



# 2020

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**Missile Defense Agency**  
**Office of Small Business Programs**  
**Virtual Conference**



# Targets and Countermeasures (TC)

Presented at:

## MDA Small Business Conference

Date: May 13, 2020

Presented by:

**Frank Barrow**

**Director, TC Acquisition Management**



# Missile Defense Agency Mission

To develop and deploy a **layered** Missile Defense System to **defend** the United States, its deployed forces, allies, and friends from missile attacks in **all phases** of flight



**Missile Defense Capability  
Globally Deployed**



# Missile Defense Evolving Threat Environment

Adversaries are fielding diverse and expansive ranges of modern offensive missile systems

- Developing new missiles & improving existing systems
  - Precision strike
  - Penetration aids (e.g. decoys, jamming devices)
- Capable of maneuvering in midcourse or terminal phase
  - Maneuvering Reentry Vehicle (MaRV)
  - Multiple Independent Reentry Vehicle (MIRV)
  - Hypersonic glide vehicles and cruise missiles



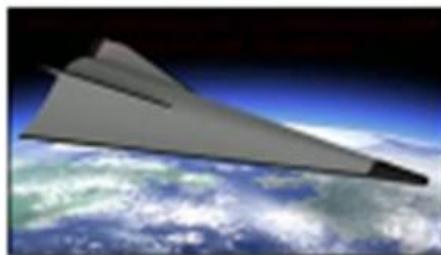
North Korea  
Hwasong-15 ICBM



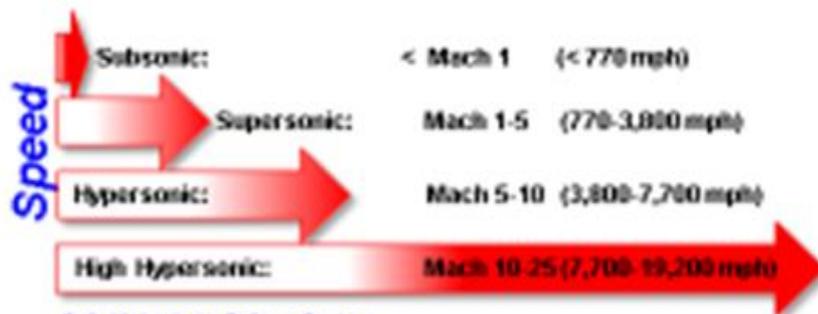
Iran  
Emad-1 MRBM with MaRV



China  
Dong Fang (DF-26) IRBM



Russia  
Concept Hypersonic Glide Vehicle



Ref: 2019 Missile Defense Review



# Today's Layered Active Missile Defense System

**C2BMC** Command and Control, Battle Management and Communications

NMCC

USSTRATCOM

USNORTHCOM

USINDOPACOM

USEUCOM

USCENTCOM

**BOOST**  
Defense Segment

**ASCENT/MIDCOURSE**  
Defense Segment

**TERMINAL**  
Defense Segment

**The System Of Elements**

**GBI**  
Ground-Based Interceptor

**SM-3 IIA**  
Standard Missile

**SM-3 IA/IB**  
Standard Missile

**THAAD**  
Terminal High Altitude Area Defense

**SM-6**  
Standard Missile

**GMD**  
Ground-based Midcourse Defense

**Aegis Ship & Ashore**  
Ballistic Missile Defense

**Aegis**  
Sea-Based Terminal

**PAC-3**  
Patriot Advanced Capability

**Sensors**



Satellite Surveillance  
BMDS OPIR Architecture



Upgraded Early Warning Radars



Forward-Based Radars



AEGIS BMD  
SPY Radars



Discriminating Radars



# Targets and Countermeasures Program Directorate

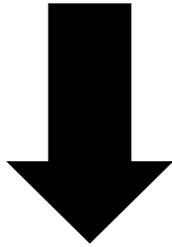
- Led by Mr. Stan Thomas, Senior Executive Service
- Develop quality, threat representative, cost-effective target solutions with systematic rigor enabling the Missile Defense System (MDS) to test system performance and demonstrate its effectiveness in threat relevant environments
- The Target System Portfolio includes target classes of Intercontinental Ballistic Missile (ICBM), Intermediate Range Ballistic Missile (IRBM), Medium Range Ballistic Missile (MRBM), and Subscale/Short Range Ballistic Missile (SRBM)
- **97.5% Success Rate; 79 out of 81 successful targets launched since January 2010**



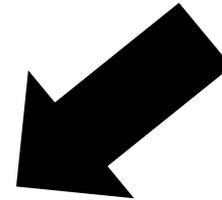


# Why Targets and Countermeasures?

MDA develops and deploys a **layered** MDS to **defend** the U.S., its deployed forces, allies, and friends from missile attacks in **all phases** of flight



**MDA conducts realistic flight tests** to validate MDS modeling and simulations, and gather data to support capability assessments



**TC provides threat-representative targets and countermeasures (aka Associated Objects) for MDA and other customers flight tests**



# Historical Target Photos

The MDS requires targets that emulate the threat



FTG-15



FTX-21



FTO-01



FTX-19



# Targets Portfolio Breakdown

## “18 Programs at various acquisition stages”

### TARGETS AND COUNTERMEASURES PROGRAM

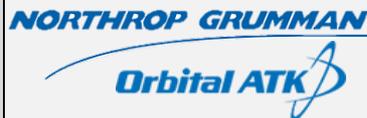
#### Long Range Targets



PM – Angela Holmes

- ICBM Multiple Configuration Types
- IRBM Multiple Configuration Types
- MRBM Type 3

#### Suppliers



#### Medium Range Targets



PM – Mike Bruno

- MRBM Multiple Configuration Types
- Modified Ballistic Reentry Vehicle
- Countermeasures
- Advanced Target

#### Suppliers



#### Subscale Targets



PM – Dave Goodall

- SRBM / MRBM
- T4 Related Targets

#### Suppliers

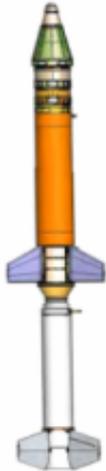
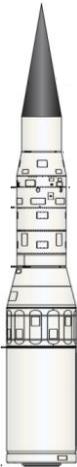


### PROGRAM SUPPORT/FUNCTIONAL ACTIVITIES

- |                                     |  |                               |                          |
|-------------------------------------|--|-------------------------------|--------------------------|
| • Motor Lifecycle Management (Mgt.) | • Data Products Lab                      | • Range Pre/Post Mission Spt. | • Test Pathfinder Spt.   |
| • Property Accountability & Mgt.    | • Systems and Sustainment Engineering    | • Transportation Mgt. Spt.    | • Acq/Contract Mgt.      |
| • Support Equipment Lifecycle Mgt.  | • Quality, Safety, and Mission Assurance | • Component Testing           | • Financial Mgt.         |
| • Hazardous Material Support (Spt.) |  | • Flight Test Execution       | • Target Storage Mgt.    |
| • Integrated Product Spt.           |  | • Personnel Mgt.              | • Support Agreement Mgt. |



# Evolving Target System Portfolio

Class	SRBM		MRBM			IRBM	ICBM	
-----NOT DRAWN TO SCALE-----								
						 <i>Under Development</i>		
-----NOT DRAWN TO SCALE-----								
Target	SRBM T4-G	SRBM T4-B	MRBM T4-E	MRBM T3c2	MRBM T1/T2	MRBM T5	IRBM T1/T2	ICBM T1/T2
Front End	MBRV-G	MBRV-B	MBRV-E	MBRV-5	MBRV-7	MBRV-9	MBRV-2 MBRV-7 MBRV-8	MBRV-2 MBRV-8 MBRV-E
Stage 3	-	-	Oriole GEM-22	-	-	-	-	-
Stage 2	TVC Oriole	Oriole GEM-22	Terrier MK-70	M57	SR19	eSR19	Orion 50 XLT	Orion 50 XLT
Stage 1	Talos MK-11	Terrier MK-70	Terrier MK-70	C4	SR19	eSR19	Orion 50-S XLT	Orion 50-S XLT
Stage 0	-	-	-	-	-	-	-	C4
Launch Method	Ground	Ground	Ground	Ground	Air Launch	Air Launch	Air Launch	Ground
Launcher	Rail	Rail	Rail	Launch Stool	C-17	C-17	C-17	Launch Stand



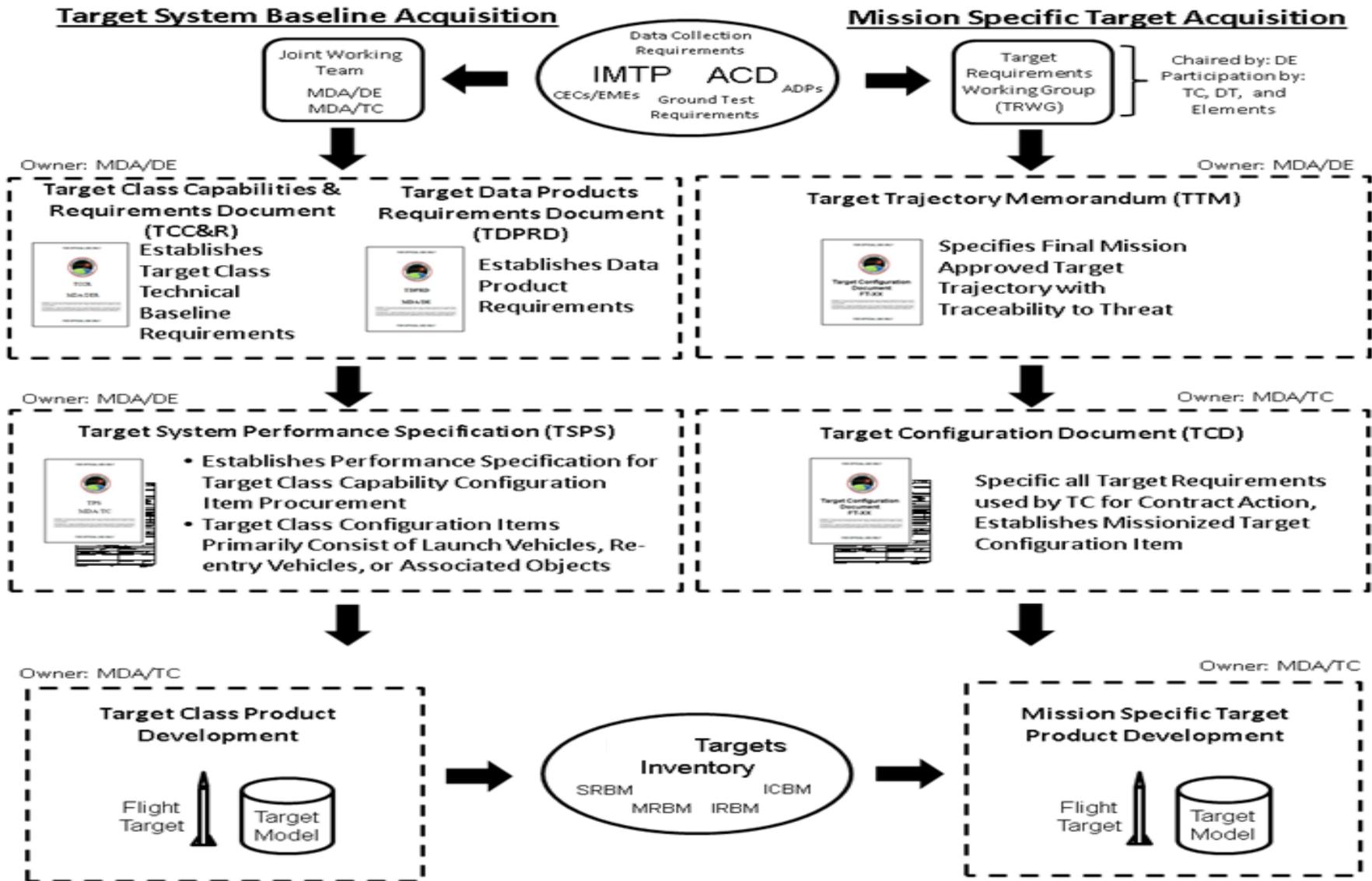
# Program Description

## Ranges and Forward Staging Areas





# Acquiring Targets/Threat Solutions “Employs Systems Engineering Rigor”





# Mr. Stan Thomas, Program Executive's High Level Acquisition Objectives

- ◆ **Meet customers' performance, schedule, and service needs to counter an evolving threat**
- ◆ **Flexible/agile contract structure to quickly turn on reconfiguring/assembling evolving threat solutions to meet changing threat requirements**
- ◆ **Seek common internal components, multiple, adaptable, shapes, and kits that can be rapidly configured to represent evolving threats**
- ◆ **Reduce cost per threat solutions as well as contain costs and risks**
- ◆ **Incentivize Performance, Cost Containment, Mission Assurance, Collaboration, and Design Innovation**
- ◆ **Sustain continuity of service and infrastructure to deliver relevant threat solutions and reliable targets**
- ◆ **Continue communications and foster relationships that preserves and expands the industrial base to incorporate advanced or evolving threat capabilities for future deliveries**



# TC Acquisition Conditions

- ◆ **TC is responsible to develop new targets and countermeasures as well as providing mission specific reviews and support to each flight test**
- ◆ **TC does as much cradle to grave acquisitions/contract actions as any other MDA organization**
- ◆ **TC has 18 programs at various stages of acquisition, development, production, and disposal—continuous market research and industrial base assessment**
- ◆ **TC also delivers products and provides services to multiple Other Government Agencies**
- ◆ **TC workload is mostly Non-Recurring Engineering, development, launch support, and product sustainment activities**
- ◆ **The fluid nature of the MDA Integrated Master Test Plan requires a significant level of effort/ OPSTEMPO**
- ◆ **Significant effort is also expended in support of confidence briefings, analysis, etc. for non-TC targets provided for MDA missions**



# Acquisition Considerations

- ◆ **Expand and sustain the industrial base**
- ◆ **Collaboration with Industry builds good Market Research and encourages competition, innovation and best value**
- ◆ **TC Supports Small Business Utilization**
- ◆ **Enforce Cybersecurity, Security, and protection of information**
- ◆ **All TC Solicitations/Contracts include MDA Assurance Provisions (MAP)/MDA Parts, Materials, and Processes Mission Assurance Plan (PMAP)**
- ◆ **Incentives will be consistent with scope, risks, objectives, and contract structure**
- ◆ **Data**
  - **Tailoring data based on need, value, and use for multiple purposes**
  - **Acquire no more restrictive than Government Purpose Rights (GPR)**



# Acquisition Consideration (Cont.)

## ◆ Task

**Provide contractual solutions for procurement of real-world, threat-representative ballistic missile target vehicles and countermeasure articles to accommodate flight testing**

◆ **TC Portfolio includes managing multiple contracts, contract types, and support agreements**

◆ **Path Ahead: Look for contract structures that supports uncertainty in future requirements and threat changes, reduces unneeded excess/quantities, and lessens cost growth due to IMTP fluctuations**

◆ **Need Contract Flexibility for:**

- **Ability to accommodate quick turn contract actions/changes**
- **MDS IMTP schedule changes**
- **Specific test configuration and quantities change**
- **Incorporate advanced threat solutions; etc.**

◆ **Allows for long-term relationship with industry partners/suppliers**



# Challenges/Opportunities

- ◆ **Need to Reduce Long Design/Development/Qualification Process**
- ◆ **Require Quick Turn Changes to Deliver Threat Representative Solutions**
- ◆ **Monitor Long Lead Hardware for Advanced Materials**
- ◆ **Monitor Industrial Base Manufacturing Capabilities and Forgings Concerns**
- ◆ **Need Extensible, Modular Architecture to Incorporate Enhancements**
- ◆ **Quality/Mission Assurance Processes Integrated Post Contract Award**
- ◆ **Stay tuned to SAM.Gov (formerly known as FBO.Gov / FedBizOpps) for current and future TC market research and solicitation activities**
  - **Request for Information (RFI) Solicitation Number RFITCFUTURES080118; “TC Futures RFI” released August 2018 (Market Research activities continues)**
  - **Completed Threat Front Ends Industry Day Event and 1-On-1s June 2019**
  - **Follow Up Questions to RFI Solicitation Number RFITCFUTURES080118—Launch Vehicles Section for a C4 Solid Rocket Motor Replacement**
  - **Request for Quotes for Information Technology Hardware and Software for Lab**
  - **Potential Future RFIs: Rocket Motor Technical Services, Associated Objects/Countermeasures, and Future Threat Front Ends (update)**



**THANK YOU**