

# Product Manager Small Caliber Ammunition

## Small Caliber Ammunition *Enhancing Capabilities*

(2010 NDIA Joint Armaments Conference)



**Distribution Statement A:**  
Approved for Public Release; Distribution is unlimited. Other requests shall be referred to the Office of the Project Manager for Maneuver Ammunition Systems, ATTN: SFAE-AMO-MAS-SETI, Picatinny, NJ 07806-5000

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# Small Caliber Portfolio



## 5.56MM, 7.62MM, 9MM, .50 CAL, SHOTSHELL



5.56mm



M862 SRTA M200 M193 M855 Ball M856 M995 M855A1

7.62mm



M107 M993 M62 M80 Ball M82 M80 Ball Lnkcd M276 M118 Ball

.50 Cal.



M1A1 Blank M33 Ball M17 Tracer M20 M8 M211 M962 M903 M860 Tracer M858 Ball

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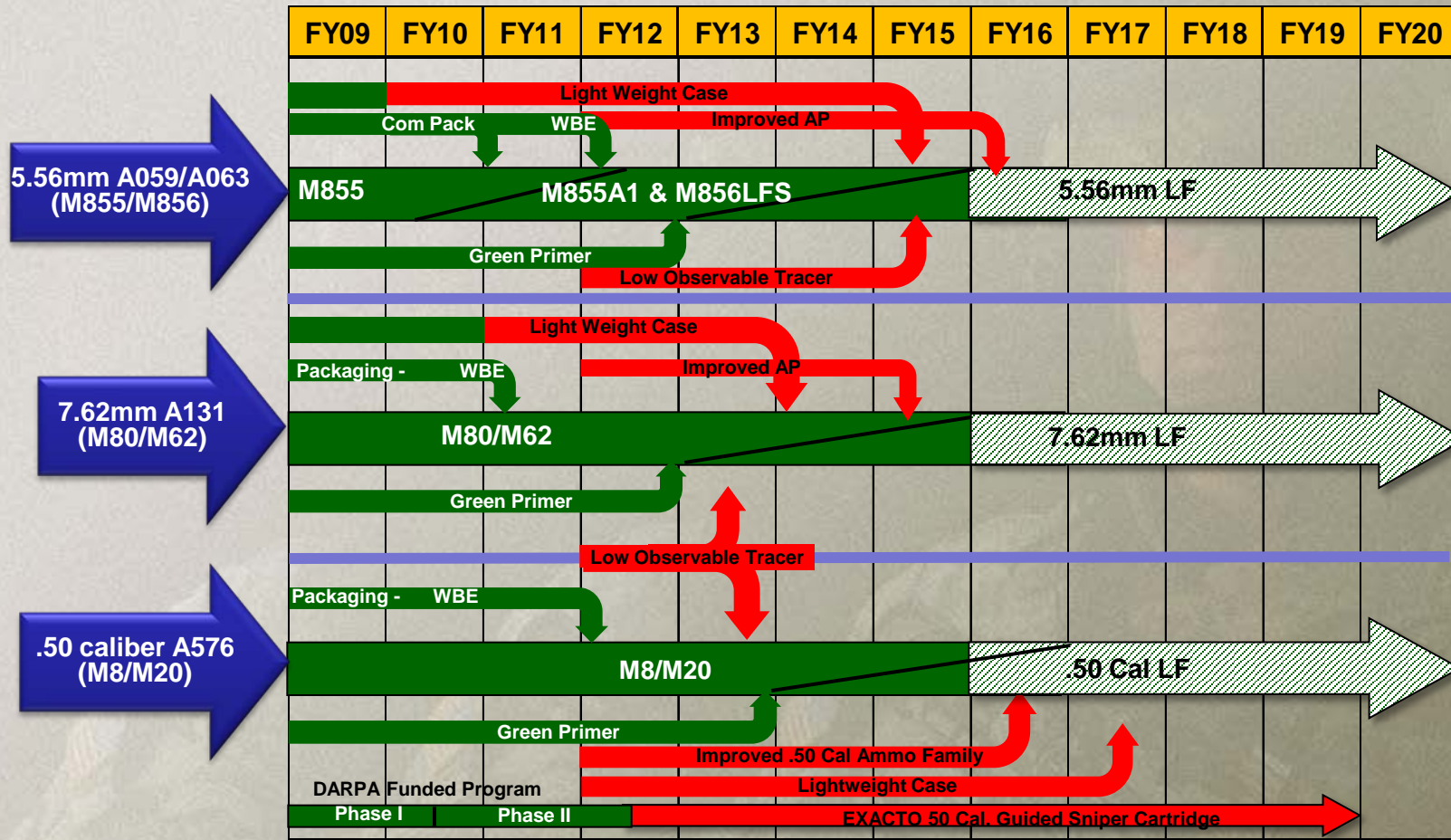
# Agenda



- **Small Caliber Roadmap**
  
- **5.56mm**
  - **M855A1 Enhanced Performance Round (EPR)**
    - **History**
    - **Performance**
    - **Status**
  
  - **M856 Lead Free Slug (Tracer)**
  
- **7.62mm**
  - **M80 Lead Free**



# Small Caliber Ammunition Roadmap



**Propellant Efforts Ongoing**  
 (Flash Reduction, Velocity Improvements, Temperature Sensitivity)

Projected
Funded
Unfunded

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# History of the Lead Free Program



## ■ Why Green?

- Montreal Protocols, Executive Order (1993), EPA 17 List, AEC Study
- Some training ranges becoming lead restricted
- Army's policy on environmental stewardship
- Expected tightening of future environmental restrictions
- Public awareness of environmental concerns
- Cost of removing hazardous materials from installations

## ■ Greening Efforts

- 5.56mm ball and tracer
- 7.62mm ball and tracer
- Green Primer across calibers

**Resulted in the M855A1 Enhanced Performance Round**



# M855A1 EPR Benefits



- **Environmental Impact**
  - Lead free projectile
  - Eliminates ~ 2,000 tons of lead from production
  - Allows use of training ranges with restrictions
  - Removes lead hazard from mfg environment
  
- **Performance Benefits**
  - Improves hard target performance
  - Provides consistent effects against soft targets
  - No weight increase, improved propellant, reduced flash
  - Trajectory Match—no Soldier training transfer difference
  - Extremely effective against a wide variety of target sets (a true, general purpose round)



M855A1



# M855A1 Hard Target Performance



Results are for M4

**Battle Barrier  
Surrogate (3/8" steel)**



**Concrete Masonry  
Unit**



Results are for M16

**Battle Barrier  
Surrogate (3/8" steel)**



**Concrete Masonry  
Unit**



**M855A1 has Improved Hard Target Performance**



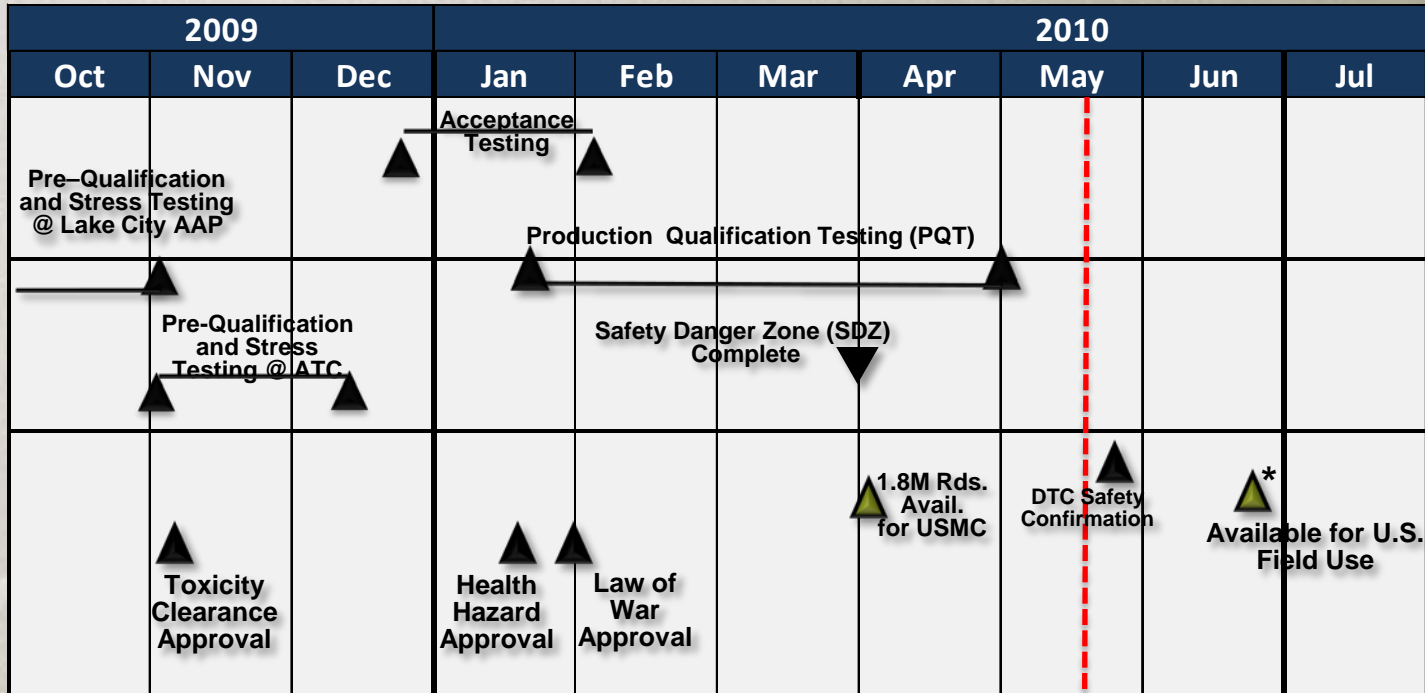
# M855A1 Path to Fielding



**First Article Test**

**Production Testing**

**Ammo Release**



\* Airlift dependent

**Available for Use in Theater in June 2010**





# M856A1 Lead Free Slug (M856 LFS, Tracer)



## ■ Goal

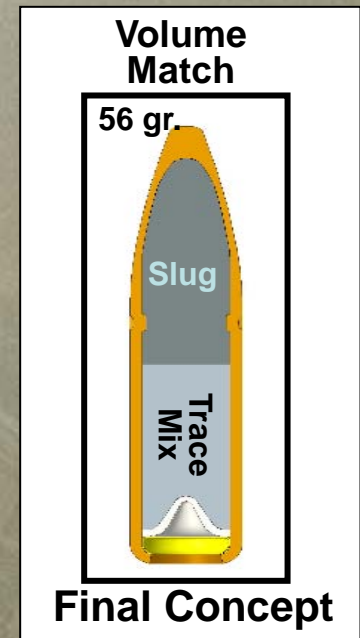
- Implement green technology in M856 Tracer
- Ballistic match to M855A1
- Improve trace to range consistency compared to current M856

## ■ Environmental impact

- Allows integration of M855A1 for M249 and rifle systems to create complete “lead free bullets”
- Eliminates an additional 500 metric tons of lead from production/environment yearly

## ■ Status

- Down-selected M856LFS configuration utilizing M855A1 common components
- Successfully demonstrated ability to meet:
  - Trajectory match with M855A1, M855, & M995
  - Trace requirements
- Design Verification Testing is in process
- Production qualification testing 1QFY11
- Full rate production 4QFY11





# M80A1 Lead Free (M80 LF)



- **Goal - Environmentally friendly cartridge with same or better performance than current M80 cartridge**
- **Environmental impact**
  - Green M80 – 2nd highest consumer of lead at LCAAP
  - Eliminates an additional 1,500 metric tons of lead from production / environment yearly
- **Status**
  - Completed facility upgrades at LCAAP for performance testing
  - Tested 18 concept bullets
  - All concepts can be produced with existing LCAAP equipment
  - Working closely with PM Soldier Weapons to ensure weapon system performance/functionality
  - Production Qualification Testing 2QFY12
  - Full Rate Production 4QFY12
  - Green Primer
    - Cost drivers identified
    - Process mapping, human factors study, automation analysis underway
    - Primer mix eval 1QFY11, Down-select 2QFY11, ECP 3QFY12





# Take Aways



- **M855A1 Enhanced Performance Round (EPR)**
  - Environmentally friendly cartridge with improved performance
  - A true general purpose round optimized to a wide array of targets
  - Significantly improved hard target performance
  - Provides consistent performance against soft targets
  - Uses a lead free projectile (unlike M855)
    - Eliminates ~ 2,000 Tons of Lead from Production/Environment Yearly
    - Allows Use of Training Ranges with Lead Restrictions
  - Planned to replace M855 for the Army
  - Fielding Planned for June 2010

**Continuing to Provide Improved Capabilities for our Warfighters!**