Field Artillery Capabilities Update

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**System of Systems Capability**

**Desired Capability:** Ability to **rapidly** and **accurately locate and attack targets** with the **required operational responsiveness** matched to **desired effects** (lethal and non-lethal) and the **greatest efficiency**.

To achieve this, Field Artillery needs these “enablers”

- Target location error <10M at extended ranges, 360°-mounted and dismounted
- Technical fire direction and limited tactical fire direction on all delivery systems
- Delivery systems that can rapidly emplace/displace with high rates of fire
- Accurate on demand, meteorological data to delivery system ranges
- All munitions with less than 50M CEP at all ranges
- Munitions that provide a variety of effects in any environment

**Our goal is to become a “Precision System of Systems”**

The Future of Fires Begins Here
Conceptual Areas of Operation
Full Spectrum Capabilities

TODAY

COIN

Challenge is to find capabilities for today that carry into the future--across the spectrum

Lethality Spectrum

TOMORROW

Irregular Warfare to Major Combat Operations?

What should we expect in an MCO of tomorrow

What are the projected capability gaps in the future across the spectrum

The Future of Fires Begins Here

Dominant target today is personnel in various postures
Assessment and Way Ahead

“Precision System of Systems”

**Locate and Designate**
- <10M TLE mounted and stationary
- <5M TLE when aided with PSS-SOF
- Need JETS for dismounted operations

**Location and Direction**
- Moving to “on board” capability
- IPADS for all other

**Computation**
- Technical and tactical from same automation system
- Moving to on board technical
- Exploring limited on board tactical

The Future of Fires Begins Here
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**Assessment and Way Ahead**

**“Precision System of Systems”**

- Theater demanding enhanced capability:
  - 360 acquisition
  - Better accuracy, range and probability of detection
  - Fielding of EQ-36 and LCMR V3 close the gap
  - Working to sustain readiness of current Firefinder fleet in the interim

**Enhanced Q-36**

- Must maintain viability of current systems for many years
- Must address crew protection issues—especially towed systems with larger crews
- Must close gap with on board digitization for M119A2
- NLOS Cannon and LS are great systems but pose some challenges with crew size

**M270A1**
**FCS – NLOS**
**Cannon**
**Launch System**

**Improved Crew Protection HIMARS**
**Paladin Integrated Management Howitzer**
**FCS - NLOS**

**Lightweight Counter Mortar Radar V3**

**Counterfire Location**

**Delivery Systems**

The Future of Fires Begins Here
Munitions - Current Capability

• Technology demonstration showed initial capability of 30M CEP
• Working form fit for 155mm and 105mm unique challenges
• Funded in POM

Precision Guidance Kit

“More precise” area effects

Desired Future Capability

- CEP < 50M for all munitions
- Enhanced lethality
- Greater efficiency
- Scaleable including non-lethal

< 10m CEP for point target attack

Guided MLRS - Unitary

Excalibur

Precision Attack Missile

ATACMS Unitary

The Future of Fires Begins Here
GMLRS-Unitary Rocket

Who Requests GMLRS-U:

- Army: 372 (63.37%)
- Marines: 121 (20.61%)
- Other: 94 (16.02%)

How GMLRS-U is employed:

- Troops In Contact: 183 (31.18%)
- Pre-Planned: 404 (68.82%)

Environments GMLRS-U is employed:

- Urban/COIN: 558 (95.06%)
- Other (TD/Test): 29 (4.94%)

Who Shoots GMLRS-U:

- US Army: 587 (79.65%)
- USMC: 24 (3.26%)
- UK: 126 (17.10%)

Capability Gap: Persistent, responsive, all-weather, rapidly-deployable, long-range, surface-to-surface, precision-strike capability.

Description

- GPS-Augmented Inertial Guidance
- 200lb-Class HE IM-Compliant Warhead
- Multi-Fuze Selection (Point Detonating, Delay, Proximity)
- 15-70km Range

Current Targets

- Precisely Located/Mensurated Point targets
- Congested/Complex Urban Targets
- Targets in Areas Where Collateral Damage is of Concern

Effectiveness/Reliability

- BDA Shows High Level of Effectiveness
- Rare Reports of Minor Collateral Damage
- Reliability of US Army Missions: 98.63%

The Future of Fires Begins Here
Excalibur

Mission Roll Up

US-OIF
- Rounds Delivered = 275
- MSNs Fired = 30
- Rds Fired = 50
- Hits w/Detonation = 44
- Flew to BIP = 4
- Hit w/ no high order = 2
- Unserviceable = 3
- Rounds Available = 208

US-OEF
- Rounds Delivered = 72
- MSNs Fired = 2
- Rds Fired = 2
- Unserv. = 0
- Hits w/Detonation = 2
- Rounds Available = 70

Canada-OEF
- Rounds Delivered = 27
- MSNs Fired = 2
- Rds Fired = 2
- Unserv. = 1
- Hits w/Detonation = 2
- Rounds Available = 25

54 Total Rds Fired
48 Hits
88.8% Reliability

Trends:
- Target Types: Structures
- # of Rds/TGT: 2
- Firing Platforms: Paladin & M777A2

Issues:
- PEFCS (service life extension in theater)
- EPIAFS PIK Upgrade (still on-going in theater)
- Blk 1a-2 IOTE Delay probable (March 2009)
- Blk 1b Request for Proposal published 7Mar08
  - Blk 1b CEP change 10m (T) 6m (O)

The Future of Fires Begins Here
**Assessment and Way Ahead**

“Precision System of Systems”

- View our munitions capability gaps in this priority:
  - Precision
  - Lethality
  - Range

- Distributed operations, precision munitions and rapid delivery may redefine the massing of fires

- Must have greater efficiency without sacrificing effectiveness

- Continue to explore alternatives to cluster munitions

- Need to increase the scalability of the terminal effects of our munitions

- Non-lethal effects like visual and infra-red illumination are still important

- Considerably greater gap in the indirect fires capabilities of the IBCT when compared with the HBCT or SBCT that we are working to reduce

- “Near precision” capabilities like PGK have a place—TLE is rapidly getting better but sometimes may not be there

*Precision munitions have significantly added to our contribution to the current fight*

The Future of Fires Begins Here
Summary

• COIN environment has highlighted some unique challenges and capability gaps

• Most of our challenges are faced by many of our likely coalition partners

• Must also address capabilities for Full Spectrum Operations

• Current and programmed systems and munitions close or mitigate many of those gaps but we aren’t there just yet

• Significant challenge to maintain the readiness of current capabilities while awaiting next generation capabilities

• Supplemental funding has been and remains very important to modernizing

Enabling Soldiers with the required capabilities—today and tomorrow
The Future of Fires Begins Here