Presented to:
Munitions Executive Summit
Cross Service Panel

Presented by:
Mr. James Shields, SES
PEO Ammunition

28 March 2017
Ammunition Enterprise

**Director, Armament Research, Development & Engineering Center**

Mr. John Hedderich

Picatinny (Army Materiel Command)

Lead Research, Development and Engineering of Systems Solutions to arm those who defend the Nation against all current and future threats, at home and abroad

**Program Executive Officer**

Mr. James Shields

Picatinny (Assistant Secretary of the Army for Acquisition, Logistics & Technology)

Develop, equip, and sustain lethal armament and protective systems enabling joint warfighter dominance.

**Joint Munitions Commander**

BG Richard Dix

Rock Island (Army Materiel Command)

Provide America's Joint Forces with ready, reliable and lethal munitions at the right place and time in a cost effective manner to enable successful military operations.

**RESEARCH & DEVELOPMENT:**

- Life-cycle engineering support lead
- Manage/execute Tech Base (BA6.1-6.3)
- Rapid Prototyping & Manufacturing Process Development
- System Engineering & Integration
- R&D Evaluation & Experimentation
- Ammunition Packaging, Handling, Storage, and Transportation R&D
- Quality Engineering/System Safety (Products)
- Matrix Support to PMs

**ACQUISITION:**

- Single Manager for Conventional Ammo
- Systems Development
- Acquisition Strategy
- Hardware Production
- Components for Renovation
- Ammunition Peculiar Equipment (Maintenance Support)
- Research Development Test & Evaluation
- Industrial Base
- Demilitarization/Disposal

**LOGISTICS/SUSTAINMENT**

- Receipt / Issue
- Storage / Distribution Mgmt.
- Inventory / Accountability
- Safety / Security
- Quality Assurance (Ammunition Stockpile Reliability Program/Surveillance)
- Maintenance
- Transportation
- Operations & Maintenance Army Program/Budget / Receive
- Funding
DoD Joint Specialty Site for Guns and Ammunition

- Population 5,404
- 6500 Acres
- 615 Structures
- 64 Laboratories

- Transition of technologies to the field:
  - 70 Full Materiel Release (FMR) since 2009
  - 91 Urgent Materiel Release (UMR) since 2008
  - Enabled fielding of 246 New Munitions, Weapons and Equipment since 11 Sep 2001

- Partnered with Industry, Academia, and other Govt agencies - 130 Cooperative Research & Development Agreements (CRADA)

- Steward of Govt Data Rights & Intellectual Property, FY09+:
  - 253 Patents Issued
  - 25% of all Army patents since 2010
  - Design Authority

Other Tenants

- PEO Soldier PM Soldier Weapons
- PEO GCS PM GCV
- DCMA NE
- Garrison Commander
- Civilian Human Resources Agency
- JM&L LCMC
- CG/PEO Ammo
- ARDEC
- O/EDCA

Marine Corps
- ACC
- Northern NJ HQ (Company)
- 7245th IMSU

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Program Executive Office Ammunition Organization

Develop, equip, and sustain lethal armament and protective systems enabling joint warfighter dominance

- US ARMY
- US AIR FORCE
- US NAVY
- USMC

Single Manager for Conventional Ammunition

Chief of Staff
- Systems Acquisition
- Business Management
- Human Resources
- International
- Chief Information Officer
- Science & Technology

Project Manager
- Towed Artillery Systems
  Support Fires for Maneuver forces
  - M777A2 Lightweight 155mm Howitzer
  - M119A3 105mm Howitzer Digitization
  - Target Acquisition

Project Manager
- Close Combat Systems
  - M777A2 Lightweight 155mm Howitzer Digitization
  - Target Acquisition

Project Manager
- Maneuver Ammunition Systems
  - Excalibur
  - Counter Explosive Hazard
  - Combat Munitions

Project Manager
- M777A2 Lightweight 155mm Howitzer

Project Manager
- Indirect Fire Munitions and Mortar Weapon Systems
  - Excalibur
  - Guided Precision Munitions & Mortar Systems

Project Manager
- Networked Munitions, Force Application Systems, Explosive Hazard, and Countermine
  - Counter Explosive Hazard
  - Area Denial
  - Combat Munitions
  - Support Systems

Project Manager
- Direct Fire Munitions
  - Small, Medium and Large Caliber
  - Non-Standard Ammunition

Project Manager
- SMCA Integration
  - Demilitarization
  - Ammunition Industrial Base
  - Ammunition Logistics R&D
  - Technology and Prototyping

Project Manager
- Joint Services
  - SMCA Assessment
  - Demilitarization
  - Ammunition Industrial Base
  - Ammunition Logistics R&D
  - Technology and Prototyping

O/EDCA
- Executive Director
- Conventional Ammunition
- SMCA Assessment
PEO Ammunition
Provides all Services with the Highest Quality & Cost Effective Ammunition

Artillery Systems
- 155mm M777A2
- 105mm M119A3
- Precision Survey
- 122mm D30 for Allies
- Digital Fire Control

Mortar Systems
- 60mm
- 81mm
- 120mm
- Optical Fire Control
- Digital Fire Control
- Mortar Stowage Kit

Indirect Fire Munitions
- Precision
  - Excalibur
  - PGK
  - Mortars
- Conventional Ammo & Fuzes
  - 105/155mm Artillery
  - 60/81/120mm Mortar

Direct Fire Munitions
- 5.56/7.62mm/50 cal.
- 20/25/30/40mm
- 105&120mm Tank Rounds
- Non-Standard Ammo for Allies

Counter Explosive Hazard
- Detectors
  - SREHD
  - Robotic
  - Handheld
- Jackal Pre-Detonation
- EOD

Close Combat Systems
- Area Denial/Networked Munitions
- Grenades
- Shoulder Launched Munitions

Combat Support
- Pyrotechnics
- Smoke Grenades
- Demolition
- Working Dogs
- Non Lethal

Joint Service Munitions
- Navy/Air Force Bombs
- Navy Deck Gun Ammunition
- Energetics

Industrial Base and Demil
- Ammunition Industrial Base
- DoD Lead for Demilitarization
- Ind. Base Technology and Prototyping
- Ammunition Logistics

SMCA Mission:
Manage DoD conventional ammunition, personnel and training functions to achieve the highest possible degree of efficiency and effectiveness in the DoD operations required to acquire top quality conventional ammunition for U.S. Forces.
Army Senior Leadership Changes
Since 2016 Munitions Executive Summit

• HQDA - approximately 36% turnover in senior staff
  – HON Robert M. Speer – 20 Jan 17 Acting Secretary of the Army
  – Mr. Karl F. Schneider – 20 Jan 17 Acting Undersecretary of the Army

• ASAALT – More than 50% turnover in senior staff
  – Ms. Steffanie Easter New Acting ASA(ALT) and AAE – Nov 2016
  – Mr. Chris Lowman – New Acting Principal Deputy – Nov 2016
  – LTG Michael Williamson, Principal MILDEP – Retired 2 Mar 2017

• AMC – Some change at the senior leader level (~15%)

• JMC
  – Ms. Melanie Johnson - New “Deputy to the Commander”. Ms Johnson came from the Army Contracting Command at Rock Island;
  – Ms. Rhonda VanDeCasteele - Executive Director for Ammo

• ARDEC
  – Mr. Castellano – New METC Director

• ACC Rock Island – Mr. Jeff Carr replaced Ms. Melanie Johnson as the Executive Director and PARC
• ACC Picatinny Senior Contracting staff – No Change
POTUS and SECDEF are committed to Strengthening our U.S. Armed Forces*

- The “ultimate objective is to build a larger, more capable, and more lethal joint force”

- Strengthen the Armed Forces by:

  1. Improve warfighting readiness with FY17 Budget Amendment
     - “Address urgent warfighting readiness shortfalls”
     - “Increase force structure in critical areas” to have an “immediate readiness impact”

  2. Achieve program balance by addressing pressing shortfalls in the FY18 Pres Budget Request
     - “Focus on balancing the program, addressing programmatic shortfall, ... continuing to rebuild readiness”
     - Examples include “building more critical munitions”

  3. Build a larger, more capable, and more lethal joint force in the FY19-23 Defense Program
     - Determine the approach to “enhancing the lethality of the joint force against high-end competitors and the effectiveness of our military against a broad spectrum of potential threats”
     - “Improve how the Department does business” ... and include “horizontal integration across DoD components to improve efficiency and take advantage of economies of scale”

* Excerpts from SECDEF Memo dated 31Jan17
  This memo is Distribution A, available and downloadable off the Internet
Mission: Develop, equip and sustain lethal armament and protective systems enabling Joint Warfighter dominance.

Vision: Innovative and empowered teams efficiently and rapidly delivering dominant capabilities.

ASA(AL&T) 2017 Proposed Objectives

- Identify & Correct Process Gaps
- Commit Resources – Stability to Execute
- Robust Relationship with Industry
- Trained and Agile Acquisition Workforce
- Ensure Over-match & Dominance
- Agility of Acquisition and Sustainment
- Procure/Field Solutions to Address Threats
- Deny Unauthorized Transfer of US Technology
- Defense Exports & Cooperation Activities

Significant Focus on Equipping the Warfighter
PEO Ammunition FY17 Budget

PAA $1,681.1M
- $399.5
- $516.2
- $499.6
- $4.9
- $33.3
- $227.5

WTCV $60.8M
- $18.0
- $42.9

Other Services $1,037.7M
- $526.4
- $249.6
- $163.3
- $98.4
- $49.6

OPA $97.6M
- $62.6
- $30.8
- $4.2

RDTE $267.4M
- $60.9
- $40.4
- $1.8
- $63.4
- $100.9

OMA $9.8M
- $4.9
- $3.5
- $1.1
- $0.3

Source: FY17PB-R
SMCA Hardware FY16 vs. FY17
17 PresBud Comparison by Ammunition Families (in $M)

Source: 17 Pres Bud dated Feb 2016
*This data excludes FMS, Production Base and DEMIL

DISTRIBUTION STATEMENT A: Approved for Public Release; distribution is unlimited
## PEO Ammo FY18 Projected New Competitive Contract Awards ($ in Millions)

### FY18 76.2%

<table>
<thead>
<tr>
<th>Category</th>
<th>FY18 Projected Value ($ in Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MK12 &amp; MK3 Pallets</td>
<td></td>
</tr>
<tr>
<td>General Purpose Bombs</td>
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<tr>
<td>BLU-109</td>
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<tr>
<td>Scranton Army Ammunition Plant</td>
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<tr>
<td>Navy Projectiles Demilitarization</td>
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<tr>
<td>Mortar Ammunition</td>
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<tr>
<td>Artillery Ammunition</td>
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<tr>
<td>Fuzes, Propellants and Primers</td>
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<tr>
<td>M58 Mine Clearing Line Charge (MICLIC)</td>
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<tr>
<td>Acoustic Hailing Device (AHD)</td>
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<tr>
<td>M18 DYES</td>
<td></td>
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<tr>
<td>Hand Held Signals (M127A1)</td>
<td></td>
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<tr>
<td>Medium Caliber Family</td>
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<tr>
<td>40mm IRAP</td>
<td></td>
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<tr>
<td>40mm Door Breaching</td>
<td></td>
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</tbody>
</table>
# Government Owned, Contractor Operated (GOCO) Army Ammunition Plant (AAP) Contracts

<table>
<thead>
<tr>
<th>GOCO AAP</th>
<th>Contractor Investment</th>
<th>Calendar Year</th>
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</thead>
<tbody>
<tr>
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<tr>
<td><strong>Lake City (Orbital ATK)</strong>&lt;br&gt;FY12 – Facility, and Production/Supply Contracts awarded</td>
<td>- &quot;<del>$80M over 10 yrs. based on level of Gov requirements&lt;br&gt;- &quot;</del>$30M over 10 yrs for commercial use (Competed w/ mid term Product)</td>
<td>2013</td>
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<tr>
<td><strong>Scranton (GD-OTS)</strong>&lt;br&gt;FY13 – Facility Contract awarded</td>
<td>- $2M/yr FY02-Fy13&lt;br&gt;- $1M/yr FY14-16 (Sole Source w/ no Product; Future comp includes product)</td>
<td>2013</td>
</tr>
</tbody>
</table>

- **Facility Use Contract**
- **Supply Contract**

- 25 yr Facility Use Contract thru Dec 2023
- 5 year Supply (requirements) Contract thru Sep 2017; New 5-year sole source contract – Estimated award in Sep 2017
- 10-year Facility Use Contract thru Dec 2018 with three, 5-year options to 2033.
- 5 year supply contract expired Dec 2013;
- Jan 2015 Statement of Intent implementation - modernization / workload
- 7-year (5year base+2year exercised option) Facility Use Contract thru Sep 2020 with one 3-year option remaining.
- 7-year (5year base+2yr exercised option) Supply Contract thru Sep 2019 with one 3-year option.
- 10-year Facility Use Contract thru Dec 2018 with three 5-year options; Developing alternative facility management strategy.
- Laid away Jun 2014. MOA with USN to operate and maintain the QCCC facility in-process
- Facility Use Contract thru Jun 2016, extended through Mar 2018
- Facility Competition: Property Management (15-year) and Supply (10-year) Contract - Estimated award in May 2018
DOTC Financials

PEO Ammo’s Use of DOTC (FY11-FY16) – Total Funding

[Bar chart showing funding by fiscal year from FY11 to FY16, with a total of $62.5M through 30 SEP 2016]
FY19-23 Army Requirements

The munitions trend is an increase in both war reserve and training requirements

- Emerging factor that could further affect future requirements:
  - Potential increase in force structure
  - War reserve requirements increased due to changes to the war fight scenarios, number and type of BCTs in the campaigns, and changes to BCT structure
    » Aviation Restructure Initiative
    » 30mm on Stryker
    » Mobilization training
  - Training requirements increased due to use of the current 1,015K personnel in force structure vice the 980K used in previous training requirements analysis
    » Priority is maintaining funding to replenish training expenditures to support the DA G3 ability to authorize 100% of the annual Training Requirements
    » The Army is expending more ammunition in training than it is acquiring
    » ARSTAFF is assessing the funding needs to mitigate projected funding shortfalls as part of the POM 19-23 process

Assess the impact of increased requirements on the Organic and Key Commercial Ammo Production Capabilities
Trends in Army Ammunition Requirements (FY18-22 vs FY19-23)

• Increases in requirements are anticipated given the current world-wide political environment
  – Requirements for some ammunition items may see minimal increases (<15%) while others may see significant increases (50%+)

• Army is evaluating all requirements and establishing priorities for resourcing

• Likely scenario: Not all increases in ammunition requirements will be fully funded
2017 Change to the NTIB

Pub. Law 114-328 (FY17 National Defense Authorization Act) changed the NTIB

Defined in 10 USC 2500

Original NTIB

(1) The term "national technology and industrial base" means the persons and organizations that are engaged in research, development, production, integration, services, or information technology activities conducted within the United States and Canada.

New NTIB

(1) The term "national technology and industrial base" means the persons and organizations that are engaged in research, development, production, integration, services, or information technology activities conducted within the United States, United Kingdom of Britain and Northern Ireland, Australia, and Canada.

Positive Impact for US Government: Provides more sources of materiel & services; increased competition, less single points of failure

No Negative Impact for Industry: SMCA retains the authority to restrict as applicable
All Munitions FMS Buys:
Reimbursable and Direct FY14 TO FY16

<table>
<thead>
<tr>
<th></th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Qtr</td>
<td>$139.9</td>
<td>$165.6</td>
<td>$191.7</td>
</tr>
<tr>
<td>2nd Qtr</td>
<td>$580.0</td>
<td>$595.7</td>
<td>$464.2</td>
</tr>
<tr>
<td>3rd Qtr</td>
<td>$1,102.4</td>
<td>$1,237.8</td>
<td>$1,460.4</td>
</tr>
<tr>
<td>4th Qtr</td>
<td>$1,739.6</td>
<td>$2,142.7</td>
<td>$2,536.6</td>
</tr>
</tbody>
</table>
# International Engagements 2017

<table>
<thead>
<tr>
<th>COCOM</th>
<th>Air/Trade Show</th>
<th>Location</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOUTHCOM</td>
<td>Latin American Aerospace Defense</td>
<td>Rio de Janeiro, Brazil</td>
<td>4-7 April 2017</td>
</tr>
<tr>
<td>EUCOM</td>
<td>International Defense Industry Fair</td>
<td>Istanbul, Turkey</td>
<td>9-12 May 2017</td>
</tr>
<tr>
<td>PACOM</td>
<td>AUSA LANPAC Symposium &amp; Exposition</td>
<td>Hawaii</td>
<td>23-25 May 2017</td>
</tr>
<tr>
<td>EUCOM</td>
<td>Paris Air Show</td>
<td>Paris, France</td>
<td>19-25 Jun 2017</td>
</tr>
<tr>
<td>EUCOM</td>
<td>MSPO International Defense Industry Exhibition</td>
<td>Kielce, Poland</td>
<td>Sep 2017</td>
</tr>
</tbody>
</table>
# FY15 SMCA Customer Survey Results

<table>
<thead>
<tr>
<th>Category</th>
<th>Individual Metric</th>
<th>Service Ratings</th>
<th>FY15 Average Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transition</td>
<td>Participation in the transition of SMCA-assigned conventional ammunition</td>
<td>Satisfactory</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Management of the transition process</td>
<td>Needs Improvement</td>
<td>0.75</td>
</tr>
<tr>
<td>Production Base</td>
<td>Identification &amp; incorporation of new manufacturing technologies</td>
<td>Good</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Industrial Readiness Planning</td>
<td>Needs Improvement</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Coordination on significant production base issues</td>
<td>Excellent</td>
<td>0.75</td>
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<tr>
<td></td>
<td>Management &amp; investment in the conventional arms production base</td>
<td>Excellent</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Section bills processing</td>
<td>Good</td>
<td>0.75</td>
</tr>
<tr>
<td>Operation</td>
<td>Participation and influence in the IPT process</td>
<td>Excellent</td>
<td>1.00</td>
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<tr>
<td></td>
<td>Procurement Planning</td>
<td>Needs Improvement</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Procurement Administrative Lead Times (PALT) (NEW)</td>
<td>Good</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Source Selection Process</td>
<td>Good</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Accuracy and timeliness of program status</td>
<td>Satisfactory</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Cost (all cost factors)</td>
<td>Good</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Configuration management</td>
<td>Satisfactory</td>
<td>0.75</td>
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<tr>
<td></td>
<td>Product quality</td>
<td>Excellent</td>
<td>1.00</td>
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<td></td>
<td>On-time delivery</td>
<td>Needs Improvement</td>
<td>0.75</td>
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<tr>
<td></td>
<td>Management of customer faults</td>
<td>Good</td>
<td>0.75</td>
</tr>
<tr>
<td>Supplies</td>
<td>Requisition processing for items in inventory</td>
<td>Satisfactory</td>
<td>1.00</td>
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<tr>
<td></td>
<td>Inventory management</td>
<td>Satisfactory</td>
<td>0.75</td>
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<tr>
<td></td>
<td>Ammunition surveillance (NEW)</td>
<td>Good</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>Wholesale storage (NEW)</td>
<td>Good</td>
<td>0.75</td>
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<tr>
<td></td>
<td>Transportation and handling (NEW)</td>
<td>Good</td>
<td>0.75</td>
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<tr>
<td>Customer Service</td>
<td>Accommodate specific requirements/requests</td>
<td>Good</td>
<td>0.75</td>
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# FY16 SMCA Customer Survey Results

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</tr>
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Note: 
- Green = Good (performance meets most expectations)
- Yellow = Needs Improvement (performance does not meet most expectations)
- Orange = Excellent (performance exceeds most expectations)
- Dark Green = Good (performance meets most expectations)
- Increase in Rating/Decrease in Rating compared to FY15 results (no symbol means no change in rating)
- Increase in Rating/Decrease in Rating with > or < 0.5 delta from FY15 results

**DISTRIBUTION STATEMENT A**: Approved for Public Release; distribution is unlimited
Industrial Base Challenges

• Explosives -- Increased Requirements Driving Need for Expansion at HSAAP
  – Target capacity expansion is 15-16M lbs/yr RDX production.
  – Expected Online by FY19

• NC Rebaseline at RFAAP
  – Replacing the current aging facility, which is the only source of Nitro Cellulose within the US and Canada
  – Expected Online in early FY19

• Package Boilers Maximum Achievable Control Technology (MACT) Compliance at RFAAP
  – EPA is driving the switch from coal-fired boilers for environmental benefits
PEO Ammo Focus Areas

**Flares & Signals**

**Near-term:**
- Defeating increased threats to aircraft
- Lighter and more tunable countermeasures (multi-purpose)

**Mid-term:**
- Defeating advanced aircraft threats

**Long term:**
- Fully tunable effects (user selectable)

**Artillery & Mortars**

**Near Term:**
- Fielding light-weight wpns / Precision ammo
- Producing High Explosive rounds with insensitive munition fills
- C-DAEM Bridging Strategy
- Compatibility with M-Code GPS
- High Explosive Guided Mortar (HEGM)
- Lightweight digital fire control
- Improved HOB (IMOFA/IMOFM)

**Mid-term:**
- Longer range through ammo improvements
- Increased lethality for 155mm (cluster munition replacement)

**Long-term:**
- Longer range through weapon upgrades
- Extended Range Autonomous Weapons

**Demolitions:**

**Near-term**
- Improving producibility of Modernized Demolition Initiators components (i.e., blasting cap)

**Mid-term**
- Reducing collateral damage
- Developing more IMX compliant items

**Long-term**
- Non-kinetic neutralization of explosives from standoff

**Small Cal**

**Near-term:**
- OWL; Training Flexibility
- RRA; Mobility
- Lightweight Sm. Cal Ammo (LSCA)

**Mid-term:**
- Precision

**Long-term:**
- Extended range guided with user tunable effects
- “Trace” capability in smart sight on the weapon vs. on the round
- “Ammo on demand” - user has the capability to “produce” the ammo as needed

**Family of Ammo CDD**

**Artillery & Mortars**

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**Bomb Production:**

**Near-term:**
- Address increases in Bomb requirements
**Medium Caliber**

**Near-term:**
- Increased lethality through warhead and round design
- Door Breach

**Mid-term:**
- Extended range and guidance

**Long-term:**
- Collaborative/swarming effects
- “Ammo on Demand”

**Non-Lethal**

**Near-term:**
- Improvements to the 40mm and 12 ga ammunition

**Mid-term:**
- More covert and passive marking of targets

**Long-term:**
- Integrated lethal and non-lethal effects and non-kinetic engagement

**Shoulder Launched**

**Near-term:**
- FMR of Multi-role Anti-armor Anti-personnel Weapon System (MAAWS)

**Mid-term:**
- Development of IAM

**Long-term:**
- Fielding of IAM
- Longer range defeat of advanced targets

**Area Denial**

**Near-term:**
- Spider (all increments)
- Remote/autonomous emplacement and scalable effects - Gator Landmine Replacement Program (GLRP)

**Mid-term:**
- Close-Terrain Shaping

**Long-term:**
- Mid-Terrain Shaping Obstacles

**Counter Explosive Hazard (CEH)**

**Near-term:**
- Development of autonomous operations

**Mid-term:**
- Greater speed and standoff for detection marking and lower cost technologies

**Long-term:**
- Detection and non-kinetic neutralization of explosives from standoff

**Grenades**

**Near-term:**
- Benign smoke & fuze/primer upgrades

**Mid to long term:**
- Dual use grenades

**Long-term:**
- Non-kinetic effects and lighter weight
Tools to Gain Efficiencies

Do More with Fewer Dollars

Continuous Performance Improvement

Better Buying Power
- FY16: $856M
- Value Engr: FY16 $21.4M
- Lean Six Sigma: FY16 $33.6M

CPI inculcated throughout the organization

Better Understanding Cost from Components to Final Assembly
- Identify Cost Savings Opportunities
- Similar to Engineering Cost Estimation Method – “Bottoms Up”
- Model Material and Non-Material Costs in an Optimized Manufacturing Scenario

Cleansheeting

- Raw materials
- Purchased parts and components
- Defective parts/scrap
- Labor
- Equipment
- Plant Utilization
- SG&A
- R&D
- Transport
- Warranty

Example

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Message to Industry

• Industry/ Government partnership is key
• Affordability remains critical
  – Will/Should Cost (Cleansheet Analysis)
  – Better Buying Power
• More thorough/quality proposals will accelerate capability of delivery
• Non NATO munitions to allies continues to increase
• Foreign Military Sales increasing
• Increased emphasis on Assured PNT, M-Code/Pseudolites/ Anti-Jam for precision munitions
• Continued push for Insensitive Munitions
Meeting Joint Warfighter’s Needs!

Over 20B Rounds Delivered FY02-16