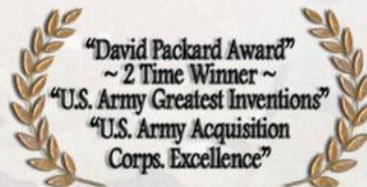




NDIA Joint Armaments Conference

**COL Paul Hill
Project Manager**





Project Manager Maneuver Ammunition Systems

136 Products
Managed



103 Products
Managed



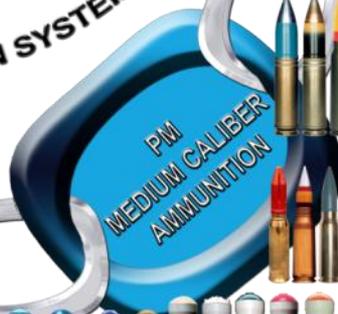
**PM MAS
Has 316
Products
Under Mgmt.**

Reliable, Precise, Lethal

21 Products
Managed



56 Products
Managed



**Equipping US and Allied Warfighters with World Class Direct Fire Combat
and Training Ammunition Through Strategic Life Cycle Management**



Support to Warfighter

New Rounds Fielded in FY11

- .300 Win Mag (Mk248 Mod 0)
- 5.56mm Mk301 Dim Trace

New Rounds to be Fielded FY14/FY15

- 5.56mm M1037 SRTA
- 7.62mm M80A1/M62A1 "EPR"
- .50 Cal Mk257 Mod 0 (AP-DT)
- 105mm M724A1E1 Kinetic Energy
- 120mm M829E4 APFSDS-T
- 120mm Improved Safety Propellant

Active and Potential New Developments

- Caliber TBD Modular Handgun Ammo (Ball, JHP, DDI, HPT, CCMCK, IPR)
- 7.62mm/All Calibers OWL
- Lightweight Cases: All calibers
- 25mm XM25 AB & TP
- 30mm M788A1 Improved Trainer

Deliveries: FY13

Small Caliber	1.431B
Medium Caliber	9.7M
40mm	5.36M
Large Caliber	46.0K
NSA	7.76M
Total	1.454B

- 40mm FCT Airburst LV
- 40mm FCT Airburst HV (Potential)
- 40mm DNT LV/HV
- 40mm Door Breaching
- 120mm Advance Multi-Purpose (Potential)



S&T Priorities

Small Caliber (Enable Dismount Fight)

- Lightweight Cases / Ammo
- Day / Night Low-Observable Trace

Medium Caliber (More Effectiveness - Increase Training Realism)

- 30/40mm Air Burst Capability
- 40mm Day-Night Thermal (DNT) Training Technology

Large Caliber (Maintain Overmatch)

- DU Replacement Technology
- Advanced Multi-Purpose Capability

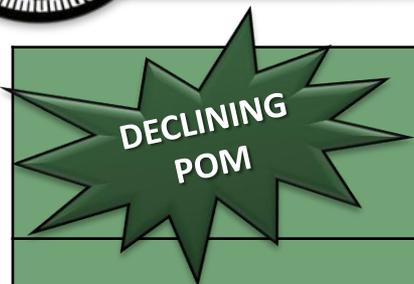


PM-MAS Business Opportunities FY14 – FY15 Competitions

Item	FY
M918 Projectile Assembly	FY14 - FY18
M385A1 Projectile Assembly	FY14 - FY18
M2A2 Can	FY14 - FY18
One Way Luminescence (OWL)	FY14 - FY16
.300 WinMag	FY14 - FY18
Medium Caliber NRE	FY15 - FY19
40mm Systems	FY15 - FY19
40mm Airburst	FY15 - FY19
40mm TP Day-Night-Thermal, High Velocity & Low Velocity	FY15 - FY19
40mm L60	FY15 - FY19
M548 Cans	FY15 - FY19
AMP (Potential)	FY15 - FY21
M724A1E1	FY14 - FY18



Industrial Base Challenges

	Small Caliber	Medium Caliber	Large Caliber
	- RIFLE -	- CANNON CALIBER -	- 105/120mm -
<i>Challenges:</i>	Maintain LCAAP & Second Source	Maintaining minimum of two Sources in cost effective manner	Maintaining two sources in cost effective manner
	Support EPR & Leaded Production		Can we keep Depleted Uranium (DU) Base?

	- PISTOL -	- 40mm GRENADE -
<i>Challenges:</i>	Be ready to accommodate new calibers – Support Modular Hand Gun Strategy	Switch focus to Training Ammo & TP-DNT
		Preserve Pyrotechnic Base



Outlook:

1. Base will have to shrink
2. Looking for innovative way to keep & address 40mm Pyro and DU Base



Facts of Life

- **Higher priority on Obligations**
- **Less funds in out years**
- **Less units and less training expected**
- **Return to full spectrum training**
 - **More training by armor units**
 - **Greater proportion of training vs. tactical ammunition in future budgets**
- **Sequestration: Potentially larger impact than FY13**
 - **Waiting for final sequestration guidance**



Medium Caliber Ammunition

<p>20mm</p> <p>MK244 M940 PGU27 PGU28 PGU30</p> <p><i>Super Cobra AH-1</i></p> <p><i>F-18 Hornet</i></p>	<p>25mm</p> <p>M791 M792 M793 M910 PGU23 PGU25 M919</p> <p><i>Bradley</i></p> <p><i>LAV</i></p>	<p>30mm x113</p> <p>M788 M789</p> <p><i>Apache</i></p> <p><i>MH60 Blackhawk</i></p>	<p>30mm x 173</p> <p>MK266 MK268 MK310 PGU14 PGU15 PGU13B</p> <p><i>Navy LPD</i></p> <p><i>A-10</i></p>	<p>40mm L60</p> <p>PGU-9 M81</p> <p><i>AC-130</i></p>
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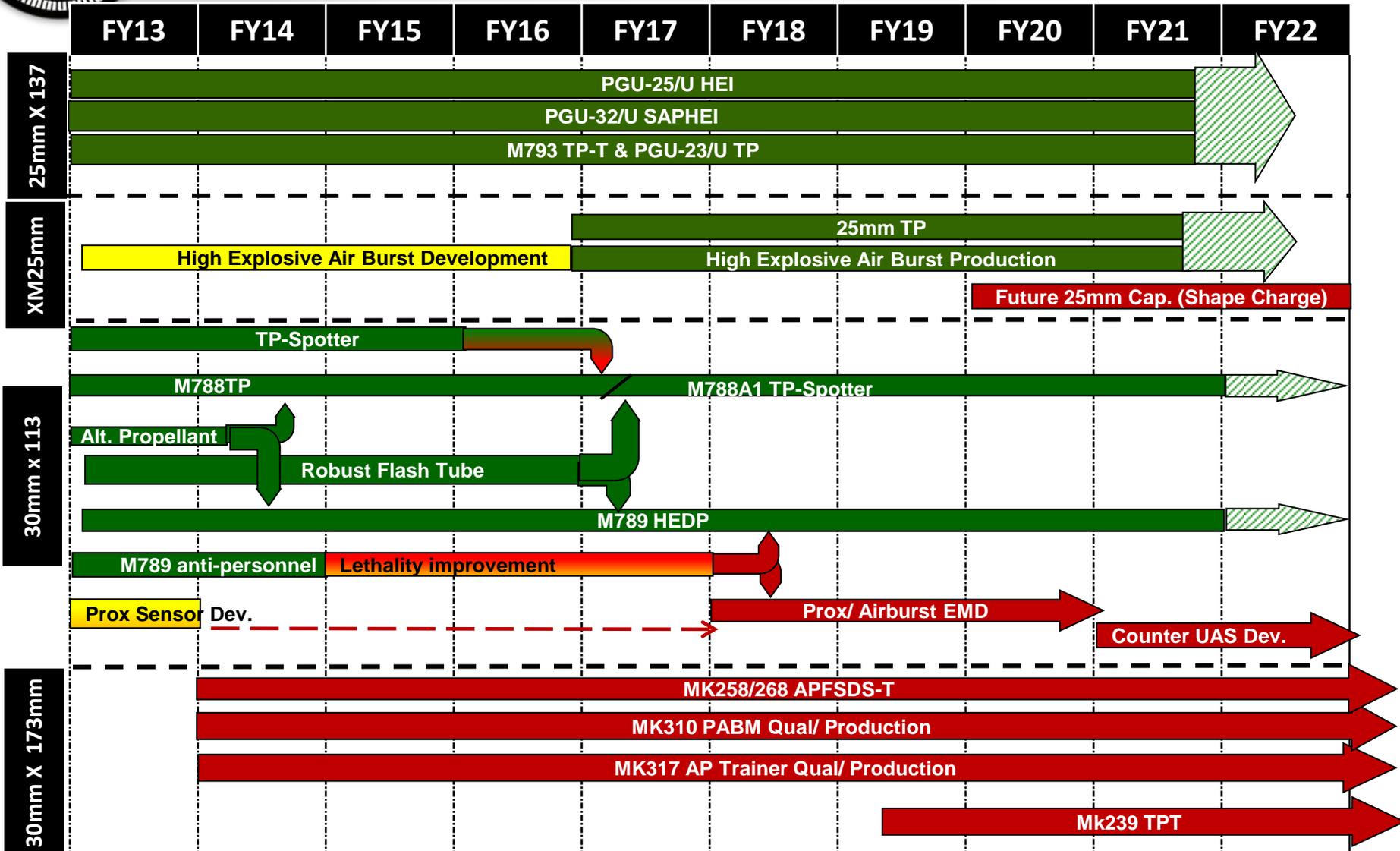
<p>MK19</p>	<p>40mm - HV</p> <p>M430 M918A1 M385</p>	<p>40mm - LV</p> <p>M781 M433 M583A1 M585 M661 M662 M992</p>	<p>M320</p>
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42 Active Product Lines



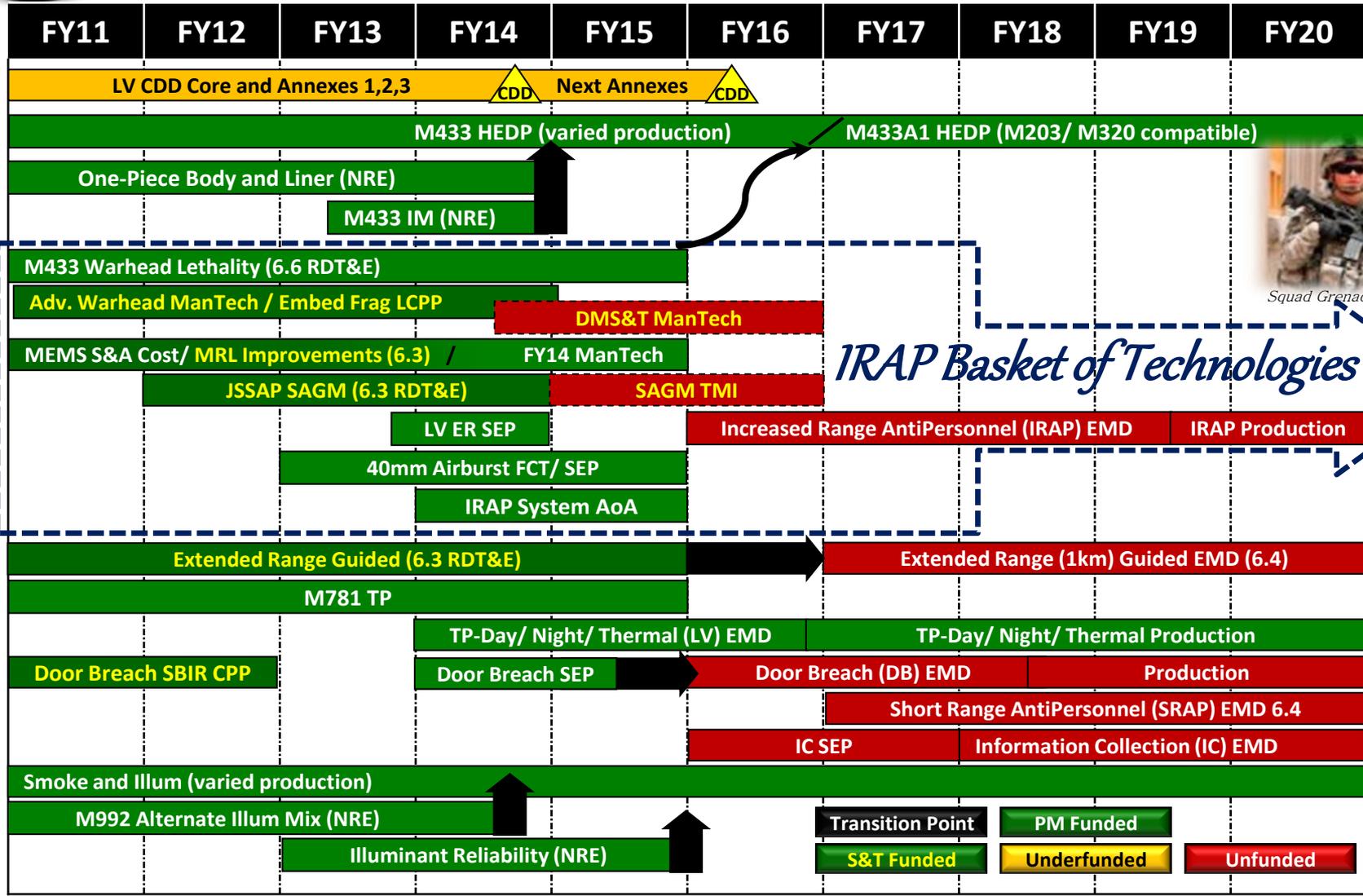


Cannon Calibers





40mm Low Velocity (LV) Grenade Roadmap



IRAP Basket of Technologies



40mm High Velocity (HV) Grenade Roadmap

FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
			M430A1 HEDP						
Molded Boat tail Redesign (NRE)									
M430 IM Warhead (PEO funded)		IM Warhead (NRE)							
IED Defeat Munition(6.3)		HV Core CDD Annex 1				Multi-Purpose Airburst EMD (6.4 RDT&E)			
		IED Defeat CDD Development			IED Defeat EMD (6.4 RDT&E)				Production
Mixed Belt TP (M918/ M385)									
			TP-Day/ Night/ Thermal (HV) EMD (6.4)			TP-Day/ Night/ Thermal Production			

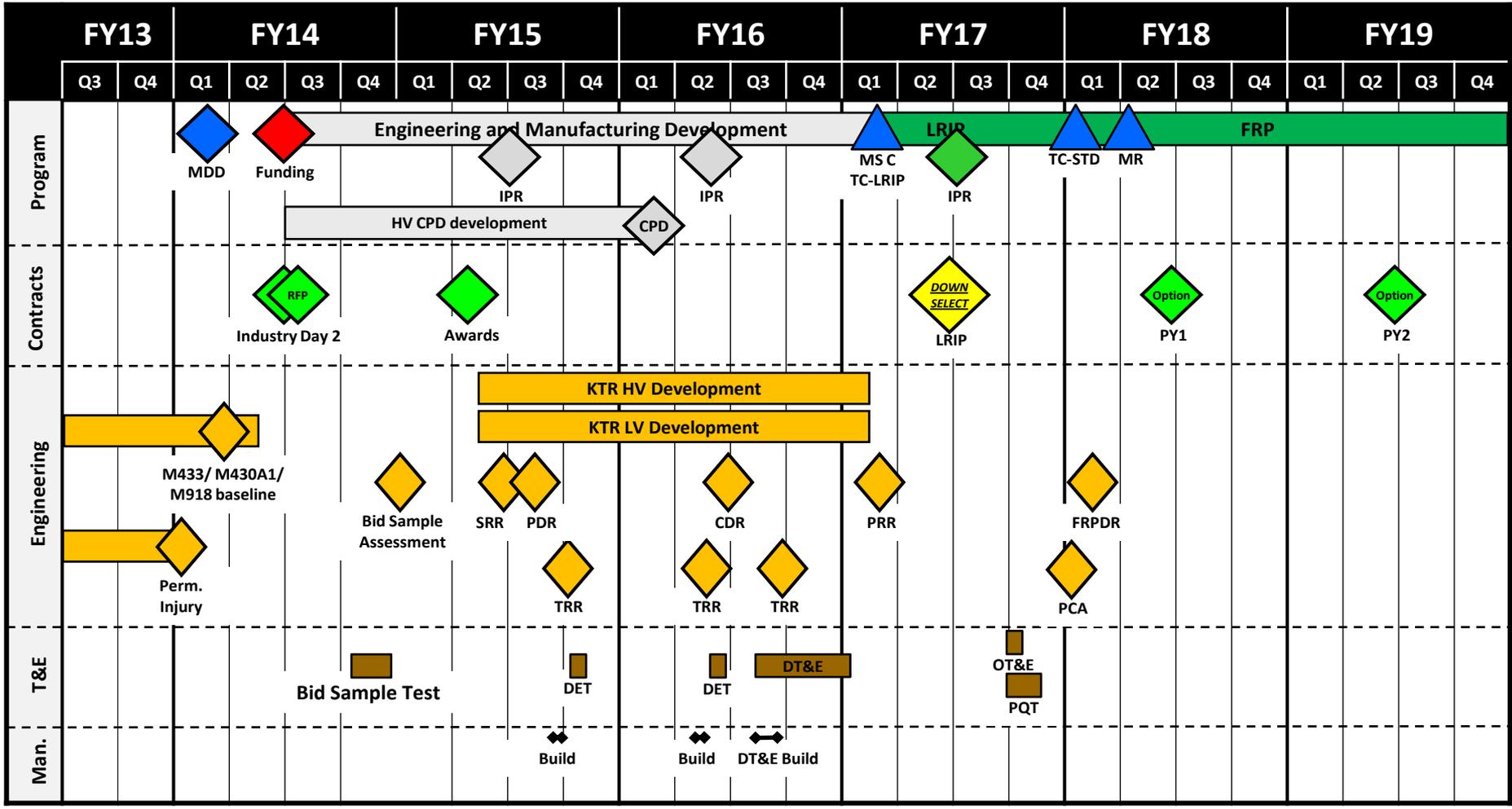


Transition Point	PM Funded	CDD
S&T Funded	Underfunded	Unfunded





HV/LV TP-D/N/T Program Schedule



Reminder: Schedule depicts two programs, executed concurrently



Future Opportunities

- **Evolving Requirements**
 - Air Burst (all calibers)
 - Counter UAS (LW30/Future Systems)
 - Increased Range Anti Personnel (40mm Airburst) / Door Breach

- **Validated Requirements**
 - Low and High Velocity 40mm TP-DNT Cartridges
 - M433 Warhead Improvement
 - LW30mm TP Enhanced Impact Signature
 - LW30mm HEDP Increased Lethality
 - LW30mm Airburst Anti-Personnel Capabilities

- **Potential Requirements**
 - Ground Combat Vehicle Program Cannon Family of Munitions
 - Airburst, HEI, KE and TP



Large Caliber Ammunition

120mm, 105mm Training & Tactical Ammunition



105mm
FMS Only



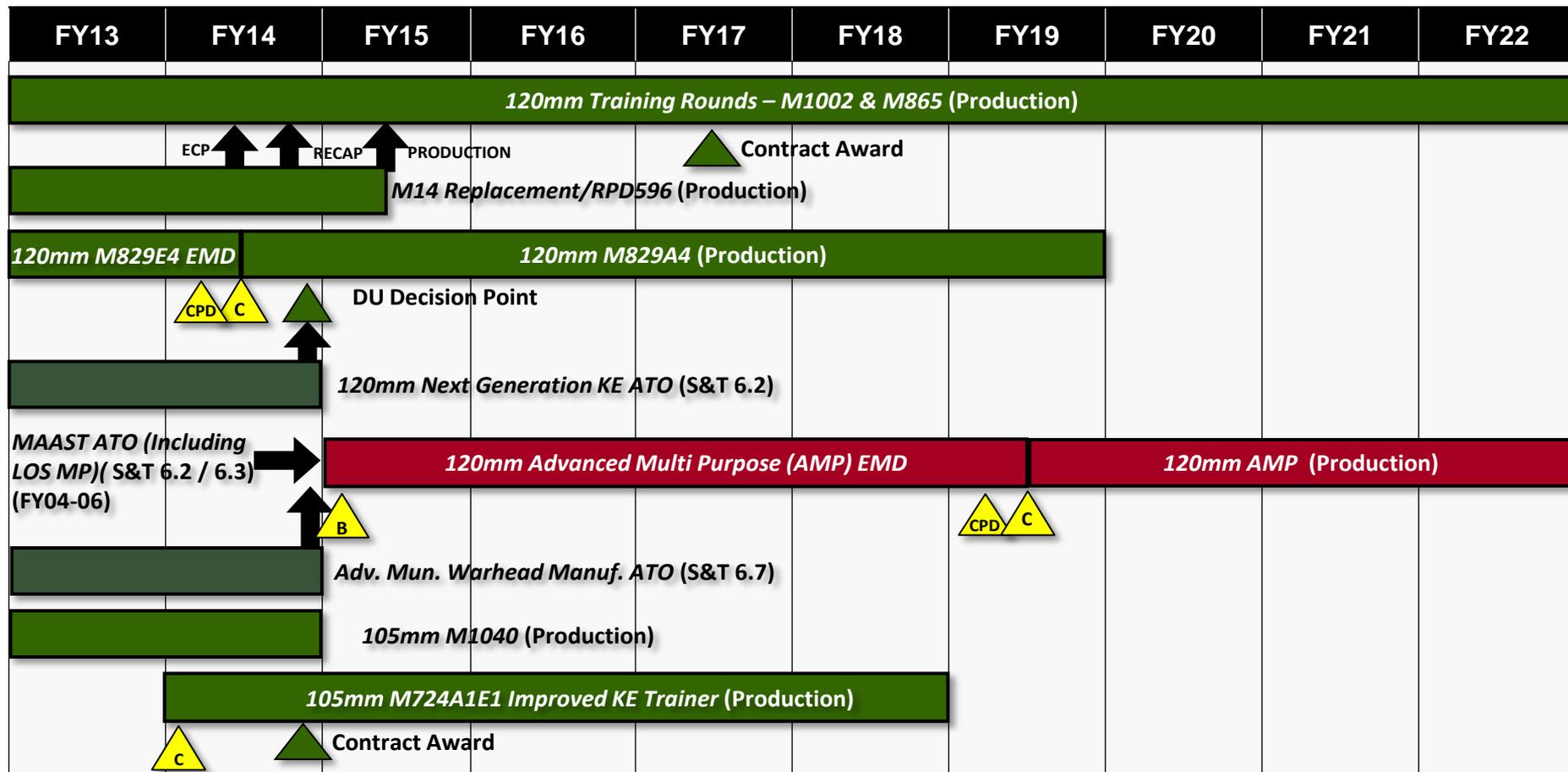


Large Caliber Focus and Outlook

- **Continue Tank Training Cartridge Production**
- **Implement Safety Enhancements**
- **5th Generation 120mm Kinetic Energy Development and Fielding**
- **Field new 105mm Range Limited KE Trainer**
- **Set Conditions for Advanced Multi-Purpose Development**
- **Increased focus on Foreign Military Sales**
- **Maintain Inventory Readiness**



Large Caliber (120mm & 105mm) Technology Transition Roadmap



MS	Underfunded	PM Funded	S&T Funded	Unfunded
	Transition Point	No Requirement	Other Serv. Prod. Funded	



120mm Advanced Multi Purpose (AMP)

- 120mm Line of Sight Multi Purpose Munition for Abrams Tank with Three Modes of Operation: Point Detonate, Delay, & Airburst
- Consolidates Capabilities of Four Current 120mm Munitions
 - Increase Logistical Efficiency
 - Address Aging Stockpile Issues
 - Battlecarry Single Munition for Multiple Engagement Scenarios
- Provides New Capabilities
 - Defeat ATGM Teams / Dismounts out to 2000m
 - Breach Reinforced Concrete Walls
- Requires Abrams Ammunition Data Link (ADL) Modification for Mode and Range (Ongoing Abrams ECP 1 & M829E4 Effort)
- JROC Approved CDD (JUN 08)



Four Rounds to One With Increased Capability



Bunkers
Dismounts < 500m
Light Armor
Obstacle Reduction



AMP Provides Versatility Required by a Balanced Force to Defeat Future Hybrid Threat



Short Range 105mm KE Trainer (M724A1E1)

Training round for MGS crews designed to replicate form, fit, function, and dispersion of M900 (105mm KE Tactical Round) out to 2,000m

- M724A1E1's max range will be limited to 7,000m by employing design similar to 120mm KE Trainer (M865)
- M724A1E1 Materiel Solution for Training Deficiencies

	M724A1		M724A1E1
	X	Safe to fire at all MGS gunnery ranges	✓
	Partially	Ballistically Emulates Tactical M900	✓
	X	Physically emulates Tactical M900	✓
	X	Allows MGS crews to meet gunnery standards	✓
	X	Corrosion resistant	✓

CURRENT M724A1
 PROPOSED M724A1E1

✓ SOLVES DEFICIENCIES X DOES NOT

M724A1E1 SOLVES DEFICIENCIES

Corroded M724A1 New M724A1E1 Tactical M900 KE

- **Draft Acquisition Approach**
 - Five Year Firm Fixed Price IDIQ Contract
 - Low Rate Initial Production (LRIP)
 - Four Full Rate Production (FRP) Option Years
 - Full and Open Competition
 - Government TDP (For Info only)
 - Solicitation Release 1QFY14
 - Target Award Date 4QFY14



Conclusion

- **Production is slowing and adjusting to peace time training environment**
- **Anticipate less forces and less training overall**
- **We will work closely with the Industrial Base to adjust and mitigate impacts**
- **Support & encourage Foreign Military Sales and Direct Commercial Sales**
- **New opportunities for advanced munitions are coming**

Questions?