

# Layered Defense Battlespace Shaping



Robert J. Hegarty  
PM, Area Denial to Personnel  
(973) 724-2781  
rhegarty@pica.army.mil

# *Area Denial to Personnel*

---

- Identify, develop, and evaluate alternative system concepts that satisfy the requirements of the Deny Area to Personnel NL functional area.

## *Primary Mission Tasks to Deny Area to Personnel in an:*

- **Urban/suburban environment**
- **Rural/open terrain environment**

## *Potential Effects:*

- Repel
- Delay
- Deny
- Disrupt
- Incapacitate

## *Secondary Mission Tasks to Deny Personnel access to a:*

- Facility
- Structure (bridge, tunnel, overpass and harbor)
- Airfield
- Building

## *Additional Mission Tasks:*

- Deny access to hard and deeply buried target
- Deny access to personnel in water/seas/oceans
- Deny access to personnel in aerospace
- Deny movement within a building

# US Military Transformation

**The lack of a clear definition of transformation has hindered the services' attempts....**

**The services could create such ideas from scratch, or they could.....**

**"take three legacy systems [and] connect them in ways that creates transformational outcome"**

**Defense Secretary Donald Rumsfeld**

# AD-P Initial Downselect Criteria (225 Concepts to 25)

- Identified systems that were compliant with the AD-P Mission tasks.
- Conform to pre-designated performance parameters.
- Feasibility of component integration.
- Technology Readiness Levels (TRL) were taken into consideration.
- Identify a mix of systems to include active area denial and passive/pre-emplaced. (Mk-19 40mm machine gun = Active / Mine = Passive)

# AD-P 2<sup>nd</sup> Downselect Criteria (25 Concepts to 10)

- Performance Parameters
- MOEs/MOPs
- Joint Application / Maximum Scenario Application
- Area of Coverage
- Point Target vs. Area Target
- Low Technical Risk
- Cost
- Total functionality
- Logistical Support

# AD-P Modeling and Simulation Effort

- The Joint Conflict and Tactical Simulation (JCATS) was used to compare the capabilities of area denial munitions of selected delivery systems in both urban and rural settings.
- Representative denial/delay times were matched to potential representative payloads.
- Quantified MOEs were then matched with costs and fed into an Analysis of Multiple Concepts (AoMC).

# Enhanced Capabilities Provide New Tactical and Operational Opportunities.













“Within a Crisis Region, Sole Reliance on Lethal Force May Do More to Strengthen Resistance Than Weaken It, And Thus Harm Our Strategic Interests.”



Lt Gen Bedard, USMC

“None of the most important devices that have transformed war, from the airplane to the tank.....down to the electronic computer----- owed its origins to a doctrinal requirement.”

Martin Van Creveld, Technology in War,  
(New York Free Press, 1989), p. 220

# Layered Defense Battlespace Shaping



Robert J. Hegarty  
PM, Area Denial to Personnel  
(973) 724-2781  
rhegarty@pica.army.mil