley (Raytheon)	2008
Whds & Rockets	Dick Bregard (Aerojet)	2008
Secretary/Recorder	Sheri Franks (GD-OTS, Red Lion)	2008

Discussion Topics

- PEO Ammunition Top 10 Priorities
  - o System Contracting
  - o Industrial Base Modernization
  - o Army Ammunition Portal
  - o Modeling and Simulation
  - o Life Cycle Management Command
- Ammo Industrial Base Strategic Plan
  - Industry feedback session
- Surge Planning
  - Industry contribution to Army Study

Discussion Topics (cont.)

- UID/RFID
  Lively discussion as policy and implementation was developing
- Life Cycle Management Command
  Army updates industry on how they plan to manage ammo
- Acquisition Case Study – PGMM
  PEO Ammo shares with industry lessons learned in a complex ammunition procurement
- Action Items
  Throughout meetings action items are assigned and then tracked from meeting to meeting until closed.

Discussion Topics (cont.)

- Force Protection at GOCO Plants
  - How to pay for post-9-11 additional security?
- SMCA Performance Metrics
  - Developing ways to measure how the SMCA mission is being performed
- Fuze Industrial Base
  - ICAP Fuze Sector Leader provides a state of the fuze industry update
- BRAC Transition
  - Government describes their plans for implementing BRAC decisions

Discussion Topics (cont.)

- Critical Characteristics Clause
  - Army is seeking to include a standard clause in all ammo production contracts designed to improve quality and to define a process for treatment of critical defects
- Section 806 Implementation
  - Legislation requiring the SMCA to make procurement decisions to insure U.S. ammo base capability for certain items.
- Sector Updates
  - Industry sector leaders provide highlights of matters of concern in their sectors

Summary

- ICAP is meeting its purpose

  To provide a forum for the open exchange of Government and industry views relating to the Department of Defense ammunition area.

- ICAP Sector Leaders are *your* representatives

- Contact Sheri Franks (717) 246-8215
  slfranks@rdl.gd-ots.com



"The Winds of Change
Altering the Munitions Landscape "

Munitions Executive Summit

February 7 – 9, 2006

BG(P) Paul S. Izzo

Program Executive Officer, Ammunition
Commanding General, Picatinny Arsenal, NJ

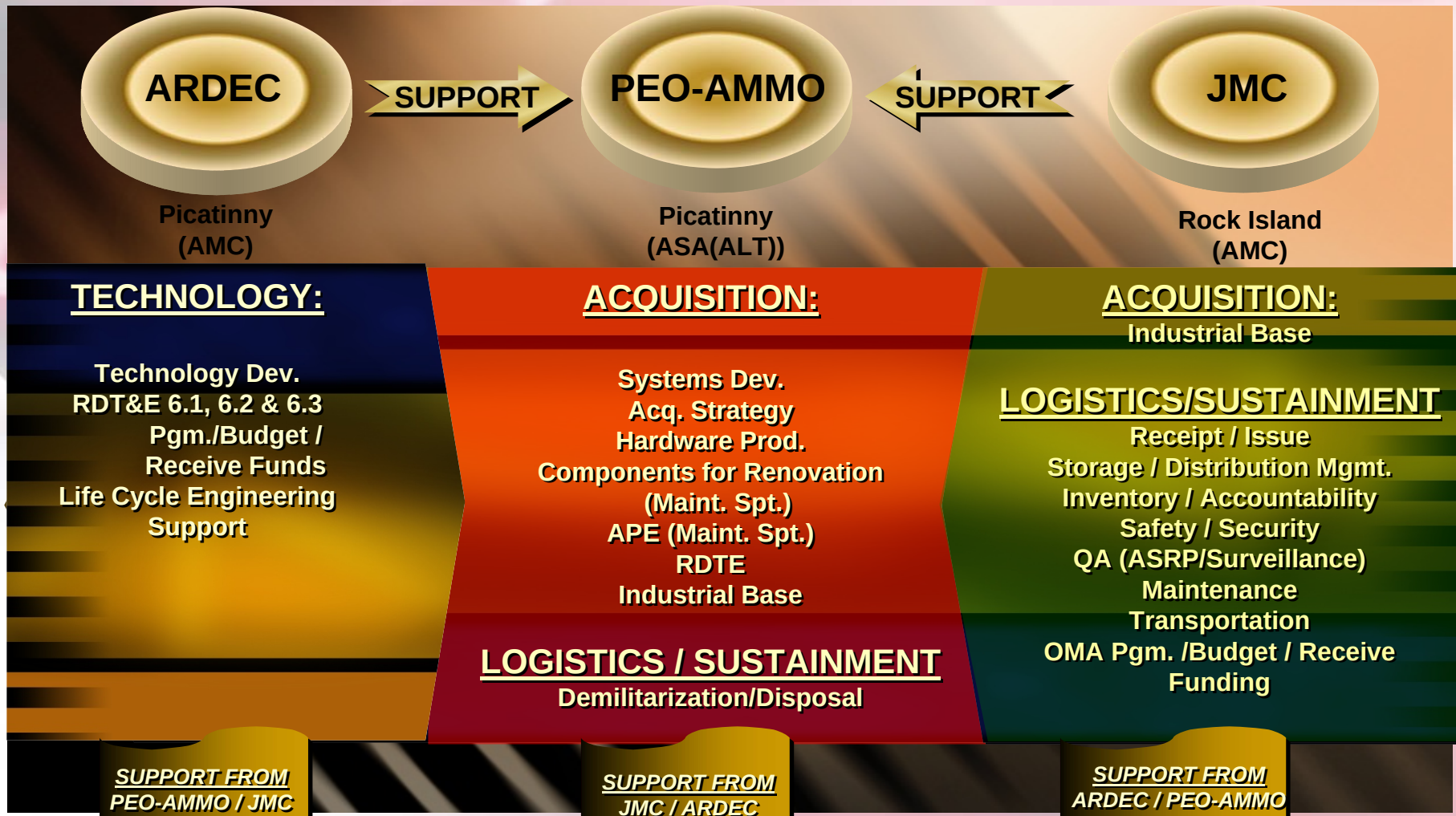

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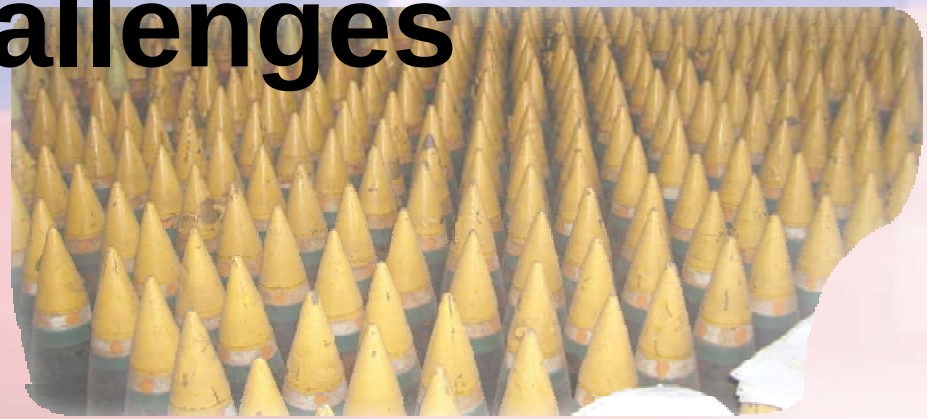

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Ammunition Enterprise



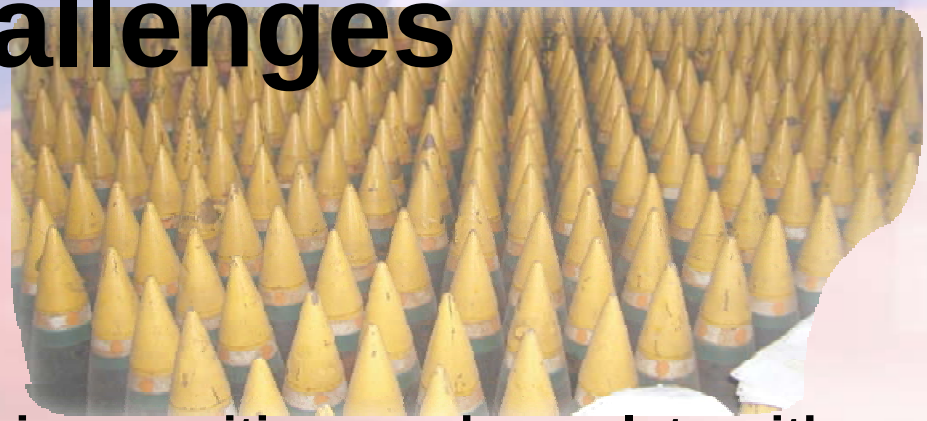
FY06 Challenges



- **Industrial Base**
  - Implementing BRAC
  - Insert new technologies into aging munitions and correlate with new manufacturing methodologies
  - Balance Industrial Base modernization with acquisitions
- **Demil**
  - Critical Space Shortage
  - Need new Technologies/Methodologies to address problem
- **Insensitive Munitions**
  - PEO Strategy approved by JROC
  - JROC questioning requirements: Is it a bridge too far?
- **Smart Munitions**
  - Excalibur, PGMM, MRM, PGK
  - Large Caliber, Medium Caliber, Small Caliber



FY06 Challenges

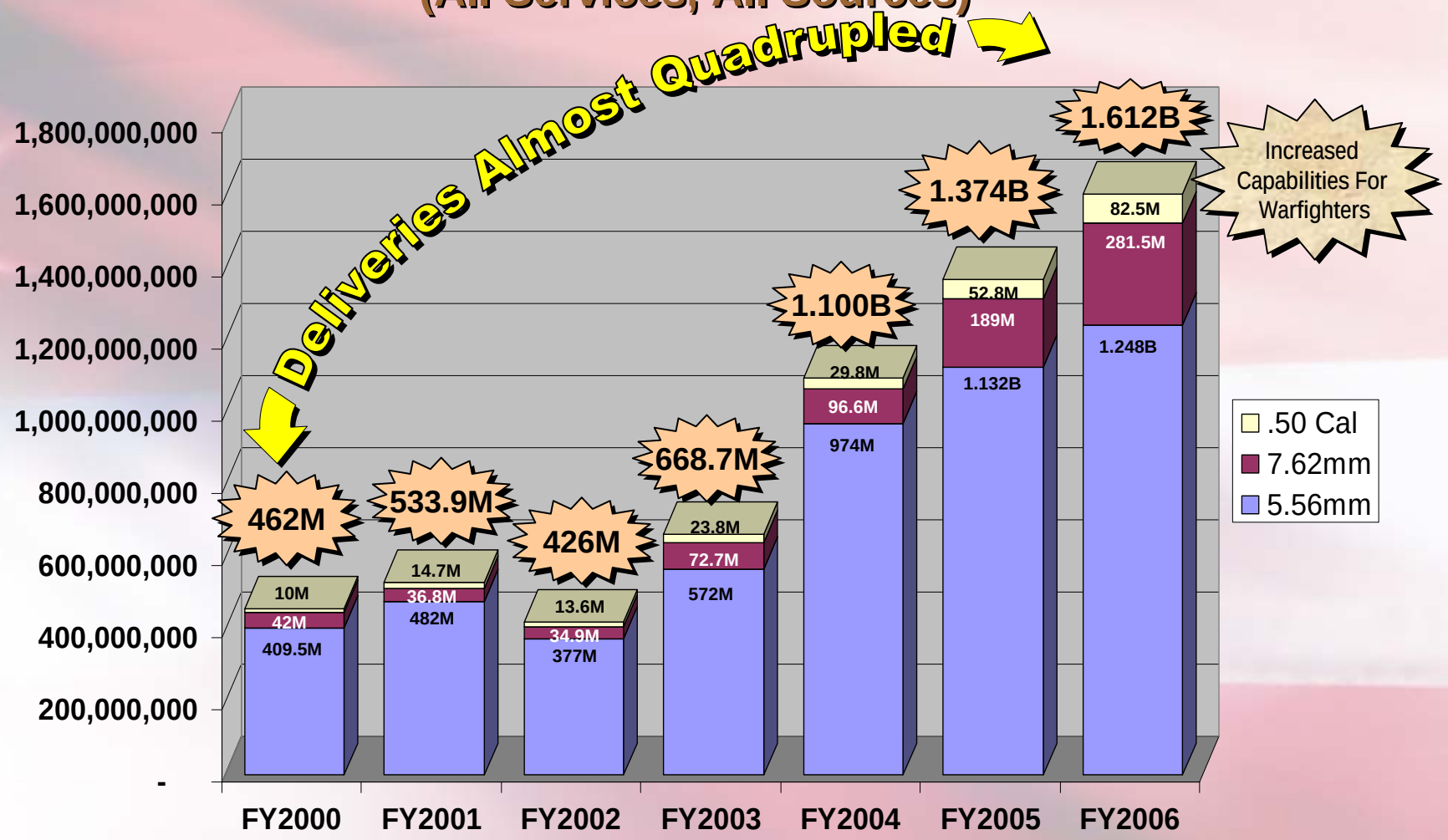


- **Industrial Base**
  - **Implementing BRAC**
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  - **Large Caliber, Medium Caliber, Small Caliber**



Small Caliber Ammunition Deliveries

(All Services, All Sources)







Army SMCA Transformation

- ✓ To posture the SMCA to better meet DODD 5160.65 Objectives
  - ✓ "Achieve the highest degree of efficiency and effectiveness in the DoD operation required to acquire top quality conventional ammunition for US Forces."
  - ✓ "Integrate the wholesale conventional ammunition logistics functions of the Military Departments to the maximum extent practicable…"
  - ✓ "Use acquisition strategies that stabilize the business environment and provide incentives for private investment in the production base."

- ✓ To implement the 1997 PNNL study and 1999 GAO recommendations
  - "Manage ammo as major program"
  - "Consolidate management in PEO"
  - "Apply acquisition reform initiatives"

- ✓ To integrate the life cycle management of ammunition
  - Acquisition, industrial base, logistics and demil strategies

SMCA Document Status

- SecArmy SMCA Delegation – Expires 28 Jan 06. In Army staffing (ASAALT Lead)
- SMCA Charter - In final revision to remove delegations from Charter. (ASAALT Lead)
- ASA(ALT) SMCA Executor & 806 Designation- Expires 27 Jan 06. In Army staffing (ASAALT Lead)

SMCA Accomplishments

- Strategic SMCA documents
  - SMCA Charter- Aug 2004 (first update since 1983)
    - Revised SMCA Charter- Pending
  - Revised DODD 5160.65 Apr 2004
  - Revised DODI 5160.68 Dec 2003
  - SMCA Delegations – SecArmy to ASAALT, ASAALT to SMCA Executor & Section 806 & ASAALT to EDCA
  - Joint Conventional Ammunition Policies and Procedures (JCAPPs)- Jan 06 (replace DODM 5160)
  - LCMC MOU- Dec 05

- SMCA Strategic Plans
  - Demilitarization Strategic Plan
  - SMCA Industrial Base Strategic Plan: 2015
  - Small Cal Strategy
  - Army Ammunition Plant (AAP) Maintenance & Modernization

SMCA Accomplishments

- SMCA Forums
  - JOCG- Lead EXCOM
  - Established Joint SMCA Procurement Steering Council
  - Established Joint Quality Forum

- SMCA IPTS
  - Pricing
  - Engineering Support For Items In Production (ESIP)
  - Joint Developmental Countermeasure Flare (Participant)
  - Medium Cal Tiger Team
  - Supplier Quality Initiative

SMCA Accomplishments

- Product
  - PGU-44 (105mm Crimp) Best Value Contract Awarded
  - Bomb Production Scheduling at McAlester AAP
  - Small Cal Second Source Contract Awarded
  - 40mm System Contract
  - Long Term General Purpose Bomb Strategy

- Organizational changes
  - Established PM Medium Cal
  - JM LCMC- pending
  - Established Military Service Integrators

- SMCA Performance Metrics
  - Metrics established FY04- FY05 78% populated
  - Annual Customer Surveys on SMCA performance

Measuring Success

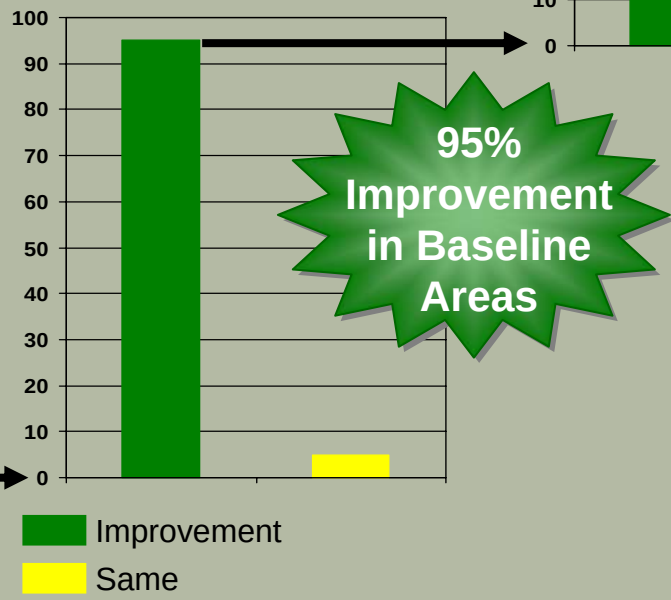
- SMCA Customer Survey
  - FY 03- Baseline
  - FY 04- 95% of feedback showed improvement
  - FY 05- 67% improvement over previous year
- Customer Requested Actions- 60 Major Actions
  - Communications
  - Acquisition Strategy / Planning
  - Customer Support
- SMCA Procurement Steering Council (Semiannually)
  - "*The SMCA is now an organization not a group of individuals. We are creating corporate knowledge where none existed*." (USN)
  - *"The metrics and customer feedback were great and lead to gap analysis. All are great measures of the SMCA success." (OSD)*

"PEO Ammo success will be measured in what the Services say in 3-5 years" (T. Melita OSD(ALT)/DSLW&M)

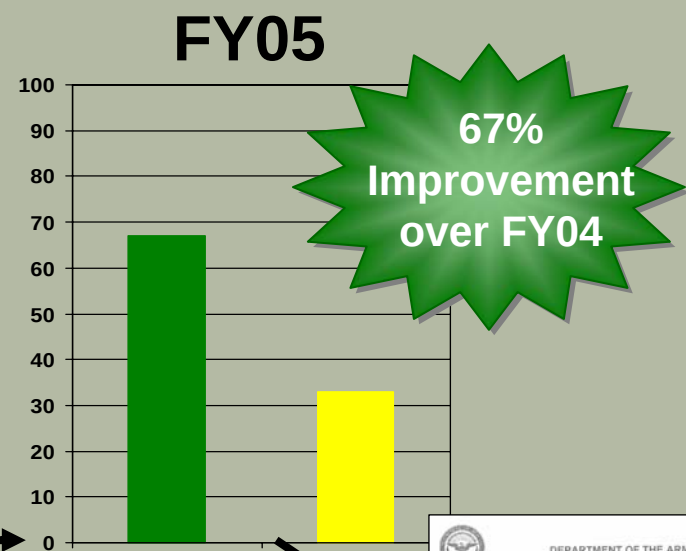
Measuring Success - Service Feedback on Performance

Areas of Survey
- Performance
- Acquisition Plans
- Compliance to MIPR Clauses
- Admin Lead Time
- Customer Involvement
- Quality Improvement
- Communications
- Information Quality

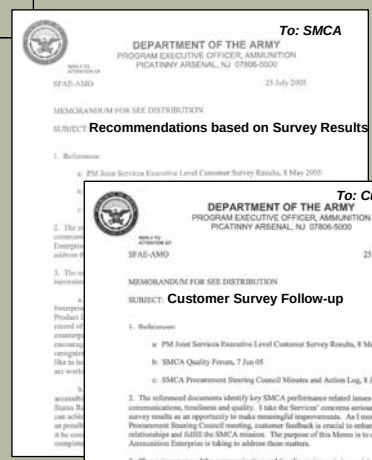
FY03
(Baseline)



95% Improvement in Baseline Areas



67% Improvement over FY04


To: SMCA
DEPARTMENT OF THE ARMY
PROGRAM EXECUTIVE OFFICER, AMMUNITION
PICATINNY ARSENAL, NJ 07806-5000
SFAE-AMO
25 July 2005
MEMORANDUM FOR SEE DISTRIBUTION
SUBJECT: Recommendations based on Survey Results

To: Customers
DEPARTMENT OF THE ARMY
PROGRAM EXECUTIVE OFFICER, AMMUNITION
PICATINNY ARSENAL, NJ 07806-5000
SFAE-AMO
25 July 2005
MEMORANDUM FOR SEE DISTRIBUTION
SUBJECT: Customer Survey Follow-up

SMCA Challenges

- Not a lot in it for the Army. Manpower and resource intense
- Aging industrial base
- OMA 4.24 (SMCA) competes within the sustainment PEG for resources

Background

SMCA Customers





Navy

JOCG Principals

USMC

Air Force

SOCOM

Navy- Requirements

ILPR- Requirements

CNO – Log Policy 411

MARCORSYSCOM

AFMC

ILMW- Policy

NAVAIR

NAVSEA

AAC

PEO Weapons

PEO Strike W

PEO IWSO

JOCG EXCOM

PEO Tack A/C

NSWC

NOSSA

PM Ammo

SMCA Customers

NSWC

USASOC

AFSOC

PM3C

PMA 201 Bombs

84 MUSG
Hill AFB, UT
Air-to-Surface

PMA 242 Def sprsn

PM 4 Crane

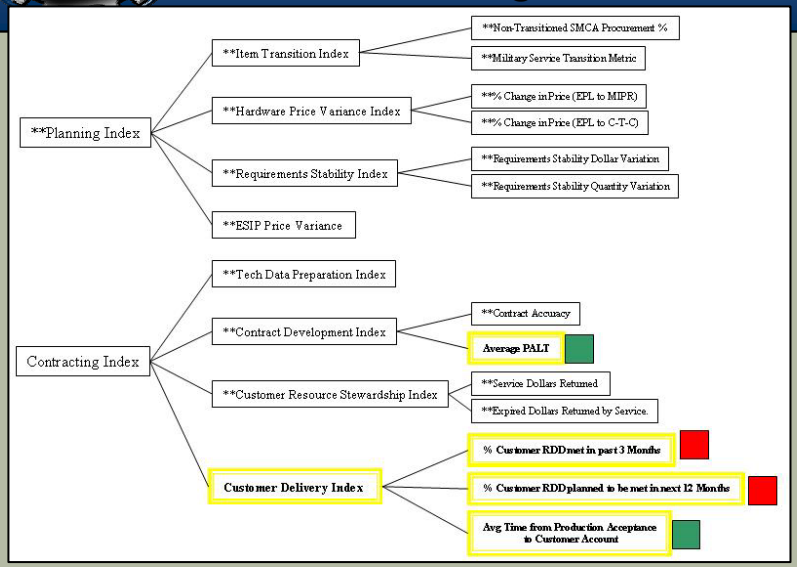
PMA 272 Flares

SMCA Portfolio

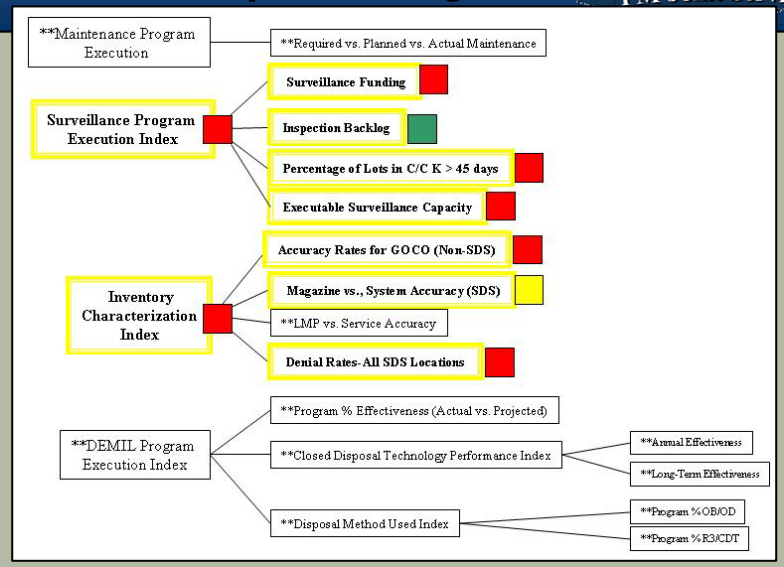
2.75”	Artillery	Bombs	Small Cal	Med Cal	Large Cal	Demo	Flares Grenades
PM ARM	PM CAS	PM JS	PM MAS			PM CCS	

FY 04 SMCA Metrics

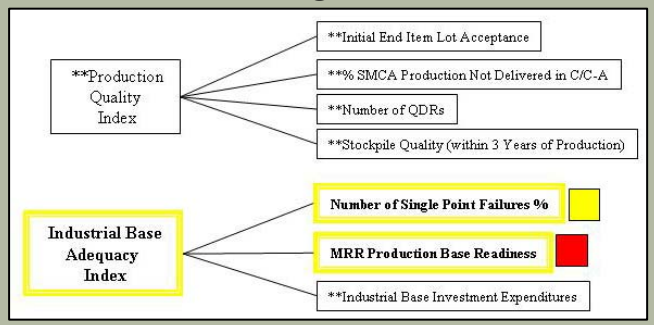
Procurement Management



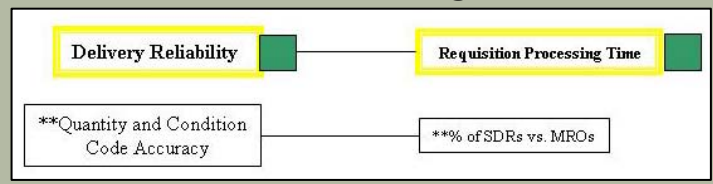
Stockpile Management



Production and Industrial Base Management



Distribution Management



** Phase II Metric

Initial Phase- Data being validated

Future Challenges of the SMCA

- More items need to be modernized (old TDPs); product and process improved
- More items need to be consolidated, family contracts and system contracts
  - Implementing Systems Contracts in light of the Acquisition Reform (Consolidation Policy)
    - Requires ASA(ALT) approval and we must work Small Business set asides and credit for Systems Contracts
- Investment in Facilitization
  - Army plants, Army programs, Army funds but we need OSD approval on any facility investment greater than $10M

Future Challenges of the SMCA
(Cont'd)

- LCM IT Infrastructure is inadequate to perform the SMCA mission;
  - Antiquated ~30 Year old technology, not web-able, stove piped, not user friendly and does not account for all items
- Improving timing & accuracy of Services' requirement forecasts
- Resourcing the mission: limited OMA funds to support SMCA mission: 2nd smallest PEO, 4th largest in $, hundreds of procurement actions
- Collaborative decision making on the optimal use of OMA funds

SMCA Successes

PM JS/Demil

- Updated DoD/SMCA
- JCAPPs
- Long-term bomb strategy
- Demil Strategic Plan
- 5 year Best Value Commercial Demil award
- TNT facility
- Partnership Agreements
- Developing Log R&D Strategic Plan
- Service Integrators

PM MAS

- 1.5 Billion rds Small Cal
- Small Cal 2nd Source
- 40mm Sys Contract
- Modernization of Lake City AAP
- Established PM Med Cal

Industrial Base

- IB Strategic Plan
- IBAT (assessment tool)
- Influence BRAC
- IB Modernization
- Science Based Prototyping & Production
- Single Point Failure

PM CAS

- Resolved in theater shortages for 120mm mortal ILLUM
- Delivered: 1.1M artillery and mortars; 790K fuzes; 2.3M MACS propellant charges; 465K artillery recapped
- Improved decision making with USMC for artillery and mortars
- Developed second US source for ILLUM candles

PEO Programs

- IM Strategic Plan
- SMCA Metrics
- LCMC/Ammo Enterprise
- ESIP Process Improvement
- Ammo Enterprise Portal

PM CSS

- M67 Hand Grenade Sys Contract
- Multiple fuze suppliers
- Smoke grenade family improvements
- Countermeasure Flares
  - Awarded two M206 5-year contracts
  - Established initial production of 211 and M212
- Destruction of Captured Enemy Ammunition using landmines

Program Overview



Munitions Executive Summit 9 February 2006

COL Ole Knudson
Project Manager for Combat Ammunition Systems
(973) 724-2003, ole.knudson@pica.army.mil

Agenda
Mortars and Artillery Ammo

- Excalibur
- Precision Guided Mortar Munition (PGMM)
- Precision Guidance Kit (PGK)
- Mortar Fire Control System (MFCS)
- Production Status/Backlog
- Cost Reduction Efforts
- Impacts of BRAC
- Summary

Civil War – Ammunition



3.67-inch
Sawyer Canister



10-pounder
Parrott Canister



12-pounder Howitzer



3.8-inch
James Hot Shot



Dahlgren



12-pounder
James Canister Base



Absterdam



2.9-inch
Quilted Grape



Broun



Armstrong



Brooke



12-pounder
Stand of Grape



6-pounder
Smoothbore Canister



Archer



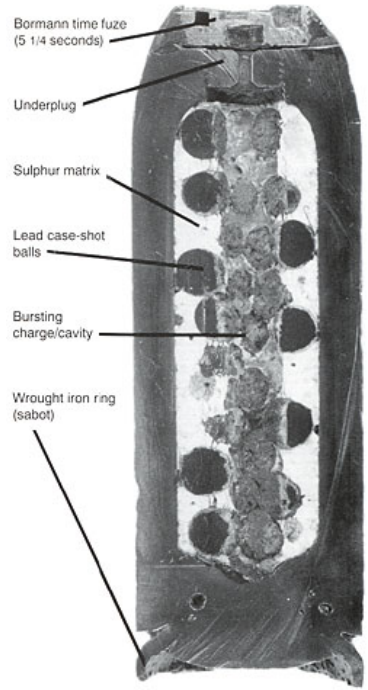
Selma



Read-Parrott



Tennessee Sabot





Schenkl



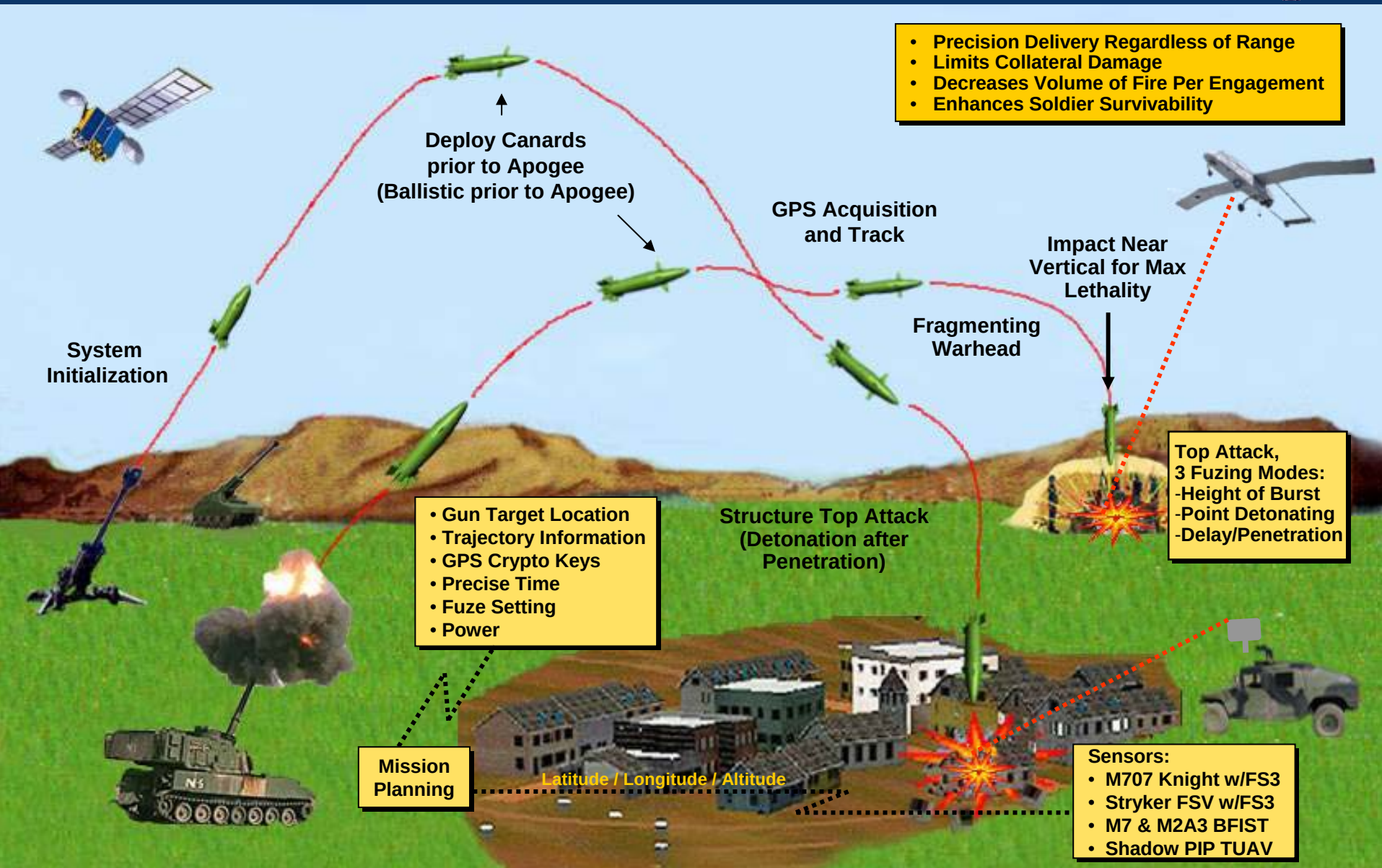
Dyer

EXCALIBUR

XM982



Operational Concept



Testing Results



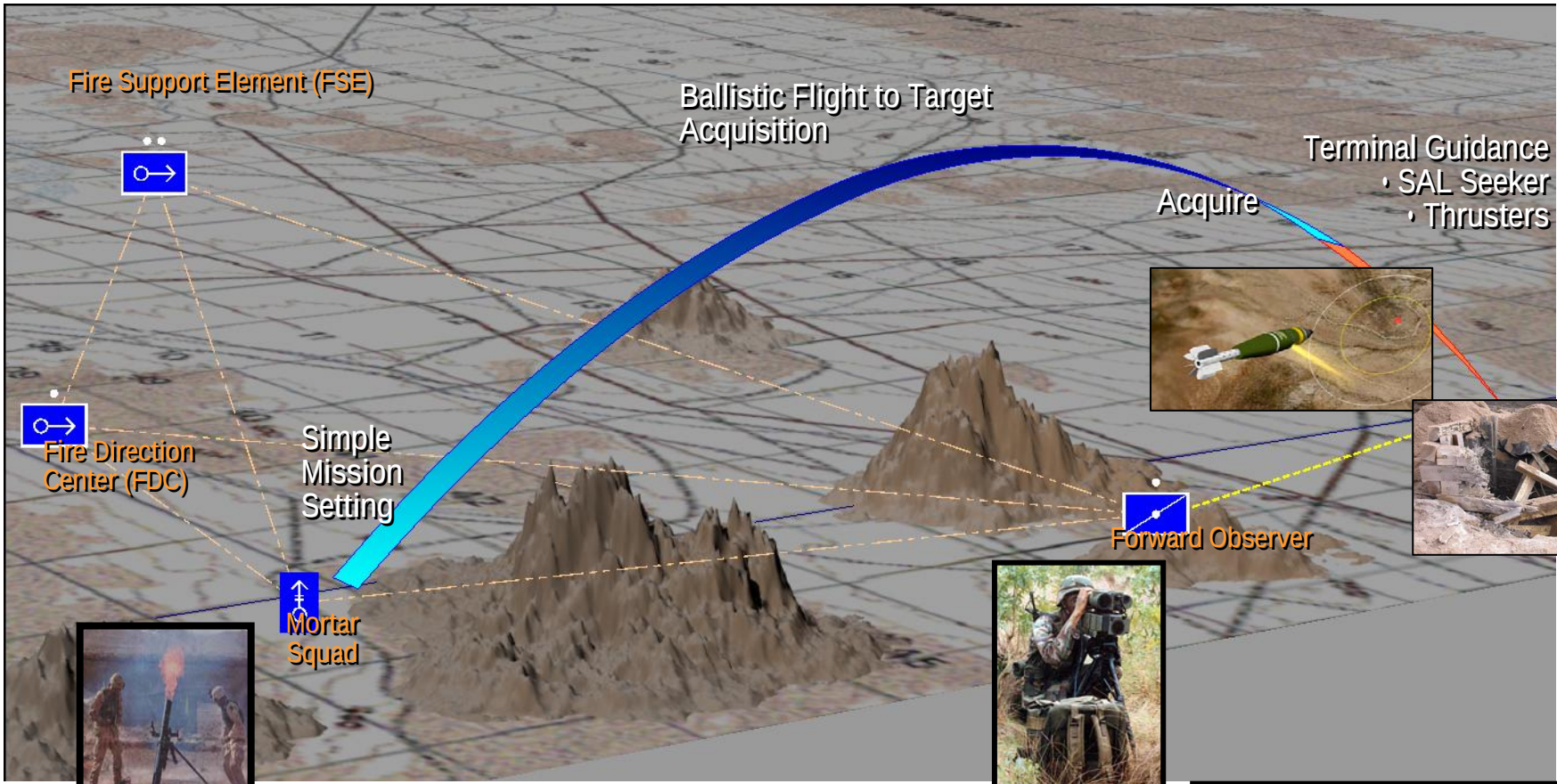
Precision Guided Mortar Munition

PGMM



PGMM Operational Concept

RGR



Leverages Existing Fire Support Systems
Reduces Collateral Damage

Masonry Structures
Earth and Timber Bunkers
Light Armor Vehicles

Precision Munitions Increase Warfighter Effectiveness

Precision Guidance Kit (PGK)

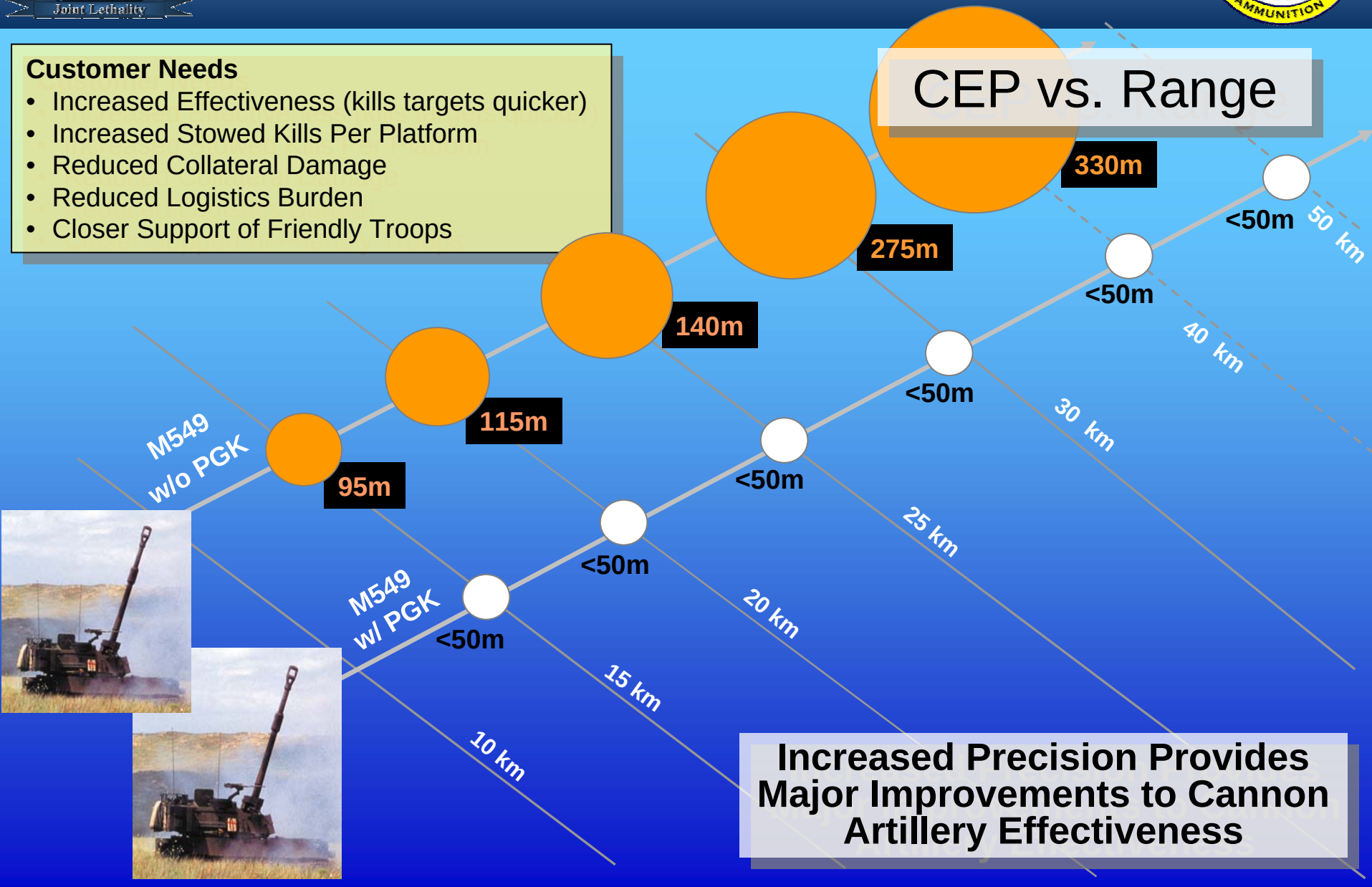
For Artillery Projectiles



The Need

Customer Needs
- Increased Effectiveness (kills targets quicker)
- Increased Stowed Kills Per Platform
- Reduced Collateral Damage
- Reduced Logistics Burden
- Closer Support of Friendly Troops

CEP vs. Range



Increased Precision Provides Major Improvements to Cannon Artillery Effectiveness

PGK Acquisition Strategy

- PGK is FY06 Army Technology Development (TD) effort
- PGK is a course correcting fuze capability that improves projectile accuracy of the current stockpile of 155mm and 105mm artillery ammunition
- Our strategy is an incremental approach to improve projectile delivery accuracies:
  - ✓ Increment 1 - less than 50 meters CEP (155mm HE)
  - ✓ Increment 2 - less than 30 meters (all 155mm)
  - ✓ Increment 3 - less than 30 meters (Includes 105mm)
- Multiple PGK TD contract awards are planned for April 2006 for a system prototype demonstration / shoot-off in an operational environment in October 2006

Mortar Fire Control System





MFCS





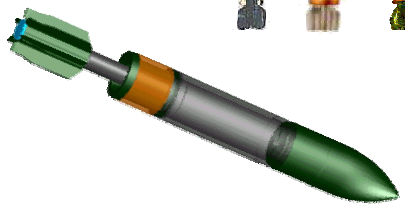


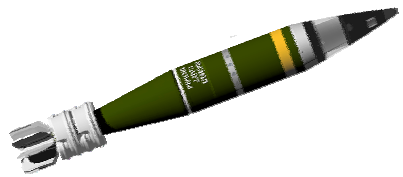


LHMBC











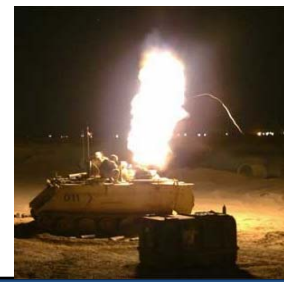












Mortars in OIF and OEF

Mortars were reliable, responsive and lethal

"MFCS allows for greater accuracy than we've ever had and that equates to immediately suppressing and destroying the enemy" Maj Karcher 1CD



"A Marine Major from a supported unit literally hugged every crew member that had MFCS and was supporting him. When requesting mortar fire support, that Major specifically wanted the mortar crews that had MFCS. They stated the target reports on all MFCS hits were "Dead On"!"

"60mm provided excellent IR Illumination while used in the hand held mode."



"D+4 the enemy could not move without a mortar round landing on his head."

" 120mm – Good system for pounding targets up in the mountains and at long distances. Provides good range for base security."

"MFCS made the difference in every single mission. They dropped 854 rounds using MFCS and every round hit the target!"

"Mortars were very versatile on the battlefield. They were able to reach enemy forces in defilade and within fortifications."

"All enemy KIA came from the 120mm mortar…"

Comments from 1st MAR DIV AAR, 3rd IN DIV, and 1st CAV DIV, 101st ABN DIV, the 75th Ranger Regt and the 10th Mountain Division

120mm Mortar Actual
CLFCC VL Illumination Usage

Quantity per Month

M930
C625



Constrained Supply Rate Lifted 1 Mar 05

Requirements met through April 2009

Nov 04 - Feb 05	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06
522	293	320	244	148	203	722	306	107	226	12	74
Monthly Average: 130							**Monthly Average: 411**				
0	17	0	0	16	52	75	289	324	281	245	567

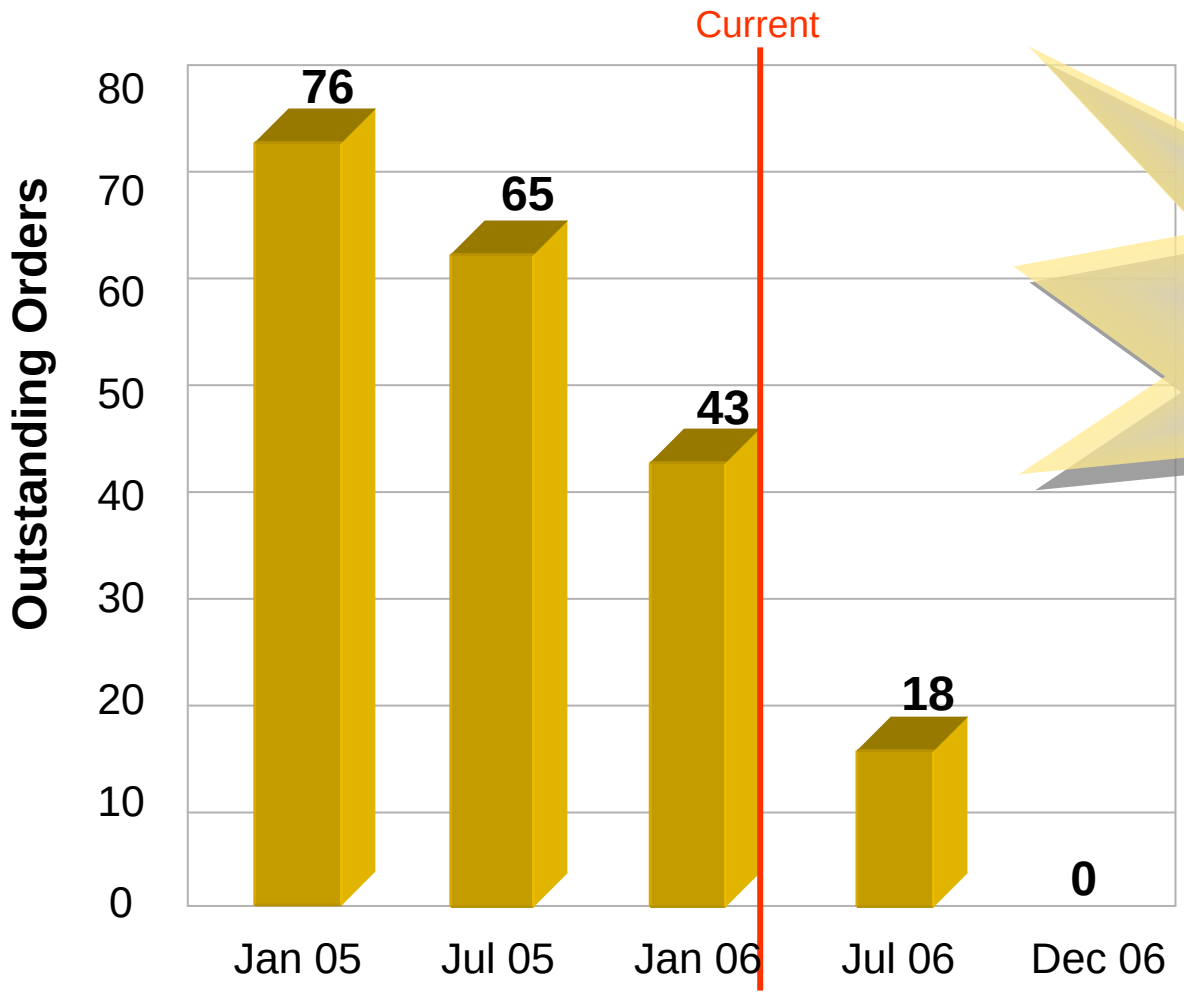
M930E1
CA39

Urgent Materiel Release/ 1st Delivery to Theater 22 Feb 05



Overall Monthly Average Increased from 130 to 411

Reducing Production Backlog*



Production backlog has been reduced by 43% through Jan 06

All Back-Log Eliminated by 1 Dec 06

*FY04 & Prior

Training Ammo Cost Reduction Concepts

- Use more mortar FRPC (75/25 FRPC/HE Mix)
- Use 81mm insert for much of 120mm mortar training
  - ✓ 81mm HE, Smoke and Illum rounds significantly less costly
- Use stockpile inventory that's above the required level to partially meet training needs
- Staggering year by year of Mortar Illum and Smoke procurements to achieve larger and more economical production buys
- Efficiencies in ESIP and TDPs
- Focusing IM efforts on developing low cost melt pour IM explosive fill alternatives
- Using System contracting where cost effective

Assessing Industry Base Impact for all Cost Reduction Ideas

PM CAS Technology Interests

- Our goal is to align S&T and IR&D initiatives with existing programs and future needs
  - ✓ Develop an Integrated technology strategy driven by need, and urgency
  - ✓ Pull IR&D and ATO's into the Acquisition Process sooner
  - ✓ Engage DARPA, ARDEC, & Industry to ensure technology is available to meet future program and operational requirements

The focus is to integrate technology efforts across Army organizations into a coherent strategy

Technology Gaps

- Low Cost IM
- Scalable Non-Lethal (N-L) Effects
- Power Source Alternatives
- Proximity fuze technology which cannot be exploited
- Low Cost Precision for 105mm & 155mm Artillery Projectiles and 60mm & 81mm Mortars bombs
- Environmentally Friendly obscurants
- Scalable Lethal Effects
- Brilliant Sensors
- Lt Wt Projectile Technology
- Lt Wt Mortar Pointing Devices

BRAC & PM CAS Products

Close \ Relocate To:	Rock Island Arsenal	Iowa	Milan	McAlester	Crane
Riverbank	➢Artillery Cartridge Case Metal Parts (16%) ●				
Kansas		➢105MM/ 155MM HE ●	➢155MM ICM Artillery ● ➢Mortar 60/81/120MM ○		➢Detonators/ Relays/ Delays ●
Mississippi	➢155MM ICM Artillery Metal Parts ●				
Lone Star		➢Mines ● ➢Detonators/ Relays/ Delays (5%) ○	➢105MM/155MM Artillery ICM (2%) ➢MLRS Artillery (1%) ○ ➢Hand Grenades ● ➢60MM/81MM Mortar ● ➢Primers		➢Demolition Charges ●

Tech Challenge
- ● Significant
- ○ Moderate
- ● Minimal

PM CAS Products Significantly Affected by BRAC

Summary
Mortars and Artillery Ammo

- Working to field Excalibur, PGMM, PGK and MFCS as Soon as Possible
- Low Cost Mortar and Artillery Guidance and Low Cost IM fills are needed most
- Working to eliminate Ammo Production Backlog
- Army Modularity Increases Mortar and Artillery Ammo Requirements
- Evaluating Ideas to Reduce Training Ammo Costs
  - ✓ Assessing Industrial Base Impacts
- Mortar and Artillery Planned Fuze Support Two US Sources
- Engaged in BRAC Process

Back Up

Gov't Teaming for Seamless BRAC Transition

Government Team: PEO/PM(s), PEO-AMMO IBO, GOCO, GOGO, AMC, JM LCMC, ARDEC.

- PM CAS working with PEO-AMMO Industrial Base Office (IBO) to leverage current technologies to implement within organic base
- IBO Life Cycle Pilot Process (LCPP) pursues AMMO Pilot Processes in Gov't/Contractor facilities to assist in resolution of manufacturing issues.
- IBO/PM/JMC analyze NTIB current capabilities for
  - ✓ "Right sizing" to POM capacity requirements (AR700-90 guidance)
  - ✓ Modernize IB by identifying cost efficiencies/new technology
- Analyze/Coordinate numerous "Transition Issues"
  - ✓ Current & future AMMO production requirements
  - ✓ Coordination of Facility Use Contracts with production intent
  - ✓ Intellectual Property strategy relevant to GOCO's
  - ✓ Assimilation of mutually exclusive Gov't vs Contractor equipment
  - ✓ Identification of NTIB and non-NTIB capability outside of GOGO/GOCO
  - ✓ Coordinate Acquisition Strategies to support organic base and NTIB

Technology Gaps

- **Dynamic Retargeting**
  Need: To increase effectiveness and reduce logistic footprint dynamic retargeting capability among the SFM is desired. Dynamic retargeting will permit a single round to address two or three separate targets.
- **Power Source Alternatives**
  Need: Future Munitions will require Power Sources with Higher Densities and Power in order support increased performance requirements (e.g. guidance, fuzing, penetration sensing).
- **Scalable Non-Lethal (N-L) Effects**
  Need: N-L at all artillery ranges to suppress personnel, equipment and provide area denial.
- **Proximity fuze technology which cannot be exploited**
  Need: A proximity sensing capability that does not lend itself to countermeasures or an approved tamper proof method to house the critical components.
- **Low Cost Precision for 105mm & 155mm Artillery projectiles and 60mm & 81mm Mortars bombs**
  Need: A low cost extended range precision projectile
- **An Artillery Battle Damage Assessment capability**
  Need: Having this capability reduces the number of rounds fired, frees unit for other fire missions or verifies need for additional strikes.

Technology Gaps *(cont.)*

- **Brilliant Sensors**
  Need: Autonomously identify friend or foe with high reliability

- **Target "Tagging"**
  Need: Tag a target with electro-optical signature from safe position for sensor to home in on: *Does not require a constant "lasing" in end game like traditional laser designators*

- **Environmentally Friendly obscurants**
  Need: Environmentally friendly obscurants.

- **Precisely attack moving targets with inexpensive sensors**
  Need: A low cost sensor for precision munitions to address moving targets.

- **Very Long range guided artillery projectile for disrupting support elements**
  Need: A cost effective extended range 155mm projectile for addressing high value targets in all weather conditions.

- **Scalable Lethal Effects**
  Need: A scalable lethal warhead to apply the right lethality to the target set and minimize collateral damage.

- **Low Cost IM**
  Need: A low cost melt-pour IM alternative

Potential S&T Projects

- **Increase Range**
  Need: Much greater coverage area from indirect fire weapons

- **Increased Lethality**
  - **Air Burst DPICM**
    Need: Increased effectiveness and helps in reducing log footprint
  - **Enhanced Lethality Explosives**

- **Reduced Logistics**
  Need: Reduce Log footprint & Tail

- **Lt Wt Mortar Pointing Devices**
  Need: Increase accuracy and responsiveness

- **Muzzle Velocity variations Improvements**
  Need: Reduce propellant variations and tube wear improve accuracy

- **Lt Wt Projectile Technology**
  Need: reduce logistics and solider weight burdens

- **Low Cost IM Alternatives**
  Need: Solutions that are comparable to current costs for large volume munitions

- **Lt Wt Mortar Components**
  Need: reduce logistics and solider weight burdens

- **Common Mortar Components across calibers**
  Need: reduce logistics, training, and maintenance burdens

Army Modularity
Mortars

Mortar		Before	After	% Change
60mm		630	734	17%
81mm		396	356	(-10%)
120mm	M1064 Mortar Carrier w/ M121 Carrier Mortar	656	462	(-30%)
	M1129 Stryker Mortar	216	252	16%
	M120 Towed Mortar	32	528	-
	Total 120mm Mortars	872	1242	42%

Army Modularity Artillery

		Before	After	% Change
105mm M119 M102 (ARNG)		540	656	22%
155mm M109A6 (Paladin) M109A5 (ARNG)		1002	646	(-36%)
155mm M777 LW M198		512	252	(-51%)

PM CAS Fuze Strategy

- **Inventory**
  - ✓ Sufficient Artillery Fuze Stocks On Hand
  - ✓ Recurring Mortar Training Demand
  - ✓ Some Buys Required to Support IB
- **Production**
  - ✓ Sufficient dollars in POM to Maintain at Least Two NTIB Competitive Producers in Electronic and Mechanical Fuzes
  - ✓ Will Continue Competitive NTIB Awards by Commodity Line
- **Development**
  - ✓ Accelerated development/fielding of PGK supports IB
  - ✓ Precision munitions have small impact to IB due to quantity and integrated approach
- **Technology**
  - ✓ Continue Support of Basic Technology Efforts (Power Sources/Prox/etc)
  - ✓ Continue Technology Insertion Programs to address producibility; obsolescence and single point failure issues
  - ✓ Evaluate Emerging Opportunities





PM CCS

Munitions Executive Summit

7-9 February 2006

COL Jack Koster
Project Manager
(973) 724-7041
jkoster@pica.army.mil

CLOSE COMBAT SYSTEMS

Organization & Programs Managed

COL Jack Koster
Project Manager

Patricia Felth
Deputy Project Manager

Business Mgmt
Kevin Cunnion

164 Army Products Managed in FY06

Networked Munitions — Doreen Chaplin

- (IMS) Intelligent Munitions System*
- Spider Networked Munitions System
- Matrix
- Volcano
- Legacy Mines
  - Claymore
  - MOPMS

Countermine — Larry Nee

- Standoff Mine Detection Systems:
  - HSTAMIDS*
  - GSTAMIDS*
  - ASTAMIDS*
- Mongoose
- APOBS
- IVMMD
- MICLIC
- EOD Equipment

ARDEC

Demolitions — Jim Tower

- Special Demolitions
  - MI RAMS
  - GMENS
  - TD-SYDET
  - RAMS
  - SOF Demo Kit
  - Rapid Wall Breaching Kit (RWBK)
  - SLAM
- Demolition Munitions
  - Initiators
    - MDI
  - Effects
    - Bangalore Torpedo
    - C4 Block Explosive
- EOD Ammo

Protect Force — Kevin Wong

- Non Lethal (NL) Capability Set
- VLAD
- PVAB
- Non Lethal Ammo
  - MCCM
  - 40 mm
  - 12 gauge
  - NL Grenades
- Tactical NL Munitions

Munitions — Santo Lombardo

- Grenades
  - Lethal
  - Smoke
  - Launcher
- Pyrotechnics
  - Flares
  - Signals
  - Simulators
- Shoulder-Launched Munitions
  - AT-4
  - BDM

JMC Commodity Teams

Stefani Miner
Chief, Pyro & Demo Division

Greg Wierenga
Chief, SLM & Grenades Division

* FCS Program

CLOSE COMBAT SYSTEMS

SLM Challenges



Capability: Minimum Range
Lethal effects at short ranges encountered in street-to-street fighting

Challenge: Fragmentation

Capability: Lethality Incapacitate Personnel Within:
- Light Armored Vehicles
- Field Fortifications
- Masonry Structures

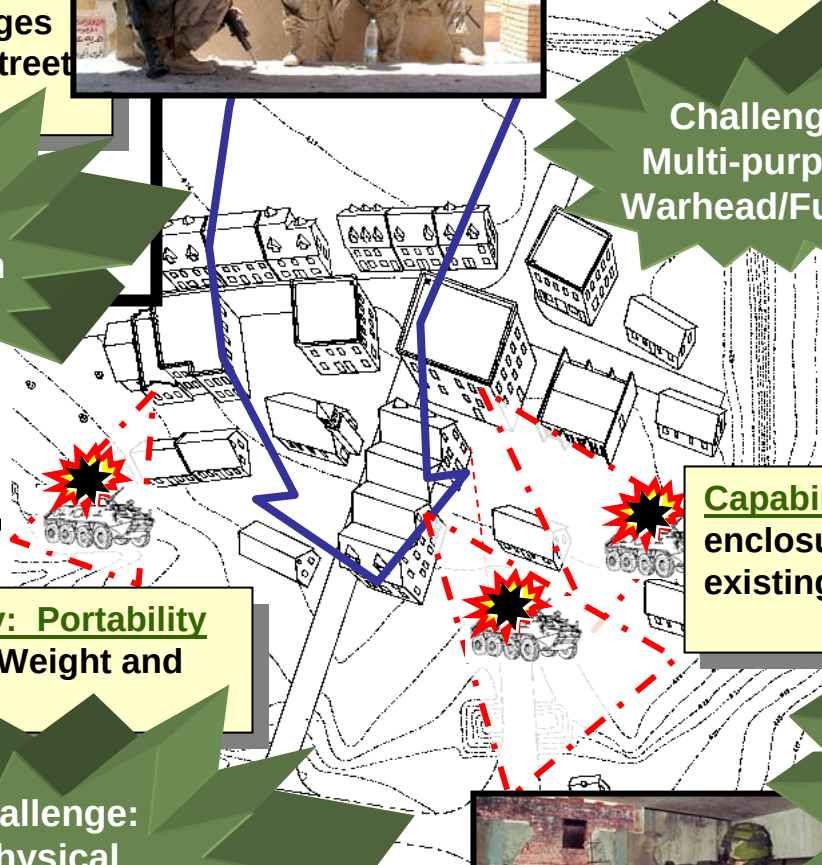
Challenge: Multi-purpose Warhead/Fuzing





Capability: Portability
Minimize Weight and Size

Challenge: Physical Performance Limitations



Capability: Survivability Fire from enclosures to allow gunner use of existing cover



Challenge: Health Hazard Reduction
- Noise
- Backblast
- Toxic Fumes

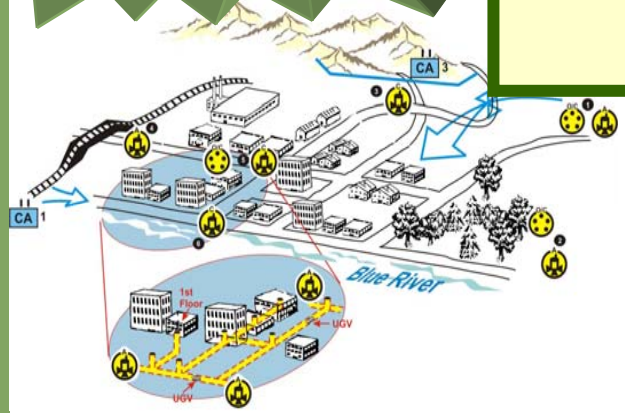
CLOSE COMBAT SYSTEMS

IMS Challenges

Urban Complex Environment

Meeting operational effectiveness requirements in urban and built-up areas

Developing scaleable effects that are effective at all stand-off



Lethal & Non-Lethal



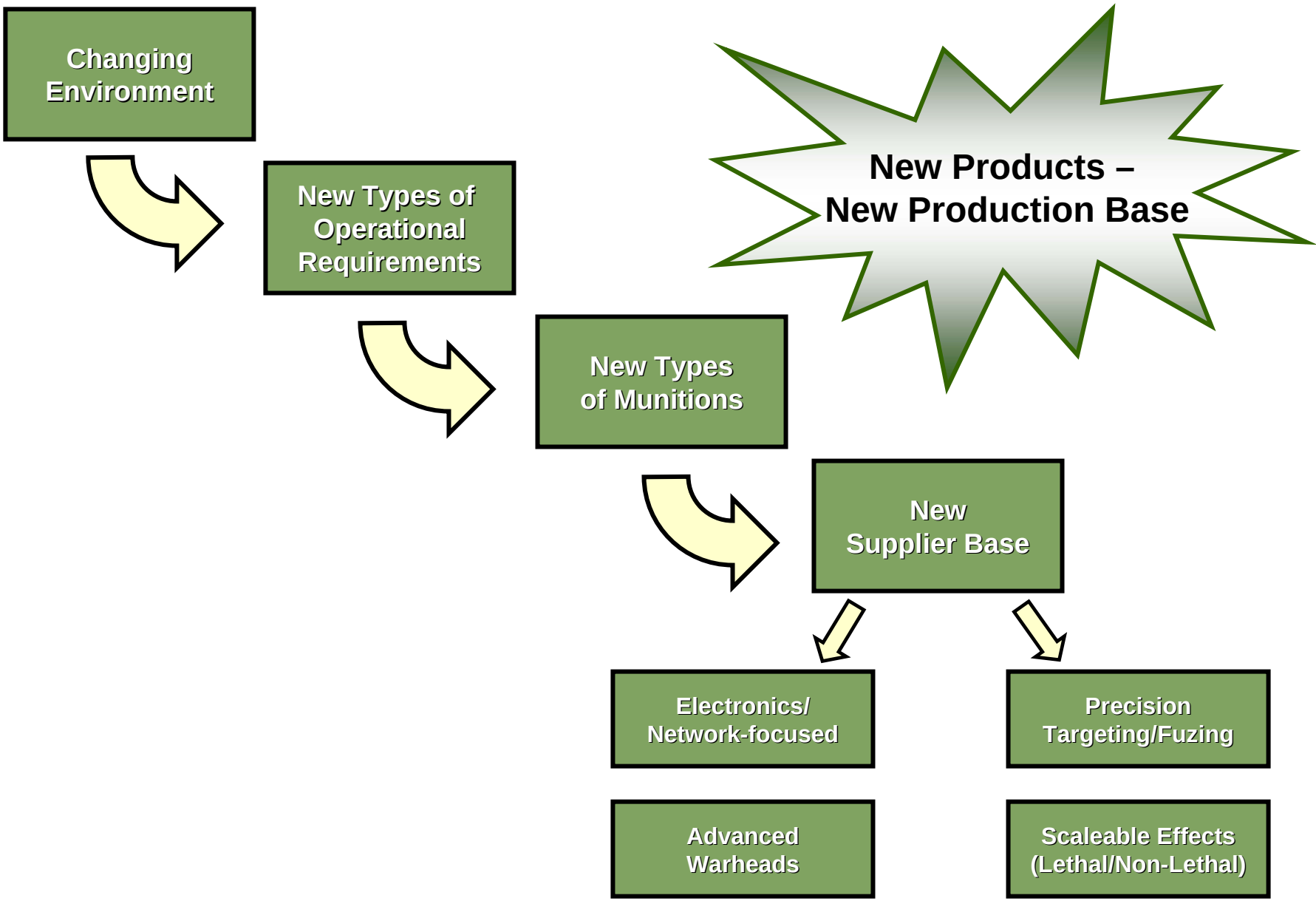
Network Centric

Networked Systems require secure and always available communications (IA, DITSCAP)

To enable capabilities like safe passage, software controls safety critical functions

CLOSE COMBAT SYSTEMS

Changing Environments



CLOSE COMBAT SYSTEMS

Congressional Perspective

NDIA Munitions Executive Summit

February 8, 2006

The Congressional side of Defense Budgets --The next 30 minutes

- What I know
- What I think I know
- What I think
- Questions

Bottom Line: Ammo should be well supported at requested level but not much more – because of “earmark process” adjustments

What I know

Supplementals ($B)

Year	**‘03**	**‘04**	**’05 Bridge**	**‘05**	**’06 Bridge**	**‘06**
MILPERS	13.4	17.8	1.3	17.4	6.2	
OPS	31.2	39.2	16.4	37.1	33.2	
Procurement	1.3	5.5	1.4	17.4	8.0	
Other	16.5	2.2	5.9	4.0	2.6	
Total	**62.4**	**64.7**	**25.0**	**75.9**	**50.0**	***61.-70.***

How much longer will supplemental funding continue?

FY 05/06 Appropriations
FY 07-10 Budget/POM

Year	'05	'06	'07	'08	'09	'10
Total	**401.1**	**410.8**	**439.3 +6.9%**	**462.4**	**482.0**	**492.1**
Procurement	78.2	76.2	84.2 +10.5%	101.4	105.2	111.3
R & D	68.8	71.0	73.2 +3.1%	66.5	72.4	68.8
Milpers	104.0	106.8	110.8 +3.7%	115.4	119.4	123.3
O & M/Other	150.3	156.5	171.1 +9.3%	179.1	185.0	188.9

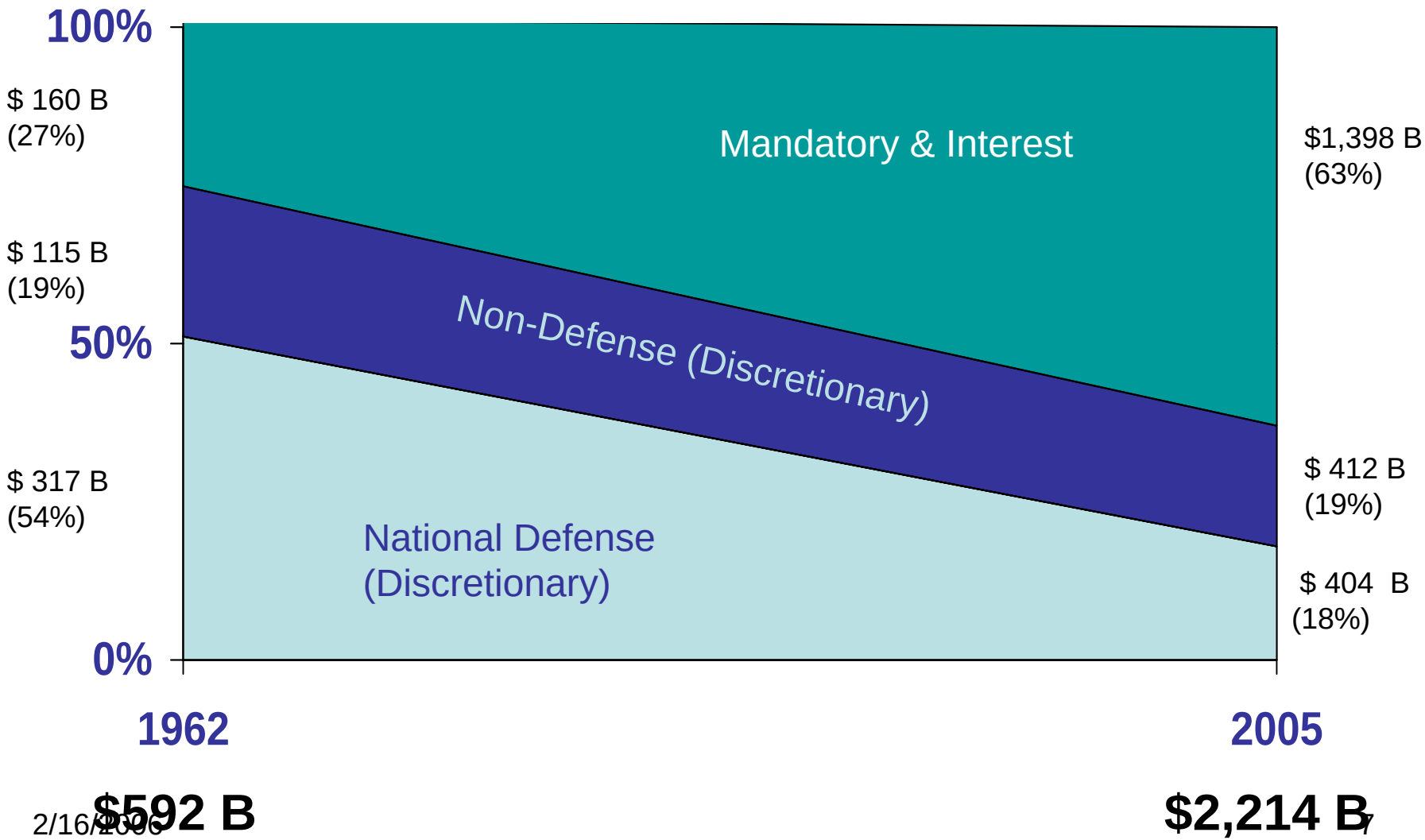
FY 07 AMMO Request ($B): Army $1.9 USN/USMC $0.8 USAF $1.0

Missle Request: Army $1.4 USN/USMC $ 2.5 USAF $4.2

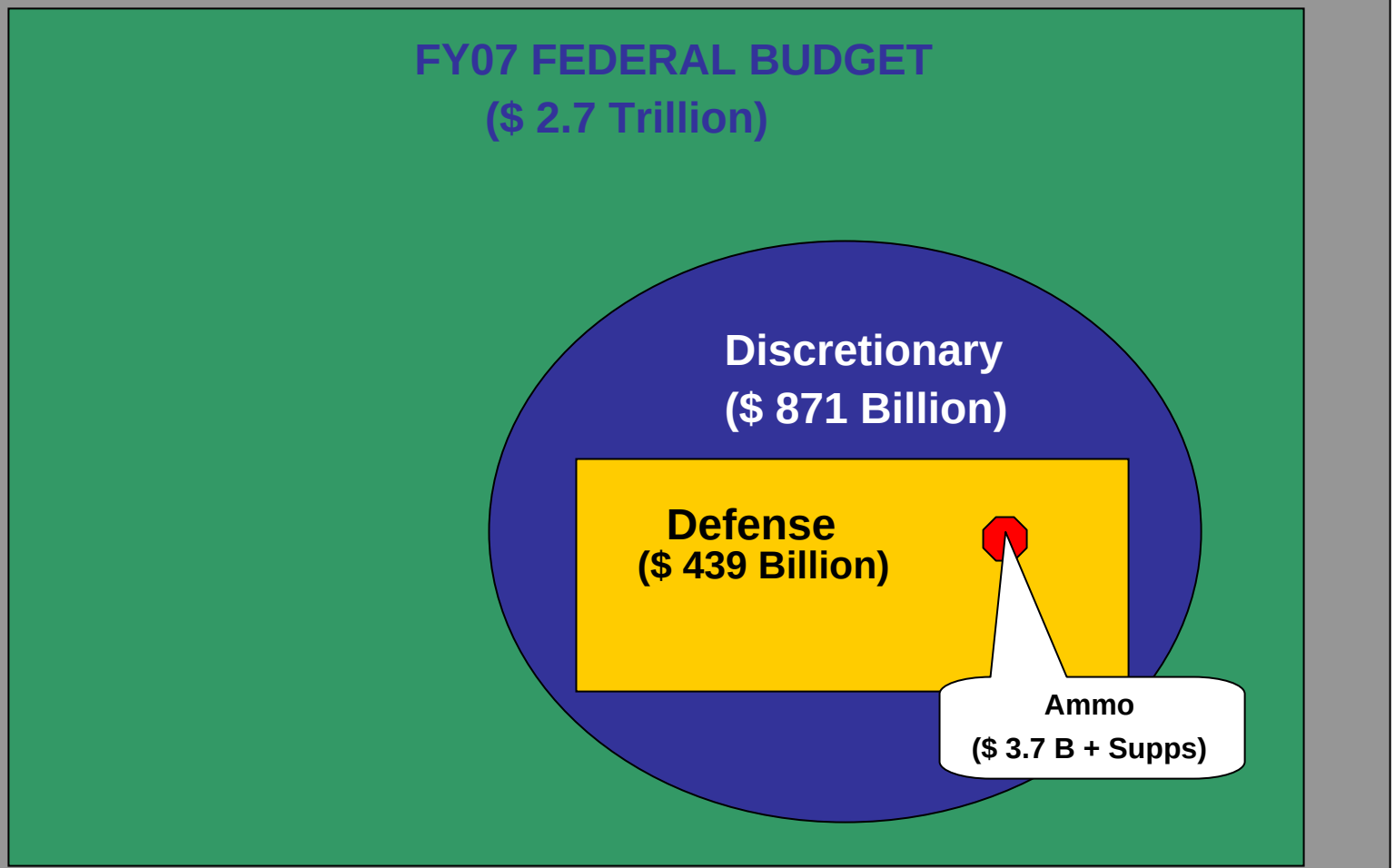
What I think I know?

% Discretionary / Mandatory Federal Outlays

(FY2006 Budget Historical Tables – FY 2000 $B)



POLITICAL WASHINGTON



2006 Election Year Positioning

Political Washington Issues

- 2006 election tactics and media coverage
- Patriot Act extension
- Lobbying and “earmarking”
- Tax relief, deficit & national debt reduction
- Debt ceiling increase
- Entitlement growth reduction
- FY07 Appropriations
- 2006 election tactics and media coverage

Earmarking
-- More than just “pet projects”

- Process to reflect Congressional priorities in President’s federal budget
  - Entitlements
  - Taxes
  - Discretionary spending
- Real issues of process rigor, Congressional over sight, transparency and openness
  - No late, out-of-scope “stuff”
  - Control or limit extent of “channeling” resources

Congressional Budget Schedule

- February 6th – President submits Budget
- Mid- March – Start FY06 Supplemental
  - Possible completion: end of April
  - Most probably completion just before May recess
- March 15- April 1 – House & Senate pass Budget Resolutions
- April 15 – Concurrent Budget Resolution done and HASC/SASC start Authorization Bills
  - Entitlement cost growth
  - Tax reductions/revenue increases
  - Deficit reduction
- May 15th – FY 07 Appropriations process starts
  - Defense early start & early finish
  - Defense early start & late finish
  - Defense late start & late finish

What I think?

Supplementals ($B)

(Assumes $7B/month burn rate)

Year	**‘03**	**‘04**	**’05 Bridge**	**‘05**	**’06 Bridge**	**‘06**
MILPERS	13.4	17.8	1.3	17.4	6.2	***19.0***
OPS	31.2	39.2	16.4	37.1	33.2	***24.0***
Procurement	1.3	5.5	1.4	17.4	8.0	***16.-25.***
Other	16.5	2.2	5.9	4.0	2.6	***2.0***
Total	62.4	64.7	25.0	75.9	50.0	***61.-70.***

FY 07 DoD $432-435B: slightly less than request

Supplementals ($B)

(Assumes $7B/month burn rate)

Year	‘03	‘04	’05 Bdge	‘05	’06 Bdge	‘06	’07 Bdge	’07 w/ FY 08 Budget
Pay	13.4	17.8	1.3	17.4	6.2	*~19.*	**~6.5**	**<21.**
O&M	31.2	39.2	16.4	37.1	33.2	*~24.*	**<33.**	**<24.**
Acq	1.3	5.5	1.1	17.4	8.0	*16.-25*	**>8.**	**>23.**
Othr	16.5	2.2	5.9	4.0	2.6	*~2.*	**2.6**	**~2.**
Total	62.4	64.7	25.0	75.9	50.0	*61.-70*	**50.0**	**<70.**

Last 2 Bush budgets FY 08 & 09

QUESTIONS

Back Up Slides

FY 2006
Defense Bill Summary

- **Authorizers essentially approved President's Request**
  - Pressure on Cost Containment and Acquisition Reform
- **$410B Defense Appropriations Bill signed 30 Dec**
  - HAC - $3B
  - SAC - $7B
  - Conference - $8.6B (-1% deficit reduction cut)
  - '06 Bridge supplemental appropriated additional $50B
    - $300M for Ammo
    - Late Service push for procurement funds
  - Included Katrina relief and DoD support Bill payer
  - Congressional adds being reviewed before release

FY 2007 Budget Cycle
DoD View

- FY 2007 Budget submitted
  - Approx $439B with 4.5% real growth
  - QDR results considered; most $ changes in ’08 POM
    - Defeat terrorist networks
    - Counter WMD weapons
    - Deter China, India and Russia
    - Create robust homeland defense
- Late Feb ($70B) FY06 Emergency Supplemental request
- Buying power continuing to be eroded by Health Care and Fuel Costs
- Continuing issue of balance between near term readiness and investing for the future
- FY 2007 budget assumes two FY 2007 Supplementals

FY 2007 Budget Cycle Congressional View

- Republican Congress unlikely to increase Defense top line
  - Congress has reduced PB for the last several years
- Defense remains under pressure from domestic bills
- Political Washington preparing for November elections:
  - Many issues
  - Two possible scenario's
    - Timely Appropriations
    - Short CRA with possible Lame Duck session of Congress
- Congress will finish FY 2006 Supplemental then move FY07 Defense request and "Bridge Supp" together

FY 2006 Defense Appropriations Summary ($B)

President's Budget

TOTAL	**419.3**

Congressional Action

HAC	SAC	Final Appropriation
416.3	**412.3**	**410.8**

Major Appropriations:

MILPERS*	98.2	97.4	95.7	106.8
O & M	126.9	124.1	125.0	1426
Procuremnt	76.6	76.8	75.8	76.2
R & D	69.4	71.1	70.4	71.0
Gen. Provns		-1.6	-1.9	-6.4

*Excludes Retired Pay Accrual



Munitions Executive Summit

OSD Perspective

February 8, 2006

Anthony J. Melita

OUSD (Acquisition, Technology & Logistics)

Deputy Director, Defense Systems,

Land Warfare and Munitions

Discussion Topics

- OSD / AT&L Organization
- QDR, DoD Business Processes
- Budget Trends
- Munitions Interest Areas
  - Industrial Policy
  - DOTC and Joint Munitions Program
  - Modeling & Simulation
  - Insensitive Munitions
  - Fuzing Technology
  - Low Collateral Damage

Office of the Secretary of Defense

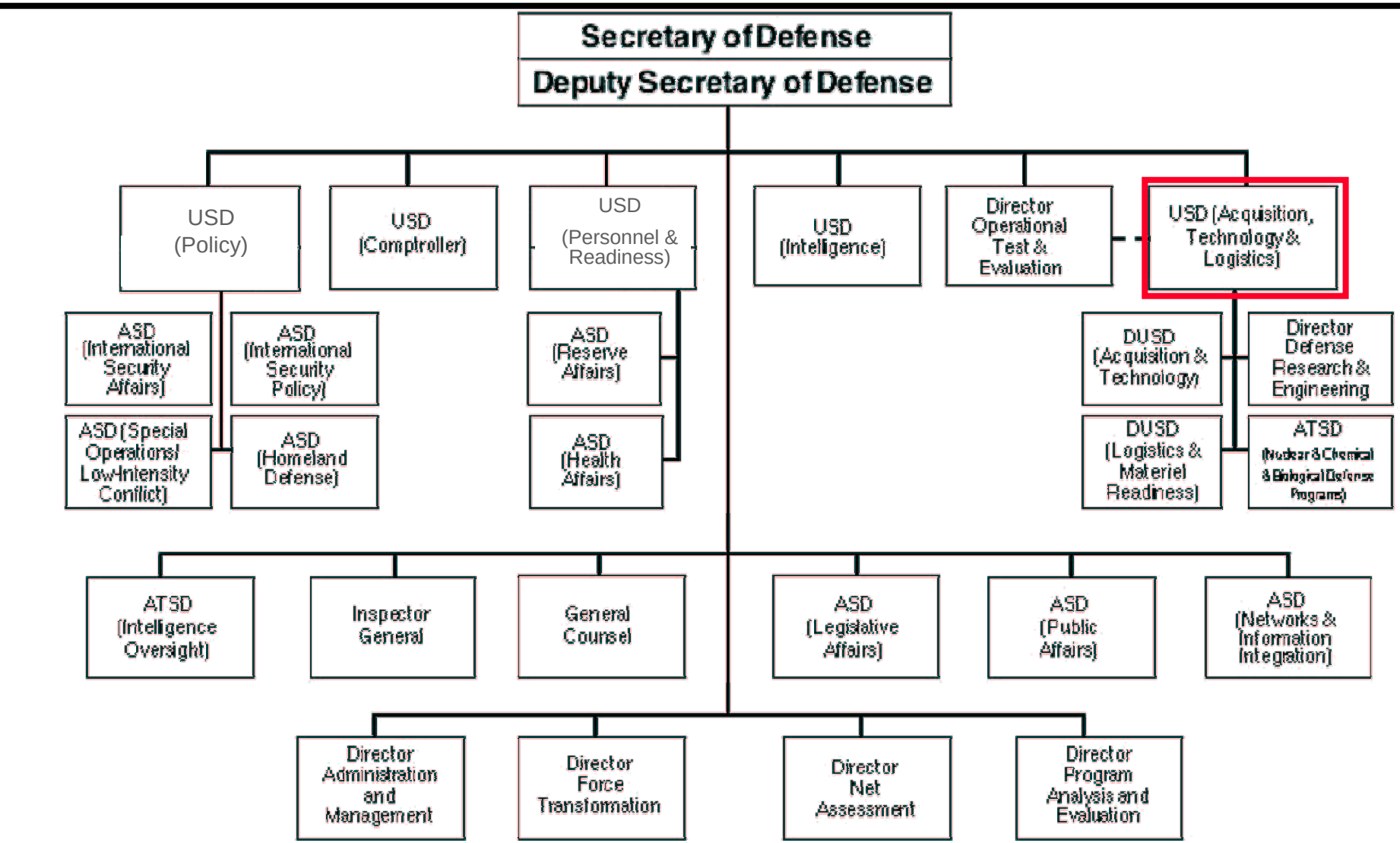


Chart reflects PAS officials and those reporting directly to the Secretary and Deputy Secretary of Defense

August 25, 2005

UNDER SECRETARY OF DEFENSE
(ACQUISITION, TECHNOLOGY AND LOGISTICS)
Honorable Kenneth J. Krieg
697-7021 3E673

PRINCIPAL DEPUTY
(Vacant)
697-7021 3C636

DIR, BUSINESS TRANSFORMATION OFFICE
Mr. Paul Brinkley
3E1025 614-5737

DIR, STUDIES & ANALYSIS
Mr. James Hall
3E1039 697-5530

DIR, ACQUISITION RESOURCES & ANALYSIS
Dr. Nancy Spruill
3E1025 614-5737

DIR, INTERNATIONAL COOPERATION
Mr. Alfred Volkman
3A280 697-4172

DIR, SPECIAL PROGRAMS
RADM Joseph Enright, USN
3D1064 697-1282

DIR, ADMINISTRATION
Ms. Julie Bigler
3D1020 697-2525

EXEC DIR, DEFENSE SCIENCE BOARD
Mr. Brian Hughes
3D865 695-4157

DEPUTY UNDER SECRETARY OF DEFENSE
(ACQUISITION & TECHNOLOGY)
(Vacant)
3C636 697-7021

- DUSD, INDUSTRIAL POLICY
  (Acting)
  Mr. Gary Powell
  3C639 697-0051
- DIR, SMALL & DISADVANTAGED BUSINESS UTILIZATION
  Mr. Frank Ramos
  RPN Suite 9100 588-8620
- DIR, DEFENSE SYSTEMS
  (Acting)
  Mr. Mark Schaeffer
  3E130 697-9386
- DIR, DEFENSE PROCUREMENT & ACQUISITION POLICY
  (Acting)
  Mr. Domenico Cipicchio
  3E1044 695-7145
- DIR, DEFENSE CONTRACT MANAGEMENT AGENCY
  MGen Darryl Scott, USAF
  6350 Walker LA 428-1703

ATSD NUCLEAR & CHEMICAL & BIOLOGICAL DEFENSE PROGRAMS
Honorable Dale Klein
3E1074 697-1771

- DATSD, NUCLEAR MATTERS
  Mr. Steve Henry
  3C125 697-3060
- DATSD, CHEM/BIOLOGICAL DEFENSE
  Dr. Klaus Schafer
  3C257 693-9410
- DATSD, Chemical Demilitarization and Threat Reduction
  (Acting)
  Mr. Doug Englund
  Wilson Blvd 588-1983
- DIR, DEFENSE THREAT REDUCTION AGENCY
  Dr. James Tegnelia
  FT BEL 767-4883

DIRECTOR DEFENSE RESEARCH & ENGINEERING
Honorable John Young
3C638 697-5776

- DUSD, SCIENCE & TECHNOLOGY
  3E114 695-0598
- DUSD, ADVANCED SYSTEMS & CONCEPTS
  Ms. Sue Payton
  3E144 697-6446
- DUSD, LABORATORIES & BASIC SCIENCES
  (Acting)
  Dr. Bill Berry
  3E114 692-4592
- DUSD, INTERNATIONAL TECHNOLOGY SECURITY
  (Vacant)
  3E1034 697-0051
- DIR, DEFENSE ADVANCED RESEARCH PROJECTS AGENCY
  Dr. Anthony Tether
  VSB 983 896-2400
- ADMIN, DEFENSE TECHNICAL INFORMATON CENTER
  (Acting)
  Mr. Paul Ryan
  FT BEL 767-9100

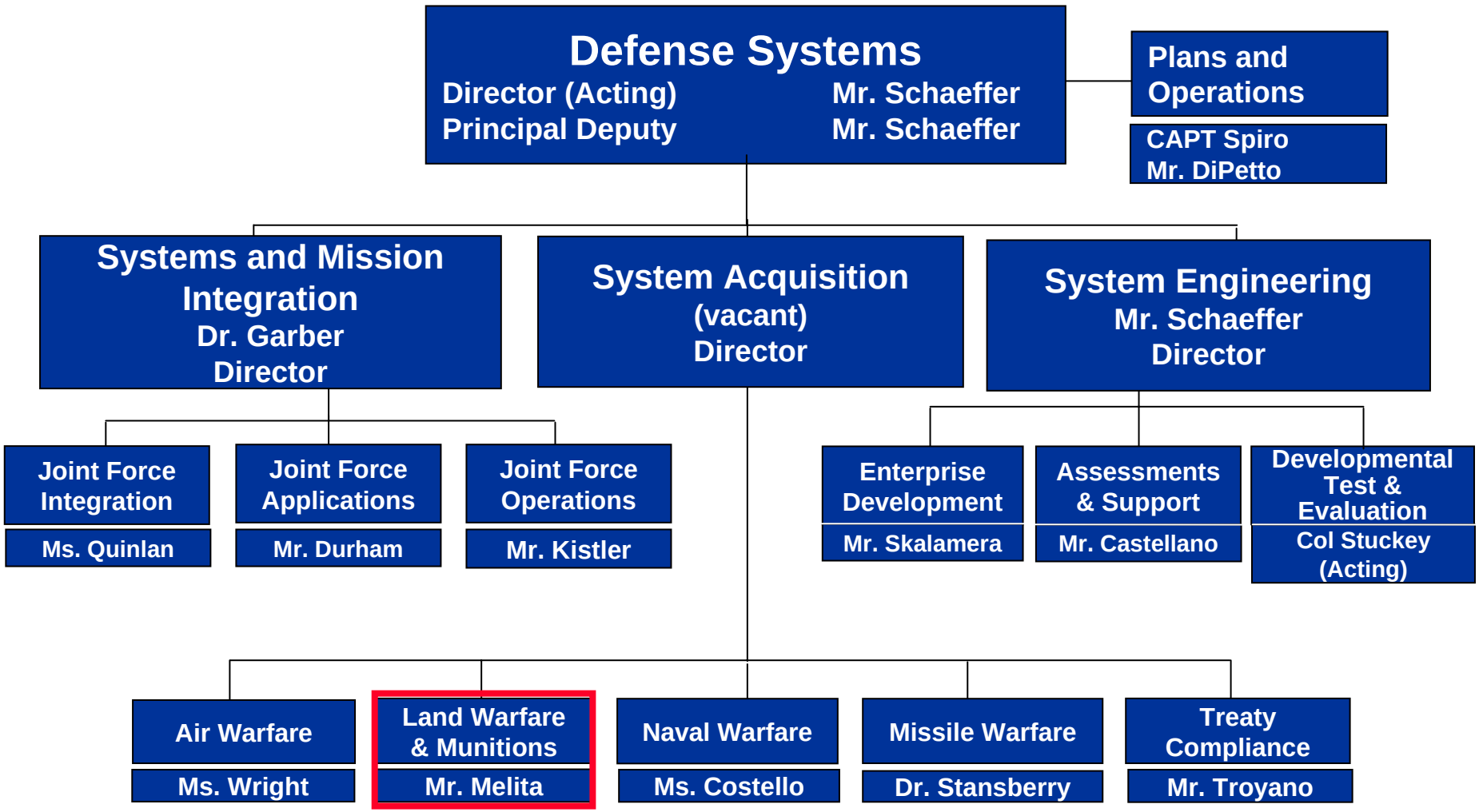
DEPUTY UNDER SECRETARY OF DEFENSE
(LOGISTICS & MATERIEL READINESS)
Honorable Phillip J. Bell
1E518 697-5531

- ADUSD, TRANSPORTATION POLICY
  Mr. Earl Boyanton, Jr.
  CGN 210A 601-4461
- ADUSD, MATERIEL READINESS & MAINTENANCE POLICY
  Mr. David Pauling
  3B915 697-7980
- ADUSD, SUPPLY CHAIN INTEGRATION
  Mr. Alan Estevez
  CGN 210B 604-0098
- ADUSD, LOGISTICS PLANS & PROGRAMS
  Mr. Louis Kratz
  2C263 614-6327
- DIR, DEFENSE LOGISTICS AGENCY
  VADM Keith Lippert, USN
  FT BEL 767-5200

DUSD, INSTALLATIONS & ENVIRONMENT
Mr. Philip Grone
3C553 695-2880

- ADUSD, INSTALLATIONS
  Mr. J. Chuck Williams
  5C646 571-9076
- ADUSD, ENVIRONMENT, SAFETY & OCCUPATIONAL HEALTH
  Mr. Alex Beehler
  5C646 571-9060
- DIR, BUSINESS TRANSFORMATION
  Mr. Douglas Hansen
  400 AND 604-5582
- DIR, HOUSING & COMPETITIVE SOURCING
  Mr. Joseph Sikes
  CS4 602-3669
- DIR, INSTALLATION REQUIREMENTS & MANAGEMENT
  Dr. Get Moy
  5C646 695-6774
- DIR, BASE REALIGNMENT & CLOSURE
  Mr. Peter Potochney
  1E515A 614-5356

Defense Systems Organization



USD (AT&L) Goals

Goal 1 - High Performing, Agile and Ethical Workforce

Goal 2 - Strategic and Tactical Acquisition Excellence

Goal 3 - Focused Technology to Meet Warfighting Needs

Goal 4 - Cost-effective Joint Logistics Support for the Warfighter

Goal 5 - Reliable and Cost-effective Industrial Capabilities Sufficient to Meet Strategic Objectives

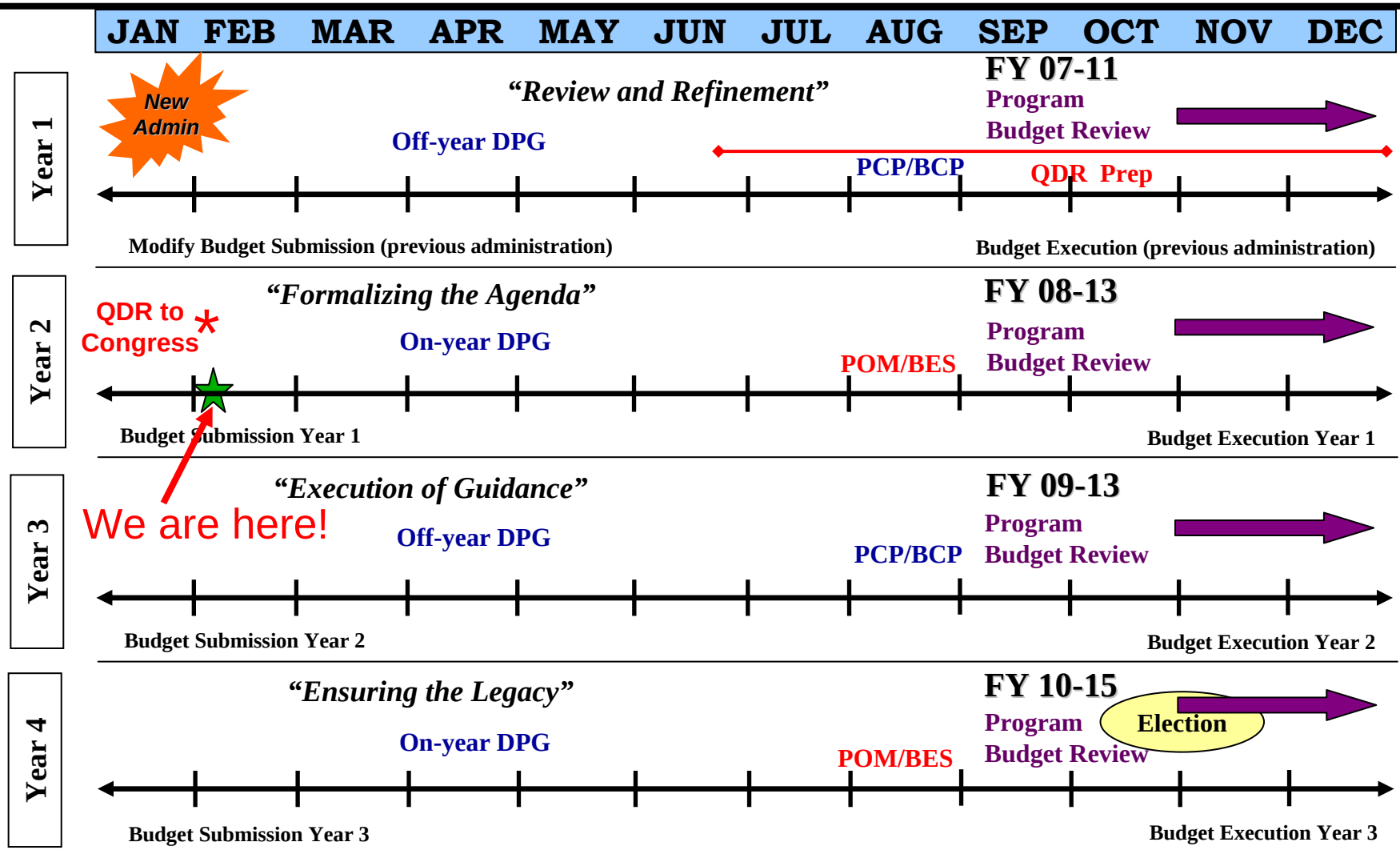
Goal 6 - Improved Governance and Decision Processes

Performance Management Hierarchy

- **Goal**
  (Azimuth to guide the organization's broad collective efforts, Lead individual and Support Organizations Identified for each)
  - **Outcome**
    (What's desired and required to support reaching each goal, may be several outcomes underpinning each goal)
    - **Objective**
      (The "how" of attaining an outcome, measurable with quantifiable metrics, assigned to a responsible and accountable individual, part of their performance plan)
      - **Supporting Objective**
        (As required to provide sufficient detail)

Quadrennial Defense Review and DoD Business Processes

Planning, Programming, Budgeting, and Execution



4 Administration Years with 2-year PPBE Cycle

2005 Quadrennial Defense Review

- **20 year look – must prevail in current war and also prepare for wider range of challenges**

- **Twin imperatives of review:**
  - Continue reorientation of capabilities to address asymmetric challenges (more irregular, catastrophic and disruptive in character)…
  - …while changing the Defense enterprise to support and accelerate that reorientation

Fighting a Long War – Lessons Learned

- **Capitalized on lessons learned from operational experiences of the past 4 yrs: OIF/OEF; humanitarian responses; Katrina**

- **Key lessons from these operations informed QDR – importance of:**
  - Building partnership capacity (a more indirect approach to defeat enemy);
  - Early preventive measures;
  - Maintaining and expanding US freedom of action to confront enemies; and
  - Cost-imposing strategies (competitive strategies)

Continuous change and assessment…inherently interim report

FY07 leading edge investments; FY08-13 Defense Program; Roadmaps

Security Environment: 4 Challenges

Irregular

- Unconventional methods adopted by non-state and state actors to counter stronger state opponents.
- (e.g., terrorism, insurgency, civil war, and emerging concepts like "unrestricted warfare")

Catastrophic

- Surreptitious acquisition, possession, and possible employment of WMD or methods producing WMD-like effects against vulnerable, high-profile targets by terrorists and rogue states. *(paralyze our power)*
- (e.g., homeland missile attack, proliferation from a state to a non-state actor, devastating WMD attack on ally)

Traditional

- Military capabilities and military forces in long-established, well-known forms of military competition and conflict.
- (e.g., conventional air, sea, land forces, and nuclear forces of established nuclear powers)

Disruptive

- International competitors developing and possessing breakthrough technological capabilities intended to supplant U.S. advantages in particular operational domains. *(marginalize our power)*
- (e.g., sensors, information, bio or cyber war, ultra miniaturization, space, directed-energy, etc)

VULNERABILITY

Lower — *Higher*

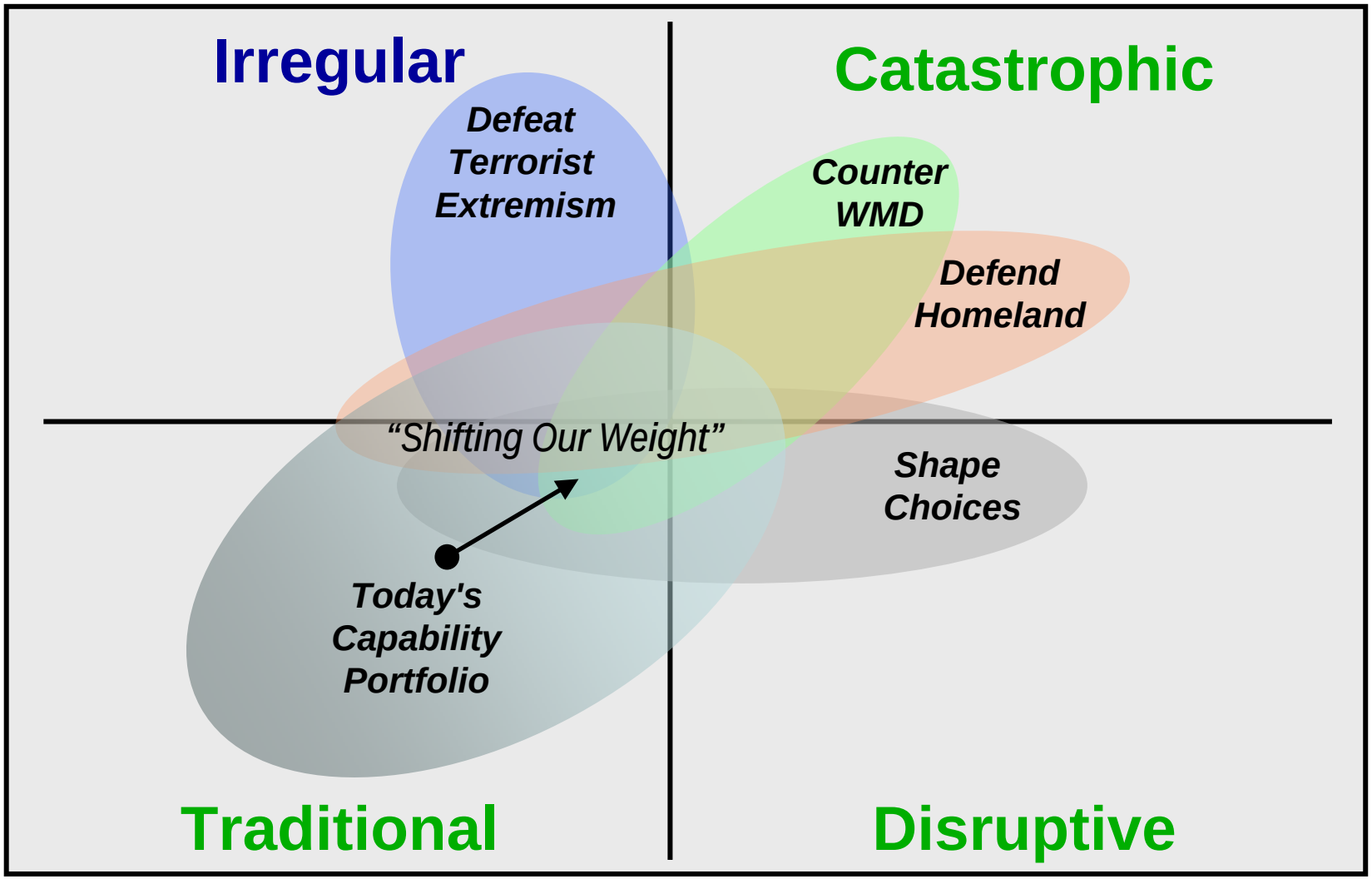
Higher

Lower

LIKELIHOOD

Capabilities-based planning should balance risk across challenges

Re-balancing Future Force Capabilities



Continuing the reorientation of military capabilities and implementing enterprise-wide reforms to ensure structures and process support the President and the warfighter

2005 QDR Highlights

- U.S. must continue to adjust to uncertainty and to asymmetric challenges
- We must continue the shift away from size, predictability, and mass toward agility, speed, precision and lethality
- The Global War on Terror requires the U.S. military to adopt unconventional and indirect approaches; we must be prepared to wage this war in many areas around the world for many years to come
- Investments the country has made in conventional forces have created a military without peer in the world; we must continue to organize, train, and equip forces capable of preventing, deterring, or defeating conventional forces of nation-states
- DoD will continue to improve jointness and connectivity within and between the services to provide commanders with the greatest possible number of options

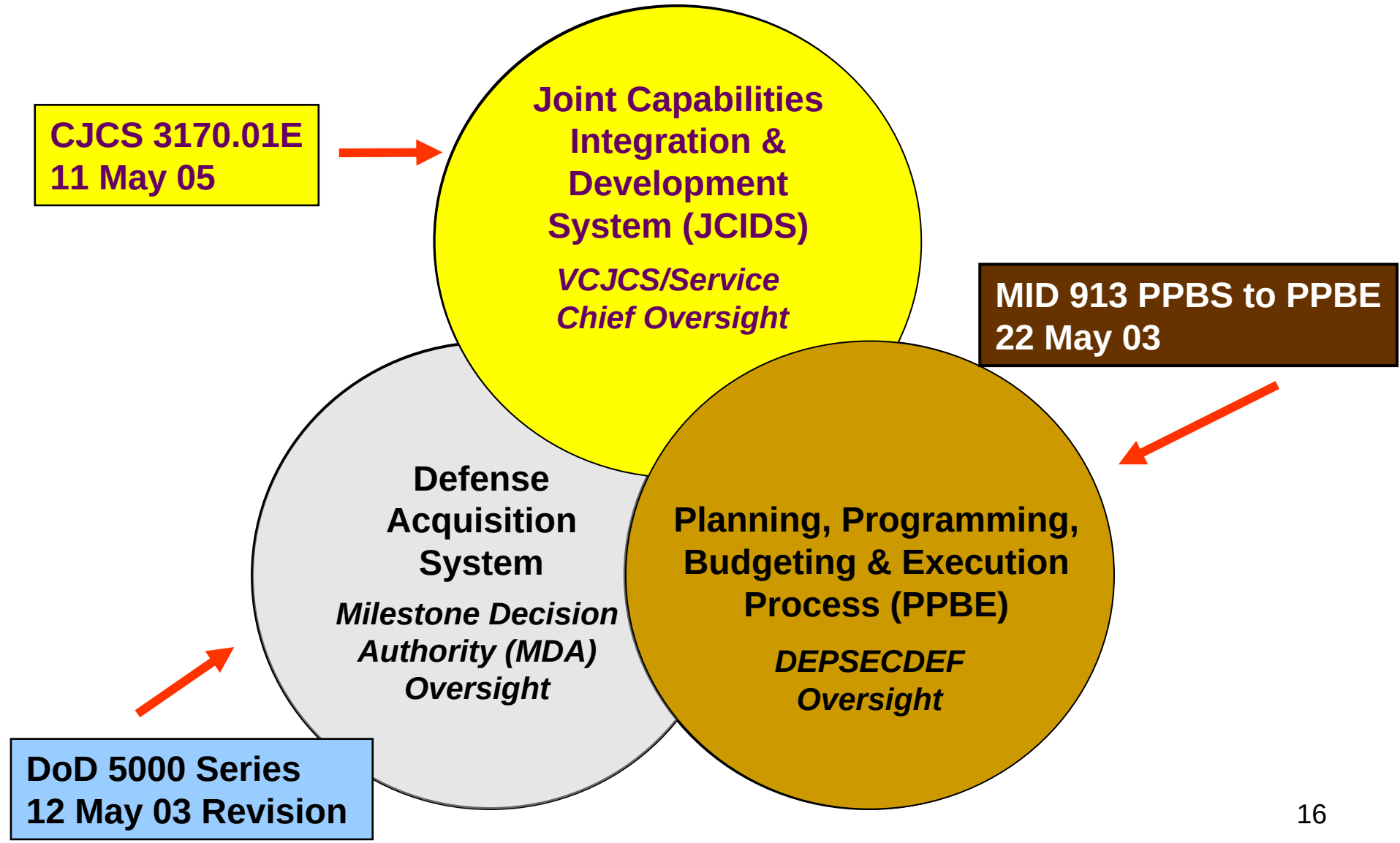
Re-shaping the Defense Enterprise

The Department's business practices and processes need to be responsive, agile and flexible to efficiently and effectively meet joint warfighting needs.

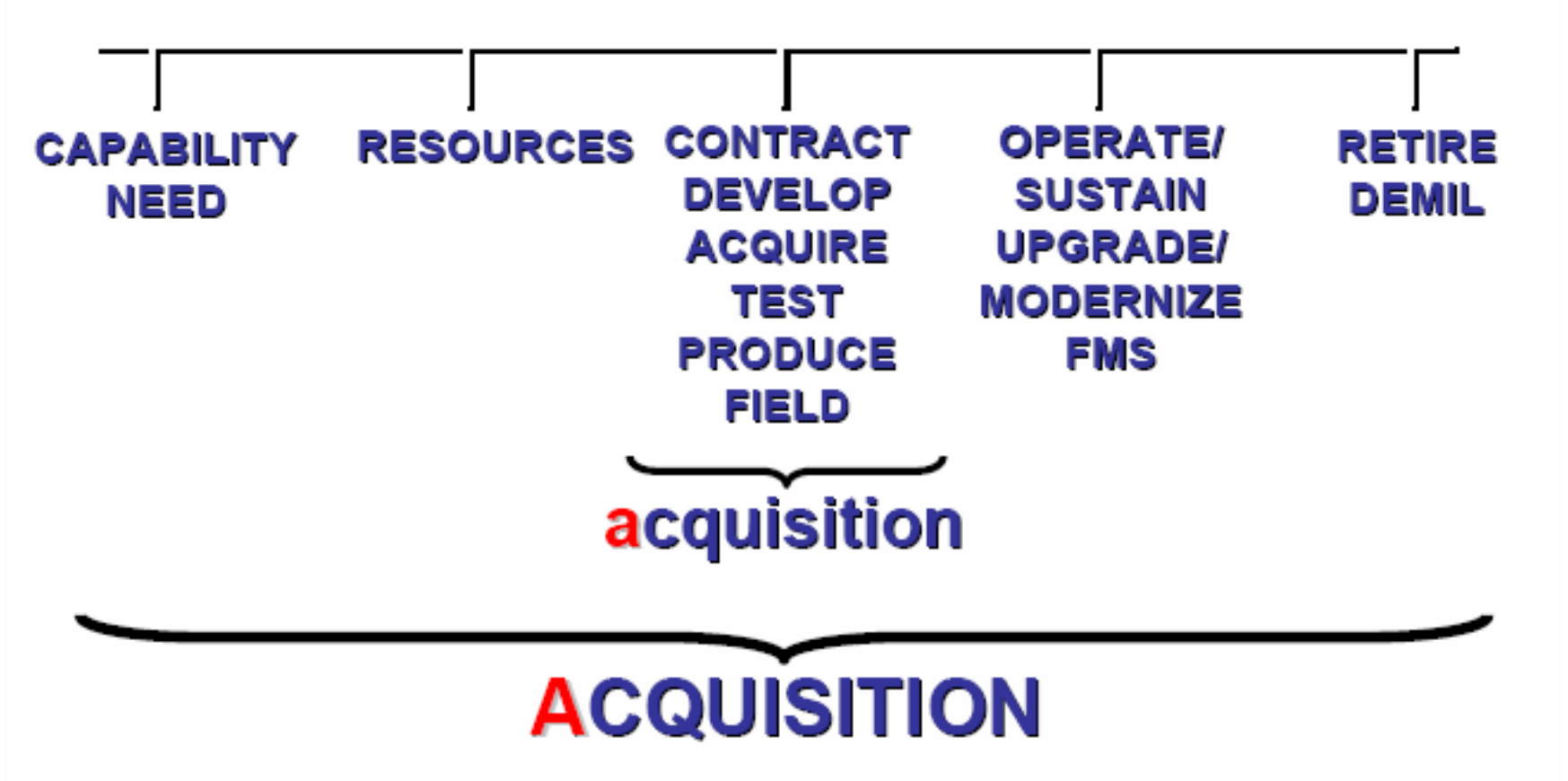
- **Current state**
  - Decision making processes lack speed, integration and appropriate focus
  - Can't rationally allocate resources to capabilities to missions
  - Seams among DoD Components and other agencies must be bridged
- **We will manage the future enterprise better by**
  - Aligning Department activities through horizontal integration; promote and reward collaboration
  - Engaging in a coordinated and portfolio-based approach to planning, programming, and budgeting
  - Reforms at three levels: governance, management, and execution
  - Governance: strategic direction, identity, acquisition & resource allocation, corporate decision-making, performance assessment, and force employment



Acquisition Decision Support Systems In Transformation



The Process: Big A, Little a



Defense Acquisition Performance Assessment Project
Major Findings – December 2005

- Strategic technology exploitation is a key U.S. advantage
- The world has changed
  - fewer prime contractors
  - fewer new starts
  - lower production rates
  - need to be agile
- The acquisition system must deal with external instability, a changing security environment and challenging national issues
- DoD management model based on lack of trust - oversight is preferred to accountability
- Oversight is complex, it is program focused - not process focused
- Complex acquisition processes do not promote success – they increase cost and schedule
- DoD elects short term savings and flexibility at the expense of long term cost increases

Defense Acquisition Performance Assessment Project Recommendations – December 2005

- Organization -- Realign authority, accountability and responsibility at the appropriate level and streamline the acquisition oversight process.
- Workforce -- Rebuild and value the acquisition workforce and incentivize leadership.
- Budget -- Transform the budgeting process and establish a distinct Acquisition Stabilization Account to add oversight throughout the process.
- Requirements Process -- Replace JCIDS with COCOM-led requirements procedures in Services, and DoD agencies must compete to provide solutions.

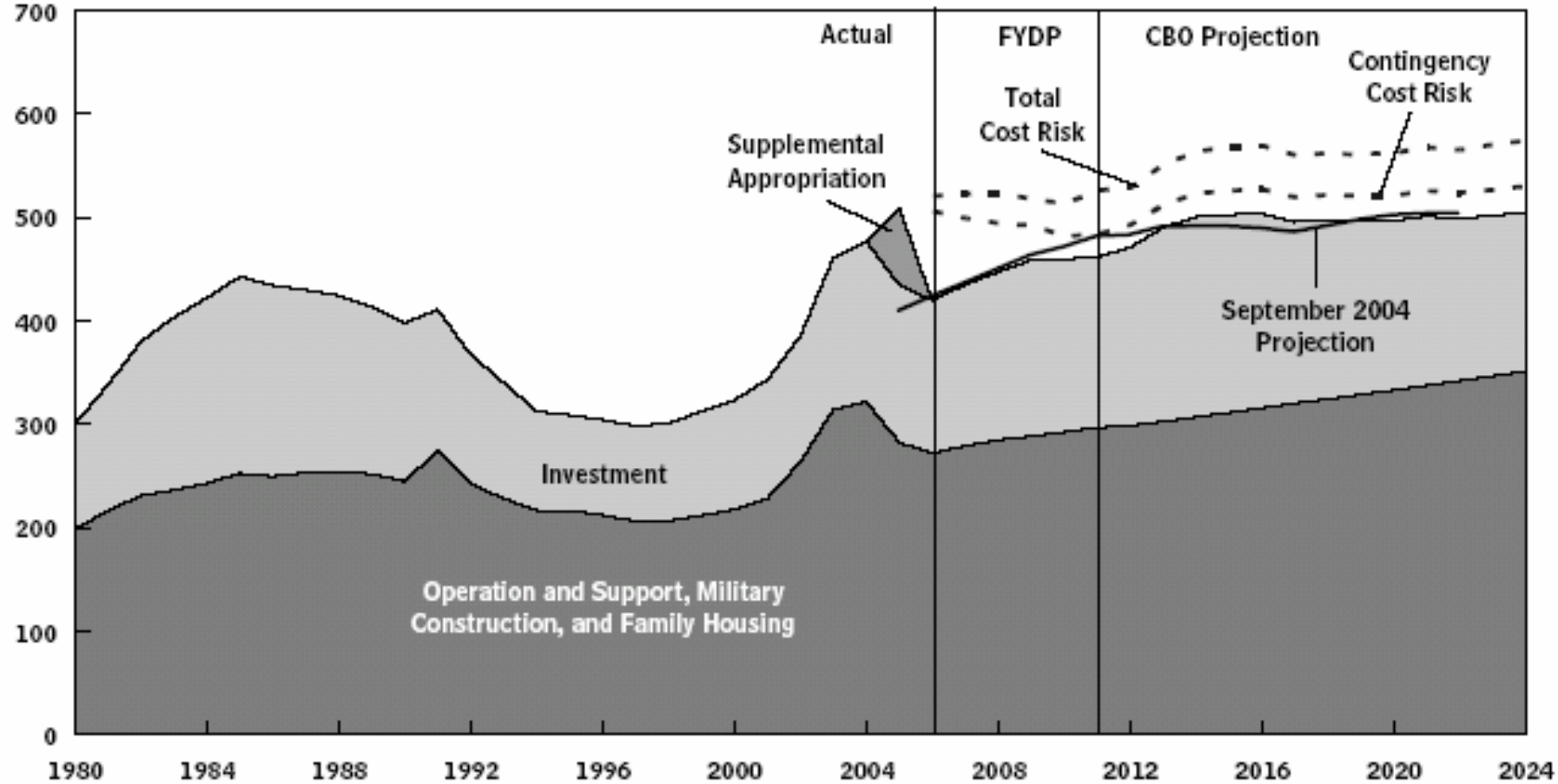
Defense Acquisition Performance Assessment Project Recommendations – December 2005 (continued)

- Management and Operational Test -- Add an “operationally acceptable” test evaluation category. Give program managers explicit authority to defer requirements.
- Acquisition Strategy -- Shift to time-certain development procedures. Adopt a risk-based source selection process.
- Acquisition, Time-Certain Development -- Developmental programs must change from a focus on 100 percent performance in the first production lot to a focus on delivering useful military capability within 6 yeas of Milestone A.
- Industry -- Overcome the consequences of reduced demand by sharing long range plans and restructuring competitions for new programs with the goal of motivating industry investments in future technology and performance on current programs.

Budget Trends

Past and Projected Resources for Defense

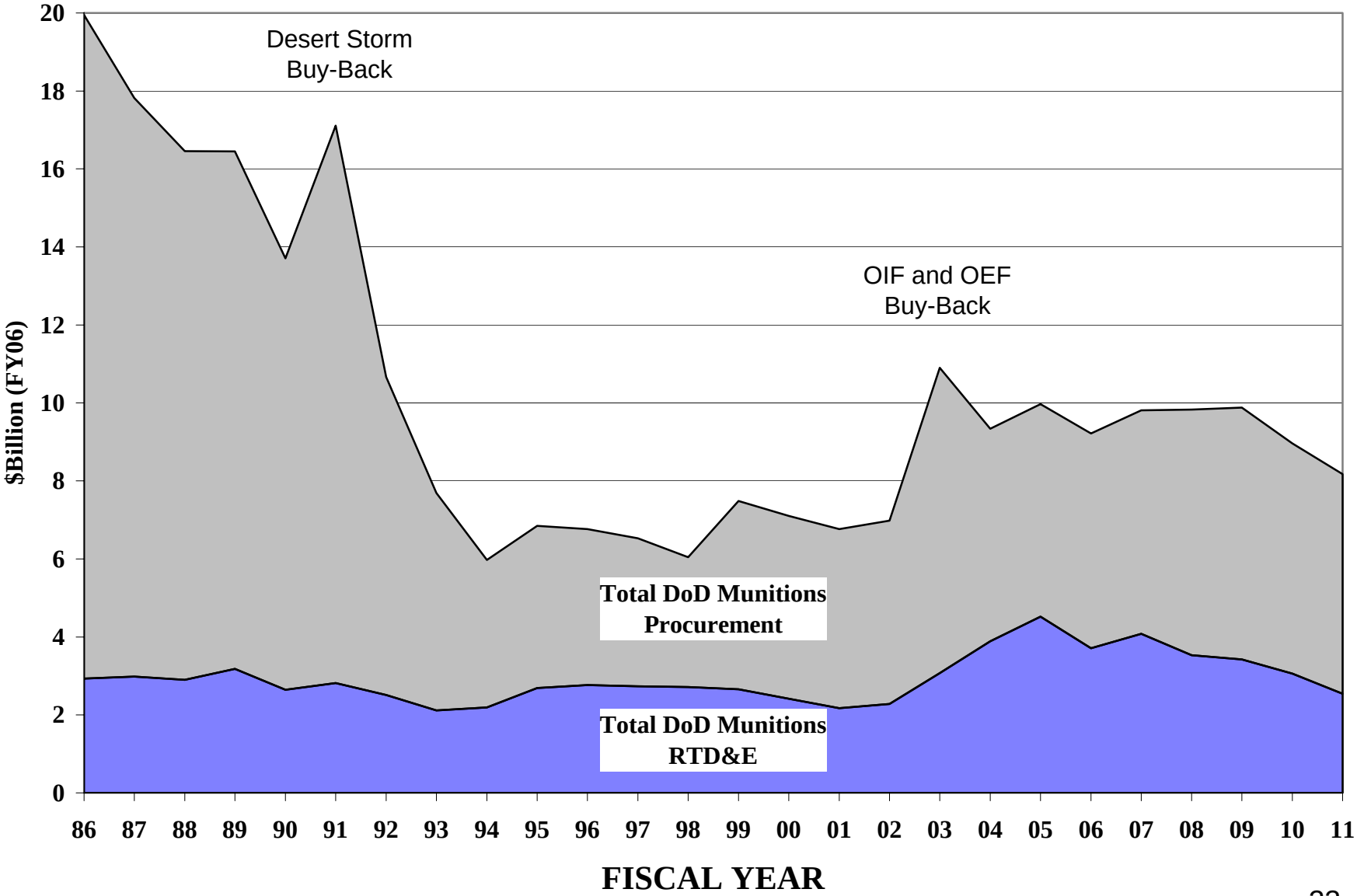
(Billions of 2006 dollars)



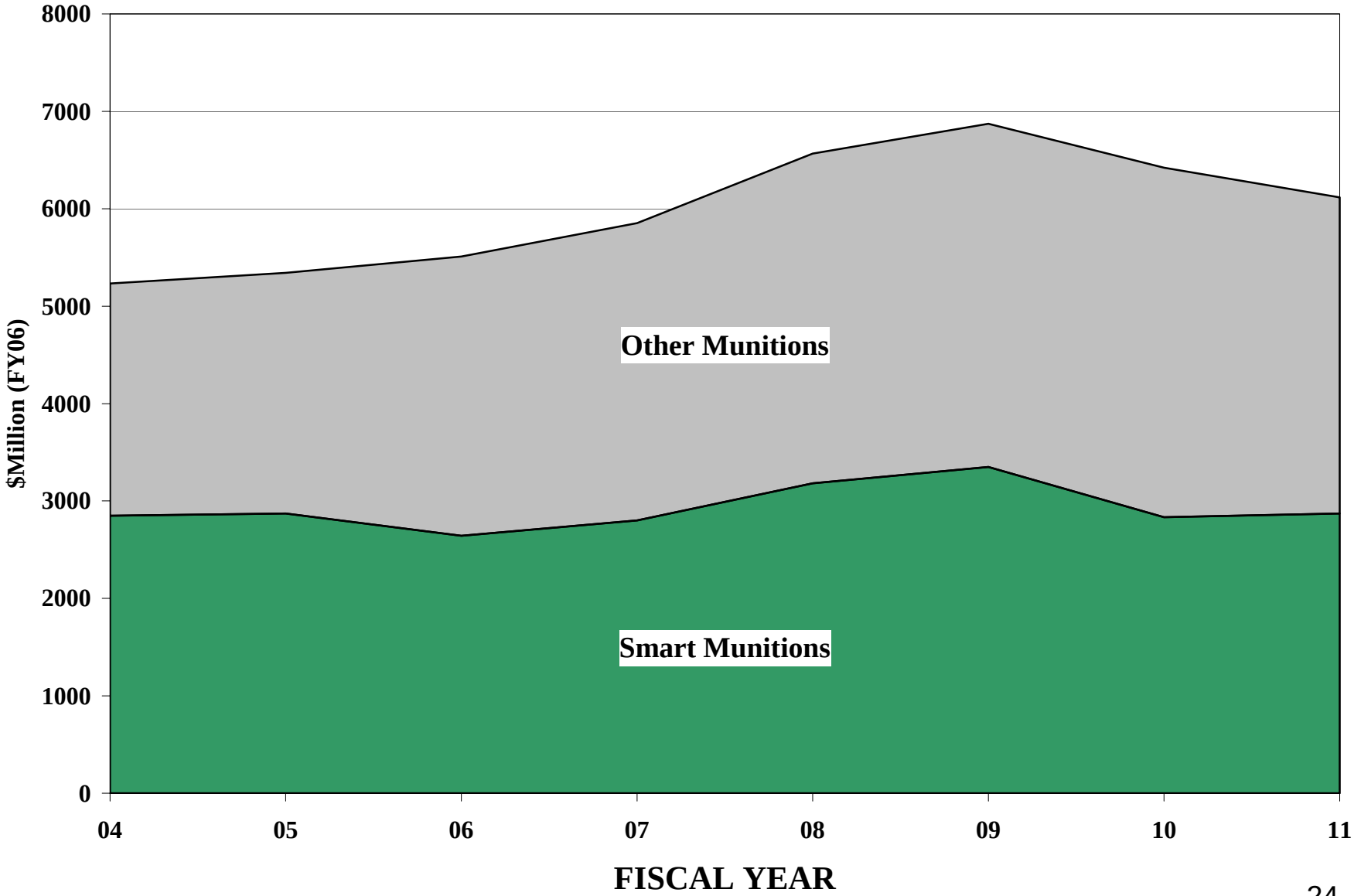
Source: Congressional Budget Office.

Note: FYDP = Future Years Defense Program.

DoD Munitions RDT&E and Procurement



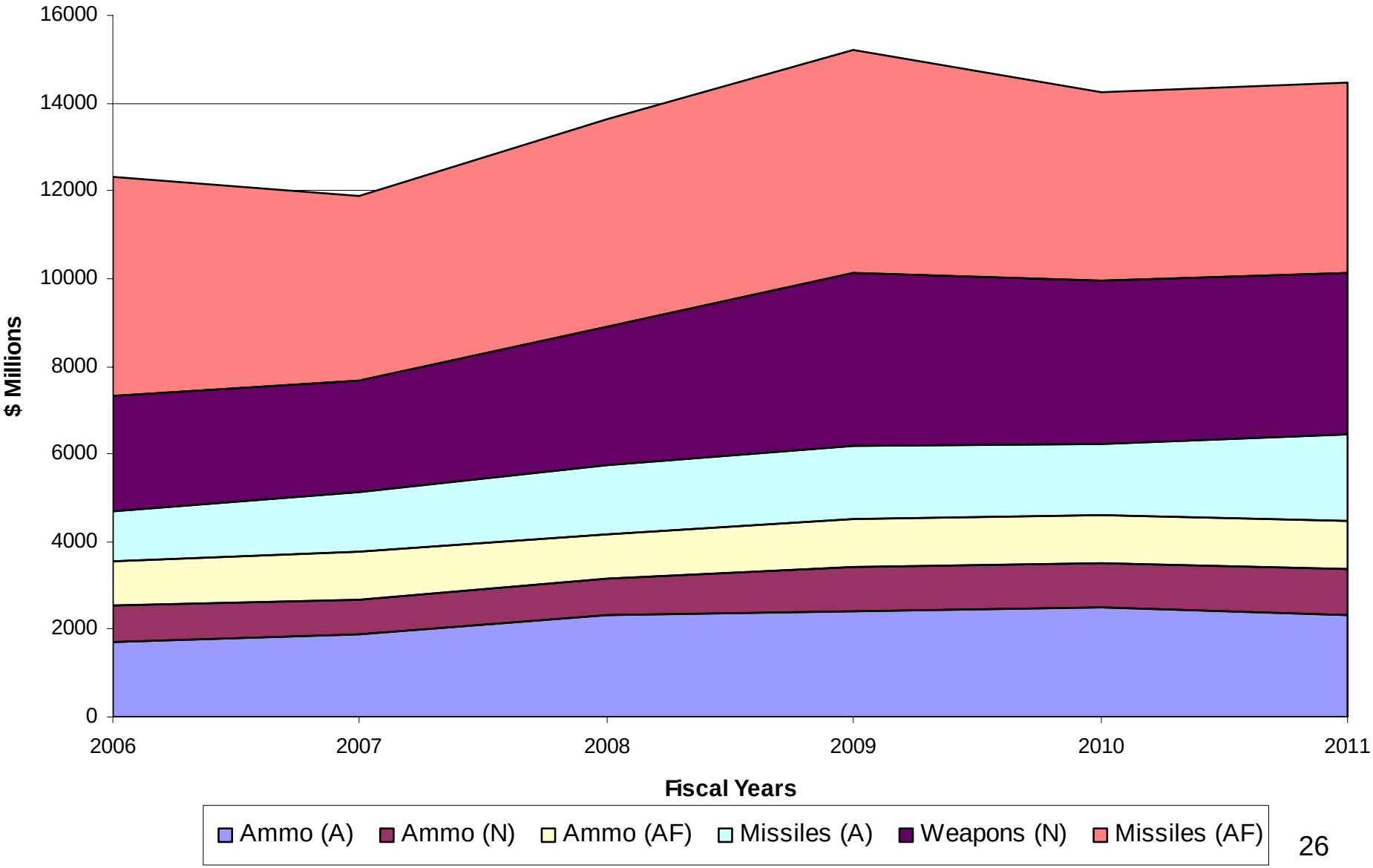
Smart Munitions vs. Other Munitions Procurement Trend



FY 2007 President's Budget
Munitions Appropriations

	2006	2007	2008	2009	2010	2011
Ammo (A)	1,709	1,903	2,307	2,416	2,479	2,304
Ammo (N)	840	790	847	1,024	1,034	1,080
Ammo (AF)	1,003	1,072	1,005	1,095	1,075	1,079
Missiles (A)	1,149	1,350	1,599	1,650	1,617	1,978
Missiles (AF)	5,009	4,204	4,752	5,091	4,320	4,353
Weapons (N)	2,624	2,555	3,123	3,936	3,739	3,679
($ M)	12,334	11,874	13,633	15,212	14,264	14,473

FY 2007 President's Budget
Munitions Appropriations



Munitions Interest Areas

Industrial Policy's Mission

- Sustain an environment that ensures the industrial base on which the Department of Defense (DoD) depends is reliable, cost-effective, and sufficient to meet DoD requirements.

- Specifically, ODUSD(IP) is responsible to ensure that DoD policies, procedures, and actions:
  1. Stimulate and support vigorous competition and innovation in the industrial base supporting defense; and
  2. Establish and sustain industrial and technological capabilities that assure military readiness.

Desired Industry Health Metrics

- Reliable: A “reliable” industrial base is one in which suppliers ship contracted products and services on time and to performance specifications.

- Cost-Effective: A “cost-effective” industrial base is one in which suppliers deliver contracted products and services at or below cost targets.

- Sufficient: A “sufficient” industrial base is one in which suppliers have adequate capability to deliver contracted products and services.

Broad Areas of Interest

- Creating/sustaining competition
- Mobilization/Surge
- Globalization debate dependent on meeting criteria for reliable, cost-effective industry that is sufficient to meet DoD needs, NOT U.S. vice non-U.S. sources
  - Exceptions:
    - Law: Section 806
    - Formal restrictions within DFARS
    - DoD 5000.60-H criteria that preclude non-US sources

DoD 5000.60-H Circumstances that Preclude Non-U.S. Suppliers

- High “market concentration” combined with political or geopolitical vulnerability.
- Suppliers from politically unfriendly or anti-American foreign countries, as defined by statute or U.S. Government policy.
- Suppliers that can not or will not provide products for military applications for political reasons.
- Certain technologies and products that are either classified, offer unique war fighting superiority, or could be used by foreign nations to develop countermeasures.*

* Foreign sources are not automatically excluded on the basis of a need to protect classified or unique technologies or products; this must be determined by individual circumstance. The Department has agreements with many allied and friendly nations for safeguarding classified military information.

DoD Ordnance Technology Consortium

DoD Ordnance Laboratory Center

National Warheads and Energetics Consortium

Section 845
Other Transaction

Task Order Sub Agreements
CRADAs
DEAs
Contracts
Test Service Agreements

- OUSD (AT&L) DS/LW&M
- Department of The Army
- Department of the Navy
- Department of the Air Force
- Special Operations Command
- Defense Advanced Research Project Agency
- Defense Threat Reduction Agency
- Department of Energy
- Other Agencies and Departments

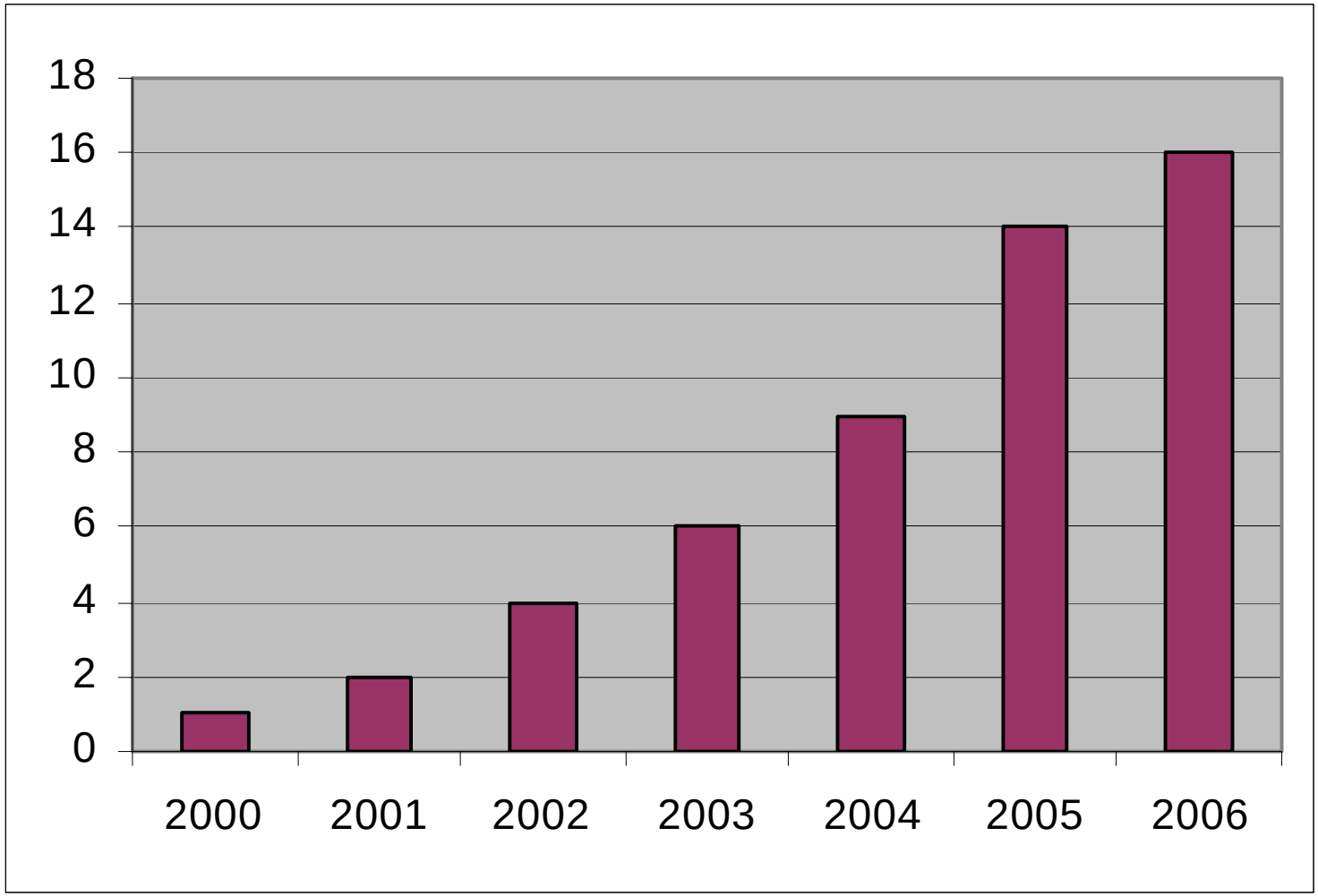
- Small Businesses
- Defense Contractors
- Academic Institutions
- Non-Profit Organizations
- Not-for-Profits Organizations

DoD and NWEC… Partnering to Leverage Capabilities and Investment

DOTC VISION

An integration of Government , Industry, and Academia into a single enterprise executing co-funded initiatives, sharing and developing goals and objectives, resources and assets, and utilizing existing personnel, facilities and equipment.

DOTC JOINT & CO-FUNDED PROJECTS



Joint DoD/DOE Munitions Program Background

- DoD/DOE Memorandum of Understanding – Approved 1985
  - Established a cooperative program of R&D in munitions technology
  - Technologies & problems of mutual interest
  - Jointly funded
  - Work performed at DOE nuclear weapons laboratories: Lawrence Livermore, Los Alamos, and Sandia National Laboratories
- Program Goals
  - Effect major improvements in munitions performance and affordability
  - Utilize and adapt specialized DOE skills, facilities, and computational tools
- Approach
  - Labs' Five Year Plans presented annually for approval to DoD & DOE executive-level Technical Advisory Committee (TAC)
  - Semi-annual Technical Coordinating Group (TCG) meetings provide peer review, assessment, and guidance by DoD personnel
  - Technology transitions to DoD & industry coordinated with DOTC

Joint DoD/DOE Munitions Program
Scope & Accomplishments

Scope

• More than 50 projects active in 10 Technology Coordinating Groups encompassing 5 focus areas (modeling & simulation; energetic materials; initiation, fuzing & sensors; warhead tech; munitions lifecycle)
• FY06 total JMP funding ~$50M–DoD & DOE combined

Recent Accomplishments

• ARDEC used CTH & ALE3D models to design shaped charge warheads realizing 3-6 months time savings and $5M cost savings
  - Gun Barrel Chromium elimination
  - MRM
  - 120mm mortar development
  - » NLOS-LS
  - » Excalibur
• Four special-purpose shaped charge munitions deployed by SOCOM for WMD-defeat supporting the GWOT
• TACMS-P penetrator design completed & successfully flown
• Ladar Scannerless Range Imager used by NASA Shuttle Inspection System for recent Discovery flight to ensure safe return to earth
• Rhenium metallurgy & modeling for SM-3 SDACS transferred to NSWC-Dahlgren to resolve design problem

Predictive Modeling and Simulation (M&S) tool development is a priority

- Establish DoD M&S capability (tools) focused on munitions performance applicable to system level design
- Enable system level physics/chemistry-based design from weapons S&T through acquisition
  - Address Multiphase Blast Munitions
  - Build initial capability to support IM thrust (tools in common with Blast)
    - Address violence of response of large rocket motors to bullet/fragment impact
    - Use M&S tools to perform sensitivity/performance tradeoffs
- M&S Initiative comprised of four elements
  - Joint DoD/DOE Munitions Technology Program (TCG I)
  - Multiphase flow, target interaction portfolio (HPCMO)
  - IM Hazards Analysis Project Arrangement
  - Large Rocket Motor toolset

Get M&S tools into hands of DoD and contractors

Insensitive Munitions (IM) Update

- **IM Technology Roadmap**
  - Manage a joint, focused S&T Strategy with the goal of developing the required technologies so that future weapon systems can become IM compliant.
  - *STATUS: 6.2 Program start in FY06. 6.3; Follow-on Program under review. IM S&T Program will be coordinated with IM M&S program.*

- **IM Strategic Planning**
  - Provide a management (PEO) and oversight (JROC) tool that will provide a comprehensive picture of the IM status and plans for each weapon system.
  - *STATUS: FY05/6 Plans approved by JROC. JROC review process refined data requirements for FY07 Plans which are due Feb 15 2006. Technology needs identified by programs will feed IM S&T program.*

- **IM Certification**
  - CJCSI requires all capability documents (ICD, CDD, CPD, ORD, MNS) to incorporate IM as a required certification.
  - *STATUS: M/S C decisions now require JCIDS review of IM status of munitions.*

DoD Fuze IPT Activities

- Fuze Industrial Base Policy in draft
  - encourage smarter acquisition practices
  - maintain Government involvement
  - maintain Govt's responsibility for safety and suitability for Service use
- Align policy with USD(AT&L) Goals
- Developed an acquisition roadmap and analysis tool to assist and inform acquisition managers of potential impacts on the Industrial Base
- Pursuing $6-12M/yr S&T program for 10 years

Low Collateral Damage (LCD) Munition

- Urban operations, mixed friendly/hostiles form the ubiquitous battlefield in GWOT
- Prosecution of targets requires prior assessment of collateral damage
- A certifiable LCD weapon can shorten decision timeline and increase # targets engaged
- Specifications for LCD capability need to be developed – (P_k = 0 beyond ? range)

Low Collateral Damage Concept

- Fragments from steel-cased bombs have1000s ft. lethal range – limits utility
- Elimination of steel case eliminates far-field personnel lethality
- Weapon concepts utilizing a composite case can provide a viable option in GWOT
- Initial composite case Mk-82 concept demonstration encouraging
  - greatly reduced far-field lethality
  - some increase in near-field lethality



Questions?

NATIONAL DEFENSE INDUSTRIAL ASSOCIATION

NDIA

STRENGTH THROUGH INDUSTRY & TECHNOLOGY

Munitions Executive Summit



LTG Mortensen

8 February 2006

AMC Strategic View of Munitions Base

AMC's role…. sustain the Joint Warfighter through effective management of munitions items throughout their life cycles (R&D, production, storage, distribution and demilitarization). Ensure the industrial base is prepared to support that mission.

The Joint Munitions Team Challenge

- **Joint Munitions Life Cycle Management Command (JM LCMC):**
  - Understand how SMCA concept and JM LCMC fully support Joint Force munitions requirements.
  - Develop economies of scale through continued pursuit of the SMCA Concept.

- **Logistics:**
  - Apply funding for real-time asset management and visibility.
  - Gain efficiency through regionalized transportation planning.
  - Realize efficiency improvements in storage utilization and asset accountability.

- **Industrial Base:**
  - Providing modernization funding (reinvestment by both government and industry).
  - Eliminating or mitigating effects of single-point failures.
  - How can we harmonize industry and organic operations to improve overall readiness, responsiveness and profitability.
    - Section 806 compliance needs consistent application throughout DOD.
    - Minimizing impact of declining funding levels.
    - Determining optimum type and length of contracts.

Ammunition Readiness (Perspectives)

- **Warfighter viewpoint**
  - – Can we meet strategic resource requirements for the Combatant Commanders/Joint Warfighters?
  - – Do we have sufficient resources to meet expanded force training requirements?
  - – Do we have sufficient War Reserves?
- **Sustainment & industrial base viewpoint**
  - – Do we possess the quantity and quality of materiel to meet the requirements?
  - – Do we have an adequate logistics base for outloading, receipt, storage, inspection, etc.?
  - – Do we have a production base capable of responding to requirements?

Ammunition Readiness

- **Ammunition readiness – on hand inventory**
  - 91% of the items reported on the munitions readiness report are green (>90% of requirement O/H; quality concerns).
  - Remaining ~10% cover critical combat items.
- **Impact of the 10%**
  - Just in time delivery required.
  - Spot shortages.
  - Transportation system becomes critical element.
- **Effects of mitigation efforts**
  - Funding and production workarounds done at expense of plan.
  - Fixes may cause peaks and valleys in production.

BRAC Impacts

- **No final production impact - destination site will be capable of meeting requirements**
- **Interim Risks**
  - Break in production during move of a previously active production line.
  - Start up problems at new site for reassembled production lines.
    - Loss of experienced workforce- workers not inclined to move.
    - Training for destination workforce.
    - Contract issues.
- **Costs and savings at recommendation level**

“How we would execute BRAC in a perfect world; not what we are doing”

Globalization of Munitions Sourcing

- Potential to obtain best item for lowest cost.
- Access to increased pool of suppliers.
- Complements treaties and partnerships with allied nations.
- Demonstrates US munitions business is not insular.
- Current trend – auto , steel, textiles, etc.

But……

- Foreign dependence is two edged during conflicts.
- Foreign sources may cause demise of North American industry.
- Generally not popular with industry and Congress.
- Questionable success to date.

Risks And Failures

- **Ammunition business profitability**
  - Without profit the business exits industry.
  - Loss of production expertise - skills will leave the market place if there are no jobs.
- **Low volume**
  - Business will eventually be absorbed or disappear.
  - Does not attract new entrants to industry.
- **Increased demand for select items surpassing capacity**
- **Supply chain management - disparate sources integrated into production**
- **Is CONUS industry failure to produce, a risk if global suppliers are available?**

AMC's Partnership Intent

- **Vision**

Continue a partnership fostering atmosphere between government facilities and private entities that benefits all parties.

- **Goal**

Improve the output and performance of AMC organic facilities through increased participation by the private sector via industrial partnerships or cooperative activities.

- **Objectives**
  - Enhance support to the warfighter via stronger cooperative partnership relationships with industry.
  - Leverage industry's best practices.
  - Improve organic operations efficiencies.
  - Reduce and offset cost of ownership of organic facilities.
  - Leverage private investment in Army facilities.

Munitions Transformation and Readiness Future Challenges

- **Training strategy changes – increased frequency and volume of training.**
- **Modularity - more weapons, especially crew served, independent operations.**
- **New QDR emphasis on preparation to address adversaries that are:**
  - Irregular
  - Catastrophic
  - Disruptive
- **Simultaneously support munitions requirements for**:
  - Increased SOF force structure per QDR
  - Precision strike
- **Modernization and Production Funding Level**
- **Post-conflict production requirement – “soft landing”**


FOCUSED ON THE
WARFIGHTER

Back-up Slides

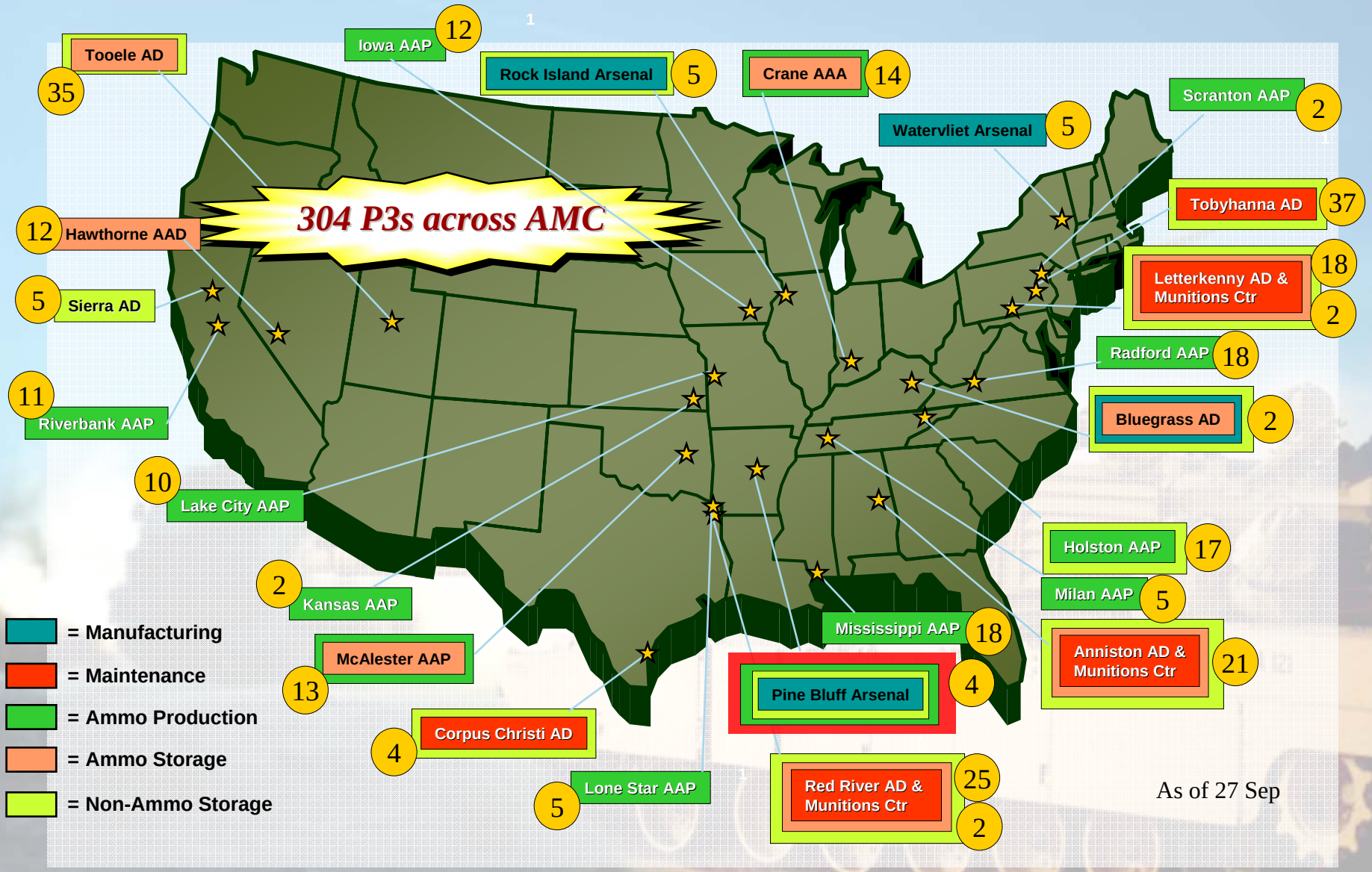
BRAC 05 AAP Recommendations
Production Mission Migration

Close \ Relocate To:	Rock Island Arsenal	Iowa AAP American Ordnance	Milan AAP American Ordnance	McAlester AAP	Crane AAA
Riverbank AAP **NI Industries**	➢Stryker/Navy Gun Cartridge Case Metal Parts 🔴				
Kansas AAP **Day & Zimmermann**		➢**105MM/ 155MM HE (key equip only)** 🟢 ➢**Missile Warhead (key equip only)** 🟢	➢**155MM ICM Artillery (key equipment only)** 🟢 ➢**Mortar 60/81/120MM (key equipment only)** 🟡	➢**SFW (phase production)** 🔴 ➢**Missile Warhead (key equip only)** 🟢	➢**Detonators/ Relays/ Delays (key equip only)** 🟢
Mississippi AAP **Mason Tech**	➢**155MM ICM Artillery Grenade Metal Parts (no current buys)** 🟢				
Lone Star AAP **Day & Zimmermann**		➢**Mines (tooling)** 🟢 ➢**Detonators/ Relays/ Delays (phase production)** 🔴	➢**Artillery ICM** 🟢 ➢**MLRS ICM Grenades** 🟡 ➢**M67 Hand Grenades** 🟡 ➢**60MM/81MM Mortar (key equip only – all items)** 🟢 ➢**Primers** 🟡		➢**Demolition Charges (key equip only)** 🟢

Tech Challenges

- 🟢 Minimal : minimum to no impact on mission requirements & readiness. Capability exists at gaining installation or no peacetime buys
- 🟡 Moderate: Moderate technical risk/minimum impact on mission requirements/readiness
- 🔴 Significant: Significant technical risk and impact on mission requirements/readiness

of Public-Private Partnerships (P3s) Across AMC's Industrial Facilities



PROJECT MANAGER MANEUVER AMMUNITION SYSTEMS

The Potential Future???

Small, Medium, Large Caliber- Direct Fire



COL Mark Rider

Reliable, Precise, Lethal

Project Manager
Maneuver Ammunition Systems- Direct Fire

Project Manager

Small and Medium Caliber



Medium Cannon Caliber

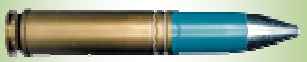


Large Caliber



The Present

FY06 Production Quantities Projection

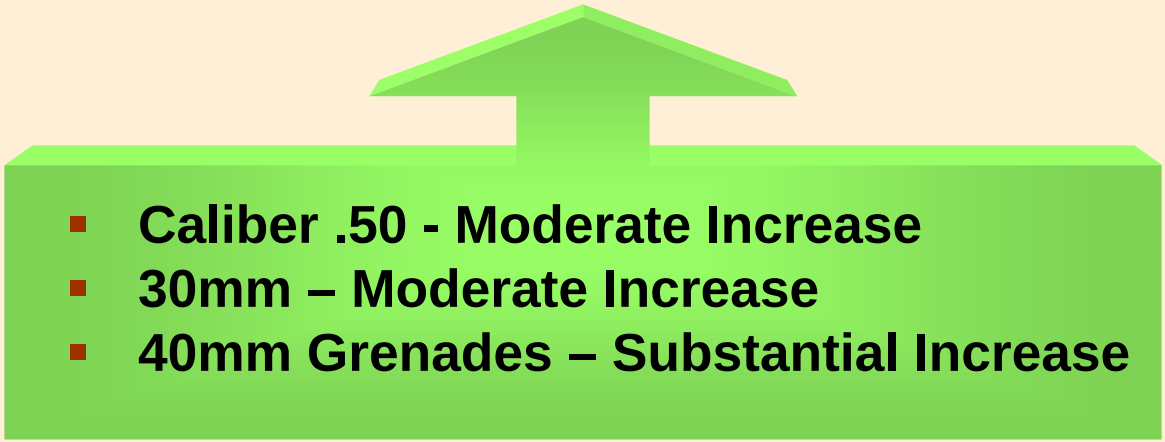
Small Caliber (1476.4M) 	5.56MM	935.4M
	7.62MM	402.2M
	.50 Cal	102.3M
	9MM	31.5M
	MISCELLANEOUS	5M
Medium and Medium Cannon Caliber (25.4M) 	20MM	4.7M
	25MM	.8M
	30MM	8.3M
	40MM	11.6M
Large Caliber (220K) 	105MM	.020M
	120MM TRAINING	.180M
	120MM TACTICAL	.020M

NOTE: All Services FY06 and Projected Supplemental

$1.5B for FY06

The Potential Future???

Small, Medium, Large Caliber- Direct Fire



- Caliber .50 - Moderate Increase
- 30mm – Moderate Increase
- 40mm Grenades – Substantial Increase

Potential Actions

- Initiate/Continue to Modernize and Right-Size Radford, Lake City, Iowa, and Milan
- Execute Right mix of Organic/Commercial Industrial Base
- Maintain Warm Medium Caliber Industrial Base (i.e. Fuzes)
- Continue/Expand 40mm Dual Source System Strategy

The Potential Future???

Small, Medium, Large Caliber- Direct Fire

- 5.56mm – Minor Decrease
- 7.62mm – Substantial Decrease
- 25mm – Minor Decrease
- 105mm Tank – Minor Decrease
- 120mm Tank – Moderate Decrease

Potential Actions

- Produce Sufficient Quantity to Maintain two Viable Sources for Small Caliber and 120mm Tank
- Initiate/Continue to Modernize and Right-Size Radford, Lake City, Iowa, and Milan
- Mitigate Riverbank BRAC Through 105mm Tank Multi-Year Contract



Tactical Insights on Infantry Munitions



9mm

- Great for MP5
  - Value in room is excellent
  - Reliability excellent
  - Knock down power is poor but made up in rate of fire at short range
- Poor for Service Pistol
  - Value of pistol as primary weapon is nil. Good for display and to impress male dominant cultures
  - Reliability shaky due to magazines, dust and feed
  - Knock down power is poor

5.56mm M2 Ball



- M16A4
  - Good on range
  - Reliability excellent
  - Knock down power is good
- M4
  - Range less but excellent for close quarters
  - Reliability good with extractor donuts in place
  - Will put a man down but impact is a little less

5.56mm Linked



- M249 SAW
  - Good on range
  - Reliability excellent
  - Feed from drums is good but the plastic clip that holds the drums caused problems
  - Tracer is excellent
  - Knock down power is good





7.62mm

- M24 Sniper
  - Match ammo must be standard issue for all snipers in Infantry battalions - HARD TO GET
  - Reliability excellent
  - Knock down power is awesome
- SVD Sniper
  - Need for reliable 7.62mm x 54R for use in SVD snipers for US and Iraqi forces. Captured ammo is junk

7.62mm 4/1 Linked



- M240B / C
  - Reliability and feed are simply outstanding
  - Tracer is excellent and good for ‘smoke out’ in urban terrain
  - Knock down power is awesome

.50 Caliber



- M2 HB .50 cal
  - If mounted on a stable platform, performance is remarkable
  - Shock and impact of round decides any contest
  - Destructive power is incredible

Hand Grenades



- M67 Baseball
  - Design great for throwing over walls and onto roofs
  - Blast and effect will decide an uneven contest
  - With proper training, soldiers have great confidence in them
- Smoke & Thermite
  - Smoke useful but residual in rooms
  - Thermite used mostly for destroying lost equipment

25mm Bushmaster



- 25mm HE
  - Feed is outstanding
  - Performance and flight excellent
  - Destructiveness impressive, especially against buildings
- 25mm Sabot
  - Will destroy most vehicles it hits
  - Penetration - it keeps on going

Helicopter Mini-Gun



- HE
  - Guns and platform are accurate
  - Performance and flight excellent
  - Destructiveness similar to BFV and effective against roof-top and upper floor enemies

40mm Grenade



- M203
  - Awkward in close quarters and ammo is tough to carry with body armor
  - Round is accurate and reliable
  - Blast, shock and fragmentation are excellent
- MK-19
  - Single-point link can twist and cause misfeeds
  - Rate of fire and accuracy are excellent
  - Best roof clearing munition available to common Infantryman

Anti-tank Missiles



- TOW 2B
  - Reliable and accurate
  - Spalling, Blast and Concussion very effective
  - Top Attack also works on Buildings / Roofs
- Javelin
  - Does everything it was advertised to do
  - System is easy to use and soldiers have high confidence in it
  - A great capability for enemy vehicles and bunkers

120mm Mortar



- 120mm HE
  - Accuracy remarkable
  - Penetration with delay fuse goes through concrete & rebar
  - Bang and Blast are great deterrents in H&I fires
- 120mm WP
  - Collateral burn damage must be considered in Urban fight
- 120mm Illume
  - All weather dependability
  - Burn time excellent
  - Radius and reliability excellent

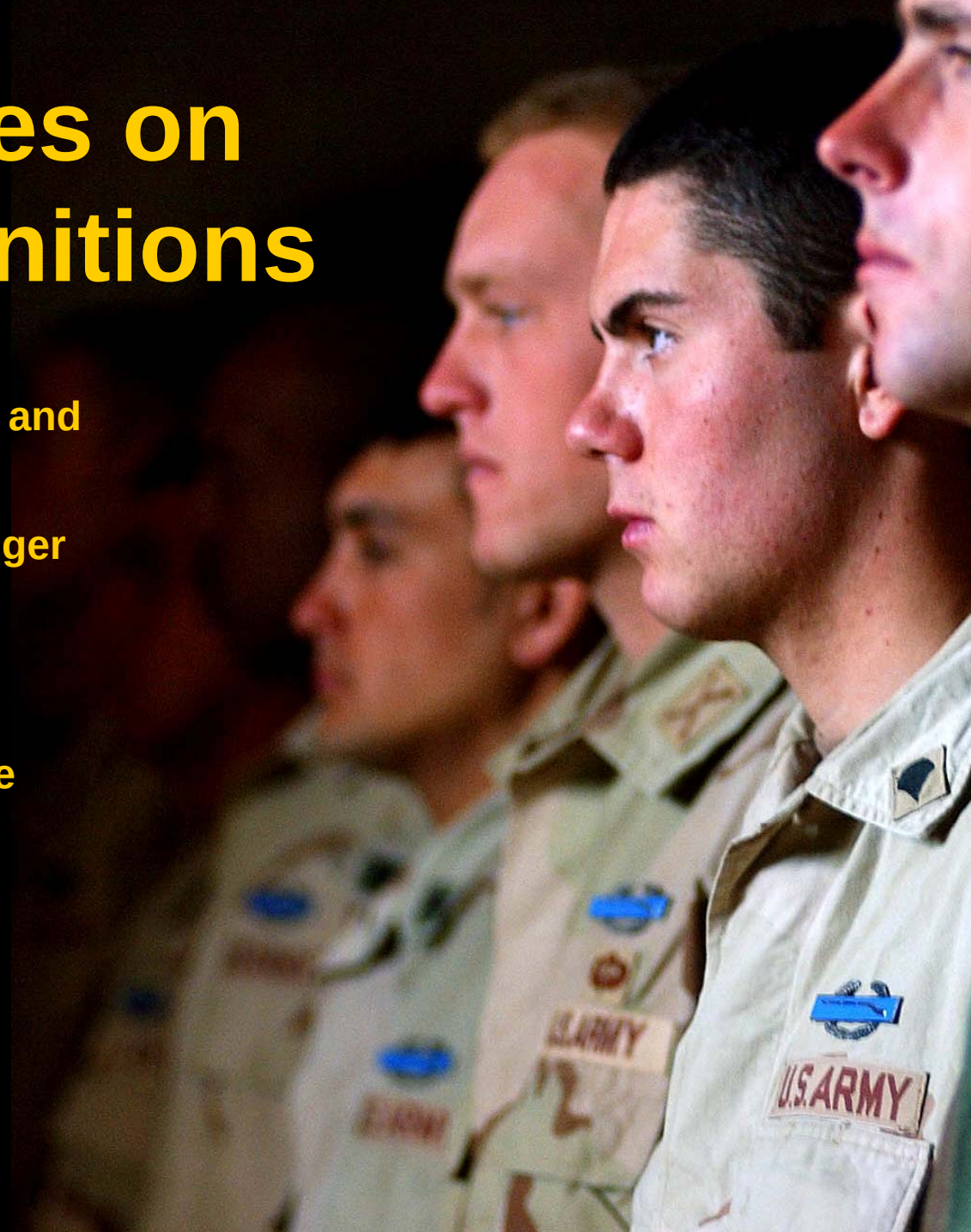
120mm Smoothbore



- 120mm HE
  - Range and optics useful in right areas are unmatched
  - Destructiveness and accuracy are unmatched
- 120mm Sabot
  - Not preferred when supporting Infantry
  - Over-penetration a consideration in Urban areas
  - Will defeat anything on the battlefield

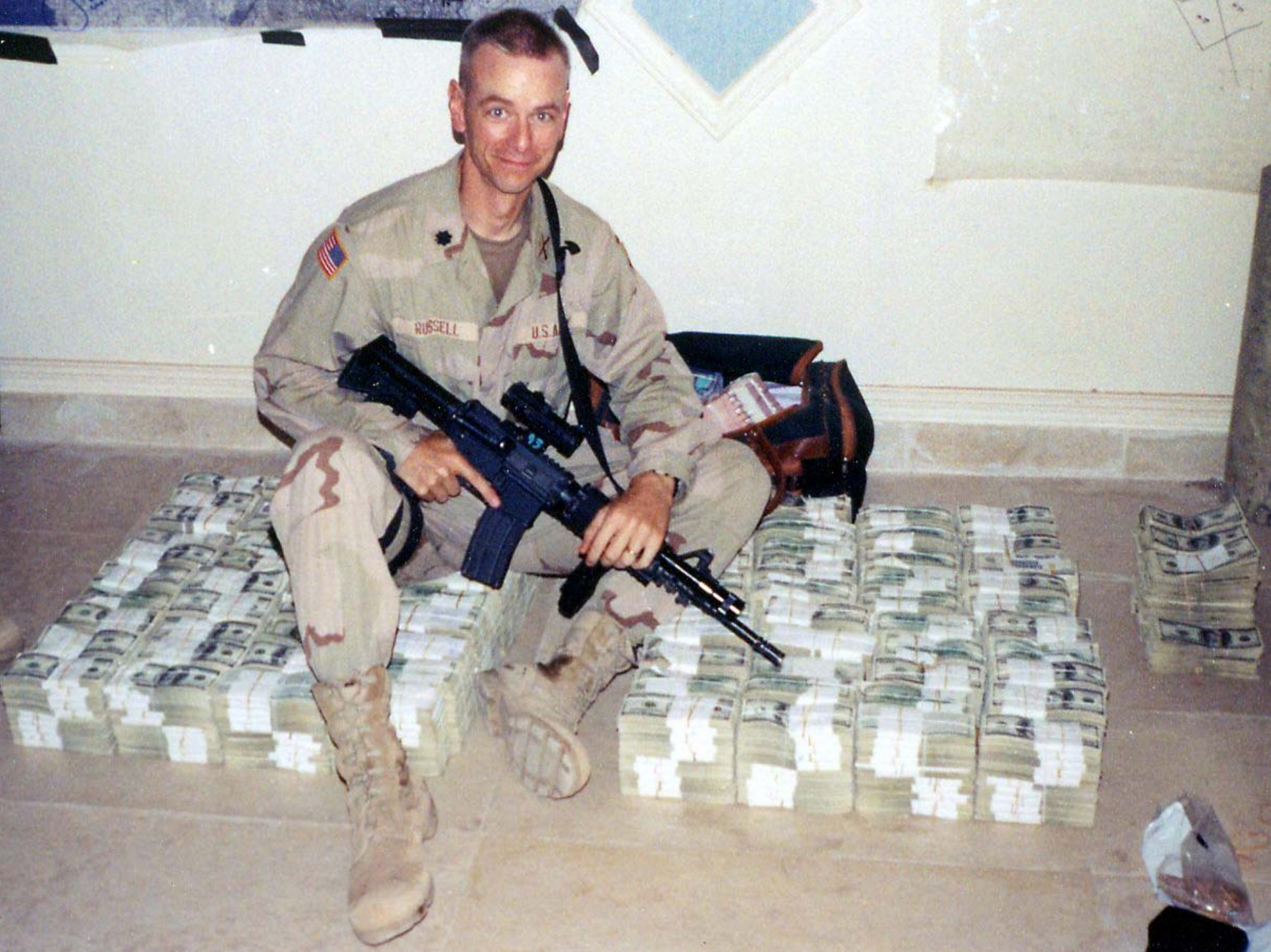
Basic Notes on Infantry Munitions

- Small Arms
  - The ammo worked in life and death situations
  - Soldiers had confidence when they pulled the trigger
  - Sniper Match Ammo is needed for all units
- HE Support Ammo
  - 40mm and Mini-Gun were great for Roof Tops
  - MK-19 had occasional Link Feed problem
- Mortars, Missiles and Main Gun
  - Extremely accurate
  - If it ain't broke……..



Questions?




RUSSELL
U.S.A.













Ogden Air Logistics Center



U.S. AIR FORCE

Winds of Change

Feb 8, 2006

Major General Kevin Sullivan
OO-ALC/CC

Overview

- Introduction
- Quality -- Medium Caliber Ammo – “The Bad Boy”
- Industrial Base
- Winds of Change
- Summary



Introduction

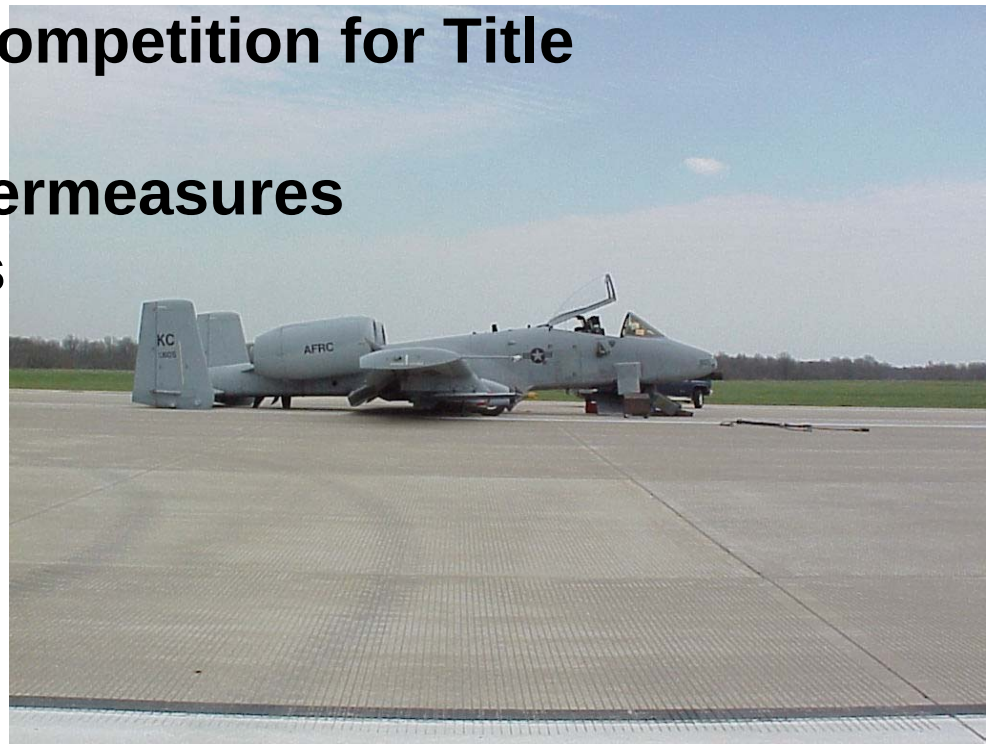
- Sustainment – from IOC to the grave
  - Maintain – it breaks, we fix it
  - Restock – it gets used up, we buy more
  - Distribute – get it to wherever & whenever needed
  - Work Problems – Too much effort in this area
- Reactive vice active sustainment



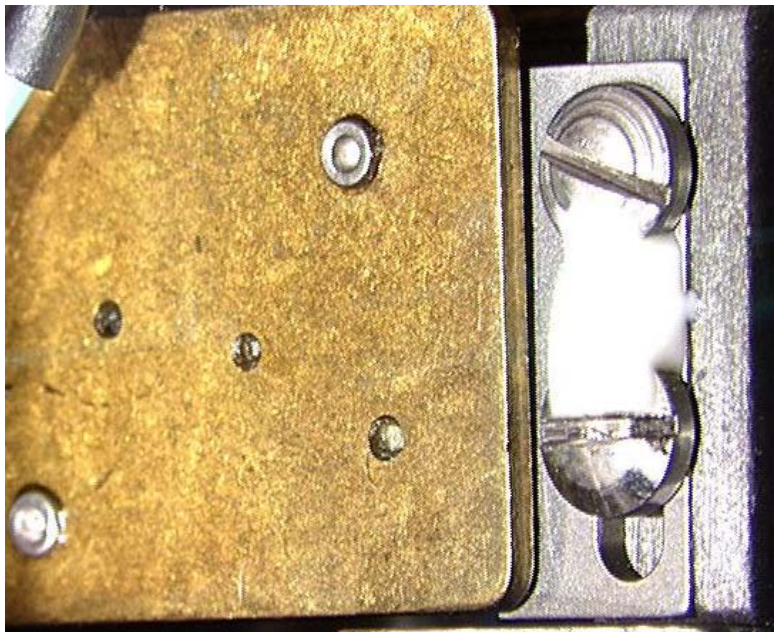
Medium Caliber Ammunition
"The Bad Boy"

- **Med Cal - a history of problems**

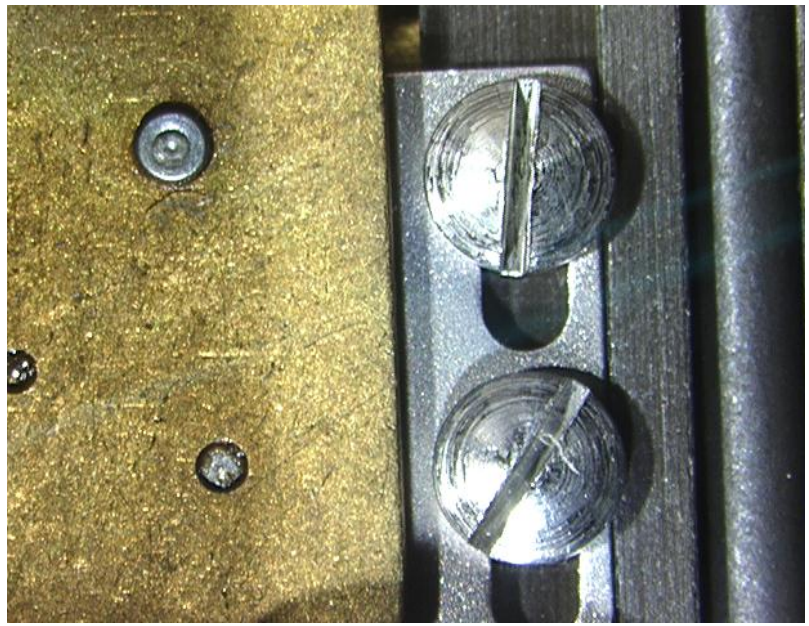
- **Lots of Competition for Title**
  - **Fuzes**
  - **Countermeasures**
  - **Others**



Fuze Safety Device Defect



Correctly applied epoxy on set screws



No epoxy on set screws – fuze failed critical safety requirement

FZU-55 A/B Lanyard Defect



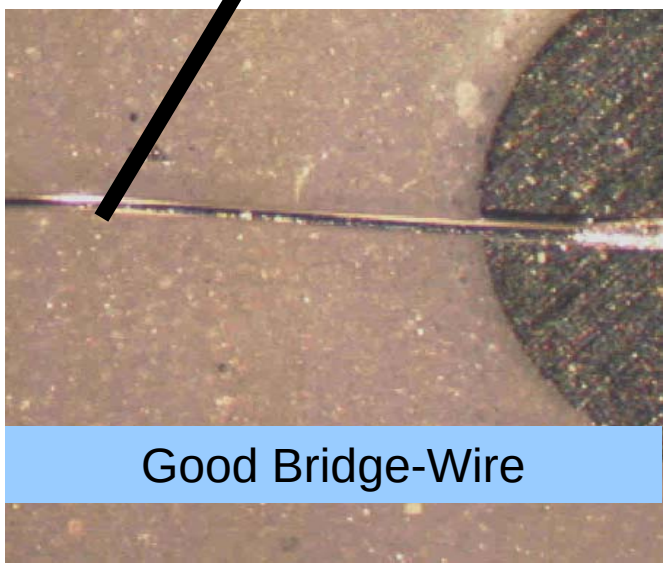
Improper Routing of Lanyard

Correctly Routed Lanyard

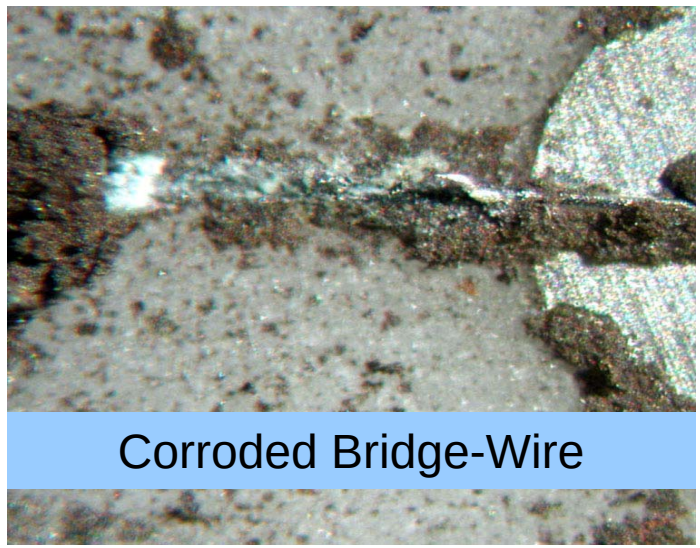
BBU-36 Impulse Cartridge





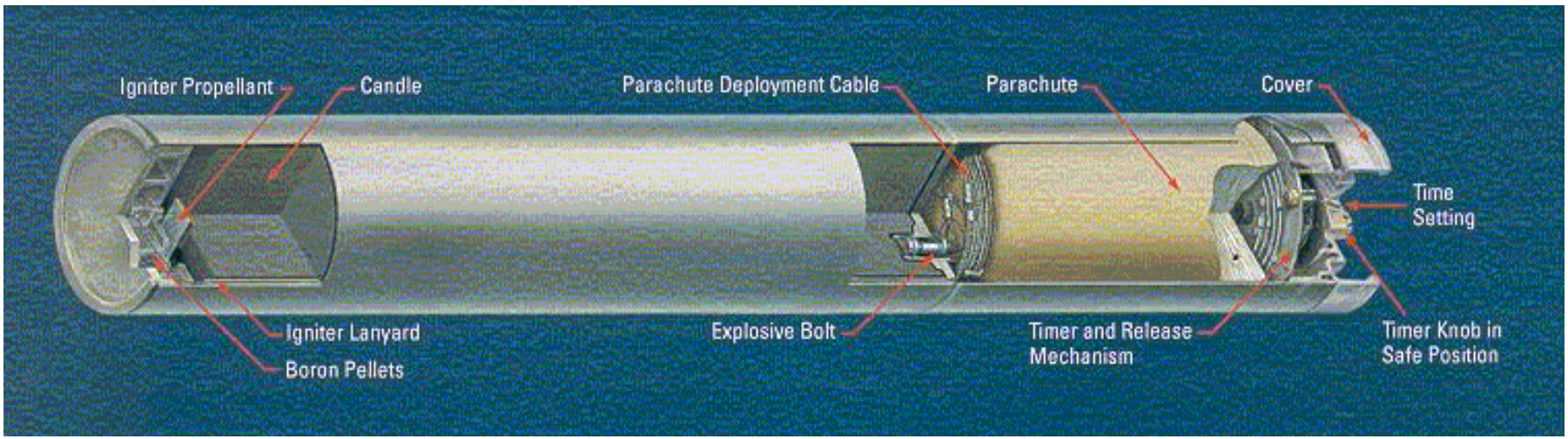


Good Bridge-Wire



Corroded Bridge-Wire

LUU-2C/B ILLUMINATING FLARE



LUU-2C/B ILLUMINATING FLARE

LUU-2C/B ILLUMINATING FLARE VIDEO



JAU-8





JAU-8 Initiator

Medium Caliber Ammunition
"The Bad Boy"

- **Med Cal a history of problems:**
  - **4 stockpiles suspended for design/production flaws**
    - **PGU-38/U (twice) $52M; PGU-28/B $100M; 30MM combat mix (Honeywell design) $1B**
  - **4 propellant problems**
    - **Improper blending, separation after blending, missing component, wrong propellant**
  - **3 primer problems**
    - **Primer integrity, contamination, improper installation**



•Stuck in a "reactive cycle" of problem–test–fix–test–ECP–buy new/suspend old–new problem…

Medium Caliber Ammunition
"The Bad Boy" Video

OGDEN AIR LOGISTICS CENTER



Medium Caliber Ammunition
"The Bad Boy"

- **Reality check**
  - **Wasted resources – large dollar losses ($1B+)**
  - **Ammo shortages – 30MM TP at 20% of objective**
  - **Warfighting impact – F-15, F-16 & AC-130 reverted to using less capable ammo**
  - **Result– gear-up landings, fragged airplanes, aircraft fire, blown barrels**

- **Lagging indicators of systemic quality problems**



Or leading indicators of munitions enterprise frailty?

Munitions Enterprise Frailty

- *"Frail"*
  - Capacity down 68% in last decade
  - Sustaining Engineering Funds Reduced
    - Limits Aging/Surveillance Testing
  - Decreased engagement with Industry

- 2+ primes for each end product not necessarily an indicator of health
  - Numerous sole sources exist at component level
    - Limited capacity
    - Age/condition of facilities, equipment and personnel
    - Technology stagnation

Munitions Enterprise Frailty

- Little awareness of industrial base frailty
- Two prime suppliers is not a guarantee of health
- Crisis management not a viable approach



The Winds of Change

- Industrial base preparedness – a team effort

- Air Force perspective
  - Services provide better long-range forecasts
    - Advise industry of potential for profitability
  - Services/suppliers jointly review supply chain and production line health annually
    - Better understand program costs
  - Assess risks and identify areas needing attention
    - GOCO – government action; Private – industry action

The Winds of Change

- Air Force on a new path
  - Medium Caliber quality engineer initiative
  - Technical issue industry days - PGU-15 & FMU-143
    - Technical spec reviews/re-writes
  - Conduct Requirements symposium biennially
    - Project needs through FYDP
  - Prime contractor production
    - Sub contractor reviews
    - Working closer with DCMA



The Winds of Change

- Active participant in procurement process
  - Better risk assessment
    - Which proposal has the best likelihood needs
    - How well has this supplier done in the past
  - Quality supplier preference
    - Best-value
    - Quality history



Summary Thoughts

- "Reactive vs. Active"
  - Air Force is committed to a landscape quality change – across the munition enterprise
  - A capable industrial base is essential to the Air Force – team effort required

- Quality products in the hands of our warfighters is our top priority



QUESTIONS?





Army FY07 Ammunition Budget Overview

Colonel Michael L. Waclawski

Chief, Army Congressional Budget Liaison Office

U.S.ARMY

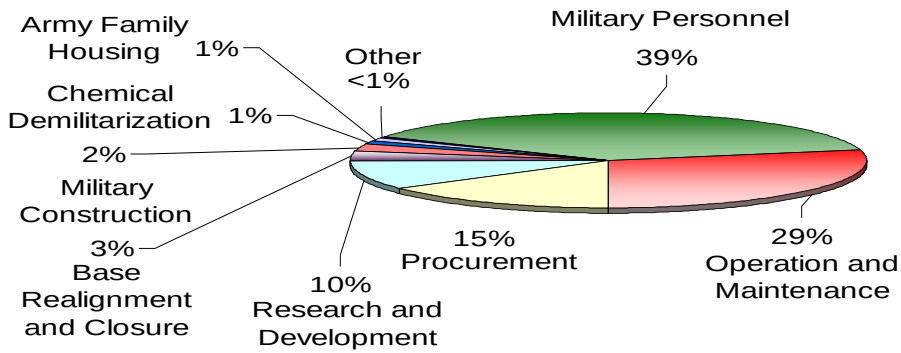
Army FY07 Budget Themes

- Win the Long War
- Sustain the All-Volunteer Force
- Accelerate the Future Force Modernization Strategy
- Accelerate Business Transformation and Process Improvements

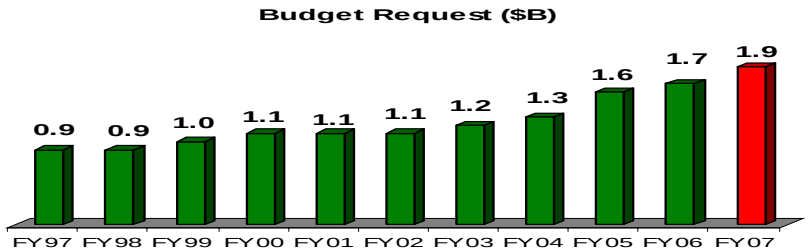
Army Budget Authority

($B)

Category	FY05 Pres Budget	FY06 Pres Budget	FY07 Pres Budget
Military Personnel	39.4	41.4	42.6
Operation and Maintenance	32.6	31.8	32.0
Procurement	10.4	11.8	16.8
Research and Development	10.4	9.7	10.9
Military Construction	2.1	1.9	2.7
Army Family Housing	1.6	1.4	1.3
Base Realignment and Closure			3.6
Chemical Demilitarization	1.4	1.4	1.4
Other	0.6	0.6	0.5
Totals	**98.5**	**100.0**	**111.8**



Ammunition TOA ($M)





Appropriations	FY05	FY06	FY07
Small & Medium Caliber	743	643	638
Mortars	229	130	134
Tank	210	225	211
Artillery	206	280	269
Artillery Fuzes	41	23	4
Mines/Countermine	18	36	95
Rockets	156	167	144
Other	110	247	125
Miscellaneous	48	65	62
Production Base Support	273	167	221
Totals	2,034	1,983	1,903

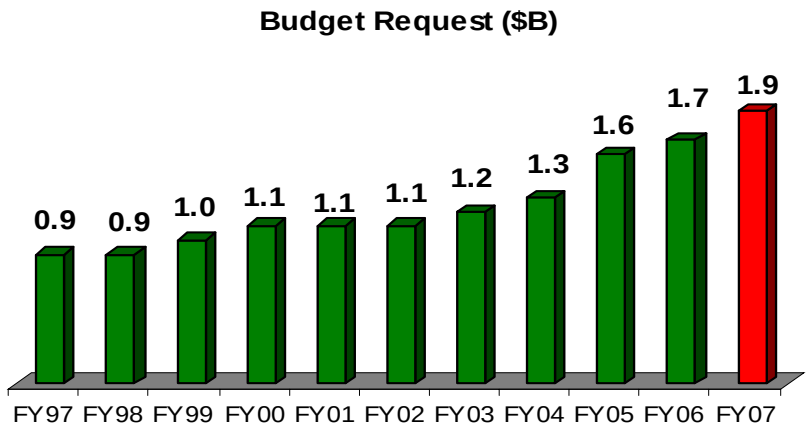
Note: FY05 & FY06 numbers include supplemental funding.

Ammunition

Program Highlights	FY07
◆ Funds Overall Training Ammunition to 77% (Small Arms at 100%)	$1,353M
◆ Procures Modest War Reserves	$304M
◆ Funds Production Base	$221M
◆ Transportation, Testing	$25M



M829A2 SABOT Anti-tank





Questions

Colonel Michael L. Waclawski
Chief, Army Congressional Budget Liaison Office

U.S.ARMY

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for customers, communities and employees



Munitions Executive Summit

Hal Yoh, Chairman and CEO
Day & Zimmermann

Phoenix, Arizona
8 February 2006



- The difference between a soldier and a tourist…

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Image Source: Courtesy U.S. Army by Petty Officer 1st Class Alan D. Monyelle



- Without ammo the soldier is a just a tourist

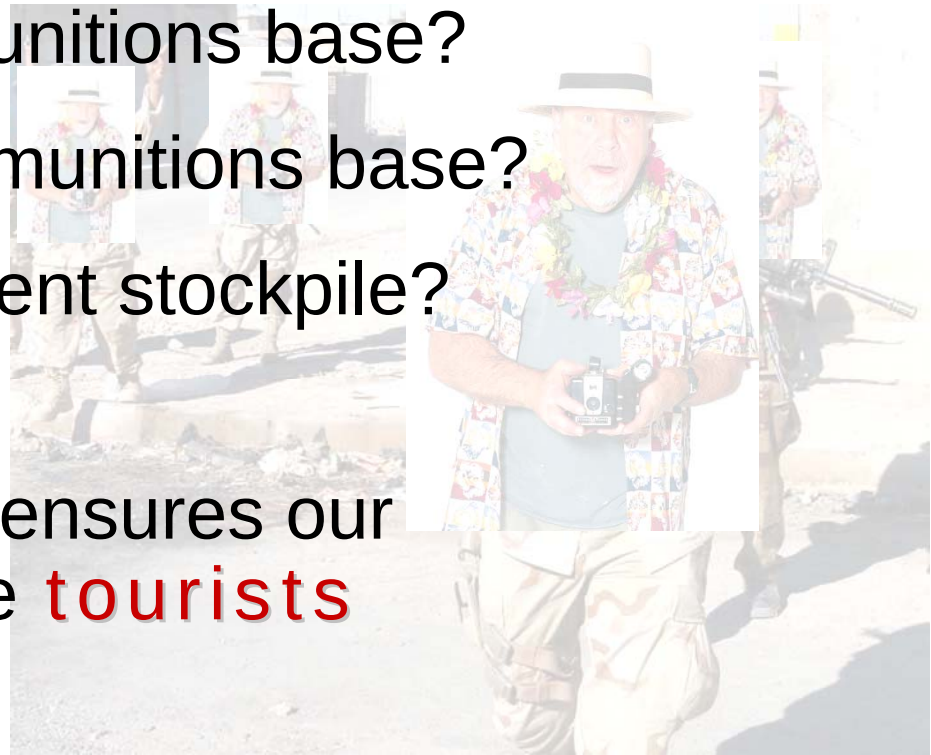
Courtesy of LTG(R) Roy Beauchamp

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Three Key Questions

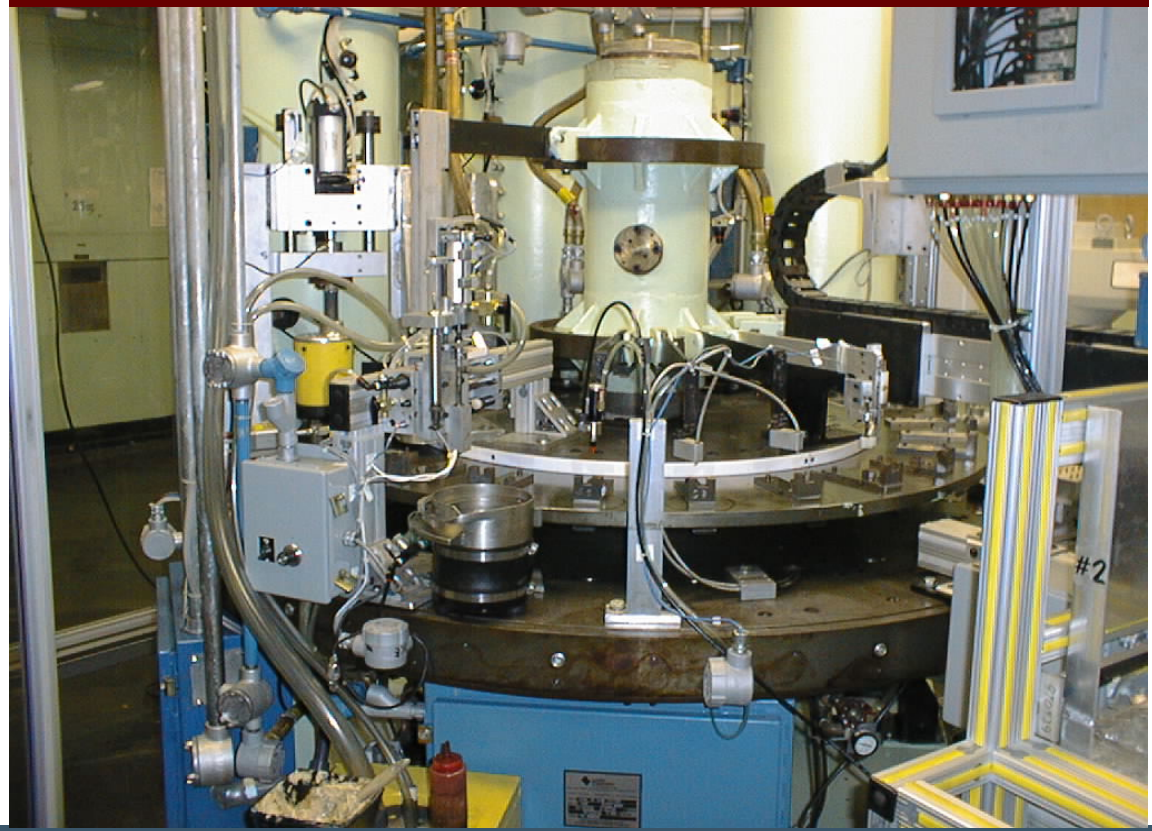
- Are we
  - Sustaining the munitions base?
  - Modernizing the munitions base?
  - Caring for the current stockpile?

… in a manner that ensures our soldiers will not be tourists in the future?



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Sustaining the Base



- Specialized industrial skills & capabilities are essential

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Sustaining **the Base**

Why Are We Concerned?

- Munitions base not considered in budgeting
- No coordination of service munitions budgets
- Services increasingly procure own ammunition
  - Original intent of SMCA has eroded
  - Loss of CAWF contributed to erosion

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Sustaining **the Base**

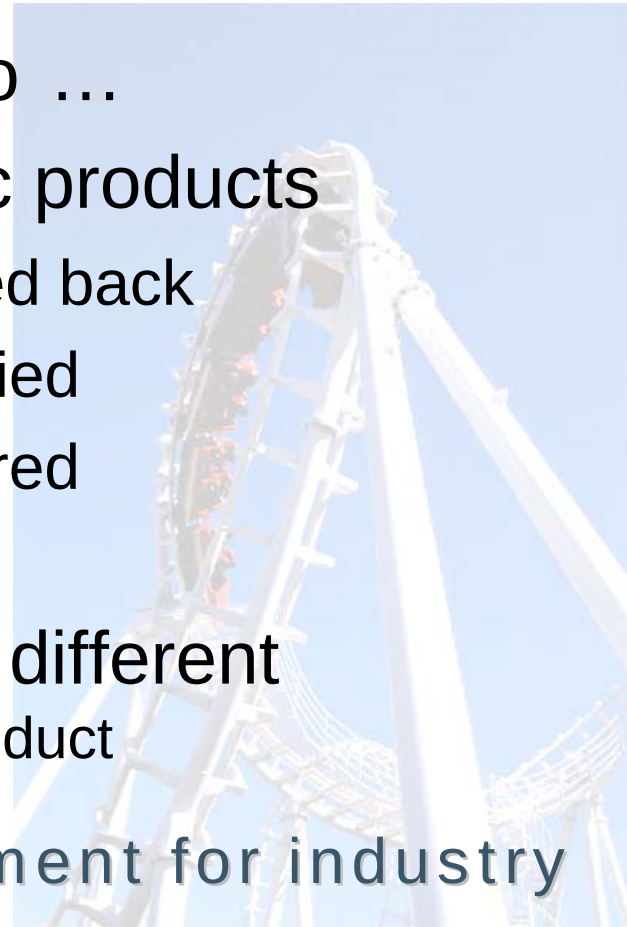
These circumstances led to …

Episodic demands for specific products

- Skilled workers released then hired back
- Production lines must be re-qualified
- Quality and responsiveness suffered
- Capital investments difficult

- Multiple solicitations from different procurement organizations for same product

Leads to a roller coaster environment for industry



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Sustaining **the Base**

Recommendations

- Level procurements
- Coordinate service ammo budgets
- Restore SMCA procurement authority
- Maximize multi-year procurements



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Modernizing the Base



Goal

- Variable rate flexible production

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Modernizing **the Base**

Not A High DoD Priority

- MANTECH does not compete well for funding
- BRAC has inhibited investment

Result?

- Growing dependence on single sources and foreign suppliers
  - Makes current base less robust and potentially less responsive

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Examples of Sole Source/Foreign Items

- Links for small and medium caliber
- Cotton Linters for combustable cartridge cases
- Grenade Bodies for submunitions
- Lead Azide
- Black Powder



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Modernizing **the Base**

Why Is Industry Concerned?

- Army has modernization strategy, but funding constraints may prevent implementation
- No disciplined process for modernizing privately-owned base
- Uncertain requirements calls for comprehensive Surge Planning
- Robust MANTECH is essential necessary equipment and processes



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Modernizing **the Base**

Recommendations

- MANTECH requires Senior Command Emphasis to compete for funding
- Involve industry in Surge Planning
- Modernization must include both government-owned and private capabilities
- Reliable, steady funding
  - Ammo Procurement Surcharge?
  - Significant Tax Credits?
  - Provide Matching Funds?

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Caring for Inventory



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Current **Inventory**

- What the next war is fought with
- Most ammo has a shelf life
- Imperative to know condition of stockpile because it influences procurement decisions!



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Current **Inventory**

- Ammunition Management — Budget Line that funds care of stockpile is historic bill payer
- Ammunition Management funded from O&M Appropriation, not Ammo Procurement Appropriation

Safety/Security	Inventory
Receipt/Issue	Surveillance
Re-warehousing	Maintenance

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Current **Inventory**

Learn from history

- Ammunition Management funding at historic low level 1989-1992
- Stockpile study in 1993 found:
  - Physical Survey – 15% accuracy rate
  - Lot Inspections – 51K Lot backlog (190K Lots Total In Storage)
  - Large Cal Ammo Tests – 43% past due
  - Lot Substitution – 63% of shipments

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Current **Inventory**

OMA UNDERFUNDING LEADS TO

- False sense of security
- Deferral of essential procurements
- Shipment denials
- Inefficient outload
- Stockpile deterioration
- INCREASED RISK!!

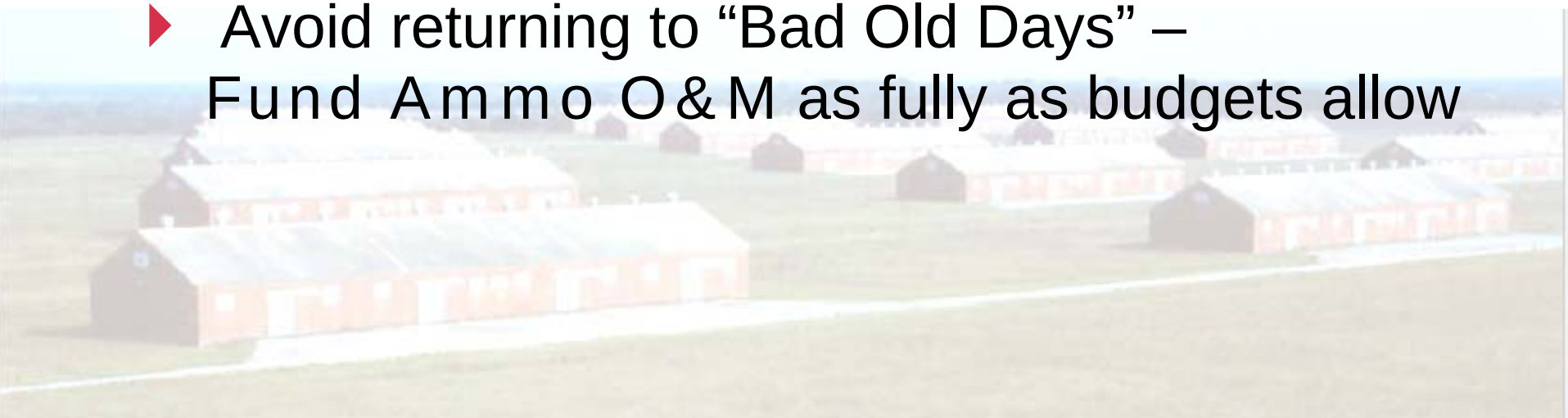


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Current **Inventory**

Recommendations

- Adopt key metrics from 1993 Study to Command Readiness Reviews
- Avoid returning to “Bad Old Days” – Fund Ammo O&M as fully as budgets allow



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Summary

- Three Key Issues — Sustaining the Base, Modernizing the base and Caring for inventory
- Best addressed by Government & Industry Cooperation
  - ICAP
  - MIBTF



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Ammunition Industrial Base Management



NDIA Munitions Executive Summit
Phoenix, AZ
9 February 2006

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Industrial Base Management Scope

Quarterly Meetings
Bi-Weekly Telecons

SMCA Industrial Base Integrated Product Team

- •PEOs
  - Ammo
  - Missiles & Space
- •PMs
- •AMC
- •JMC
- •ARDEC
- •Industry
- •EDCA
- •Army G3/G4/G8
- •OUSD(AT&L)
- •GSA
- •ASA(ALT)
- •ACSIM/AEC
- •USMC
- •USAF
- •USN
- •ASA(I&E)
- •DCMA
- •CMA

Mission:

- Provide Integrated Supply Chain Management of the Ammunition Production & Logistics Base
- Optimize Preparedness of the National Technology & Industrial Base to Respond to Current and Future Warfighter Requirements

Accelerate Solutions for the Warfighter

General Responsibilities:

- SMCA Directives & Army Regulation 700-90, Army Industrial Base Process
  - Develop & Maintain an Overarching Industrial Base Strategic Plan
  - Maintain GOCO Army Ammunition Plant Production Capabilities
  - Plan, Budget & Implement PAA-Activity 2 and RDT&E
- Implement Section 806, Public Law 105-261, Procurement of Conventional Ammunition– Permits SMCA to Restrict Procurements to Sources within NTIB

PEO Ammo –Industrial Base Support Agreements w/ AMC

- ARDEC (Aug 2003); JMC (June 2004); CMA-Pine Bluff (Dec 04); TACOM (Dec 04)

Importance of Good Partnerships



Ongoing Industrial Base Initiatives

- **Production Base Support Program**
- **AAP Modernization & Cost Reduction**
  - ✓ Resources for Radford, Lake City, Holston
  - ✓ NC Upgrade at Radford
  - ✓ FY05 Congressional Activity: LC, RF, LS, Iowa, KS
  - ✓ FY06 Congressional Activity: Holston, Scranton, Kansas
  - ✓ WP LAP Upgrade @ Pine Bluff Arsenal
  - ✓ Congressional Report: Aug 06
- **Industrial Base Preparedness Planning**
  - ✓ 313 End Items
- **Strategic Planning**
  - ✓ Nov '04 Plan Implementation & 2006 Update
- **BRAC Implementation**
- **Section 806 Implementation**
  - ✓ End Item/Component At-Risk List
  - ✓ Sustain Critical Capabilities
- **Armament Retooling & Manufacturing Support (ARMS)**
- **Environmental Management**
  - ✓ Power House Emissions: Sep 07
- **SMCA Industrial Base Assessment Tool**
- **Single Point Failure Analysis**
  - ✓ 300 Items; ~80 Critical
  - ✓ Congressional Report: 28 Feb 06
- **Heavy Metals Charter Implementation**
  - ✓ Conference Mar 2006
- **Disaster Recovery Planning**
  - ✓ Radford AAP Test Case, NC/Acid/Hydra
- **ARDEC Center for Manufacturing Science**
  - ✓ Partnering & Technology Transfer to Industry
- **GOCO/GOGO Capacity Utilization Analysis**
- **GOCO AAP Facility Use Contracting**

Key Industrial Base Challenges (Jan 2006)

Impact on Ability to Meet Requirements

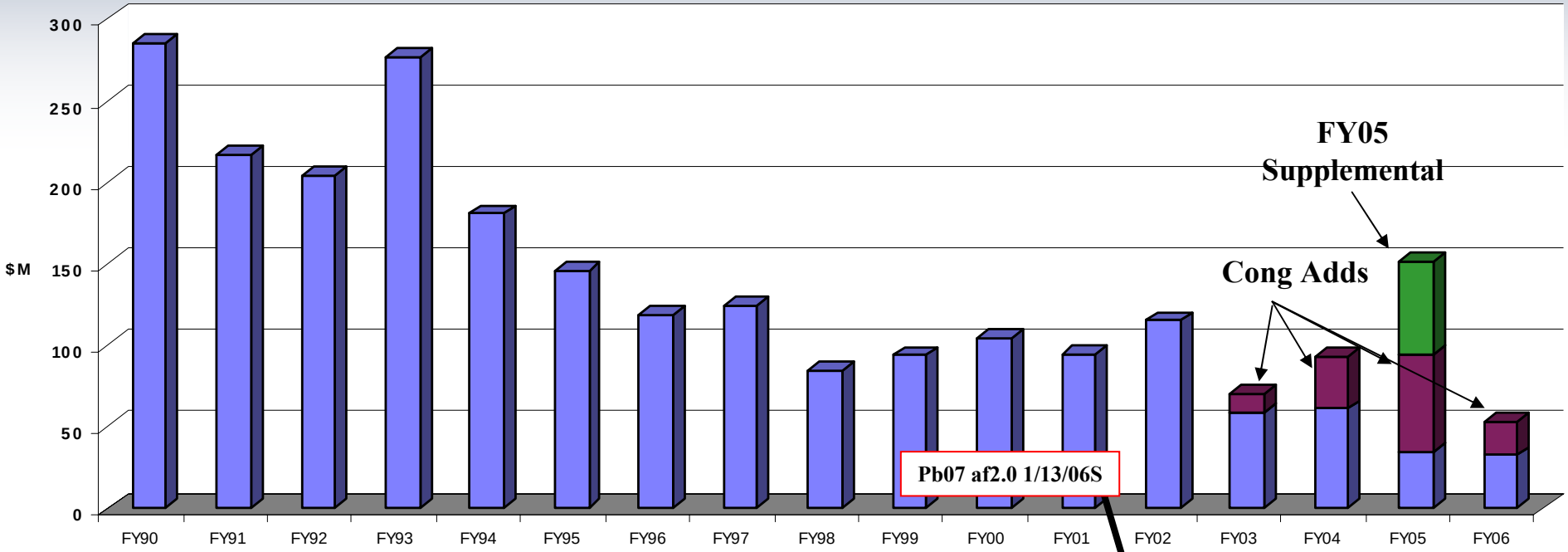
1. Sustaining Supply Chain When Post-War Ammo Requirements & Resources Drop
2. Effective Acquisition Strategies & Section 806 Implementation to Sustain Critical NTIB Suppliers & Capabilities
3. Environmental Compliance (e.g., EPA's Powerplant standards)
4. Obtaining Adequate Resources for Modernizing AAPs, Depots & Commercial Sector
5. Effective Partnering with Commercial Sector
6. Reduce Supply Disruption (and Operating Costs) During BRAC Transition
7. Effective Single Point Failure Item & Process Risk Management

6 Sigma/QFD Criteria

Impact on Ability to Operate Effectively & Efficiently

1. Predicting & Adapting to Future Warfighter Demands (Requirements)
2. Effective Partnering with the Commercial Sector
3. Maintaining Financial Viability of Suppliers
4. Mitigating Volatility in Requirements & Budget
5. Rightsizing & Reducing AAP Operating Costs & Increasing Efficiencies
6. Effective Employment of Required Technology for Future Ammo

Procurement of Ammunition, Army- Activity 2, Production Base Support Funding



APE		FY05	FY06	FY07	FY08	FY09	FY10	FY11
1200	Industrial Facilities (06 Pres Bud)	$ 34.270	32.56	~~33.02~~	~~36.34~~	~~37.26~~	~~34.11~~	~~35.08~~
	Congress Add	$ 59.670	21.06					
	Supplemental/ PBR0711PF2.0	$ 57.800		115.15	79.59	81.62	35.39	36.472
	Subtotal	$ 151.740						
1500	Maintenance of Inactive Facilities	$ 4.430	5.78	4.74	4.42	4.62	4.55	4.57
2000	Layaway of Industrial Facilities	$ 1.940	0.34	3.06	3.44	5.09	9.69	9.97
2500	Armament Retooling & Manuf Supp	$ 4.743	2.71	2.77	2.94	3.01	3.14	3.18
	Total IF, MIF, LIF and ARMS	$ 162.853	62.45	125.72	90.39	94.34	52.77	54.19

Critical Single Point Failures Snapshot

(Oct 2005)

General	Direct Fire	Indirect Fire	Close Combat
	✓ Small & Med Cal Propellants	✓ Laminac Adhesive ✓ Projectile Bodies ✓ Grenade Bodies	
✓ Atomized Mag ✓ Black Powder	✓ Small Cal Ammo	✓ TNC ✓ Fuzing Components ✓ Batteries ✓ WP ✓ TFE Lubricant ✓ Propellants M110 / M9	✓ CM Flares ✓ C70 Det ✓ Laminac Adhesive ✓ HHS Seals ✓ M18 Smoke Dyes
✓ VAAR ✓ Polysulfide ✓ TNT ✓ Lead Azide ✓ C4 Tag Agent ✓ RDX ✓ NC / Cotton Linters	✓ Links	✓ Propellant M30 ✓ Burster Tubes	✓ Grenade Fuzing

- 300+ Single Point Failures
- 80 + Critical SPFs

Mitigation Status

- In Planning
- Funded & In Mitigation
- Risk Mitigated

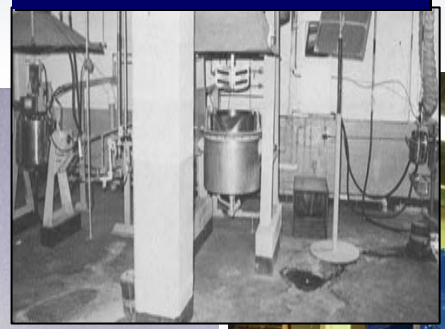
Manufacturing Science & Technology Transfer Center Recent Investments

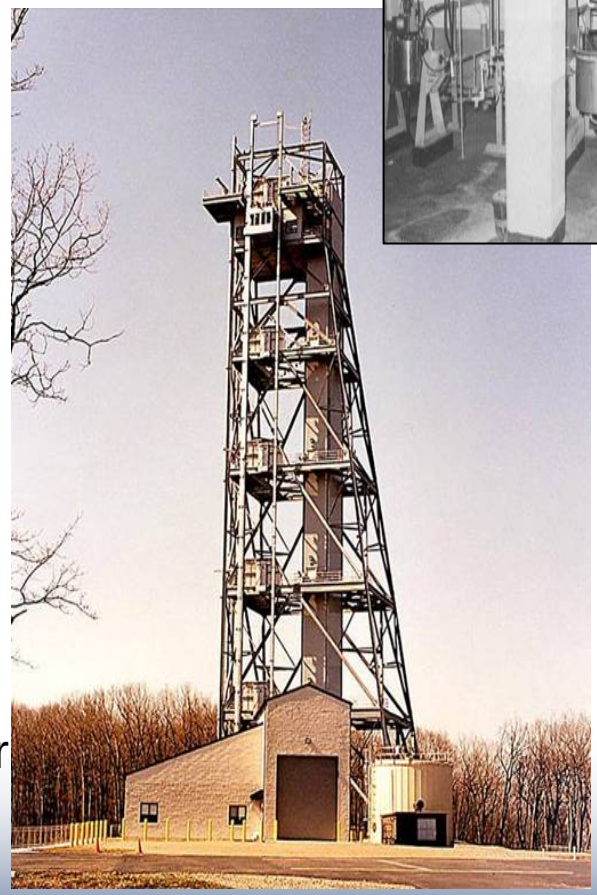
Picatinny Arsenal, NJ

Collaboration w/ Industry & Academia

- Universal Screw Extruder
- Pressure Caster for light weight materials (MMC)
- Cast Cure Explosive loading pilot plant capability
- Explosive Crystallization Science Equipment
- Smart Munitions MMW/IR/SAAL capability
- Advanced Materials Processing
  - ✓ Nano
  - ✓ Welding
  - ✓ Machining
- Advance Coating technologies for energetics

New Manufacturing Processes (e.g., Lead Azide)





Precision Armaments Laboratory



Explosive Cast Cure Loading

Required GOCO AAP Modernization Resources-Summary (Mar 05)

Priority	GOCO Facility	Core Processes	Critical Required Mod ($M)	Essential Mod ($M)	Total ROM
1	Radford (VA)	Propellant Manufacturing (Rocket, Artillery, Tank, Med Cal; NC for all Propellants)	$136.5	$228.0	$364.5
2	Lake City (MO)	Small Caliber	$167.4	$70.0	$237.4
3	Holston (TN)	Explosives - HMX, RDX	$90.2	$104.6	$194.8
4	Iowa (IA)	Load, Assemble & Pack (LAP) - Tank/Artillery, FASCAM	$62.3	$87.3	$149.6
4	Milan (TN)	LAP - Mortars, 40mm Cartridges; C-4 Extrusion	$20.7	$38.5	$59.2
4	Scranton (PA)	Large Caliber Metal Parts- Artillery/Mortars	$7.0	$13.5	$20.5
5	Riverbank (CA)	Large Caliber Metal Parts- 5" Steel, 105mm Cartridge Cases; Mortar/Cargo Metal Parts	$9.6	$5.1	$14.7
6	Lone Star (TX)	LAP - Grenades, Initiators, Detonators, Mines, ICM	$0.2	$32.3	$32.5
6	Kansas (KS)	LAP-Sensor Fuzed Weapon; Mortar/Artillery; ICM	$0.0	$17.0	$17.0
X	Mississippi (MS)	Semi Active - Cargo Metal Parts	$0.0	$0.0	$0.0
			$493.9	**$596.3**	**$1,090.2**

($M)	FY05	FY06	FY07	FY08	FY09	FY10	FY11	Total
Critical Required	$21.80	$115.40	$134.94	$121.93	$85.39	$14.40	$0.00	**$493.86**
Additional Needed	$0.00	$97.30	$102.60	$105.40	$92.90	$133.90	$64.20	**$596.30**
Total Mod Required	$21.80	$212.70	$237.54	$227.33	$178.29	$148.30	$64.20	**$1,090.16**

Key

- Propellant
- Small Caliber
- Energetics
- Metal Parts
- LAP

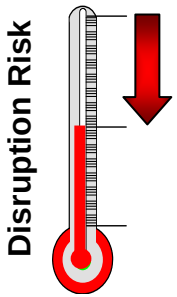
Radford AAP, Radford, VA (est. 1941)



Mission: Manufacture large volumes of propellant ingredients, propellants and TNT.
Size: 6,901 acres, 2,540 buildings, 214 igloos
Employees: 28 Government, 1,200 contractor, 19 tenants
Contractor: Alliant Techsystems
Major Customers: Army, Marine Corps, Navy, Air Force, NASA

Problem/Need:

- Only US/CA Source for Nitrocellulose; Critical DoD SPF
- ~$20M/Yr Operating Deficit; Inefficient Operating Footprint
- Equipment At or Past Useful Life
- Loss of Capability Impacts Delivery of All Ammo
- 71 Acid Plant Production Failures Past 12 Months



Payoff (Critical Mod):

- Risk of Acid/NC Supply Disruption Significantly Reduced
- Increased Quality & Yield
- ~$6M Annual Benefit

Critical Modernization: $136.5M

	FY05	FY06	FY07	FY08	FY09	Total ($M)
Required ($M)	31	40	32	36.5	13	152.5
PEO Ammo IF	16					16
Additional Required	15	40	32	36.5	13	136.5

- Nitric/Sulfuric Acid Plant
- NC Production Lines
- Quality Lab
- Power Plant Upgrade & Environmental Compliance

Essential Modernization: $228M

- Single & Multi-Base propellant facilities
- Continuous Multi-Base propellant facilities
- Environmental Controls
- Solventless Upgrade

Holston AAP Capacity Modernization

- $3.5M FY05 Project:
  - Expand capacity for manufacture of crude RDX by 2M lbs/month
    - Effect of increasing capacity for manufacture of HMX
  - Modernize control system and piping in Bldg D-10 and maintain second nitration reactor in ready status
  - 22 month period of performance
  - Benefits munitions used by all Services



- $4.4M FY05 project
  - Enhance operator safety by eliminating need to handle dry RDX in a batch process
  - Increase through-put by transitioning to a continuous RDX drying and FEM grinding operation in one building (N-3)
  - 24 month period of performance
  - Benefits IM explosives used by all Services

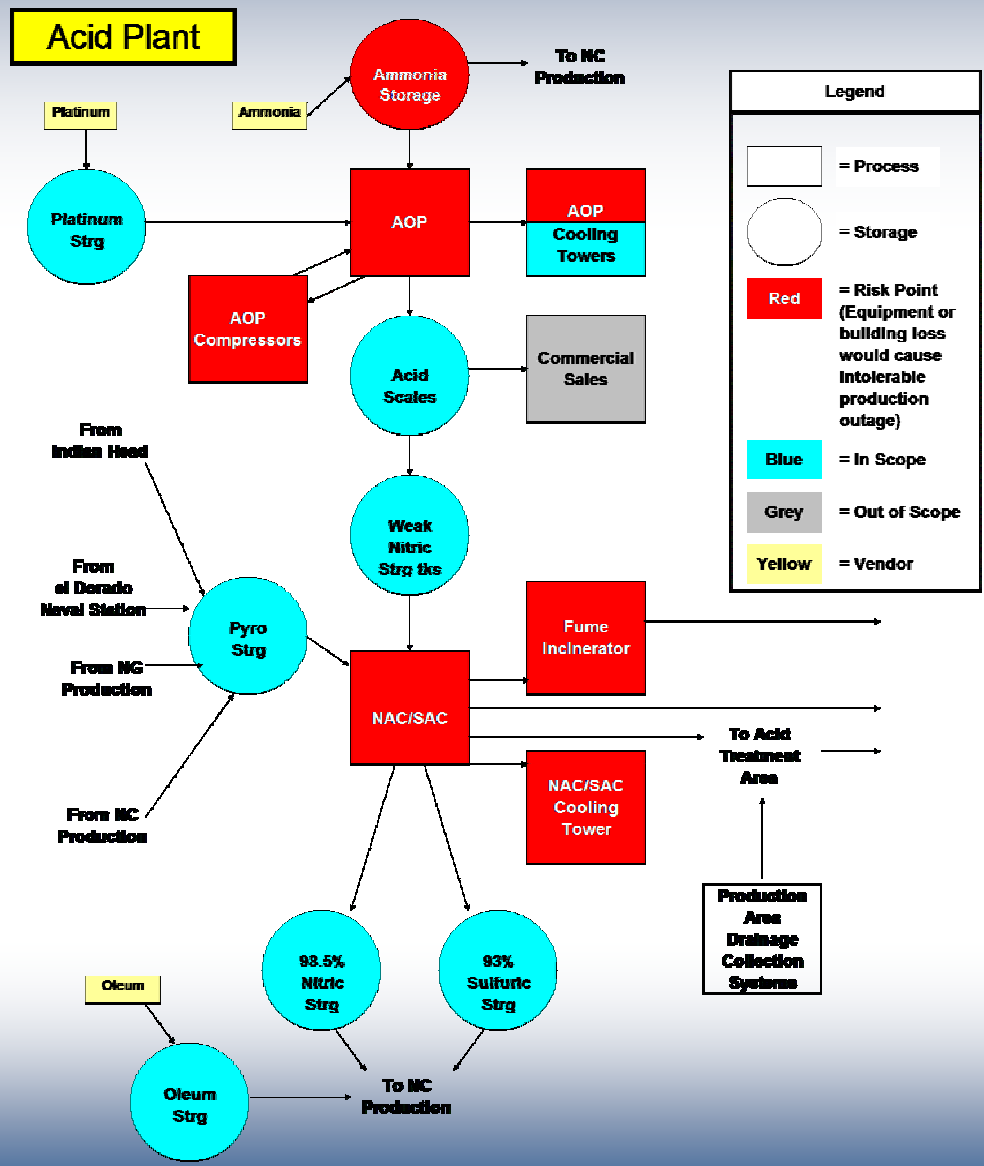


Disaster Recovery Planning

Radford AAP:

Acid Plant Process Flow Diagram & Risk Points

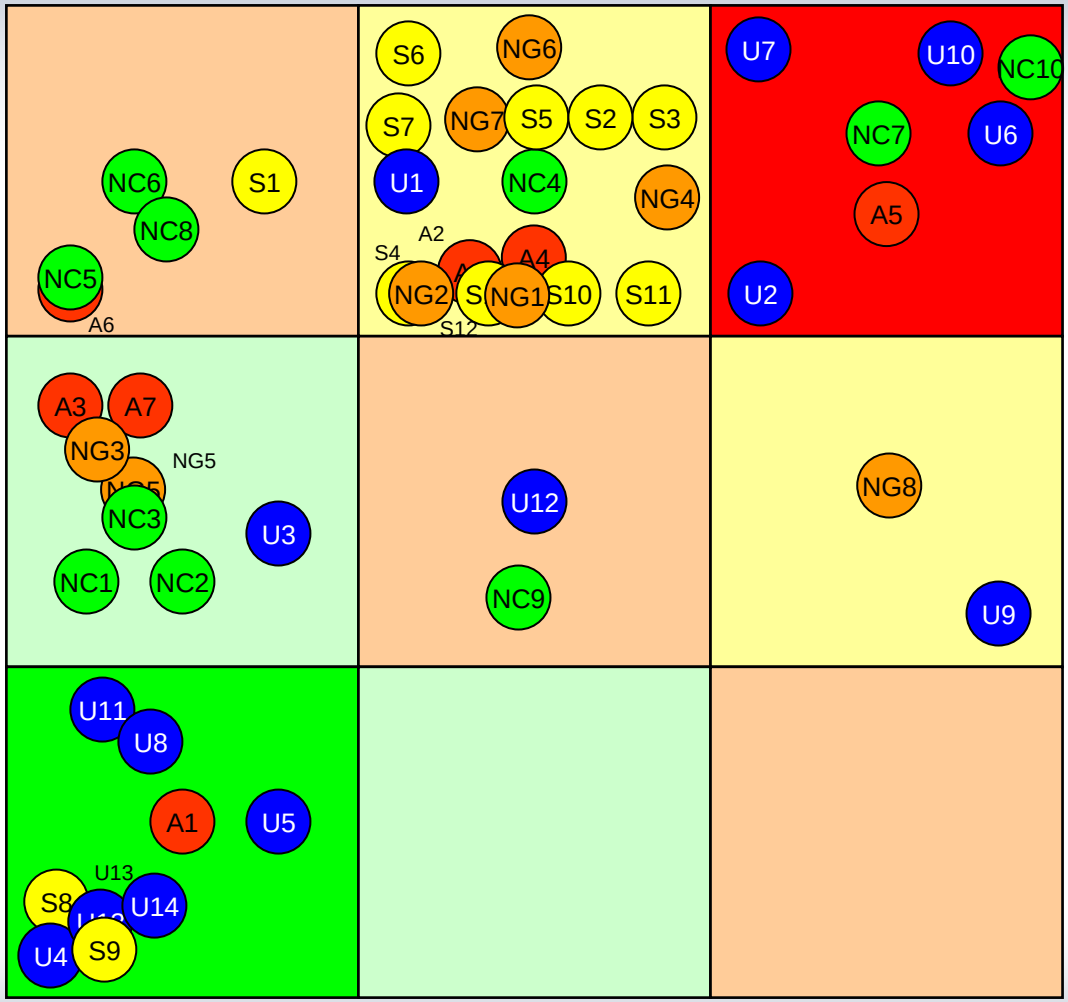
- Ammonia Storage
- AOP
- AOP Cooling Towers
- AOP Compressors
- NAC/SAC
- Fume Incinerator
- NAC/SAC Cooling Tower



Pre Mitigation Composite Risk Summary

Impact – Loss of Production
Low: 0 – 14 Days
Med: 15 – 30 Days
High: 30+ Days

Probability – That Loss Occurs
Low: 10+ yrs
Med: 2 – 10 yrs
High: 0 – 2 yrs



Risk ID	Risk Area	I	P	Risk
A5	NAC/SAC	H	H	High
NC7	Jordan Beater House	H	H	
NC10	Bldg 4026 Wringer House	H	H	
U2	Raw Water	H	H	
U6	Potable Water - Horseshoe	H	H	
U7	Acid Waste Treatment	H	M	
U10	Steam	H	H	
A2	AOP	H	M	
A4	AOP Compressor House	H	M	
NC4	Continuous Nitrator	H	M	
NG1	NG Nitration/Neutralization	H	M	
NG2	NG Storage Houses (2)	H	M	
NG4	Distribution House	H	M	
NG6	Solvent Prep House	H	M	
S2	Saw & End Inhibitor House	H	M	
S3	Dowel Rod	H	M	
S4	Spiral Wrap	H	M	
S5	Cuff, Coning & End Sleeve	H	M	
S6	100% UT/RTR	H	M	
S7	Burn Test Area	H	M	
S10	EC Tape Mixer	H	M	
S11	P4 Tape Heat Process	H	M	
S12	Pelletizer Process	H	M	
U1	Central Lab	H	M	
U12	Plant Compressed Air	H	M	
NG8	Metal Detection	M	H	
U9	Hazardous Waste (Incineration)	M	H	
A6	Fume Incinerator	H	L	Moderate
NC5	Selective Catalytic Reduct Unit	H	L	
NC6	Boiling Tub House	H	L	
NC8	Poaching/Blending House	H	L	
NG7	Slurry Mix House	H	L	
S1	Chemical Grind	H	L	
NC9	Settling Pits	M	M	
A3	AOP Cooling Towers	M	L	Low
A7	NAC/SAC Cooling Tower	M	L	
NC1	Pulp Cutter	M	L	
NC2	Linter Cutter	M	L	
NC3	Acid Weigh House	M	L	
NG3	Nitration Control House	M	L	
NG5	Distribution Control House	M	L	
U3	Filtered water	M	L	
U5	Potable Water	L	L	
A1	Ammonia Storage	L	L	
S8	Final Inspection	L	L	
S9	Packaging	L	L	
U4	Fire Water	L	L	
U8	Bio Waste Treatment	L	L	
U11	Electricity - All Sources	L	L	
U13	Filtered Water Sludge Processing	L	L	
U14	Bio Waste Sludge Processing	L	L	

High Risk
Moderate Risk
Low Risk

Industrial Base Metrics

C-6a-- Percent Resourced Industrial Facilities Requirements

Performance Criteria: **Actual 37%**				
Measure	Weight	Target	Max	Min
C-6a	**20%**	**80%**	**100%**	**50%**

•Measures the amount of Government investment in the organic production base versus the amount identified as needed to sustain required capabilities over the POM.

•A Modernization Report to Congress is being developed and is scheduled for completion by 3QFY06.

Industrial Base Metrics

C-6b-- Percent of Critical Single Point of Failures (SPF) Mitigated and in Risk Mitigation

Performance Criteria:		Actual 75%		
Measure	Weight	Target	Max	Min
C-6b	**20%**	**80%**	**100%**	**50%**

•Sum of Mitigated Critical Single Point Failures and SPFs w/ Resourced Mitigation Plans Divided by Total Critical SPFs

• Critical Single Point Failures are those sources in the supply chain that pose an unacceptable risk to meeting the warfighters' requirements if lost.

Industrial Base Metrics

C-6c-- Percent Production Base Readiness

Performance Criteria: Actual 90%				
Measure	Weight	Target	Max	Min
C-6c	**20%**	**80%**	**100%**	**50%**

- **Measures the percent of items where the production base is able to meet the POM (06-11) demand.**

- **The production base's ability to meet the POM demand is modeled using the SMCA Industrial Base Assessment Tool (IBAT). All items in each POM year are produced concurrently.**

SMCA IBAT *Phase II*

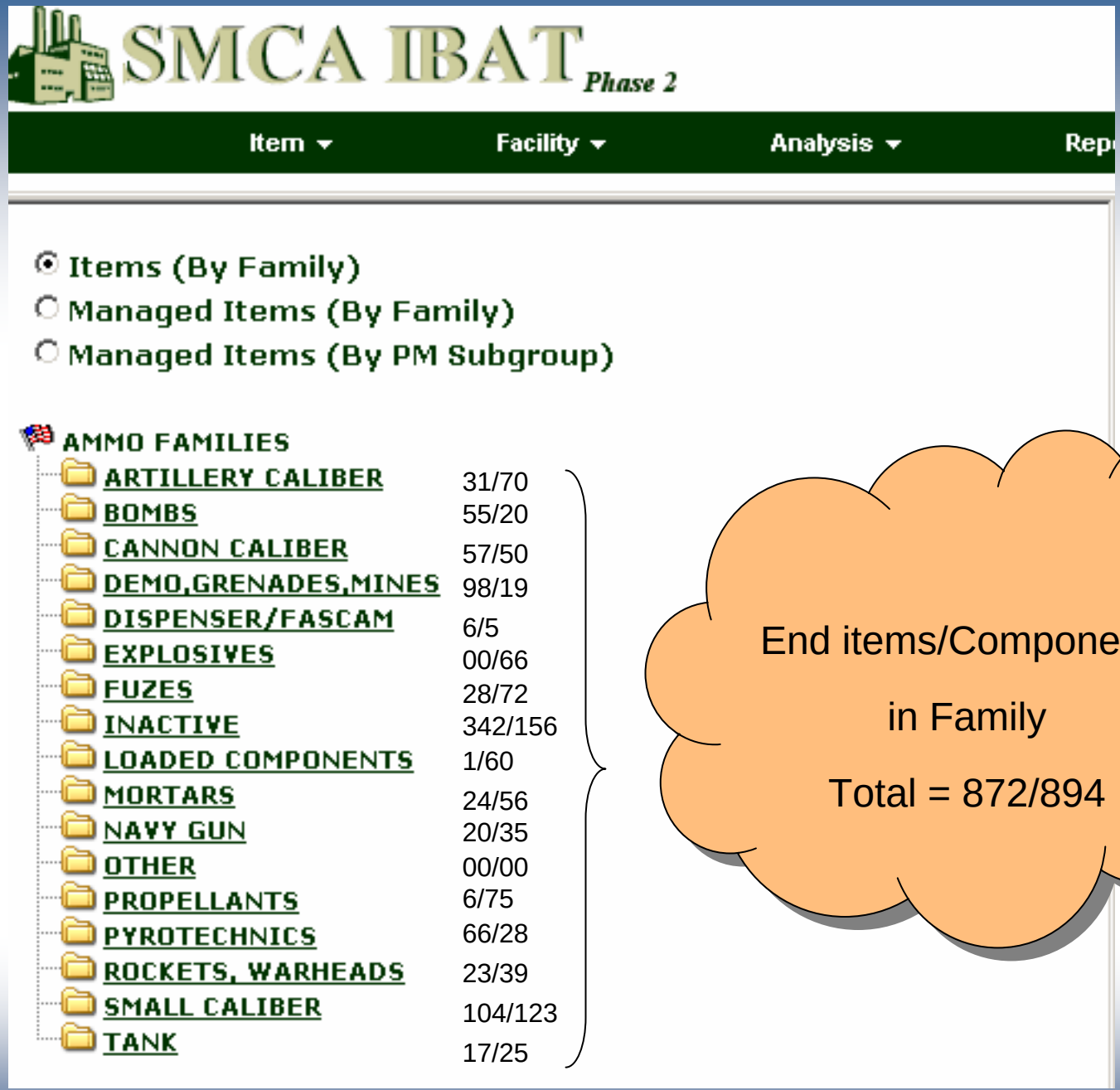
- **SMCA IBAT is a real time web based application focused on POM buys as well as contingency operations**



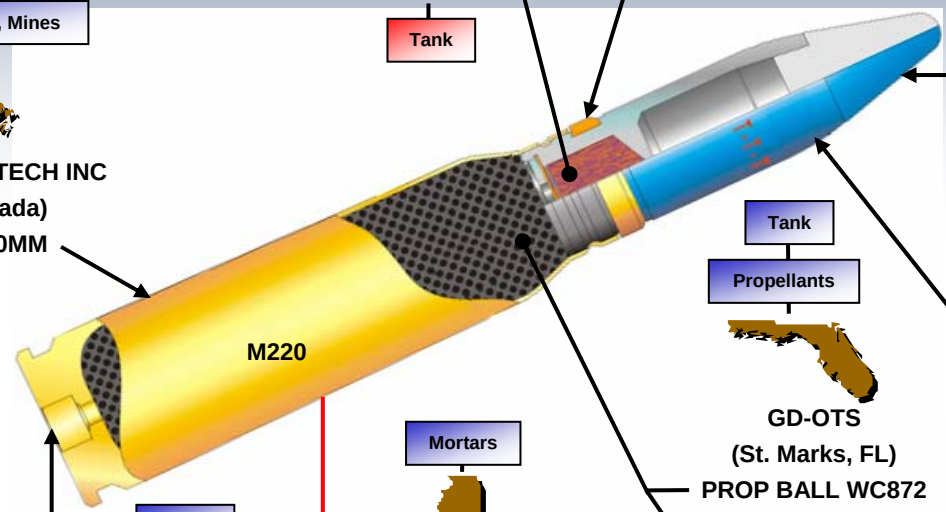
- **Contains near real time info on**
  - **Capacities**
  - **Single, sole, foreign sourced**
  - **Skills/technologies**
  - **Stockpile Levels**
  - **Deliveries versus schedules**
  - **Customer Satisfaction**
  - **Environmental**
  - **Safety**
  - **Financial Viability**
  - **Tiered Bill of Materials**
  - **Identification of Producing Facilities**
  - **POM Item Costs**



- **Contains useful analytical tools**
  - **Pacer reports (3 levels)**
  - **Goes into lists**
  - **Base responsiveness against any set of requirements**


SMCA IBAT Phase 2
Item
Facility
Analysis
Items (By Family)
Managed Items (By Family)
Managed Items (By PM Subgroup)
AMMO FAMILIES
ARTILLERY CALIBER 31/70
BOMBS 55/20
CANNON CALIBER 57/50
DEMO,GRENADES,MINES 98/19
DISPENSER/FASCAM 6/5
EXPLOSIVES 00/66
FUZES 28/72
INACTIVE 342/156
LOADED COMPONENTS 1/60
MORTARS 24/56
NAVY GUN 20/35
OTHER 00/00
PROPELLANTS 6/75
PYROTECHNICS 66/28
ROCKETS, WARHEADS 23/39
SMALL CALIBER 104/123
TANK 17/25
End items/Components
in Family
Total = 872/894

CTG 20MM 4 HEI M56A3 1 TP-T M220 W/LK M14A2 (A653)



Small Caliber
Mortars
Artillery Caliber
Demo, Grenades, Mines

SNC INDUSTRIAL TECH INC
(Quebec, Canada)
CASE CTG 20MM

Tech Ord
(Clear Lake, SD)
TRACER

Tank

VARIOUS COMMERCIAL
COPPER BAND

Artillery Caliber

ITW HIGHLAND
(Waterbury, CT)
ALUM NOSE

Fuzes
Small Caliber
Loaded Components

ATK (LCAAP)
(Independence, MO)
LINK M14A2

Fuzes

GALION INC
(Galion, OH)
PROJ BODY

Tank
Propellants

GD-OTS
(St. Marks, FL)
PROP BALL WC872

Mortars

GD-OTS
(Marion, IL)
LAP

Fuzes
Small Caliber

ATK (LCAAP)
(Independence, MO)
LAP
PRIMER

Artillery Caliber

AMRON LLC CO
(Antigo, WI)
CASE CTG 20MM

PSI
(Byron, GA)
M505A3 FUZE

ACCURATE ARMS CO
(McEwen, TN)
COMPOSITION A4
LOADING

VARIOUS COMMERCIAL
COPPER BAND

- Commercial
- Government Owned
- Other Families By Producer
- Component In Other Families

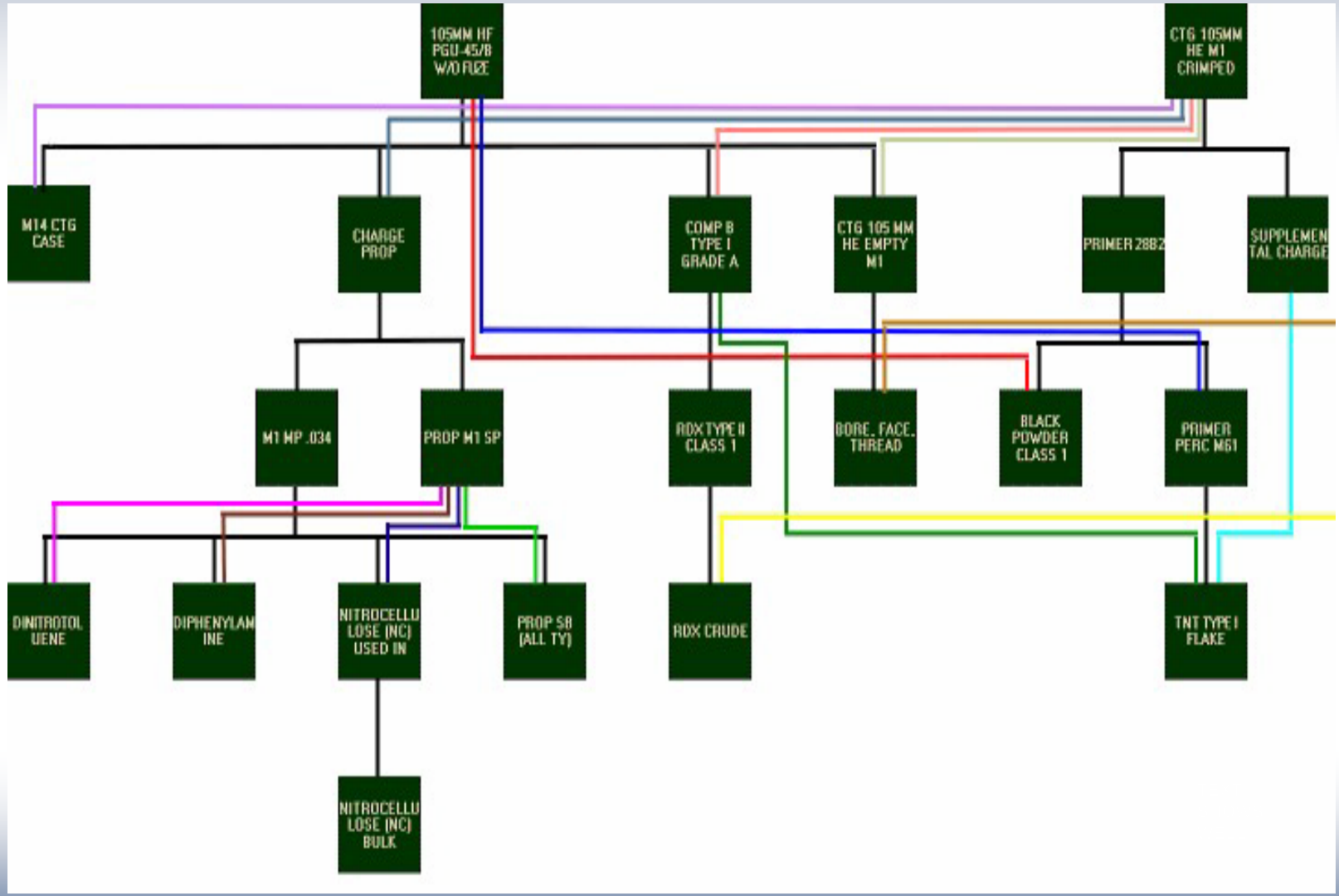
Summary: Item Has 11 Main Components, 10 Producers Operating In 9 States And 1 Foreign Country.

Family: Cannon Caliber

Base Capability Constraints:

- No Current Issues.

Material / Supplier Network - Example



Ammunition Industrial Base Management



The Ammo Enterprise Continues to Make Progress Prioritizing and Resolving Critical Industrial Base Challenges in Consonance With the Joint Ammunition LCMC