Project Manager, Maneuver Ammunition Systems

COL Paul Hill
12-15 MAY 2014
Where do we see Funding...
Small Caliber

**Present: Small Caliber**

- High volume products in relatively good position
  - Enjoying benefits of high commercial demand
- Boutique Items – CCMCK, SRTA etc. are more dependent on other service buys – Risk Reduction strategy: Working with vendors and customers to keep buys steady

**Future: Small Caliber**

- Steady then decreasing by 10-20% by 2020
- New requirements under development:
  - Better Tracers
  - Lightweight Ammo
  - Improved Sniper
  - Reduce SDZ
Direct Fire

How Training Expectations have changed from last year to this year

- **5.56mm**
  - 2013: 200,000
  - 2014: 130,000
  - 32% Decrease

- **7.62mm**
  - 2013: 60,000
  - 2014: 45,000
  - 23% Decrease

- **.50 Cal**
  - 2013: 30,000
  - 2014: 25,000
  - 18% Decrease

- **30mm**
  - 2013: 1,200
  - 2014: 1,150
  - -2% Decrease

- **40mm**
  - 2013: 7,000
  - 2014: 5,500
  - 28% Decrease

- **120mm**
  - 2013: 35,000
  - 2014: 33,000
  - 4% Decrease

Small Caliber / 40mm shrinking in training
30mm/120mm holding steady
Small Caliber Ammunition
“Investing in the Future”
Small Caliber Ammunition

5.56mm, 7.62mm, .50 CAL., Pistol, Shotshell, .22 Long Rifle, DDI, CCMCK, GREM
BLUF

- Enhanced capabilities
  - Close capability gaps
  - Achieve overmatch

- Maneuver Center of Excellence is developing/staffing Family of Ammunition Capability Development Documents

- Technology development & demonstration underway

Future of Small Caliber Ammunition taking shape NOW!
Small Caliber Ammo R&D Projects

**5.56MM, 7.62MM, .50 CAL, SNIPER, HANDGUN & FUTURE SYSTEMS**

### 5.56MM
- FoA CDD - FY15
  - One Way Luminescence (OWL)
  - Lightweight Small Caliber Ammunition (LSCA)
  - Reduced Range Training Ammunition (RRTA)

### 7.62MM
- FoA CDD FY14
  - OWL
  - LSCA
  - RRTA

### .50 Cal.
- FoA CDD - FY16
  - OWL
  - LSCA
  - All Purpose Tactical Ctg.*
  - RRTA

### Precision (PSR)
- FoA CDD - FY16
  - PSR: Improved Performance Round (IPR), Anti-Materiel & Subsonic
  - 7.62mm: IPR & Subsonic
  - .300 WM: IPR & Subsonic

### Handgun (MHS)
- FoA CDD - FY17
  - Improved Performance Round

### Future Systems Ammo
- Small Arms Ammunition Configuration Study
- Next Generation Squad Weapon
- Lightweight Dismounted Automatic Machinegun
- Externally Powered Weapon

* = Will include OWL and LSCA

Influx of Many New R&D Programs Expected in Future
Small Caliber Ammunition Roadmap

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<td>M62 Tracer</td>
<td>M62A1 Tracer</td>
<td>One Way Luminescence (OWL) Tracer</td>
<td>Ball w/OWL</td>
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<td>M80 Ball</td>
<td>M80A1 Ball</td>
<td>Lightweight Cartridge Case</td>
<td>Ball w/OWL</td>
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<tr>
<td>M1037 Short Range Training Ammunition (SRTA) &amp; M1042/M1071 Close Combat Marking (CCMCK)</td>
<td>Reduced Range Training Ammunition (RRTA)</td>
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- M62 Tracer
- M62A1 Tracer
- M80 Ball
- M80A1 Ball
- Lightweight Cartridge Case
- M1037 Short Range Training Ammunition (SRTA) & M1042/M1071 Close Combat Marking (CCMCK)
- Reduced Range Training Ammunition (RRTA)

- MK301 Dim Trace
- M856A1 Tracer
- M855A1 Ball
- M855A1 Ball
- Owl Tracer
- Ball w/OWL
- RRTA

- M33 Ball & M17 Trace
- All-Purpose Tactical Cartridge (APTC)
- RRTA

- Production
- R&D/Potential Future Reqt.
# Small Caliber Ammunition Roadmap

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<td>7.62mm M118 Long Range Ammo</td>
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<td>.300 WM MK248 Ammo</td>
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<td>COTS Ball &amp; Anti-Materiel (AM) Ammo for PSR</td>
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<td>PSR IPR Capability</td>
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<td>JHP = Jacketed Hollow Point</td>
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<td>SPL = Special</td>
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<td>ACP = Automatic Colt Pistol</td>
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<td>CCMCK = Close Combat Mission Capability Kit</td>
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<td>9mm M882 Ball &amp; 9mm JHP</td>
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<td>.38 SPL &amp; .45 ACP</td>
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<td>9mm CCMCK Ammunition (will also be used for MHS)</td>
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<td>MHS COTS Ball, JHP, Dummy &amp; HPT Ammunition</td>
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<td>MHS IPR, Tracer &amp; Specialized Training Ammunition</td>
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**Sniper**

- PSR = Precision Sniper Rifle
- WM = Winchester Magnum
- LM = Lapua Magnum
- COTS = Commercial Off The Shelf
- IPR = Improved Performance Round
- AM = Anti-Materiel

**Pistol**

- MHS = Modular Handgun System
- COTS = Commercial Off The Shelf
- HPT = High Pressure Test
- IPR = Improved Performance Round

**Notes:**
- JHP = Jacketed Hollow Point
- SPL = Special
- ACP = Automatic Colt Pistol
- CCMCK = Close Combat Mission Capability Kit
- MHS = Modular Handgun System
- COTS = Commercial Off The Shelf
- HPT = High Pressure Test
- IPR = Improved Performance Round
# Program Description

**Objectives:**
- Develop and demonstrate non-pyrotechnic tracer technology that eliminates shortcomings of current tracers
- Full Day/Night trace capability

**Strategy: Competitive Prototyping**
- Industry tracer concepts via Defense Ordnance Technology Consortium (DOTC) effort
- USG concept development

## Status
- Development and testing of Government concepts ongoing
- Preparing to award two DOTC contracts for industry concepts

## Challenges
- Achieving visibility out to required ranges under all light (bright sunshine) & background (snow) conditions
- Must also be visible through vision devices

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**One Way Luminescence (OWL)**

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<td>MS B</td>
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**Graph:**
- Trace Visible
- Trace Not Visible
- Origin of Shot
- Target

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**Graph Notes:**
- USG Concept Development
- Industry Concept Development
- Concept Downselect
- Market Survey
- TRL 2
- TRL 4
- TRL 5
- TRL 6
- MS B

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**Graph Key:**
- Green Circle: Trace Visible
- Red Circle: Trace Not Visible
- Red Arrow: Origin of Shot
- Green Arrow: Target
Program Description

**Objectives:**
- Demonstrate and qualify lightweight cartridge case technology
- Draft Requirement (Cartridge Weight Savings): 10% (Threshold), 50% (Objective)

**Strategy: Joint Service Cooperative**
- Army DOTC effort to demonstrate 7.62mm polymer cased ammunition
- Monitor other service efforts for possible adoption
- Joint Service IPT synchronizes case efforts

Status

- Army awarded DOTC contract for development & demonstration of 7.62mm polymer cased M80
- USMC continuing toward qualification of .50 cal. MK323 polymer cased cartridge
- USSOCOM .300 WinMag and .50 Cal. polymer cased ammunition efforts ongoing

Challenges

- Achieving full functionality in multiple weapons
- Cost comparable to (preferably less than) brass cases

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<td>2Q</td>
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<td>7.62mm Polymer M80</td>
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<td>.300 WinMag Polymer</td>
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<td>.50 Cal. Polymer (Match Grade)</td>
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<td>.50 Cal. Polymer M33 (MK323)</td>
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<td><strong>ARMY ACTIVITY</strong></td>
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Reduced Range Training Ammunition (RRTA)

Program Description

- Objectives:
  - Develop and qualify training ammunition that has trajectory match to combat ammunition for qualification ranges with significantly shorter surface danger zones (SDZ)
  - Provide effective solution for 360° collective training

- Strategy:
  - Envision competitive prototyping of Government and Industry concepts

Status

- Preparing to initiate Feasibility Study
  - Develop Initial concept designs
  - Perform initial performance verification simulations

Challenges

- Performance goals (max range/effective range) may be difficult to attain simultaneously with geometric modifications (fins, etc.) to projectiles
- May require non-conventional technologies to achieve goals

Notional Schedule

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<td>5.56mm RRTA Development</td>
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<td>7.62mm RRTA Development</td>
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<tr>
<td>.50 Cal RRTA Development</td>
<td>.50 Cal</td>
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</table>
Program Description

- Objectives:
  - Develop a multi-purpose tactical cartridge capable of defeating the full spectrum of target sets typically engaged with .50 cal. machineguns
  - Replace all current .50 cal. tactical ammunition

- Strategy: Competitive Prototyping
  - Compete Government and Industry concepts

Status

- Awaiting approval of .50 Cal. Family of Ammunition Capability Development Document to proceed with program of record

Challenges

- Achieving robust capability against a broad spectrum of target types
- Cost

Notional Schedule

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<tr>
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.50 Cal. All-Purpose Tactical Cartridge
Future Ammunition for Precision Sniper Rifle (PSR)

Program Description

- **Objectives:**
  - Develop advanced capability ammunition to replace cartridges fielded with PSR
    - Improved Performance Rounds
    - Advanced Anti-Materiel Cartridge
  - Introduce additional capability - Subsonic Ammunition

- **Strategy:** Competitive Prototyping
  - Compete Government and Industry concepts

Status

- Government concepts being tested
- Awaiting approval of Precision Family of Ammunition Capability Development Document to proceed with programs of record

Challenges

- Achieving anti-materiel performance comparable or better than current .50 Cal. capability in a smaller caliber
- Improving both precision and terminal effects at extended ranges

Notional Schedule

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- **Improved Performance Rounds**
- **Advanced Anti-Materiel Cartridge**
- **Subsonic Ammunition**
Ammunition for Next Generation Small Arms

- Projected Timeframe: Post FY25

- Potential Weapon Systems
  - Next Generation Squad Weapons
    - Automatic Rifle
    - Carbine
    - Squad Designated Marksman’s Weapon
  - Lightweight Dismounted Automatic Machinegun
  - Externally Powered Weapon

- Guided sniper ammunition

- Calibers/Configuration: TBD
Non Standard Ammunition (NSA)
Definition – Non-Standard Ammunition

Not in US Army supply base
Not type classified or safety certified for use by US Army
Not produced using technical data packages managed by US Army
# PD NSA FMS Dollars and FMS Quantity History

## Other FMS Historical Deliveries ($)

- **Aircraft Munitions**
  - 2009: 13,299
  - 2010: 7,350
  - 2011: 92,903
  - 2012: 19,123
  - 2013: 60,660
  - 2014: 39,606

- **Artillery**
  - 2009: 7,000
  - 2010: 8,793
  - 2011: 5,474
  - 2012: 28,063
  - 2013: 55,870

- **Launched and Hand Grenades**
  - 2009: 463,335
  - 2010: 430,516
  - 2011: 303,782
  - 2012: 74,390
  - 2013: 50,000
  - 2014: 350,000

- **Medium Mortars**
  - 2009: 10,000
  - 2010: 565,000
  - 2011: 3,737,174
  - 2012: 374,336
  - 2013: 3,240

- **Other Rocket Propelled & Recoiless Rifles**
  - 2009: 200
  - 2010: 240,606
  - 2011: 227,173
  - 2012: 113,280
  - 2013: 96,924
  - 2014: 97,129
  - 2015: 269,990

- **Small Tank**
  - 2009: 94,687,958
  - 2010: 187,571,067
  - 2011: 219,607,471
  - 2012: 49,633,532
  - 2013: 5,383,061
  - 2014: 4,170,401
  - 2015: 262,290,711

- **Grand Total**
  - 2009: 95,446,812
  - 2010: 188,390,389
  - 2011: 221,032,587
  - 2012: 53,762,468
  - 2013: 5,948,444
  - 2014: 4,863,401
  - 2015: 263,380,165
PD NSA Other Customer Dollars and Quantity History

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<th>2014</th>
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New RFP Just Issued
Summary

- **Summary**
  - Training projections for the future go down or hold steady
  - A lot of potential new R&D programs in the next few years
  - Non-Standard demand is increasing in the near term
  - More R&D efforts than we’ve seen in the past 30 years

- **Points to Ponder**
  - Strategic positioning of the small caliber base for the long term – How do we keep the multiple source base?
  - How will these R&D programs affect the IB?