Precision Fires Rocket and Missile Systems

Portfolio Overview to the Precision Strike Association

COL Gary Stephens
PFRMS Project Manager
18 March 2015

Precision Fires Rocket and Missile Systems

Mission:

Through effective program management and a professional workforce; develop, produce, field, and sustain the Precision Fires family of launchers and munitions to fulfill the long-range artillery requirements of the U.S. Warfighter and Allies

What We Do:

- Centralized Management for all Army Multiple Launch Rocket System Launcher platforms and associated Munitions suite
- Full Life-Cycle Management of Assigned Systems
- World Wide Support of Fielded Weapon Systems
- Key Link Between the User and Tech Base

What We Manage:

- Two Field Artillery Rocket / Missile Launcher Platforms
- Three MLRS Rocket and Two Missile Programs
- MLRS International Cooperative Development Program
- Fifty-five active FMS Cases with total case value of $1.28B
- Japanese Fire Control and Rocket Co-production

Workforce:
Military 8
Government 219
Support Contractors 82

Managing FY15
President's Budget
$675M
FMS Undelivered Value
$212M, 11 Countries

To Support the Warfighter

Vision:

Be a values based team providing the best long-range precision fires capability to the U.S. Warfighter and Allies

Always On Target!

PFRMS Launcher Platform Overview

M270A1 Multiple Launch Rocket System (MLRS)

Program Description:

- Combat-proven tracked launcher
- Mounted on modified Bradley M993 chassis
- Lightly Armored / man-rated 3 Man crew cab
- Rapidly deployable via C-17 and C-5
- Operable 24/7 in all weather and visibility conditions
- Fires entire MLRS / ATACMS Family of Munitions
- Carries 2 Pods of 6 Rockets or 1 Missile each
- Uses Improved Fire Control System (IFCS)
- On-board Self Reload / Self Location systems

M142 High Mobility Artillery Rocket System (HIMARS)

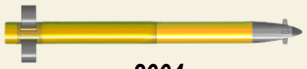
Program Description:

- Combat-proven wheeled MLRS
- Mounted on modified M1140A1 five-ton FMTV chassis
- Armored / man-rated 3 Man crew cab
- Rapidly deployable via C-130 and C-17
- Operable 24/7 in all weather and visibility conditions
- Fires entire MLRS / ATACMS Family of Munitions
- Carries 1 Pod of 6 Rockets or 1 Missile
- Uses Universal Fire Control System (UFCS)
- On-board Self Reload / Self Location system

PFRMS Munitions Overview

GMLRS DPICM (M30)

- Range: 15 – 84 km
- Payload: 404 M101s
- Guidance: Inertial w/ GPS Aided
- *Quantity Produced: 3,936*
- *Expenditures: US: 0*



2004

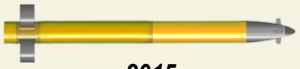
GMLRS Unitary (M31 / M31A1)

- Range: 15 – 84 km
- Payload: 200lb-Class High Explosive / Blast Fragmentation
- Guidance: Inertial w/ GPS Aided
- *Quantity Produced: 17,184*
- *Expenditures: 3,141 (US: 1,255; USMC: 1,069; UK: 817)*

2005

GMLRS Alternative Warhead (M30A1)

- Range: 15 – 84 km
- Payload: 200lb-Class High Explosive with Penetrators
- Guidance: Inertial w/ GPS Aided
- *Quantity Produced: N/A*
- *Expenditures: N/A*



2015

Practice Rocket (M28A1 / M28A2)

- Range: 8 – 15 km
- Payload: Inert
- Guidance: None
- *Quantity Produced: 110,748*
- *Expenditures: US: 42,000+*

2003

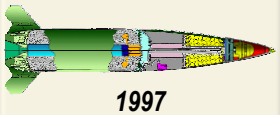
ATACMS Block I (M39)

- Range: 25-165 km
- Payload: 950 M74s
- Guidance: Inertial
- *Quantity Produced: 1,650*
- *Expenditures: Desert Storm: 32 / OIF: 379*

1991

ATACMS Block IA (M39A1)

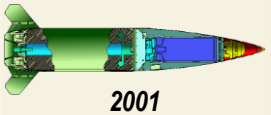
- Range: 70-300 km
- Payload: 300 M74s
- Guidance: Inertial w/ GPS Aided
- *Quantity Produced: 610*
- *Expenditures: OIF: 74*



1997

ATACMS Quick Reaction Unitary (M48)

- Range: 70-300 km
- Payload: WDU-18 WHD/ FMU-141/B PD Fuse
- Guidance: Inertial w/ GPS Aided
- *Quantity Produced: 176*
- *Expenditures: OIF: 16 / OEF: 42*



2001

ATACMS TACMS 2000 (M57)

- Range: 70-300 km
- Payload: WDU-18 WHD/ FMU-161/B PD Fuse
- Guidance: Inertial w/ GPS Aided
- *Quantity Produced: 513*
- *Expenditures: OEF: 33*

2004

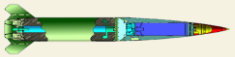
ATACMS Modifications (M57)

- Range: 70-300 km
- Payload: WDU-18 WHD/ FMU-161/B PD Fuse / Proximity Sensor
- Guidance: Inertial w/ GPS Aided
- *Army Acq Obj: TBD*
- *Expenditures: N/A*

2016

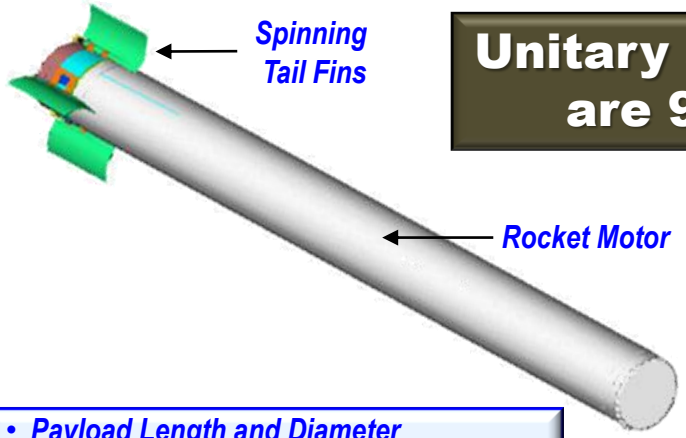
Long Range Precision Fires (TBD)

- Range: 75-300 km
- Payload: TBD
- Guidance: TBD
- *Army Acq Obj: TBD*
- *Expenditures: N/A*



2023

GMLRS Unitary and Alternative Warhead Commonality



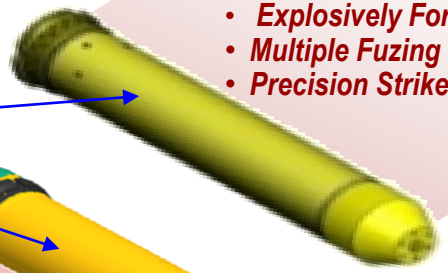
Unitary and AW Rockets are 90% common

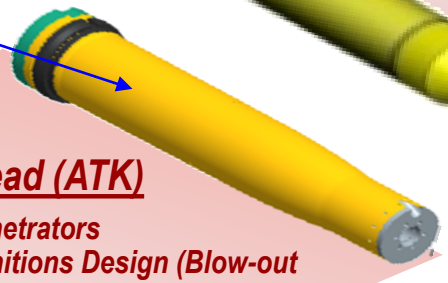
Successful AW Arena Tests: Oct '13 and Jan '14

- *Payload Length and Diameter*
- *Outer Skin*
- *Electronic Safe & Arm Fuze (ESAF)*
- *ESAF Wiring Harness*
- *Forward and Aft Bulkhead and Interface*
- *Aft Spacer*

Unitary Warhead (GD-OTS)

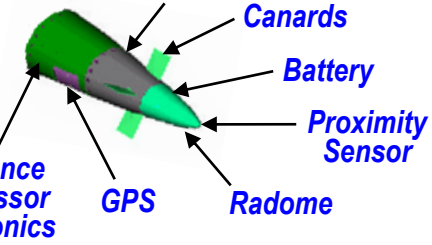
- *Explosively Formed Steel Case Fragments*
- *Multiple Fuzing Options*
- *Precision Strike with Low Collateral Damage*





Alternative Warhead (ATK)

- *Pre-formed Penetrators*
- *Insensitive Munitions Design (Blow-out Venting)*
- *Area and Imprecisely Located Targets*



Successful AW EMD Flight Tests:
Total of 75 rockets with 99% point reliability
(74/75 success)

Legend:
Common Components
Unique Components

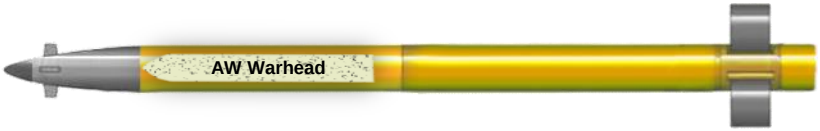
GMLRS Alternative Warhead (AW) Overview

Requirement

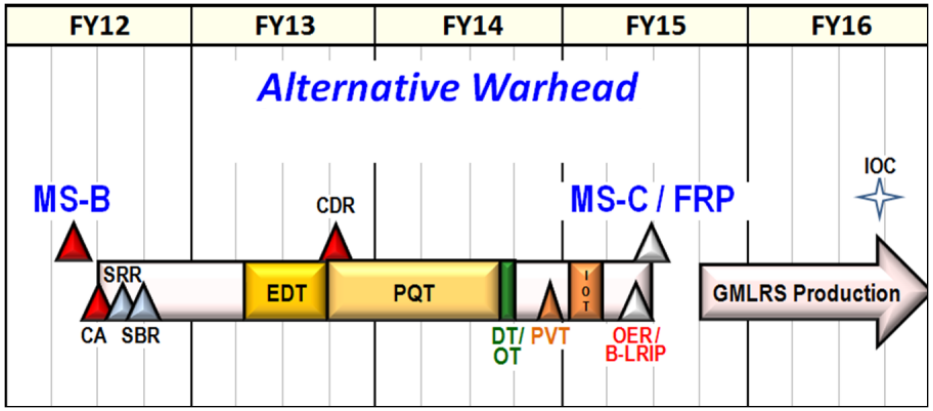
- Army requirement to service area and imprecisely located targets remains valid (JROC validated 11/8/11)
- GMLRS DPICM currently satisfies this Requirement
- DoD Policy on Cluster Munitions (CM) requires all cluster-type munitions to produce no more than 1% unexploded ordnance (UXO) by Jan 2019
- Current GMLRS DPICM does not meet DoD CM policy requirement; AW has 0% UXO by design

Capabilities

- Same Target Set / Environment as DPICM
- Same Guidance and Control, Motor, Aft Section as Unitary and DPICM
- Inertial (IMU) Guidance with GPS augmentation
- Minimum Range: 15km; Maximum Range: 70km
- Compatible with M270A1 and HIMARS Launchers



Schedule



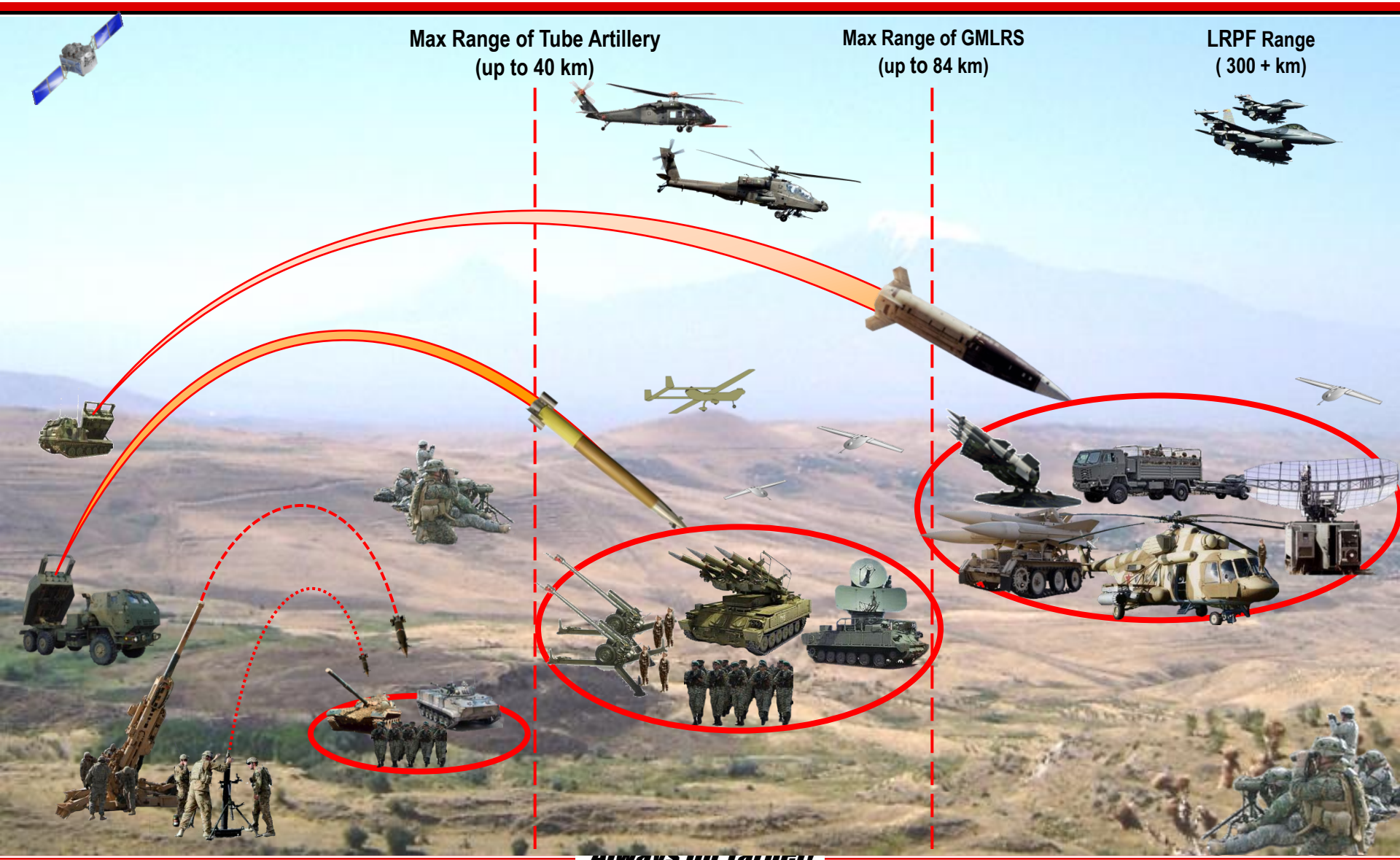
Description / Status

- ACAT IC (GMLRS)
- Preformed penetrators
- Warhead design incorporates Insensitive Munitions (IM) features
- Milestone (MS) A: 11 Sep 2009
- MS B: 19 Feb 2012
- MS C & FRP DR: Mar 2015

GMLRS Alternative Warhead Summary

- Completed developmental and operational testing with 0.987 reliability (74 successful flights for 75 attempts)
- Milestone C / FRP decision in April 2015
- US production on GMLRS FRP X contract with FY16 delivery
- "Should Cost" initiative delivering capability ahead of schedule and under cost

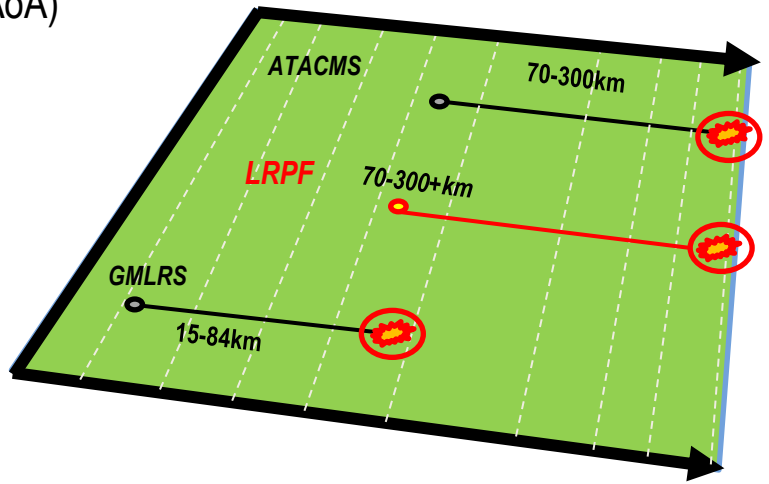
Why We Need
Long Range Precision Fires Capability



Long Range Precision Fires Overview

- **Description:**
  - 300+ km range threshold with a 200+lb class warhead
  - All weather, 24/7 responsive fires
  - Cluster Munition Policy compliant area effects
  - Leverages existing Guidance, Propulsion, CAS, Warhead and Fuze technologies
- **Warfighter Payoff:**
  - 2 Missiles per Launch Pod Container
  - Compatible with M270A1 and M142 Launchers
  - Sustains and advances Army missile capability to 2050 and beyond at affordable cost
- **Program Status:**
  - Completed MDD on 6 Nov 2013 -- Pre-MDAP
  - TRAC-WSMR conducting Analysis of Alternatives (AoA)
  - AoA expected completion 2Q FY15
  - MS A Oct 2015

Concept Drawing of LRPF



GMLRS Alternative Warhead

Precision Fires Rocket and Missile Systems