



TACOM

Lethality, Survivability, Mobility and Sustainment for America's Army



**OPMSA
Overview
For the**

**Armaments for the
Army Transformation
Conference**

20 June 2001

**LTC Gil Brown
PM Small Arms**

Tank-automotive & Armaments COMmand
Committed to Excellence

Report Documentation Page

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OUTLINE

- **TACOM Organization**
 - **DSA Structure**
 - **Warren Organizational Changes**
 - **Transformation Support**
- **OPMSA Overview**
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 - **Ammunition**
 - **Future Programs**
 - **OICW**
 - **OCSW**

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TACOM Organization



VISION

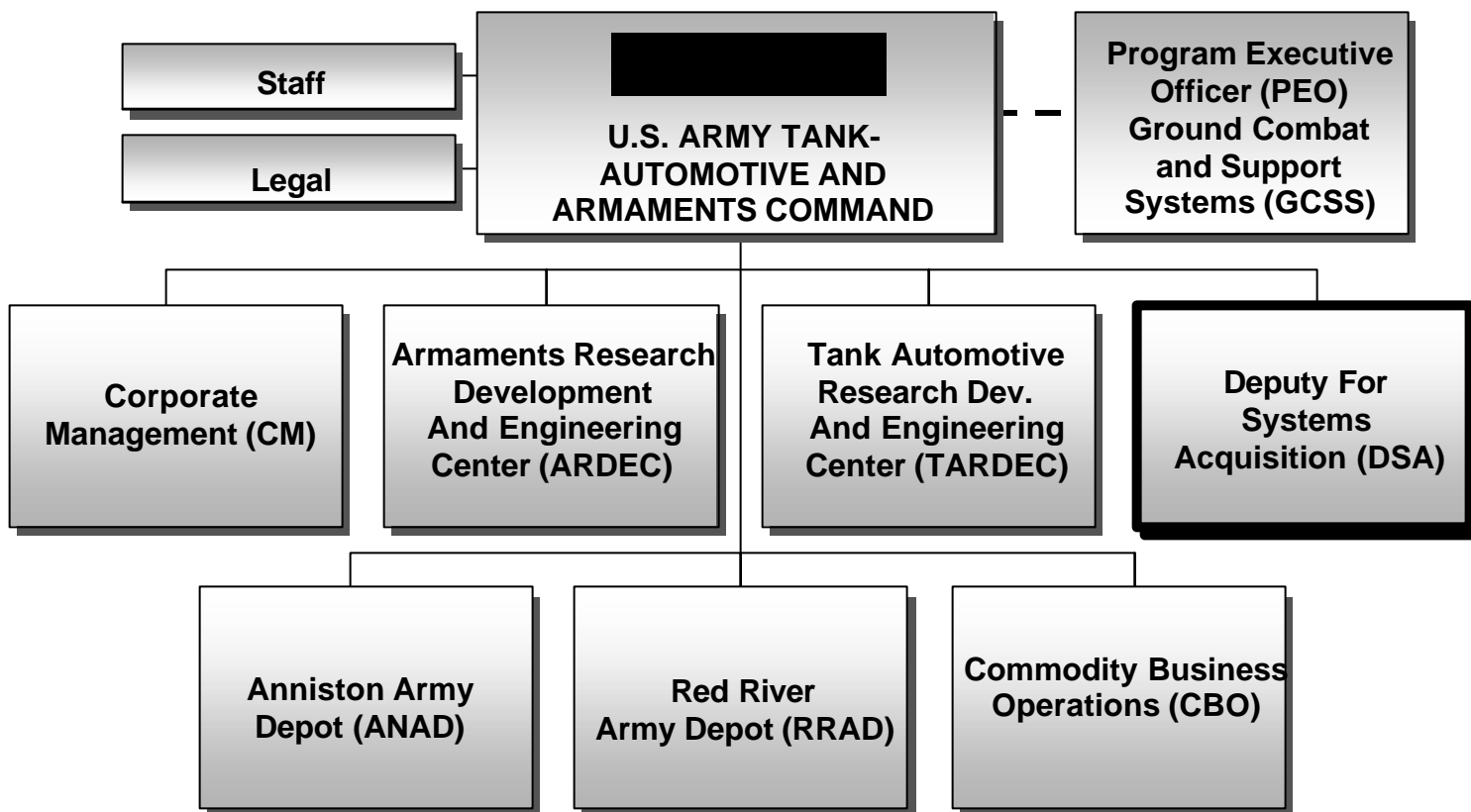
The U.S. Army Tank-automotive Armaments Command

Provides Ground Combat, Automotive, Marine, and Armaments Technologies, and Systems

- Generates, Provides and Sustains, Mobility, Lethality, and Survivability for Soldiers, Other Services and Our Allies

MISSION

Providing our Soldiers With Overwhelming Lethality, Mobility and Survivability for Battlefield Dominance.





Vision
 Leading Acquisition
 Continuously Improving
 Warfighter Focused

Mission
 Develop, Acquire, Produce, Field and Sustain
 Safe, Reliable, Effective and Supportable Warfighting
 Systems

PM Combat Mobility Systems

COL Michael Asada

- ◆ Wolverine
- ◆ Grizzly
- ◆ M9ACE
- ◆ HERCULES
- ◆ M113 FOV
- ◆ AVLB

PM Force Projection

COL Mike Cannon

- ◆ Army Watercraft Systems
- ◆ Petroleum and Water Systems
- ◆ Intratheater Mobility Systems
- ◆ Construction/ Materials Handling Equipment

PM Heavy Tactical Vehicles

Mr. Jim Sutton

- ◆ HEMTT (ESP, LHS)
- ◆ HETS
- ◆ PLS
- ◆ FRS
- ◆ Standard & Improved Ribbon Bridge
- ◆ Tactical Fire Fighting Truck
- ◆ Rapidly Emplaced Bridging System
- ◆ Multi-Role Bridge Systems (MGB, HDSB, CBT)
- ◆ Flatracks, CHU, CROP
- ◆ Engineer Mission Modules

PM Light Armored Vehicles

Col Thomas Lytle (OPCON)

- ◆ LAV 25
- ◆ Anti-Tank
- ◆ Logistics
- ◆ Personnel
- ◆ Recovery
- ◆ Ambulance
- ◆ Engineer
- ◆ Air Defense
- ◆ Command & Control
- ◆ Mortar

PM Light Tactical Vehicles

Ms. Nancy Moulton

- ◆ Armored Security Vehicle (ASV)
- ◆ High Mobility Trailer
- ◆ High Mobility Multi-purpose Wheeled Vehicle (HMMWV)
- ◆ Up-Armored HMMWV
- ◆ Hybrid Electric HMMWV
- ◆ M939
- ◆ Light/Medium Lunette Trailers

PM Mines, Countermine and Demolition

COL Bud Irish

- ◆ Volcano
- ◆ WAM
- ◆ (HORNET)
- ◆ SLAM
- ◆ PAM
- ◆ RAMS
- ◆ GSTAMIDS
- ◆ HSTAMIDS
- ◆ SOF Demo Kit
- ◆ APL-A
- ◆ RADAM
- ◆ TDFD
- ◆ PVAB
- ◆ MCCM
- ◆ CMCS
- ◆ APOBS
- ◆ FPE
- ◆ MDI
- ◆ Non-Lethal Capability Set
- ◆ Sympathetic Detonators

PM Mortars

LTC Hollingsworth

- ◆ 120mm Mortar Weapon System
- ◆ Fuzes
- ◆ Ammunition (120mm, 81mm, 60mm)
- ◆ Advanced Mortar Munitions
- ◆ Mortar Ballistic Computer
- ◆ Mortar Fire Control System

PM Paladin/FAASV

LTC Joe Stenkamp

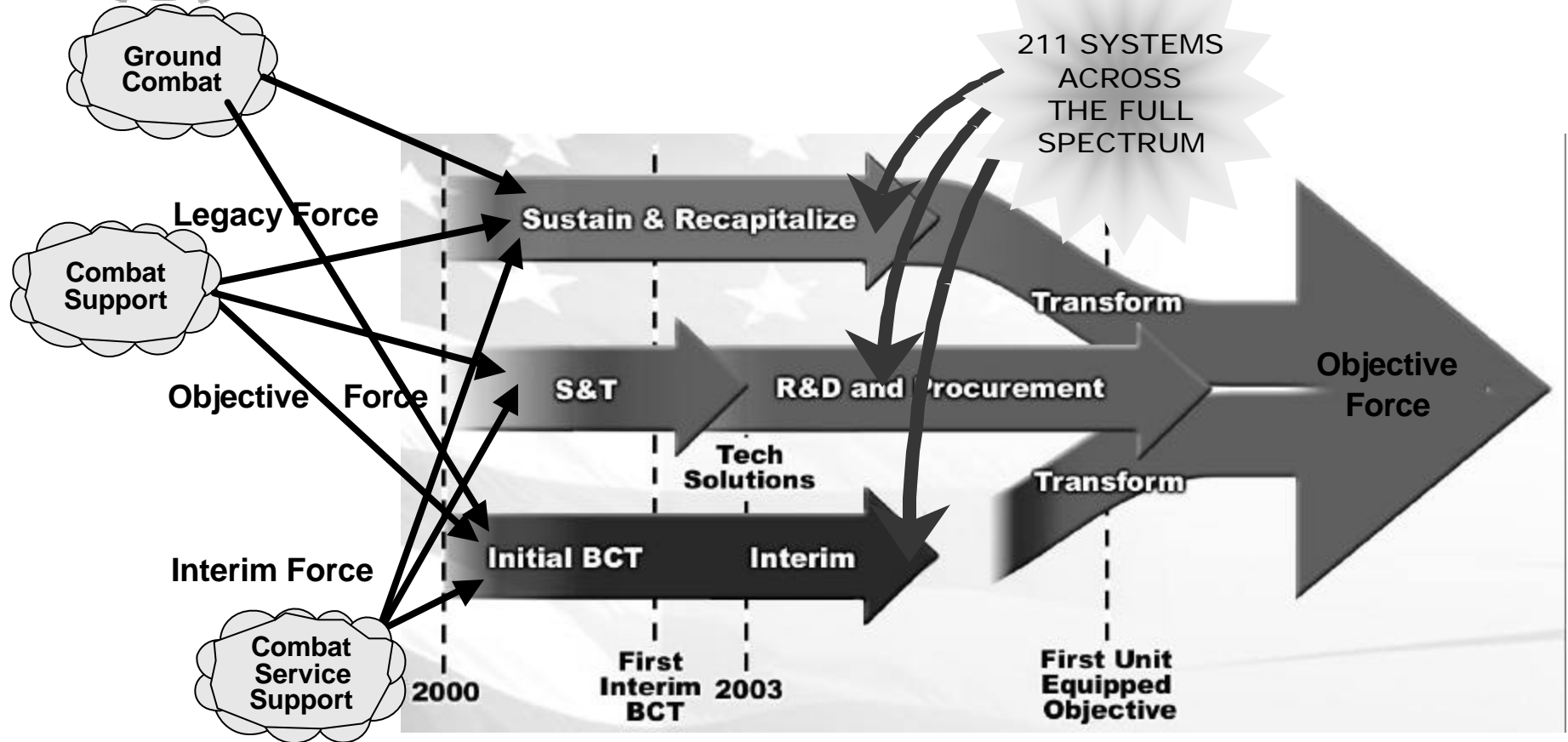
- ◆ Paladin, Howitzer 155mm
- ◆ Field Artillery Ammunition Support Vehicle (FAASV)

PM Small Arms

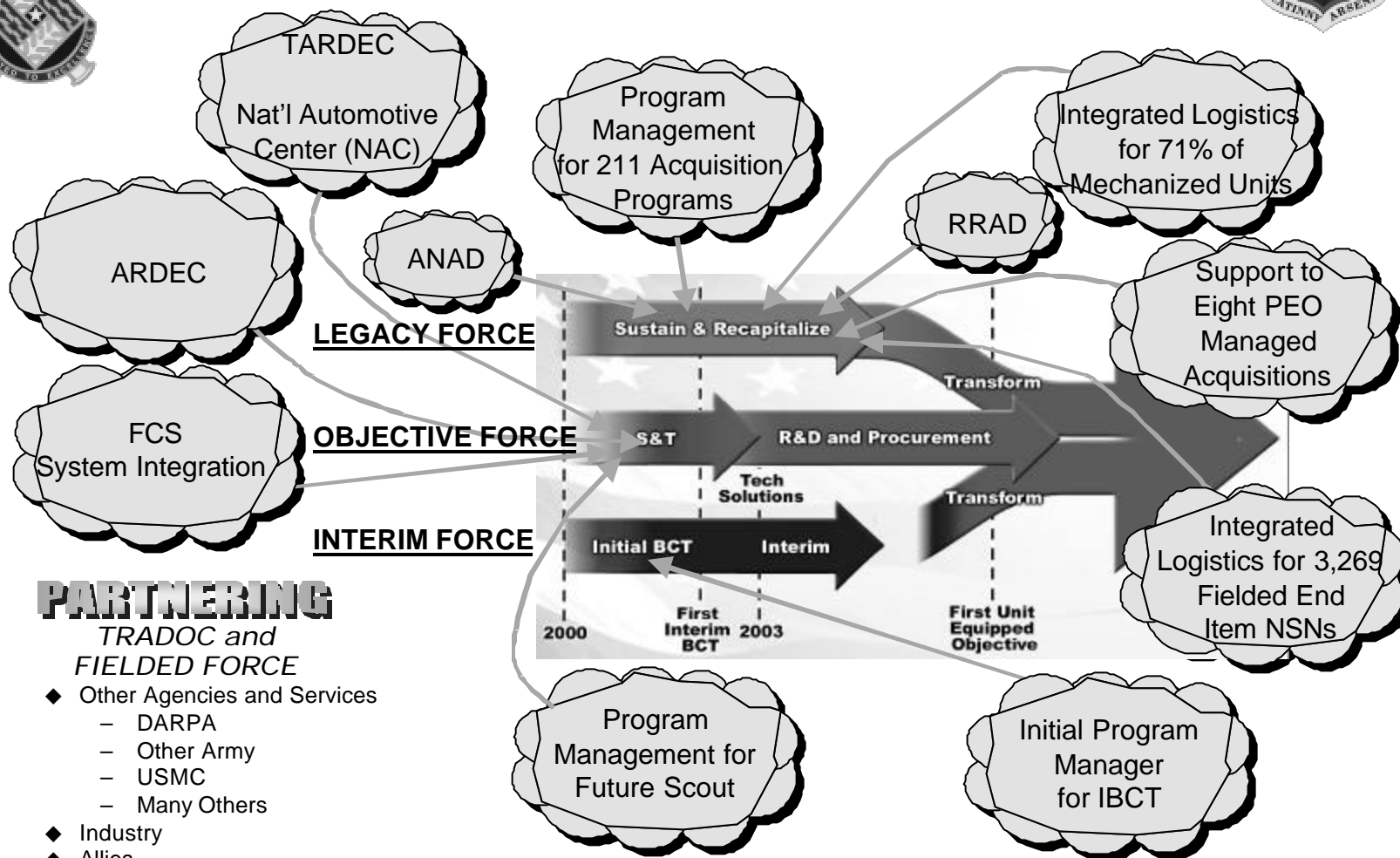
LTC Gil Brown

- ◆ Rifles
- ◆ Carbines
- ◆ Machine Guns
- ◆ Shotguns
- ◆ Pistols
- ◆ Grenade Launchers
- ◆ Ammunition & Grenades
- ◆ Optics & Fire Control
- ◆ Objective Individual Combat Weapon

TACOM Operates at the Heart of Army Transformation



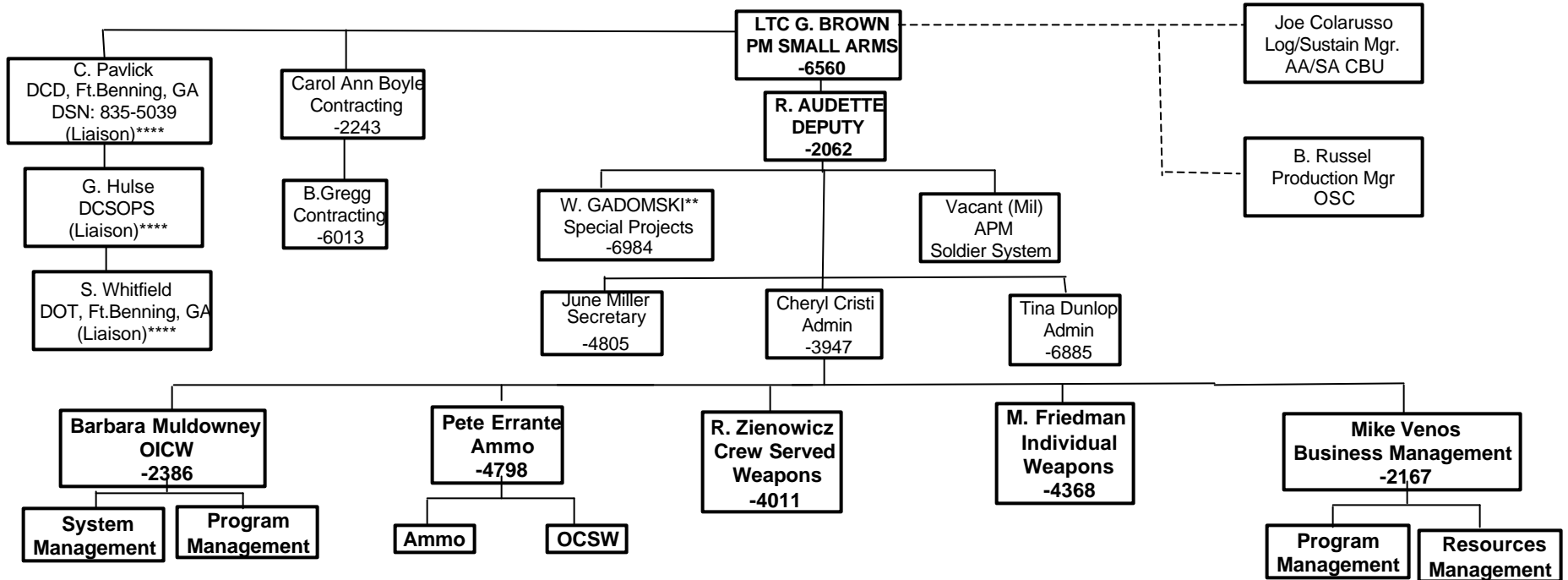
TACOM Support to Army Transformation



PARTNERING TRADOC and FIELDDED FORCE

- ◆ Other Agencies and Services
 - DARPA
 - Other Army
 - USMC
 - Many Others
- ◆ Industry
- ◆ Allies
 - Future Scout
 - Munitions
- ◆ Academia

Office of the Product Manager Small Arms



Core Personnel	22
Matrix Personnel	13
Contractor	8
Matrix Not Co-located	3
Contractor Not Co-located	3

Army Procurement Objective (APO) Fill



% APO Fill

FY	98	99	00	01	02	03	04	05	06	07	08	09	10
M4 Carbine	55	59	64	70									
M16A2/A4 Rifle	86	88	90	91	91	92	95	97	97				
M249 SAW	78	80	82	84	87	89							
M240B MMG	44	55	40	50	63	76	91	100					
Mk19-3 GMG	81	70	76	81	86	89							
M2 MG				154									



Office of the Product Manager Small Arms

Scorecard

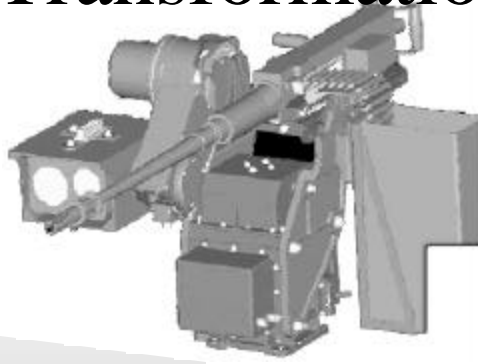
MILESTONE ACTIONS COMPLETED

TITLE	QUARTER COMPLETED
M145 Machinegun Optics	1Q00 (TC-STD)
XM1012/XM1013, 12 Gauge NL Point & Crowd Control	4Q00 (TC-STD)
Lightweight Ground Mount for MGs	4Q00 (MS I/II)
XM973/XM974, 7.62 Short Range Training Ammo	4Q00 (TC-STD)
XM 1001 40mm Canister	3Q01 (TC-STD)
XM 1029 40mm NL Crowd Dispersal Cartridge	3 Q01 (TC-STD)
XM116 Small Arms Fire Control (SAFCS)	3Q01 (MS B)
5.56mm Short Range Training Ammo (SRTA)	3Q01 (MS B)

MATERIEL RELEASE ACTIONS COMPLETED

TITLE	DATE
M145 Machinegun Optics	2Q00
M1006 Non Lethal 40MM Round	3Q00
M25 Stabilized Binoculars	4Q00

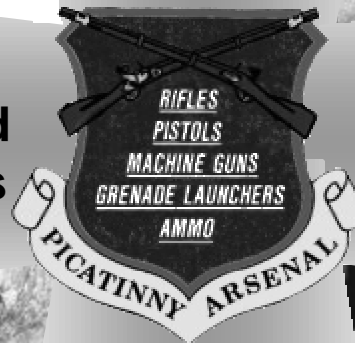
Small Arms for the Transformation



OPM SMALL ARMS



Crew Served Weapons



Objective Weapons



Individual Weapons



M16/M4/M203 INITIATIVES



CLOSE COMBAT MISSION
CAPABILITY KIT



IMPROVED BUTTSTOCK FOR M4

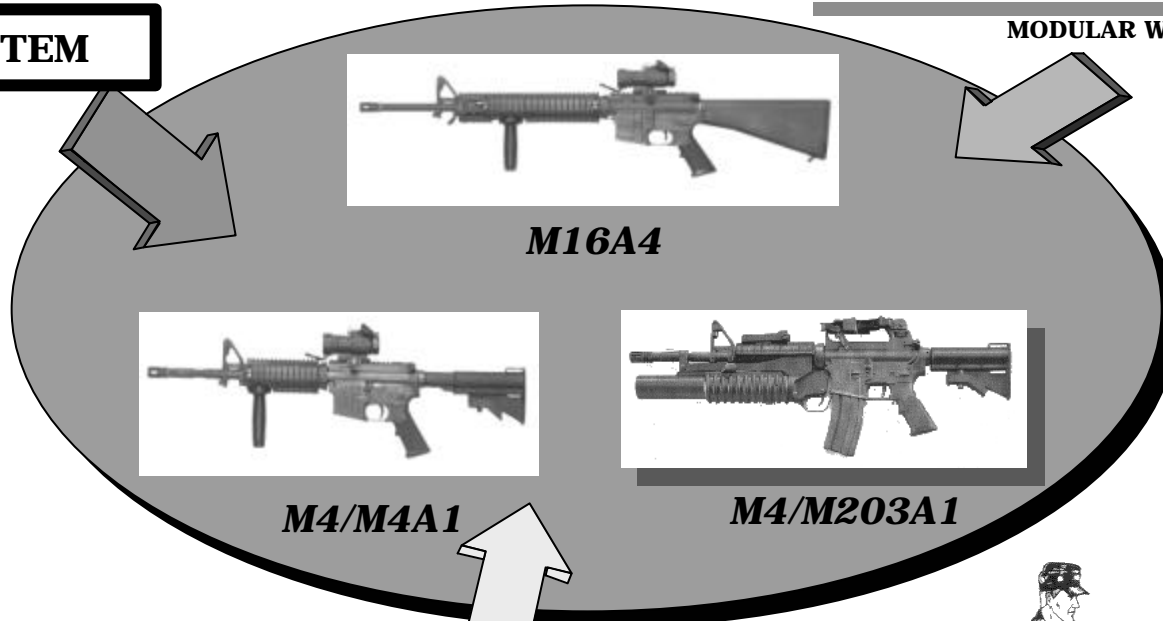


MODULAR WEAPON SYSTEM

M203 RAIL SYSTEM



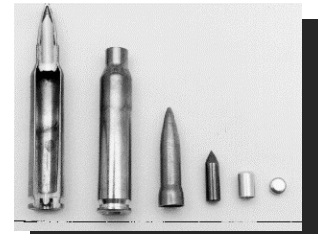
CLOSE COMBAT OPTICS



M16A4

M4/M4A1

M4/M203A1



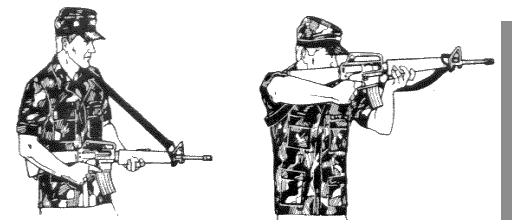
5.56 ARMOR PIERCING



BACK-UP IRON SIGHT



WEAPON FLASHLIGHT
MOUNT



SLING, CLOSE QUARTERS BATTLE FOR M4

XM107 SEMI AUTOMATIC LONG RANGE SNIPER RIFLE

CAPABILITIES OF ITEM

- Versatile, Manportable, Multiple Round, Rapid Fire Rifle
- Primarily Anti-Materiel System w/ Mk211 API Ammo
- Ranges: Anti-Materiel (1000-1200m) / Personnel (600-1000m)

OBJECTIVE: To Field COTS Anti-Materiel and Counter-Sniper Semi-Automatic Rifles Based On USMC M82A3.

BENEFIT:

- Effective Against Light Materiel & Personnel Targets
- Supplements Sniper's Role To Support Combat Operations
 - Discriminately & Precisely Engage High-Value Targets
 - Counter Sniper Capability (MOUT)
- Firepower & Standoff Ranges Improve Sniper Survivability

CONTRACTOR: Barrett Firearms MFG, Inc.

PROPONENT: US Army Infantry Center
US Special Operations Command

POCs:

R. Galeazzi / AMSTA-DSA-SAITRi (GC) / DSN:
880-6656

W. Boyle / AMSTA-AR-CCL-A / DSN: 880-7873



JOINT SERVICE COMBAT SHOTGUN, XM1014

CAPABILITIES OF ITEM

- 12 Ga. Semi-Automatic
- Effective Range of 40 Meters
- Compatible with Standard 2 3/4 "00" and 3 inch ammo
- Will manually cycle current Non-Lethal Munitions
- Telescoping/collapsible Buttstock with Pistol Grip
- Magazine Capacity of 5 rounds (Threshold)
- Reliably Function when Exposed to Adverse Environmental Conditions

OBJECTIVE: To adopt the Joint Service Combat Shotgun, XM1014 for use Within the Army

BENEFIT: Will Standardize Army Shotguns with Those in Use by the Joint Services

- 12 Ga. Semi-automatic Function
- Mounting Rail for Sighting Accessories
- Will Provide a Higher Volume of Fire than Existing Pump Action Shotguns
- Will Reduce the Existing Logistics Burden of Supporting the Existing Three Types of Pump Actions Shotguns in Use Throughout DOD

CONTRACTOR: H&K/Benelli

PROPONENT: Joint Service Lead - Marine Corps Systems

Command; US Army - USA Infantry Center

POC: T. Vass/AMSTA-DSA-SA/DSN: 880-7901

S.Sudol/AMSTA-AR-CCL-A/DSN: 880-7931



JOINT SERVICE COMBAT SHOTGUN, XM1014 - Stock Closed



JOINT SERVICE COMBAT SHOTGUN, XM1014 - Stock Open

M249 SAW INITIATIVES



SHORT BARREL



HMMWV MOUNT



Alternate Mounting Surfaces



COLLAPSIBLE BUTTSTOCK

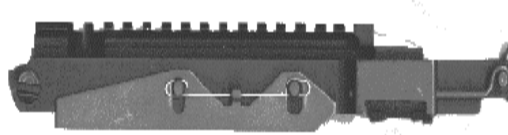


CLOSE COMBAT MISSION CAPABILITY KIT

**M249
Light Weight
Tripod**



MACHINEGUN OPTICS



FEED TRAY COVER



5.56 ARMOR PIERCING

M240B MACHINEGUN

INITIATIVES



Forward Accessory Mounting Surface



7.62 ARMOR PIERCING



M197 MOUNT



Improved Buttstock



Improved Buffer



M240B Weight Reduction Program



M240B Improved Barrel Bag



HMMWV MOUNT XM6 Pedestal w M197 Mount



Improved BFA



Improved Bipod



M240B Combat Ammo Pack



M240B Light Weight Tripod

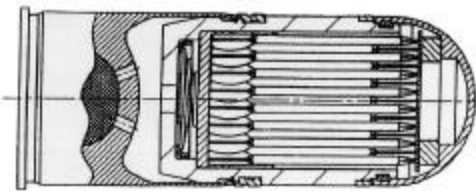


MACHINEGUN OPTICS

MK 19 GRENADE MACHINEGUN INITIATIVES

40mm,
Low Cost
Training Ammo

MK19,
Adj Sight Bracket



40mm Canister Ctg.

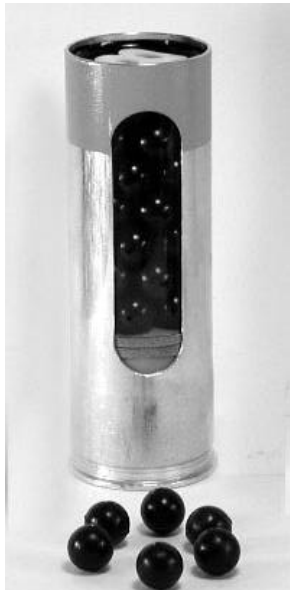
Sight, Computerized, Small Arms
Fire Control, XM116

MK19 Upgrade
Material Change Kit



REMOTE MG
PLATFORM/CROWS

AMMUNITION PROGRAMS



40mm Crowd Control Mmunition
XM1029



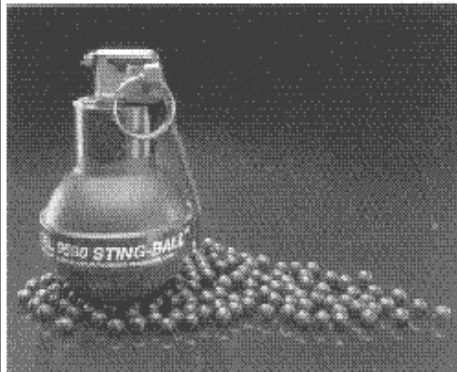
Rifle Launched Entry Munition



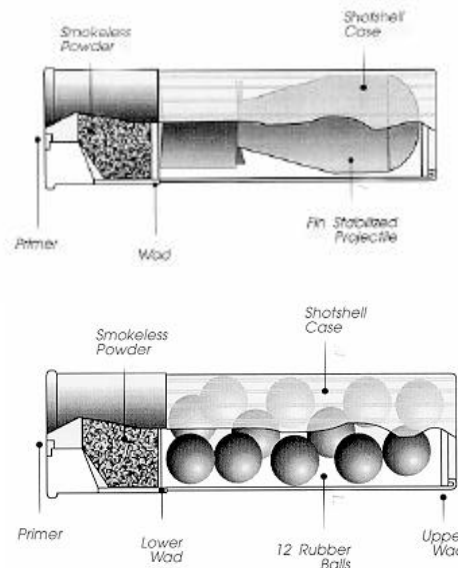
Stun Grenade



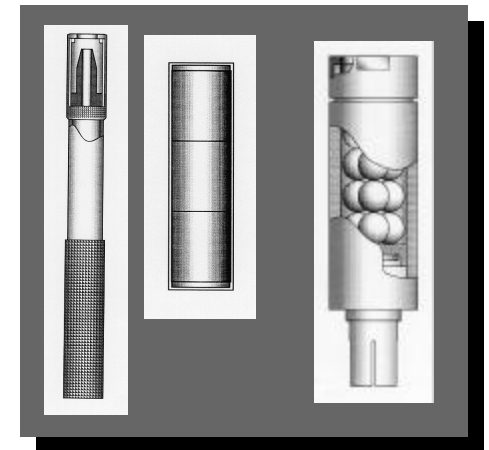
NL 40mm Round,
M1006



HAND THROWN
STINGBALL GRENADE



12 Ga NL Point & Crowd
XM1012/XM1013



Rifle Launched NL Munition
XM95

Objective Individual Combat Weapon

User's Vision

- **Soldier's Individual Combat Weapon – well into 21st century!**
 - **Bursting Munition Concept**



- Provides revolutionary capability
- Offsets aim error associated with iron sights
- Provides more efficient lethal mechanism

- **Dual Munition System**
 - 20mm High Explosive
 - 5.56mm Bullets

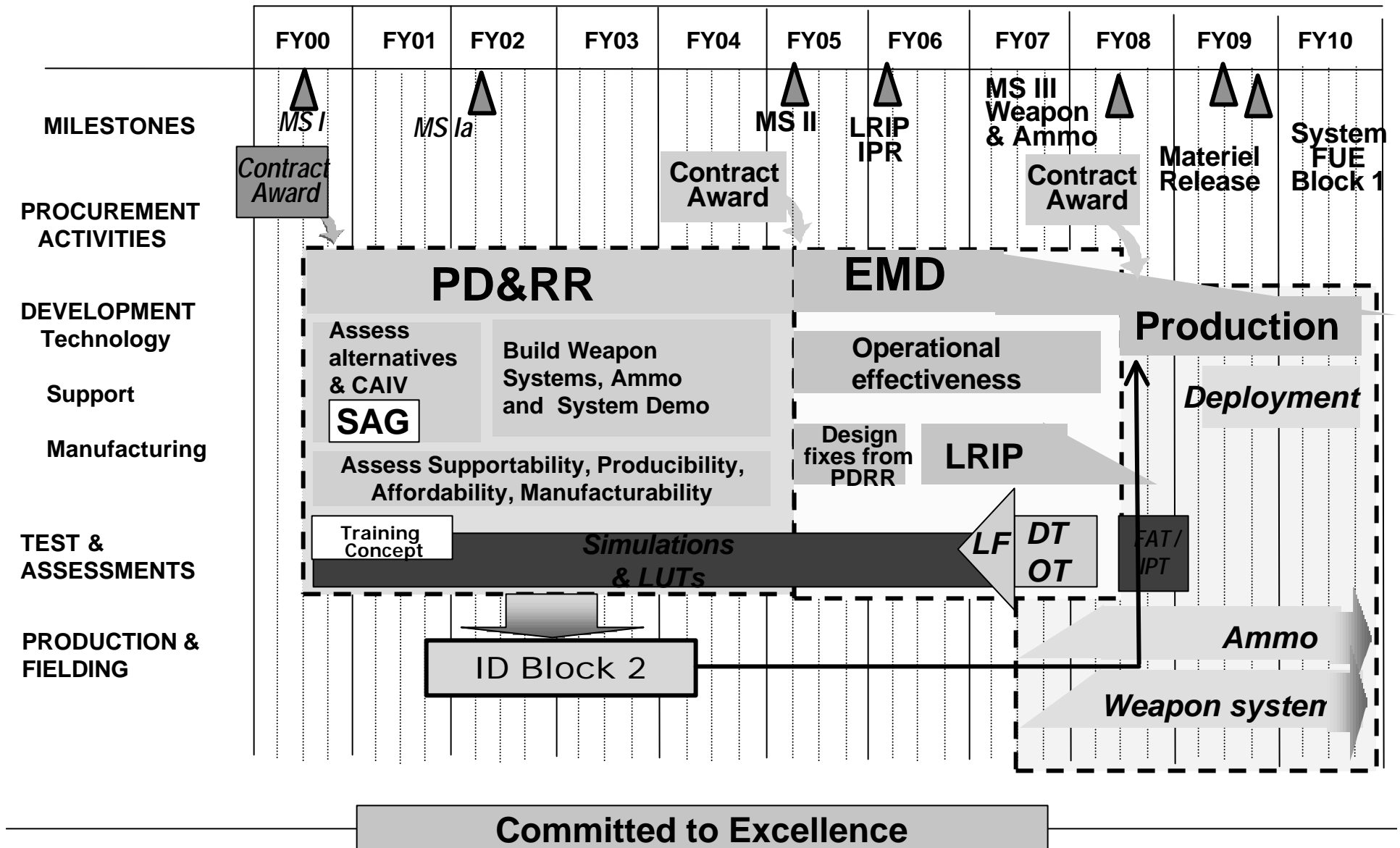
- **Increases range/lethality**

- **Target Acquisition/Fire Control System**
 - Laser Range Finder
 - Ballistic Computer
 - Fuze Setter
 - Electronic Aim Point



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OICW Program Schedule



OICW PD&RR Acquisition Strategy

- **Acquisition Strategy Approved 29 March 2000**
- **Cost Plus Award Fee – Utilized Alpha Contracting**
- **Single Prime Contractor**
 - **Develops Synthetic Environment to govern simulation & modeling**
 - **Baseline Infrastructure based on IDE - Windchill**
 - **Maximizes technology development through use of simulation**
 - **Leverages simulator to build training solution (unaffordable without it)**
- **Incorporates an In Process Review at 18 months after contract award**
 - **Technology/Requirements Trades**
 - **TRADOC study addressing requirements**
 - **Hardware build and test of PDRR configuration**
 - **Near final design ready for EMD**
- **Contract is for PD&RR only**
- **EMD will include production options**

Compliance with ORD

OICW Exit Criteria

MS 1a

PDRR

EMD/ORD



P(i) Exposed stationary

.45@350-400m

.45@450-500m

.50@450-500m



P(i) Defilade

.30@300-350m

.30@450-500m

.35@450-500m

Fuze

redesign/safety tests
and demo, FSB review

confirm
no change

AFSB
certification



Weight

≤ 15 lbs

≤ 15 lbs

≤ 14 lbs(T)/
10 lbs (O)



Firing Positions:

-

Demonstrate

Demonstrate



Ruggedness/Reliability:

-

Initial Data Set

Demonstrate

- Operational Requirement Document Approved 11 February 2000
- Currently Funded to MS II

Key Challenges

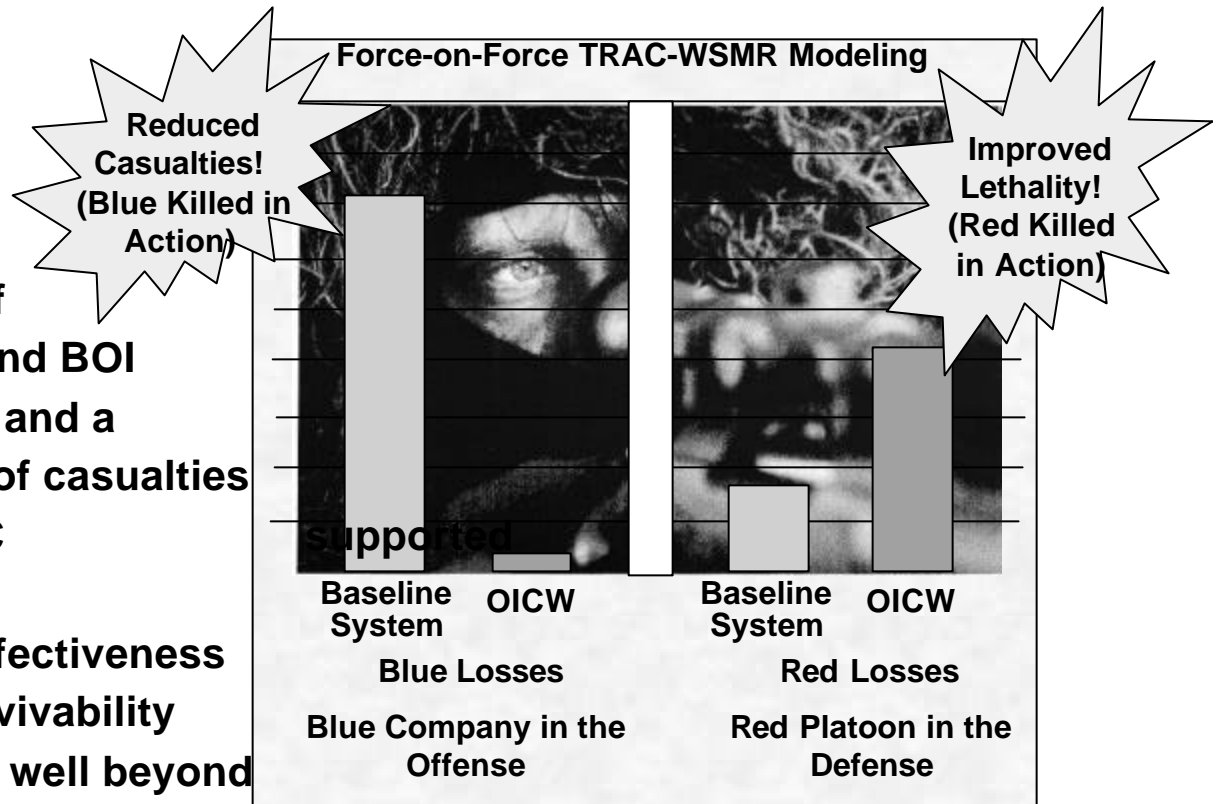
Weight

Training

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Constructive Simulation: Modeling

- Force-on-Force
 - Conducted by TRAC-WSMR using CASTFOREM
- Initial parametric assessment of P(I), maximum effective range, and BOI showed increased effectiveness and a significant reduction in number of casualties
- OICW AoA conducted by USAIC by TRAC found:
 - OICW improves Blue force effectiveness through both lethality and survivability
 - Extends incapacitation range well beyond legacy individual combat weapon
 - Increases OPTEMPO – virtually eliminating firefights to destroy a threat even in protected positions
 - BOI of 4 per squad performs statistically the same as BOI with more OICWs providing the lethality and survivability required to win and fight the next fight

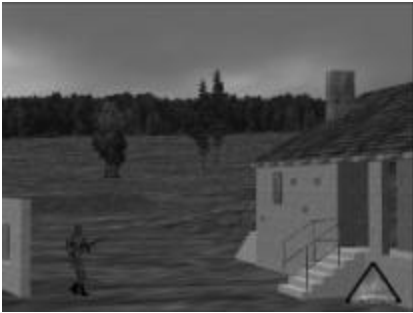


(OICW AoA Jan 2000)

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Virtual Simulation

- **Systems Under Consideration**
 - **Engagement Skills Trainer**
 - **Small Arms Simulator**
 - **Computer Controlled Man-in-the-Loop Simulator**
 - **Validated with M16 & M203**
- Performance Data**
- **Replicates the function and performance of the OICW**
 - **Used as a design tool**



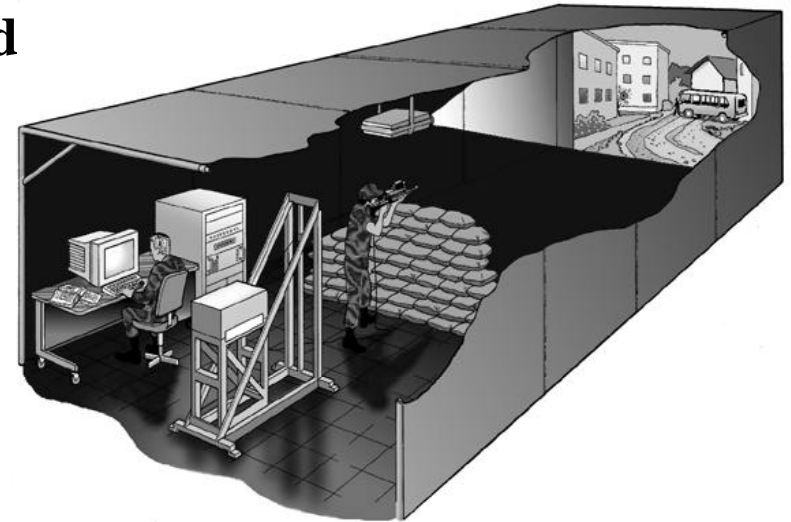
- **Either Can be Utilized as Primary Training Device**



Computer Generated Graphics & Imagery



Computer Controlled



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Live Fire & Simulation

Live Fire

- Pure Marksmanship versus stationary and moving exposed targets
- Trains Soldier to Achieve P(I)

Simulation

- Trains Marksmanship, Squad Tactical Gunnery, Shoot-- Don't Shoot
- Trains engagement of troop targets gone to ground, in fox holes, and trench lines
- Trains Urban Operations (REDFOR troops around buildings, street corners, snipers) provide stand-off

Downselect Process Status

- “Three” Down-Selected Architectures



**HE Only w/
Attachable
KE
OR**



**HE Only
System**



**Integrated System
w/ Separable
TA/FCS**



**Fully Integrated
System**

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Down Select Criteria

Operational Capability

- Detect
 - Recognize
 - Identify
 - Engage
 - Combat objectives
- } Day/night

TA/FCS

- FOV
- Weight
- Sensor capability

Ammunition

- QE
- Ballistics
- Weight
- Impulse
- P(I)



CAIV

Weapon

System

- Impulse
- Weight
- Ergonomics
- Error budget management
- P(I)
- Ergonomics
- Weight
- Supportability
- Training
- Cost – UPC/LCC
- Effectiveness



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OICW

Summary

- OICW Provides Leap Ahead Lethality Capability
- User and PM Are Working Technology Challenges to Meet Exit Criteria

Soldier's Individual Combat Weapon – well into 21st century!



Conceptual Model — Lightweight and Lethal

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OBJECTIVE CREW SERVED WEAPON (OCSW)

- The future crew served weapon lethality component for Land Warrior
- Incorporates the latest advancements in electronics, materials, and small arms
- Employs revolutionary 25mm high explosive, air bursting and armor piercing munitions as its primary defeat mechanism against defilade individuals, personnel protected with body armor, and light armored vehicles.
- Provides a unique capability in MOUT and urban warfare.
 - Capable of defeating individual targets in defilade without consuming significant amounts of ammunition or causing collateral damage.
 - Cost savings associated with less ammunition
 - Reduces the soldiers load
 - Increases survivability.
- Currently in the Advanced Technology Demonstration phase
 - Milestone I/II decision scheduled in late FY02
 - First Unit Equipped is scheduled for FY11.



OPM Small Arms



Questions?

**[http://w4.pica.army.mil/opmsa/
gbrown@pica.army.mil](http://w4.pica.army.mil/opmsa/gbrown@pica.army.mil)**