

Project Manager Maneuver Ammunition Systems

**“Meeting the Needs of our Joint
Ground Forces”**



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Office of the Project Manager for Maneuver
Ammunition Systems
ATTN: SFAE-AMO-MAS, Picatinny, NJ 07806-5000



**COL Mark Rider
LTC Eric Fletcher
MAJ Dave LaFontaine**





Project Manager Maneuver Ammunition Systems (MAS)-Direct Fire



PM MAS

**PM
Large Caliber**

**PM
Small & Medium
Caliber**

**PM
Medium Cannon
Caliber**



MISSION: PM MAS Provides Direct Fire Combat And Training Ammunition Capabilities To All Warfighters (Army, Navy, Air Force, Marines)






PM MAS

FY07 Procurement Quantities

(What we are Ordering)



Small Caliber (1367.1M) 		2007
	5.56MM	937.5M
	7.62MM	311.2M
	.50 Cal	72.7M
	9MM	37.0M
	MISCELLANEOUS	5.7M
Medium and Medium Cannon Caliber (27.5M) 	20MM	4.6M
	25MM	2.2M
	30MM	5.9M
	40MM	14.8M
Large Caliber (207K) 	105MM	.012M
	120MM TRAINING	.178M
	120MM TACTICAL	.017M

NOTE: All Services FY07 and Projected Supplemental

\$1.4B for FY07



Priority Road Map- Overall PM MAS Primary Efforts



1

Ammunition Production

- Continued Emphasis on Quality & Quantity
- Full Production Ramp Up / Management of New Systems Contractors (Small Cal. & 40mm)

2

Mid Range Munition (MRM)

- Position for MRM MS-B and Contract Award

3

Improve Direct Fire Industrial Base

- Lake City Contract
- Modernization of Lake City
- Alternate Sources
- Right Size Capacities

4

Implement Lethality and Green Ammo Improvements

- Know the Science
- Use M&S
- Improve Ammo Capabilities

5

Position for the Future

- AMP / AKE
- 30mm FCS
- BRAC Mitigation



Golden Age of Ammunition



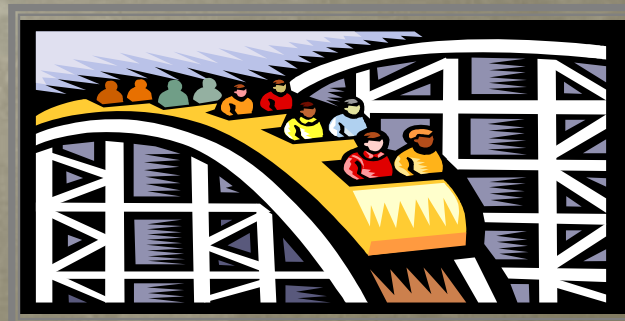
- **In All Direct Fire Ammunition Families; Delivering at Highest Levels Since the Vietnam War**
- **For Last Four Years, Direct Fire Ammunition Funding has Been a Senior Leader Priority**
- **Industry and Your Personal Efforts Have Made it Possible...**



Outlook for Direct Fire Ammunition: Challenges Ahead, but Opportunities Exist



- **Outlook for Future Years Has Dramatic Fiscal Challenges...**
- **Strategic Situation**
 - **Requirements:** Have Stabilized and In Many Cases Decreased
 - **Production:** Industry Has Stepped Up to Meet Warfighters Demand...Greater Product Inflow
 - **Expenditures:** Training Usage in Some Cases Decreased; War Expenditures Down From 2003 Levels
 - **Inventory:** Still Low, But Increasing Daily...
- **Opportunities Do and Will Exist...**





Small and Medium Caliber Ammunition



**LTC Eric Fletcher
Product Manager
Small and Medium Caliber
5.56mm, 7.62mm, 9mm, .50 Cal, 40mm**



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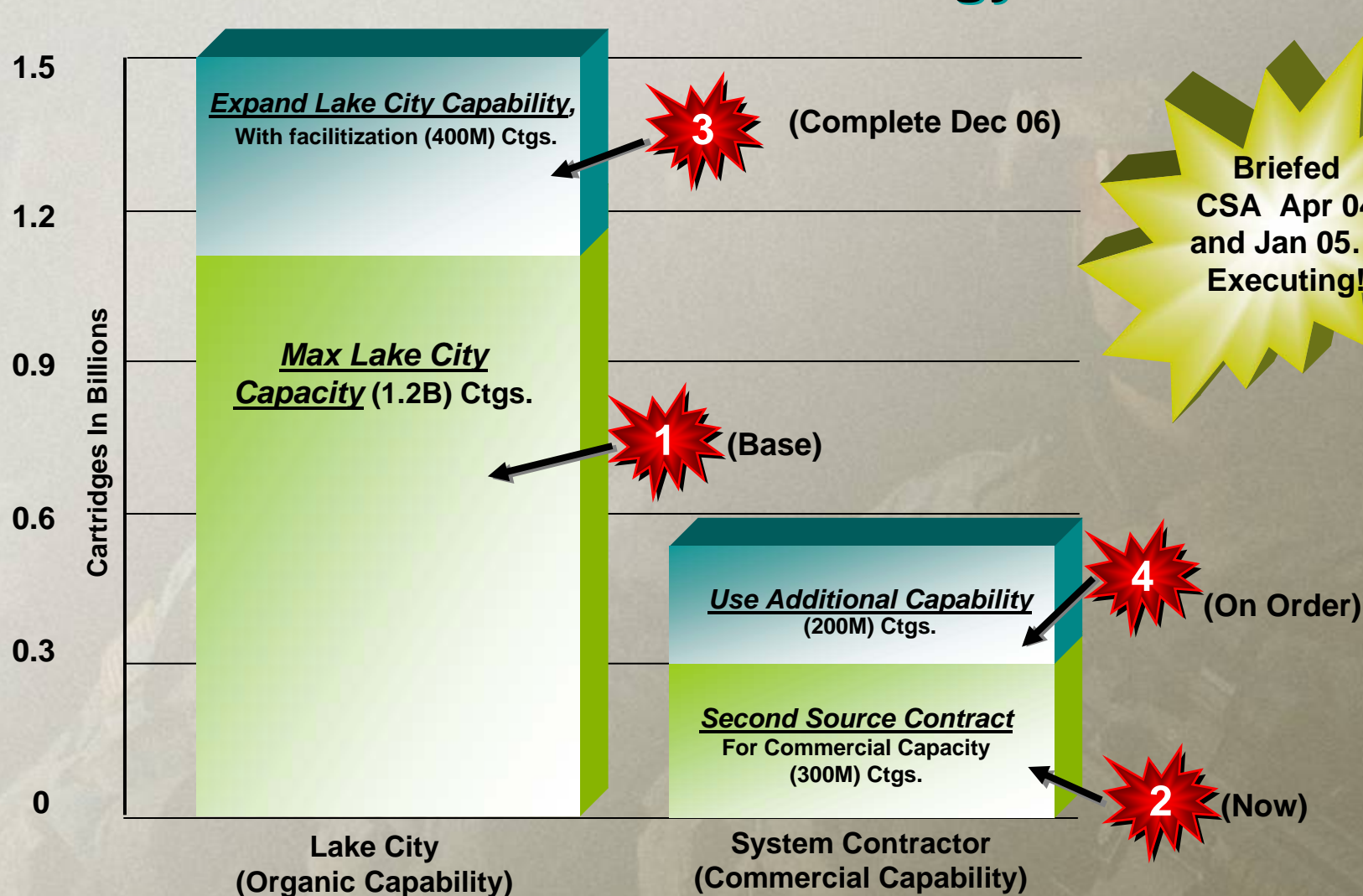
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Small Caliber Acquisition Strategy



1-2-3-4 Strategy



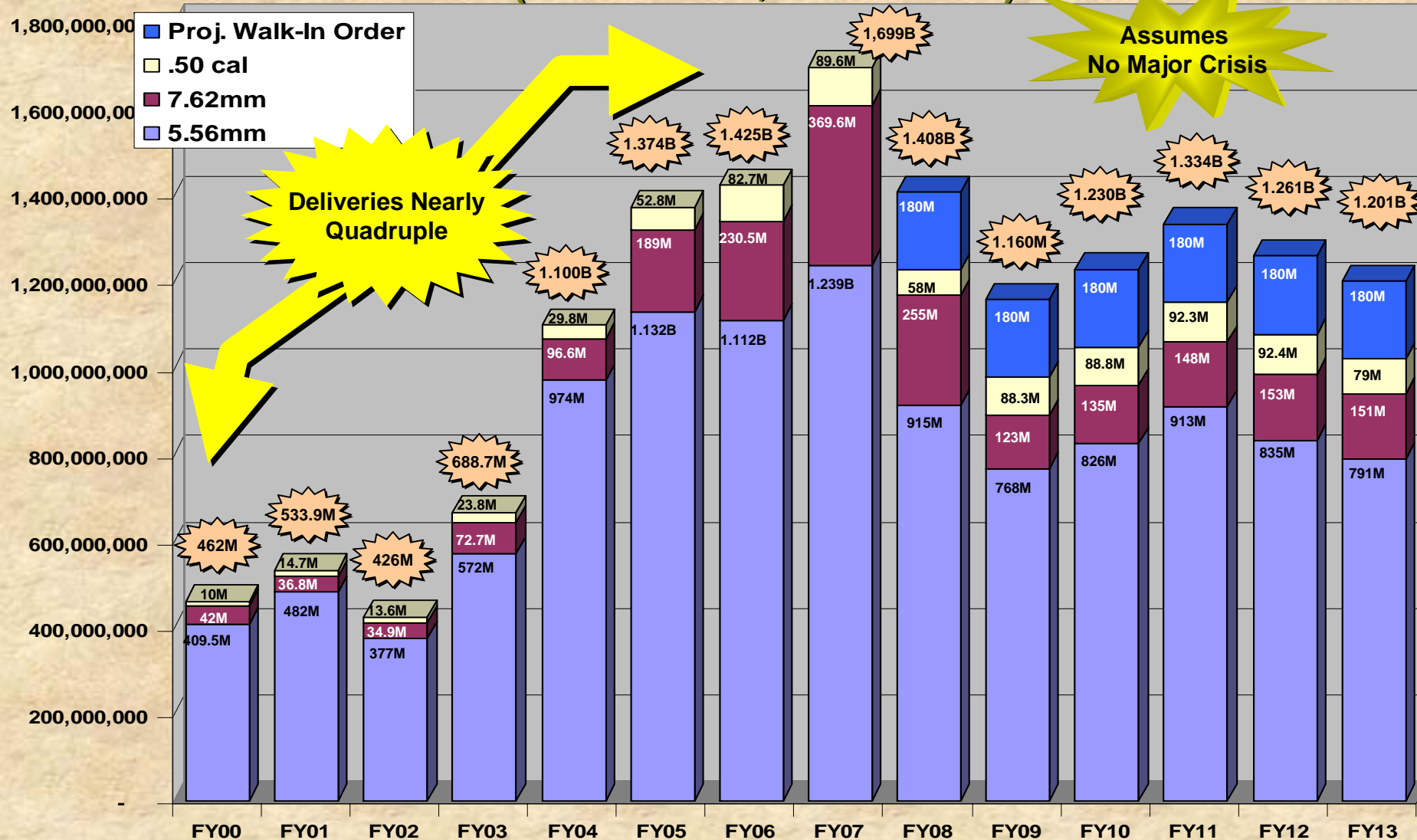
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Small Caliber Ammunition Deliveries

(All Services, All Sources)





40MM Grenade Family of Munitions

Empowering Small Business

Critical Munition for the Warfighter!

Mk 19

Grenade Launcher

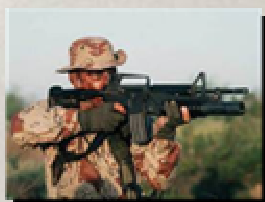
(High Velocity 40MM)



M203

Grenade Launcher

(Low Velocity 40MM)



Examples of High and Low Velocity 40 MM Grenades



M918

M430A1

M781

M433

High

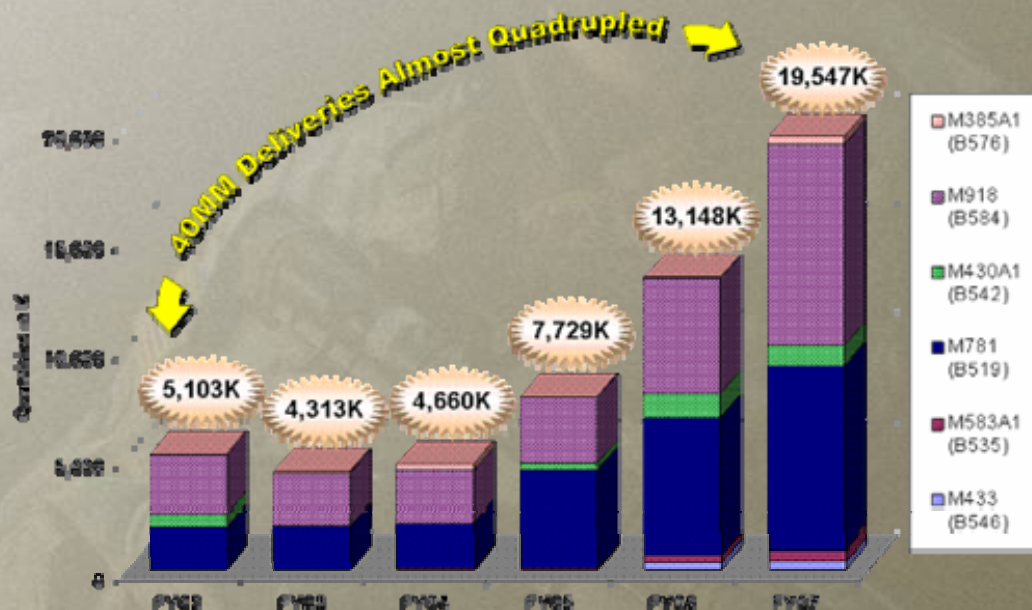
Low

• Small Business Is the 40MM Industrial Base

- Pre-APR 05, 40MM Contractors Not Empowered – Made Components Not Products (Over Two Dozen Contracts!)
- Poor Acquisition Approach (Govt Was the Integrator) – Low Funding Led to Inefficiencies, Quality Issues, Low Production

• APR 05 to Present, PM Maneuver Ammunition Systems (PM MAS) Empowering Small Business:

- Implemented a Systems Approach With Contractors Leading
 - Two Joint Venture Small Business Teams
 - Two 8A Team Members
- Approached Products as a Family Not as Individual Items
- Championed and Secured increased Funding



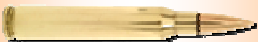

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Future Years Outlook



Small Caliber 	5.56MM	→	-12%
	7.62MM	↓	-64%
	.50 Cal	↗	+25%
	9MM	↑	+100%
	40MM	↗	+22%

(Percentages based on POM
yrs 1 & 2 versus FY 06 & 07)



Industry Opportunities



Technologies the Army is Looking to Obtain

- **Improved Lethality**
 - 5.56mm thru 40mm
- **Cost Avoidance**
 - Packaging, Materials, Reduced Weight
- **Advanced Fuzing**
 - Self Destruct, Increased Reliability, Cheaper
- **Reduced Signature**
 - Reduced Flash, Smoke, Non-pyrotechnic Tracer
- **Improved Accuracy**
- **High Energy Propellants**
 - Higher Velocity, IM Attributes, Temperature Insensitive



Small and Medium Caliber Ammunition



MAJ David R. LaFontaine
Assistant Product Manager
Small and Medium Caliber
5.56mm, 7.62mm, 9mm, .50 Cal, 40mm



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Responding to the Field



- **2002: Performance vs. Unarmored Targets in Close Quarters**
- **2006: Performance vs. Intermediate Barriers—Windshields, Car Doors, Building Materials**



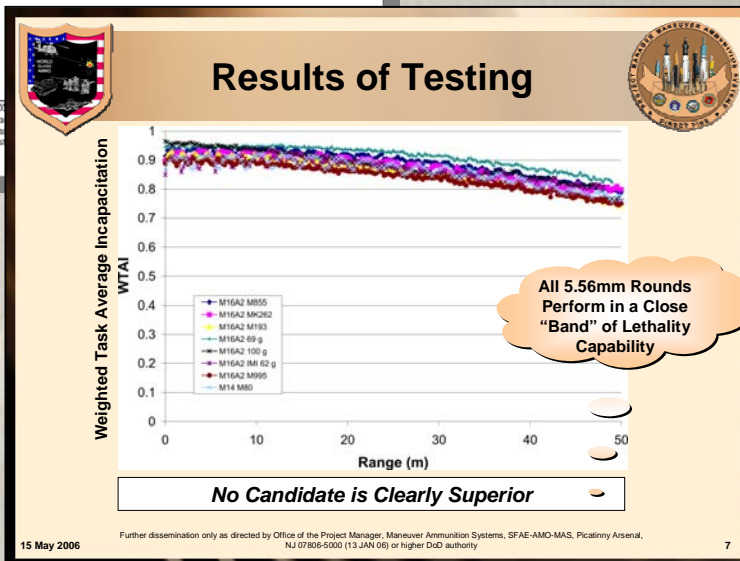
Report on CQB Performance



LIMITED DISTRIBUTION

JOINT SERVICES WOUND BALLISTICS IPT
Engineering Study ES-1A-9001
FINAL REPORT
May 23, 2006

- There Is No Significant Difference Between M855 and Commercially Available 5.56mm Rounds
- Shot Placement Far Outweighs the Minor Differences Among Rounds



- Weapon-Bullet Interaction Varies Greatly and Affects CQB Performance
 - Outweighs Differences in Ammunition Type
 - Causes Variation in Soldier Experience

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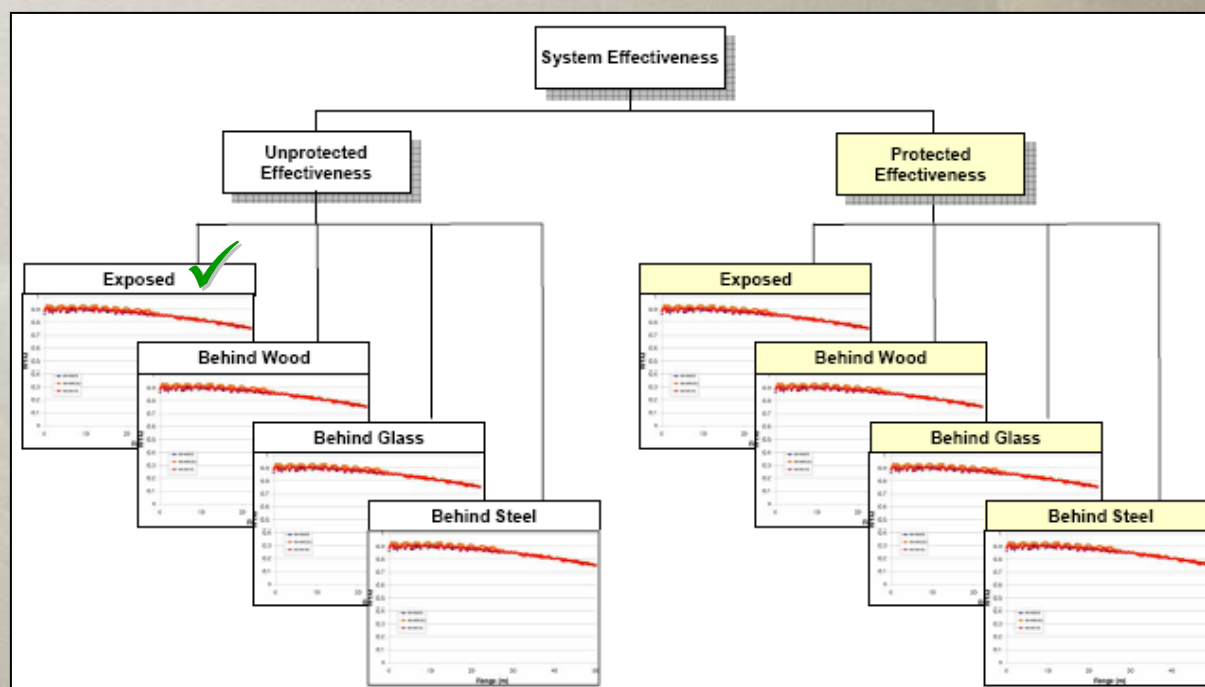
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Small Caliber Effectiveness Assessment Program

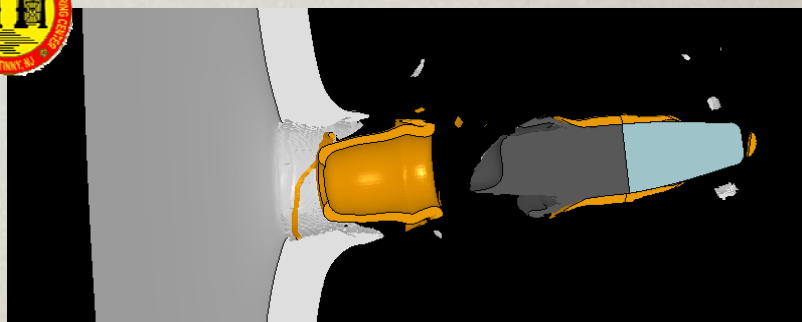


- **Develop Effectiveness Baselines For Small Caliber Ammo That Includes:**
 - Full Range Of Engagements Beyond CQB (I.E. 50-600m)
 - Battlefield Realism (Posture, Barriers, Armor Protection)
- **Prioritization Of Effort:**
 - 5.56mm Green, M855, M995, Mk262, And M80
 - Ideas For Materiel Approaches To Support DA Small Arms Strategy Development





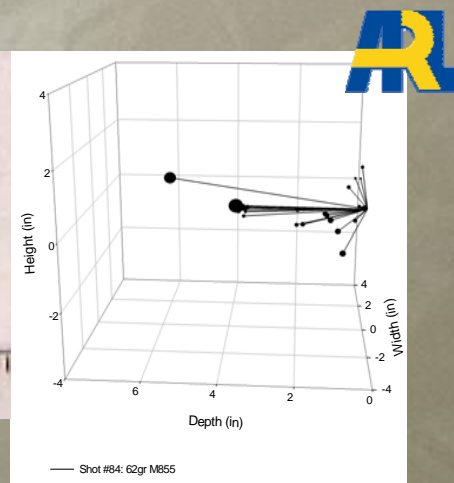
Performance Behind Intermediate Barriers: Going Beyond V50



Shown here: M855 @ 2000 fps, 1 deg AA, against 1/8" NATO plate. Courtesy of Mark Minisi, US Army ARDEC.

Observing characteristics such as: Material Deformation, Material Failure, Target Plugging, Projectile Orientation, to determine EFFECTS behind hard targets, not just penetration

Shown here: M855 @ 3040 fps against 3/8" NATO plate. Courtesy of Tyler Ehlers, Lee Magness, US Army Research Laboratory





Green Ammo Phase II



- **Program Objectives:**
 - M855 Replacement Program
 - Introduction of Environmentally Compliant Materials
 - Minimize Cost Impact
 - Assess Terminal Ballistics (as a Minimum Meet M855 Performance)
- **Execution:**
 - Joint Program Between ATK, ARL, ARDEC, Industry Partners, and User Community
 - Utilizes Latest Evaluation Techniques
- **Phase II Nearing Completion (May 07) With Down-Selection Pending**
 - 14 Designs Tested
 - Erosion / Reliability to be Completed Summer 07
- **Path Forward - Phase III**
 - Will Focus on Optimization, LRIP, Qualification and Release
 - Allows for Design Configuration to Mature Prior to Full Scale Production
 - Lessons Learned Being Applied to M856 Tracer and M80 Ball



Near/Mid Term Focus



- **Production**
 - Remains Top Priority
 - Requirements Diminished But Still High
- **LCAAP Modernization**
 - Strategic Asset – Still Produces Majority of Small Arms Ammo
- **40mm High Velocity Training**
 - Mixed Belt – M918/M385
 - MK281
- **40mm Combat Round Improvements**
 - M433, M430A1
 - Focuses on Producibility Enhancements and Cost Savings
- **Green Ammo**
 - Could Replace Majority of Current Combat Needs



Panel Discussion



Questions?