



# 2002 International Infantry and Joint Services Small Arms Symposium and Exhibition

## Mortar Overview



**LTC Larry Hollingsworth**  
**PM Mortars**

*PEO Ammunition*

# Task and Purpose



Provide **Government, Industry**, and **International Participants** an Azimuth Check to Ensure **Synchronization of Operational Requirements and Technologies** Between Industry, User, and Materiel Developer

# Bottom Line



**We are a Critical Lethality Provider to the Army's Transformation METL**



**Initial BCT**

**Interim**

**First Interim 2003 BCT**



**First Unit Equipped Objective**



# A Little Perspective



*The More things Change,  
The More They Remain the Same...*

- 12 - 15KM
- 1 Meter CEP
- Infrared Illumination
- DPI CM
- Precision Munitions
- Digital Ballistic Computation
  
- Hip Pocket Fire Support
- Fight the Close Fight
- Shape the Area of Operation
- Suppress
- Neutralize
- Destroy



*“K Comp’ny artillery commander speakin’.”*



# Mission

Serve as **Life Cycle Manager** for development, acquisition, production, fielding, sustainment, and product improvement of the full range of **mortar platforms, fire control systems, and ammunition** integrated across **Legacy, Interim and Objective Forces**.

*...Product Manager, Mortar Systems Charter June 2001*

# Vision

Develop Systems that serve as the Maneuver Commander's Responsive, Lethal and Accurate Indirect Fire Weapon of Choice for Engaging Targets in his Area of Operation.

# How We Support Army Transformation



## LEGACY FORCE

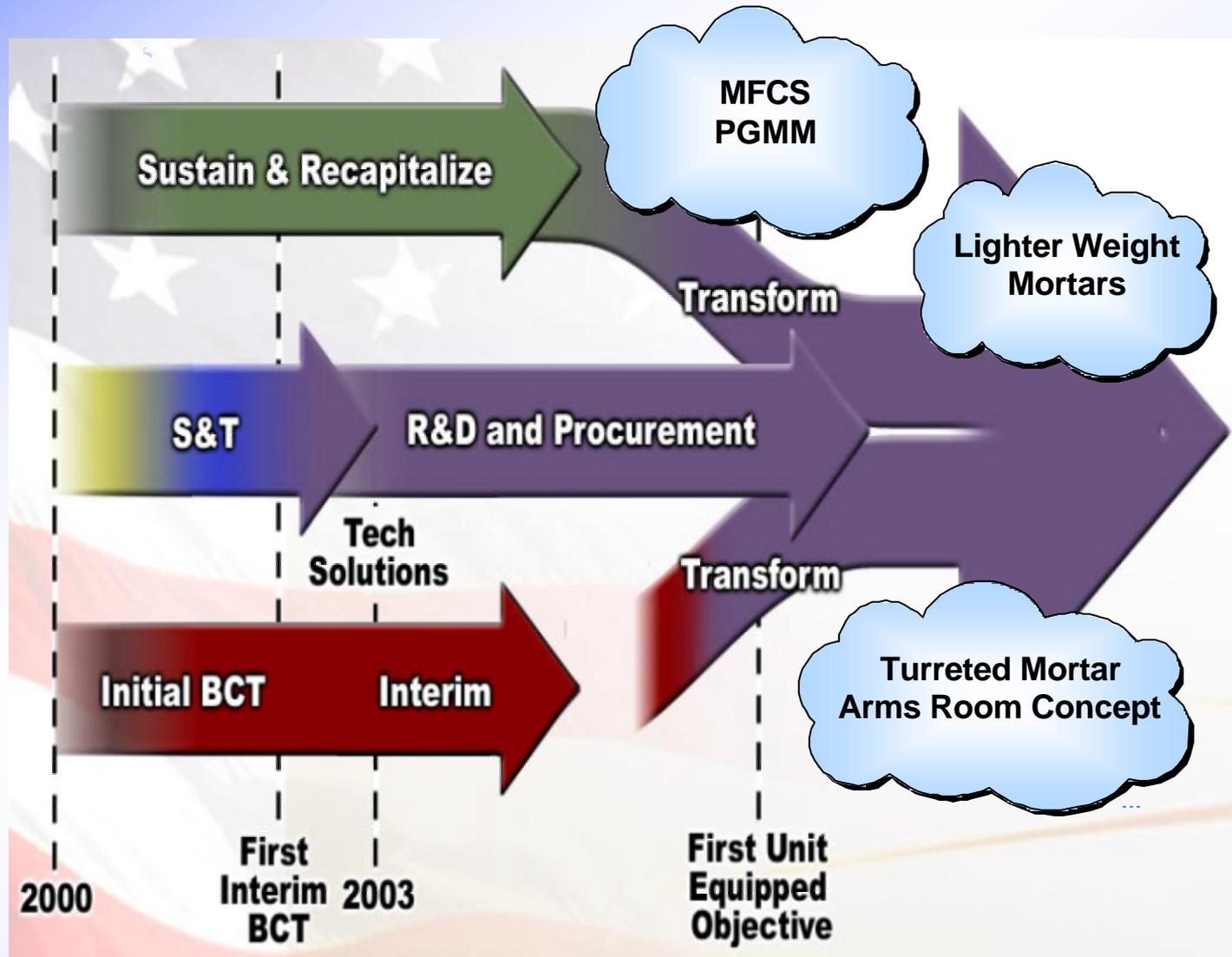
- Fire Control
- Battalion Mortar System
- Mortar Fuze Development
- Precision Guided Mortar Munition
- 60/81/120mm Ammo Family

## OBJECTIVE FORCE

- Fire Control
- Precision Guided Mortar Munition
- 60/81/120mm Ammo Family
- Turreted Mortar

## INTERIM FORCE

- Fire Control
- Battalion Mortar System
- Mortar Fuze Development
- 60/81/120mm Ammo Family
- Precision Guided Mortar Munition
- Support to PM BCT



# PEO Ammo Organization



ASAALT DASCs

☆☆  
PEO  
Ammunition  
COL(P) Paul Izzo

Director – Business  
Director – Programs  
Director – Industrial Base

Deputy for  
Research,  
Development &  
Production

General Manager  
Ammunition

Close Combat  
Systems

PM  
Combat Ammunition  
Systems

Maneuver Ammo  
System Direct Fire

Joint Services

Organic Base  
Operations  
(Ammo Plants)

Demo, Mines,  
MICLIC & Grenades

PM Mortars

Large Caliber

DEMIL

Excalibur

Medium & Small  
Caliber

# PM CAS Organization



**Program Manager**  
**COL Nathaniel Sledge**  
  
**DPM**  
**Patrick Serao**

**Senior Engineer and  
Technical Manager**  
**William DeMassi**

**International  
Programs and  
Life Cycle  
Management**  
**George Batchis**

**155mm Recap  
Management**  
**Steve Hromnak**

**Business  
Management**  
**Joseph Gormley**

**PM Excalibur**  
**LTC Jeff Wilson**

**PM Mortars**  
**LTC Larry Hollingsworth**

**Production  
Engineering and  
Product  
Assurance**  
**Armando Herrera**

# PM Mortars Organization



**Product Manager**  
LTC Larry Hollingsworth  
(973) 724-7073  
Hollings@pica.army.mil

**Deputy Product Manager**  
Patti Felth GS-15  
(973) 724-6059  
Felth@pica.army.mil

## **Business Management**

Cynthia Alesandro GS-14  
(973) 724-4209  
Calesa@pica.army.mil

## **Ammunition**

John Slivovsky GS-14  
(973) 724-3665  
Slivovsk@pica.army.mil

## **Weapons & Fire Control**

Ed Lewis GS-14  
(973) 724-4995  
Elewis@pica.army.mil

## **Advanced Systems**

Pete Burke GS-14  
(973) 724-5802  
Pburke@pica.army.mil

# Who We Are



120MM BCT

WTCV  
2%

RDTE  
13%

OPA-2  
15%

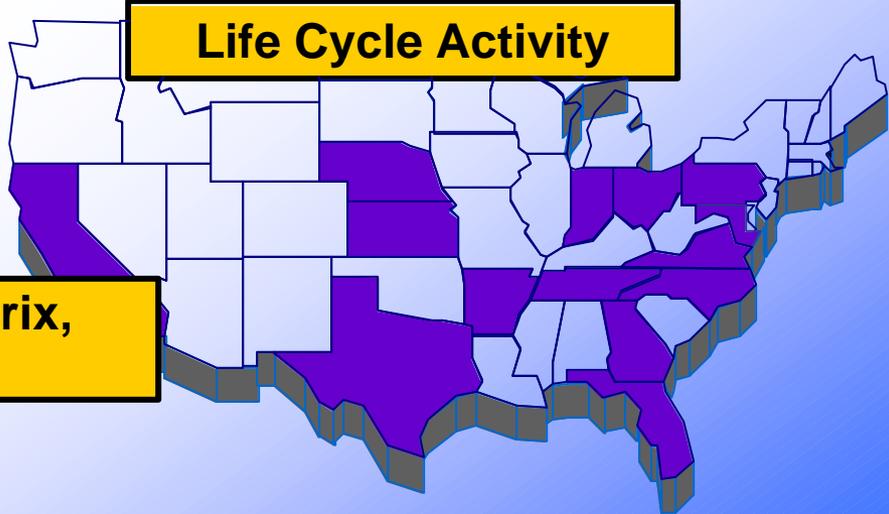
PAA  
70%



Fire Control

Munitions

Life Cycle Activity



Personnel: 30 Core, 6 Matrix,  
10 Contract Support

49 Open Contracts

21 BLIN

POM 02-07 \$ 1.17B



Germany



Switzerland

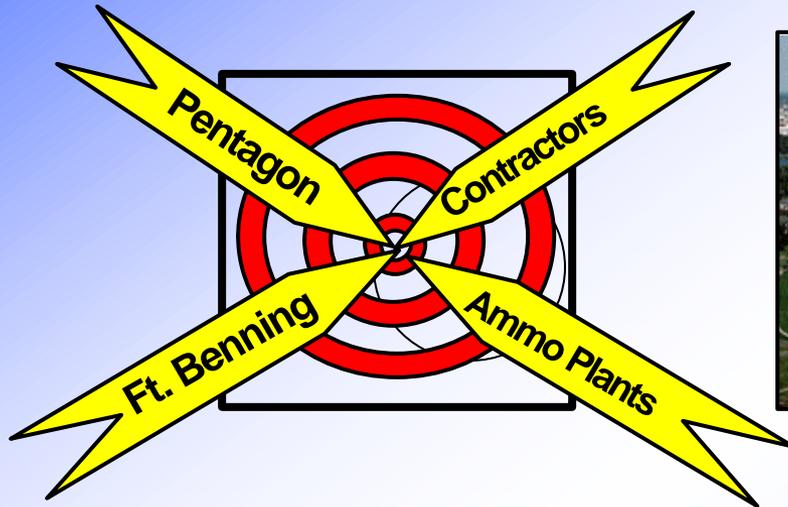


Canada

# How We Operate



***We go “EYEBALL TO EYEBALL” with the Customer, the Contractor and the Building***

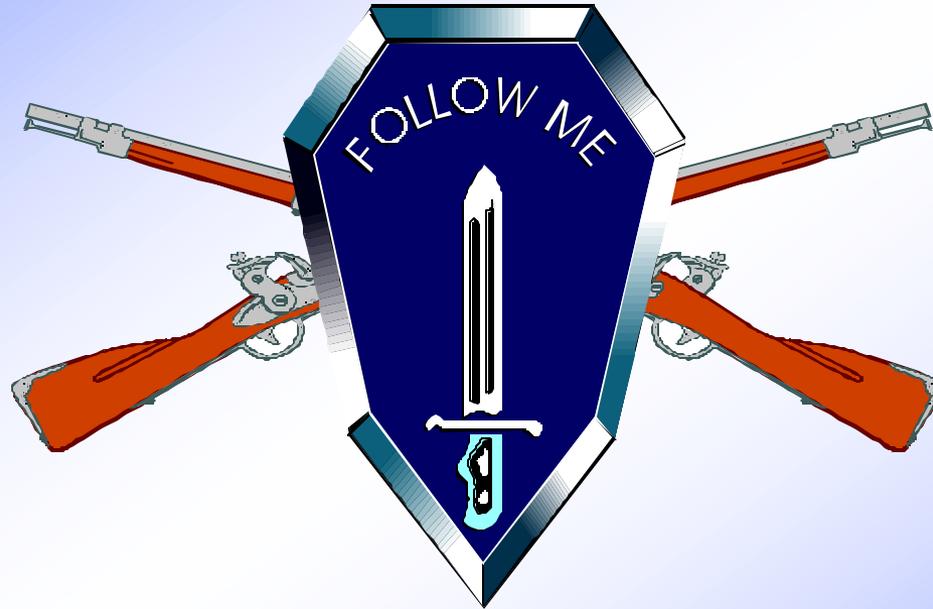


- ❖ Work closely with our ARDEC
- ❖ Structured IPTs (over 30 IPTs)
- ❖ Quarterly Reviews (ALL IPT Members Present)
- ❖ Monthly Procurement Reviews (Planners and Executors)

- ❖ Manage Product Life Cycles
- ❖ Plan / manage Product Improvements
- ❖ We Integrate Platforms /HW / SW / Ammo

**Use PM Mortars as  
your Entry Point**

# Our Customers



United States Army Infantry Center  
Directorate of Combat Development  
Firepower Division



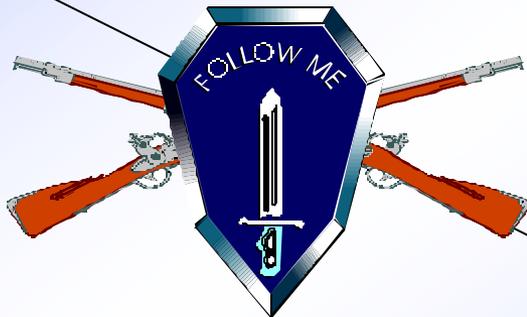
Foreign Military Sales

# USAIC Priorities



	SYSTEM/PROGRAM		SYSTEM/PROGRAM
1	(LW) Land Warrior	26	Small Arms Improvement Program
2	Line-of-Sight Anti-Tank (LOSAT)	27	Infrared Aiming Light (PEQ-2)
3	TOW Fire & Forget	28	M 4/M 16 Modular Weapon System (MWS)
4	Javelin	29	120mm DPICM Munition
5	Compact Kinetic Energy Missile (CKEM)	30	Shortstop
6	Improved Target Acquisition System (ITAS)	31	Multi-function Laser (LAM)
7	Modular Body Armor/Interceptor Body Armor	32	Tactical Unmanned Vehicle - Medium (TUV-M)
8	Objective Individual Combat Weapon (OICW)	33	M 2 Bradley Recapitalization
9	Future Combat System (FCS)	34	M-240B Machine Gun Improvements
10	Thermal Weapon System (TWS)	35	Bradley Reactive Armor Tiles
11	Interim Armored Vehicle (IAV) - ICV, ATGM, MG	36	Long Range Sniper Rifle
12	Joint Common Missile (JCM)	37	Multi-Purpose Individual Weapon
13	Night Vision Goggles (PVS-7/14/ENVG)	38	Lightweight Video Recorder
14	Precision Guided Mortar Munition	39	M-4 Carbine
15	Combat Identification for the Dismounted Soldier	40	MK-19 Grenade Launcher
16	Objective Crew Served Weapon (OCSW)	41	M-107 Long Range Sniper Rifle
17	M2A3 Bradley	42	Bradley Embedded Terminal
18	Mortar Fire Control System (MFCS) XM95	43	Manportable Robotic Device
19	Integrated Army Active Protection System	44	Enhanced Target Location
20	Modular Load System (MLS) / (MOLLE)	45	Lightweight Utility Module
21	Enroute Mission Planning Rehearsal System	46	Non-lethal Equipment
22	Mortar Ballistic Computer XM31	47	Platoon Early Warning System
23	Rifle Launched Entry Munition (RLEM)	48	M-113A3 FOV Upgrade
24	Light Digital TOC (LD-TOC)	49	HTI 2nd Generation Fuel
25	Mortar IR Illumination Cartridge	50	Driver Vision Enhancer

14	Precision Guided Mortar Munition
18	Mortar Fire Control System (MFCS) XM95
22	Mortar Ballistic Computer XM31
25	Mortar IR Illumination Cartridge
29	120mm DPICM Munition



**BOS: Maneuver  
Precision Engagement**

**PEG: Equipment**

# DCD Firepower Priorities



Mortar Ballistic Computer (Dismounted)

Mortar Fire Control System

Precision Guided Mortar Munition

IR Illumination

120mm DPICM Munition

Arms Room Concept

Lightweight Mortars Working Group

81mm Training Insert for 120mm Mortar

Ammunition

Turreted Mortar

## The Objective Force...



Responsive

Deployable

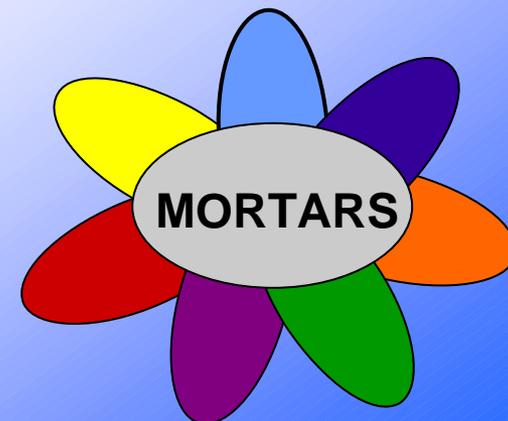
Agile

Versatile

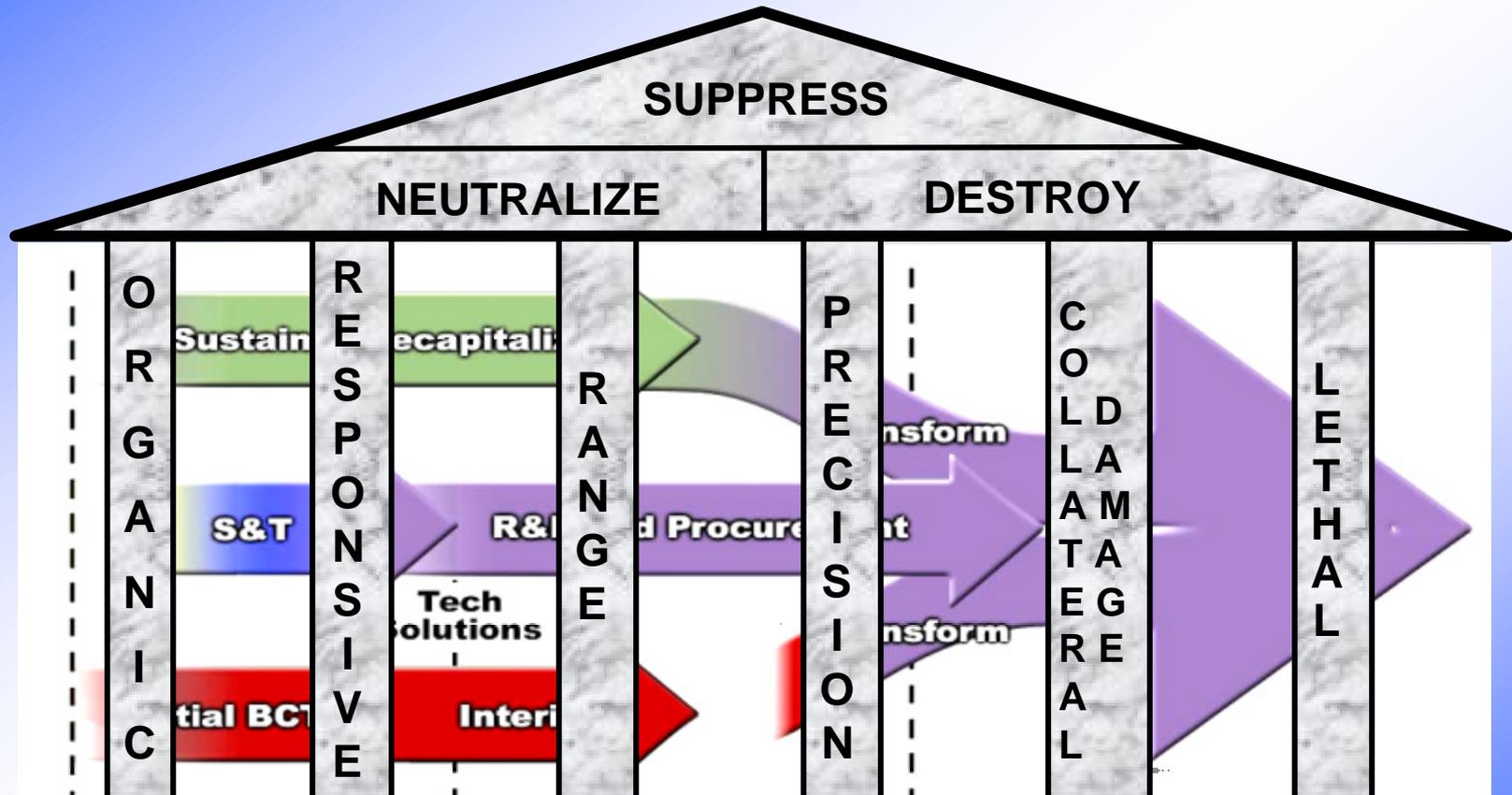
Lethal

Survivable

Sustainable

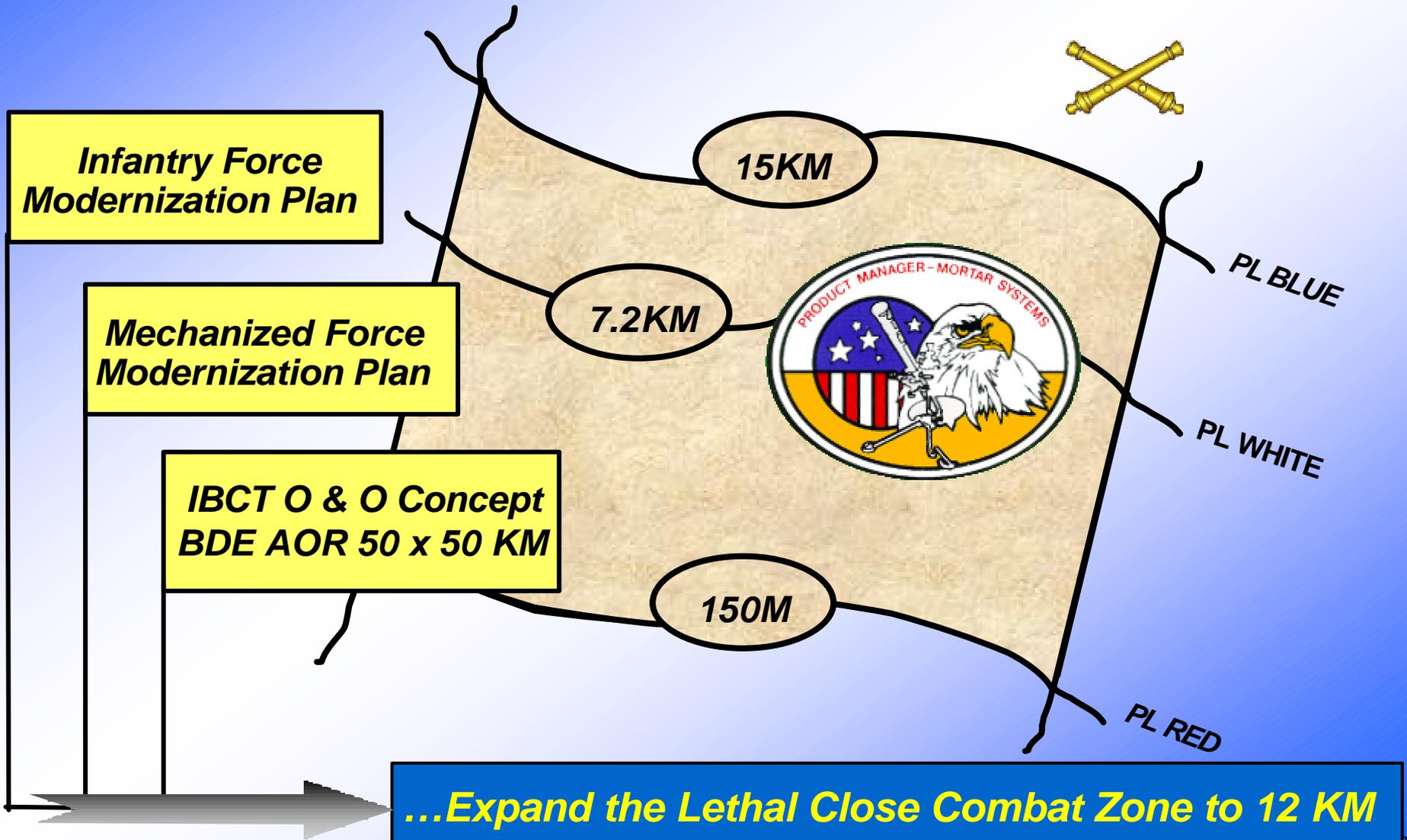


# How We Fit In...



**Unit of Action**  
**Indirect Fire Weapon of Choice**

# Where We Fit In...

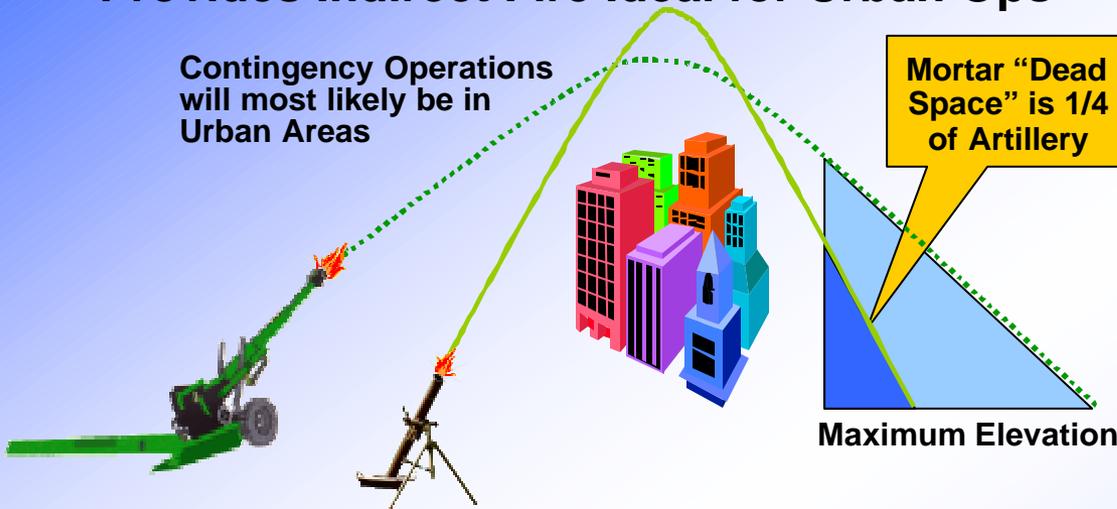


# Why We Fit In...



## Provides Indirect Fire Ideal for Urban Ops

Contingency Operations will most likely be in Urban Areas



## Mortar Advances Reduce Logistics Burden

C-17 Loads Required for Mortar Ammunition

(55 Short Tons/Flight)



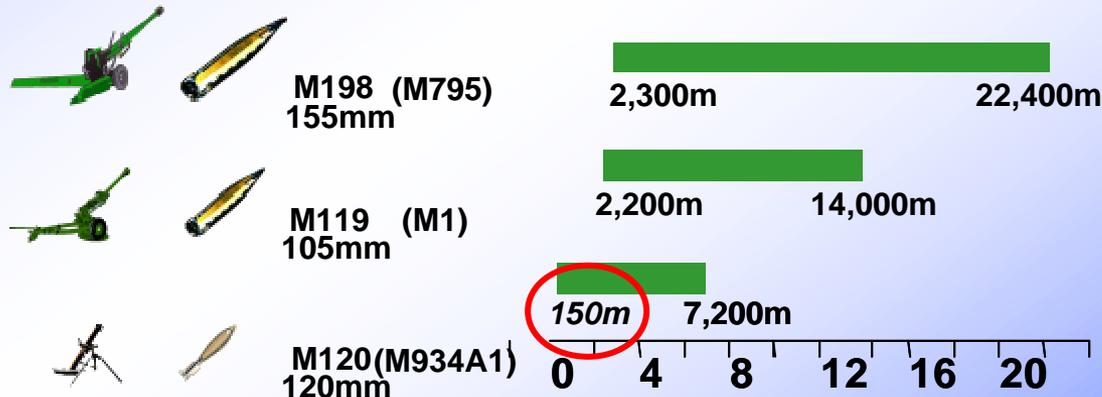
Base Case: 16 C-17s

Vs.



Conventional & PGMM: 3

## Provides Short Minimum Range for Close Fight



# Current Unit Distribution



12 120mm Mortars in  
the Heavy Brigade

12 81mm Mortars  
18 60mm Mortars

4 120mm Mortars  
4 81mm Mortars  
6 60mm Mortars

## Heavy Brigade

Mortar Platoon (1 per Bn)



1 FDC Vehicle

## Light Brigade

Mortar Platoon (1 per Bn)



Rifle Company



1 FDC Vehicle

## Ranger Battalion

Mortar Platoon



1 FDC Vehicle

# BCT Distribution



**36 120mm Mortars  
in the BCT**

**12 81mm Mortars  
in the BCT**

**18 60mm Mortars  
in the BCT**

**Each Battalion  
Mortar Platoon**



**M252 81mm**



**FDC Vehicle  
with 2 M23  
MBCs \***

**12 Mortar Carriers at  
Battalion Level**

**Each Company  
1 Mortar Section**



**M224 60mm**



**Each Vehicle has  
1 M23 MBC\***

**18 Mortar Carriers at  
Company Level**

**RSTA Squadron  
One Squadron  
Per Brigade**



**6 X 120mm**



**Each Vehicle has  
1 M23 MBC\***

**6 Mortar Carriers in  
RSTA Squadron**

**\* Upgrade to MFCS (H) 3<sup>rd</sup> BCT FY04**

# Mortar Fire Control System



## MFCS BCT



FUE Aug 04

## MFCS (H) Heavy



## MFCS (L) Light



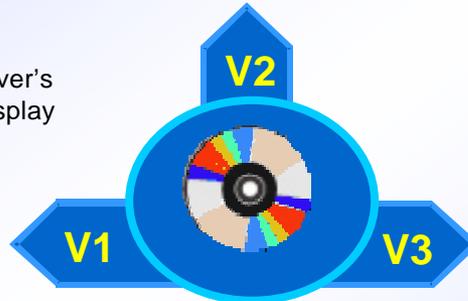
Parallel Path: LW and COTS

Same Functionality as

MFCS (H) (< 25 lbs.)

FUE 3QFY07

MFCS (L) Light Objective solution is complete LW integration



MFCS Software

- Software
- Hardware
- Commanders Interface

MBC FUE Sep 02  
MFCS(H) IOT Sep 02  
MFCS(H) FUE Apr 03

**Improved Capabilities ...**  
*Accuracy*  
*Survivability*  
*Responsiveness*  
*Command & Control*

## MBC Light

FUE Nov 03



MBC Software

Interim System

# Future Systems



## Light Forces Concept

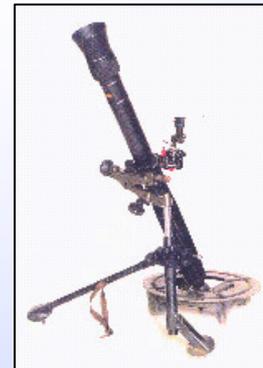
- Add 120mm mortar to Light Divisions at BN level
- Provides BN CDR flexibility through full spectrum of conflict
- Current systems: **827**
- Projected fielded 120mm systems: **1143**



120MM



60MM



81MM

## Future Goals

- Reduce mortar family caliber from 3 to 2
- 30% to 50% reduction in system weight
- Increase system range and lethality
- Maintain Rate of Fire

Implemented  
Light Forces  
Concept



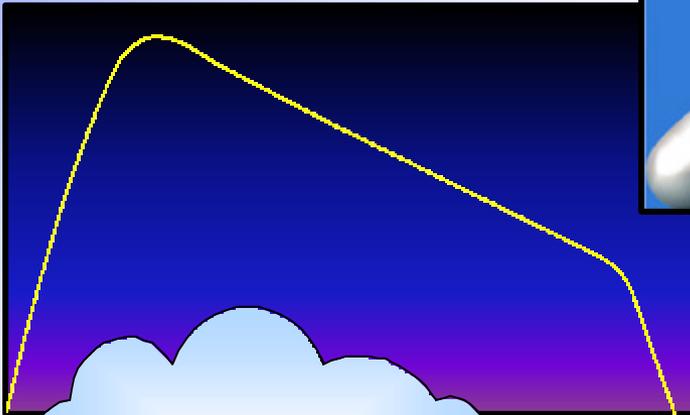
# Precision Guided Mortar Mmunition Key Performance Parameters



**PRECISION**  
1 m CEP



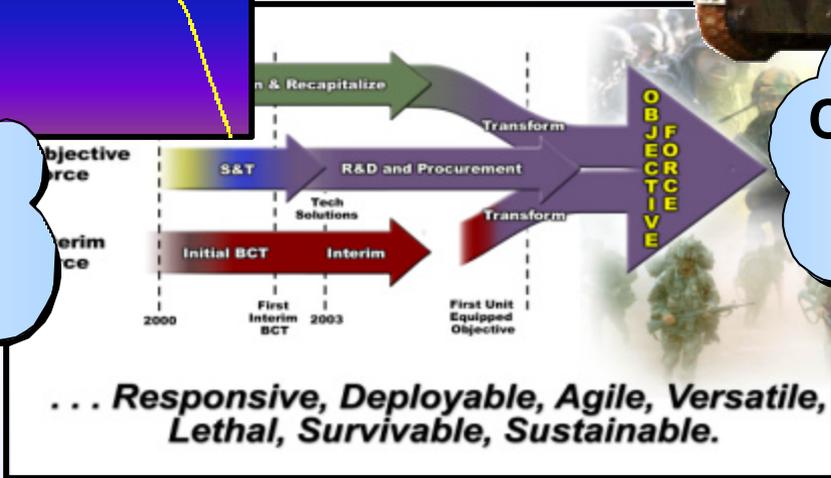
**LETHALITY**  
Incapacitate  
Personnel



**RANGE**  
15 km Desired  
12 km Required



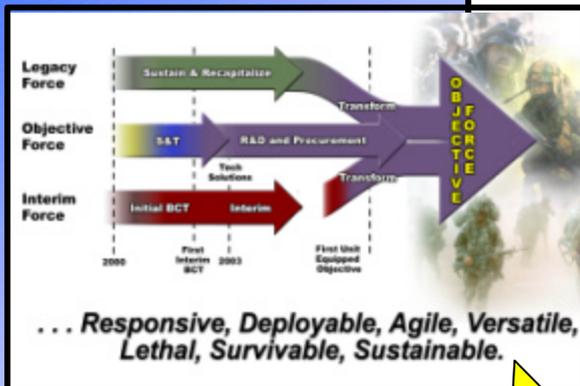
**COMPATIBILITY**  
Existing 120mm  
Mortar System



# PGMM Operations



RGR



Glide

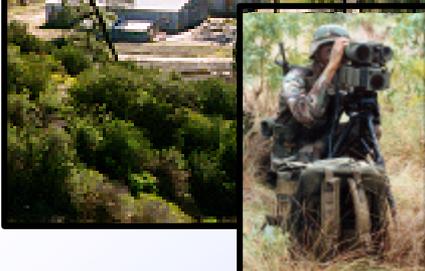
Acquire

Precision  
Range  
Lethality  
Compatibility

Destroy  
Target



Precision  
Engagement  
for IBCT and  
Objective Force



Leverages Existing Fire Support Systems  
Reduces Collateral Damage



Masonry Structures  
Earth and Timber Bunkers  
Light Armor Vehicles

Precision Munitions Increase Warfighter Effectiveness



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