

# NDIA Joint Service Small Arms Symposium



## Joint Service Small Arms Capabilities Update

Capability Gaps into Context

*and*

Solicitation of Good Ideas from Industry

May 2005

Atlantic NJ

# NDIA Joint Service Small Arms Symposium



## Stage Setting

- ❑ JCIDS Process— Where Industry contributes
- ❑ The JCS Family of Joint Concepts—*Influence on Small Arms*
- ❑ JCIDS: Tasks, Conditions, Standards—*A Brief Summary*

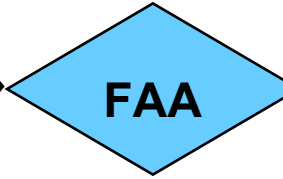
# NDIA Joint Service Small Arms Symposium



## Document Analysis

- NSS
- JPG
- JOpsC
  - JOCs
  - Joint Functional Concepts
  - ✓ Force Application
  - ✓ Protection
  - ✓ Battlespace Awareness
- UJTLS
- Service Task Lists
- Lessons learned

**INPUTS**



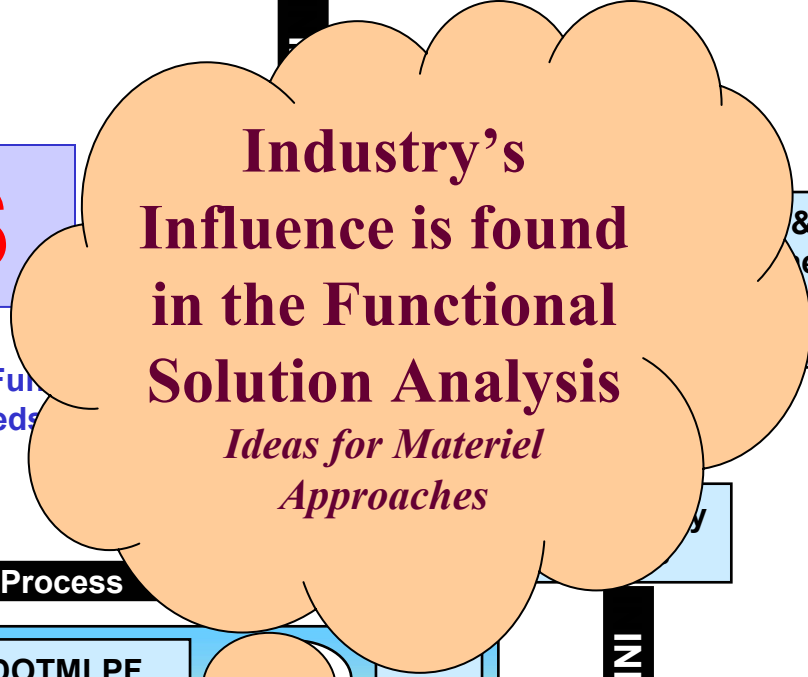
Functional Area Analysis

**OUTPUTS**

Tasks, Conditions, & Standards

**J C I D S**

Functional Needs



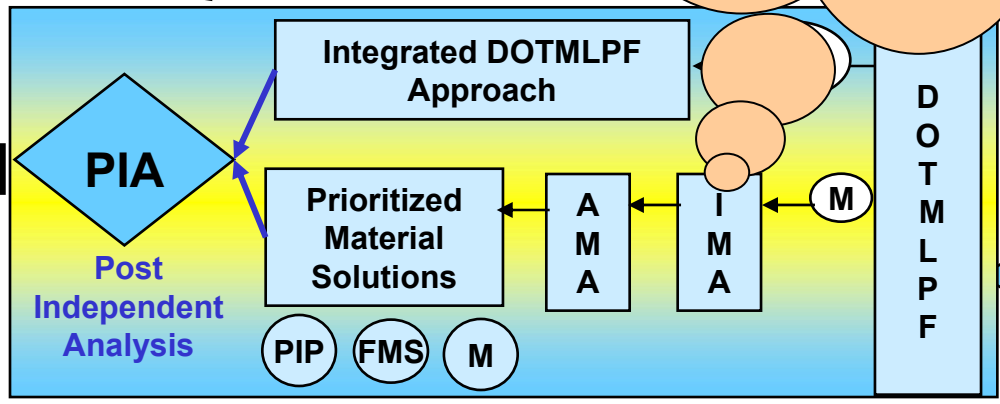
**FSA Process**

Initial Capabilities Document  
ICD

OR

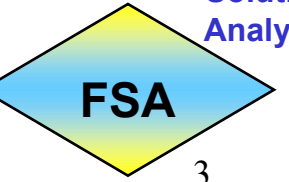
DCR

**OUTPUTS**



**INPUTS**

Functional Solution Analysis



DOTMLPF Change Recommendation

# NDIA Joint Service Small Arms Symposium



## Stage Setting

### The JCS Family of Joint Concepts—*Influence on Small Arms*

- Principal Joint Operating Concept: ***Major Combat***
- Predominant Joint Functional Concept: ***Force Application***

#### *Shaping Influence*

- ✓ ***Protection***
- ✓ ***Battlespace Awareness***

#### *Of Lesser Influence*

- *Joint C2*
- *Focused Logistics*
- *Net-Centric Environment*

- Prevalent Joint Integrating Concept: ***Joint Urban Operations***

# NDIA Joint Service Small Arms Symposium



## Stage Setting

### The JCS Family of Joint Concepts—*Influence on Small Arms*

#### Principal Joint Operating Concept: *Major Combat*

- Use a joint, interdependent force that swiftly applies overmatching power
- Employ joint power at all points of action necessary
- Achieve strategic aims: Win at the tactical level to set the conditions for winning at the operational level
- Disintegrate, disorient, dislocate, or destroy the enemy fighting capabilities
- Overwhelm the enemy through ... rapid maneuver and precision engagement

# NDIA Joint Service Small Arms Symposium



## Stage Setting

The JCS Family of Joint Concepts—*Influence on Small Arms*

Predominant Joint Functional Concepts *Force Application*

### Attributes

- Lethal
- Non-lethal
- Synchronized
- Discriminating
- Predictive
- Streamlined
- Networked
- Tailored
- Agile
- Tactically Dominant
- Persistent

# NDIA Joint Service Small Arms Symposium



## Stage Setting

### The JCS Family of Joint Concepts—*Influence on Small Arms*

Prevalent Joint Integrating Concept *Joint Urban Operations*

- Decision-Making: Lowest Tactical Level
- Synchronized collaboration and information sharing *horizontally & vertically*
- Precise Effects @ point of action
- Kinetic / Non-kinetic means; lethal and non-lethal effects
- Small independent teams...speed, stealth, protective systems
- Detect, identify, track w/ precision friendly, enemy, and neutrals

# NDIA Joint Service Small Arms Symposium



## Stage Setting

### JCIDS: Tasks—*A Brief Summary*

Task #	Description
1	<b>Receive and Transmit</b> Target Acquisition data and integrated operational picture
2	Achieve Tactical Dominance with Force Application Through Engagement— <b>Neutralize (Lethal &amp; Non-lethal)</b>
3	Achieve Tactical Dominance with Force Application Through Engagement— <b>Suppress (Lethal &amp; Non-lethal)</b>
4	<b>Breach</b>
5	Provide <b>Personal Defense</b> Capability
6	<b>Avoid Detection</b>
7	<b>Tag and Mark</b>



# NDIA Joint Service Small Arms Symposium



## Stage Setting

### JCIDS: Tasks, Conditions, Standards—*A Brief Summary*

#### Conditions

- Universal... e.g., all-weather
- Shooter / Target Posture... from defilade
- Lethal and Non-Lethal options
- Battlespace Depth: *CQB 0-50m; Close 0-100m; Mid 50-600m; Far 300-3000m*

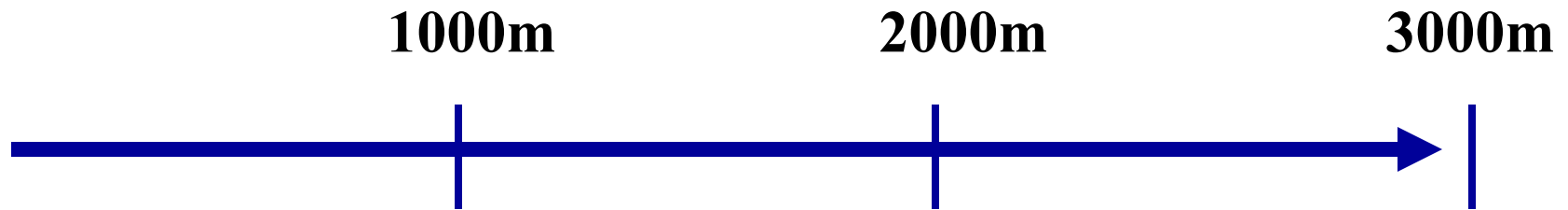
#### Standards

- Respects 3 time periods—*near-, mid-, and far-term*
- Graduated probabilities— e.g., Probability of 50%, 70% and 100% *One shot-One kill*

# NDIA Joint Service Small Arms Symposium



## Battlespace Depth



**Close Quarter Battle**

**Close Fight**

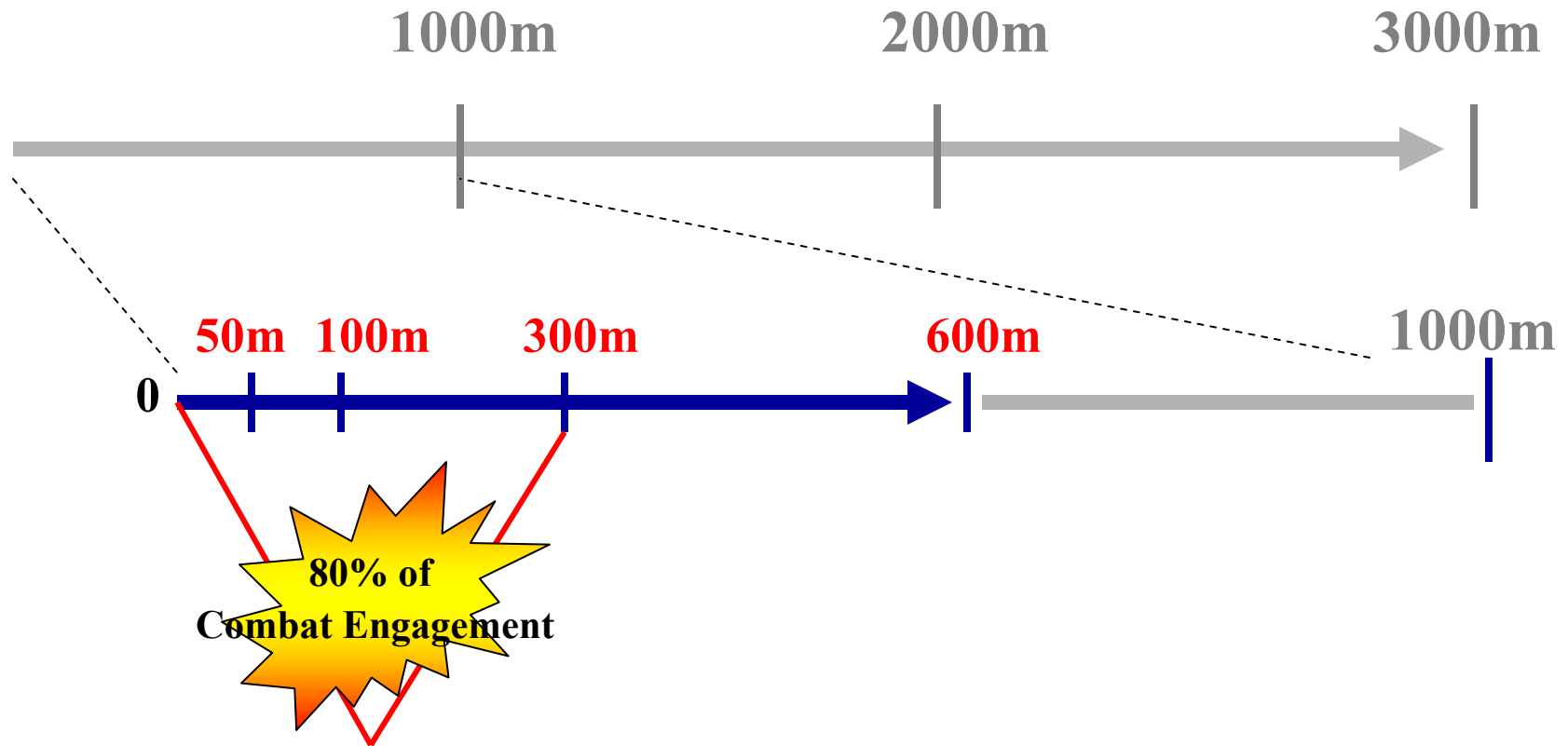
**Mid Fight**

**Far Fight**

# NDIA Joint Service Small Arms Symposium



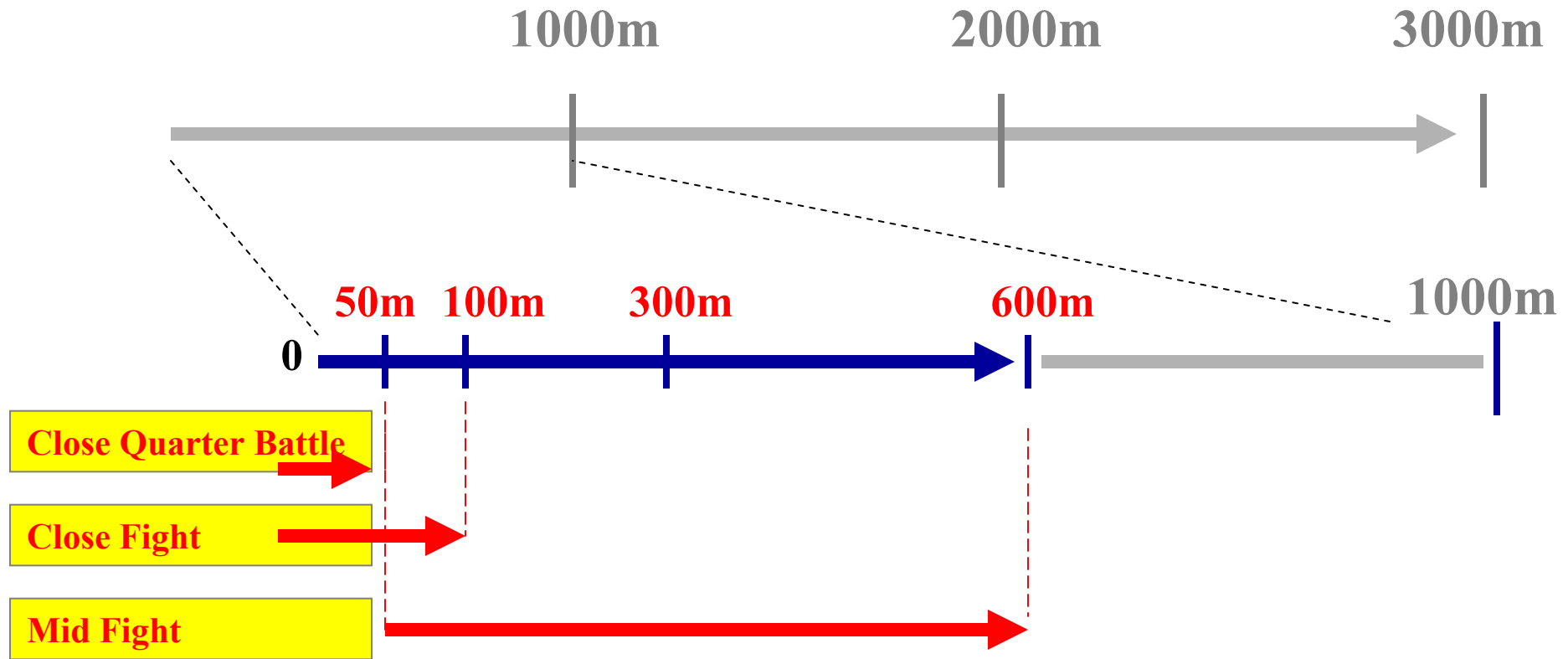
## The Gaps in Context Battlespace Depth



# NDIA Joint Service Small Arms Symposium



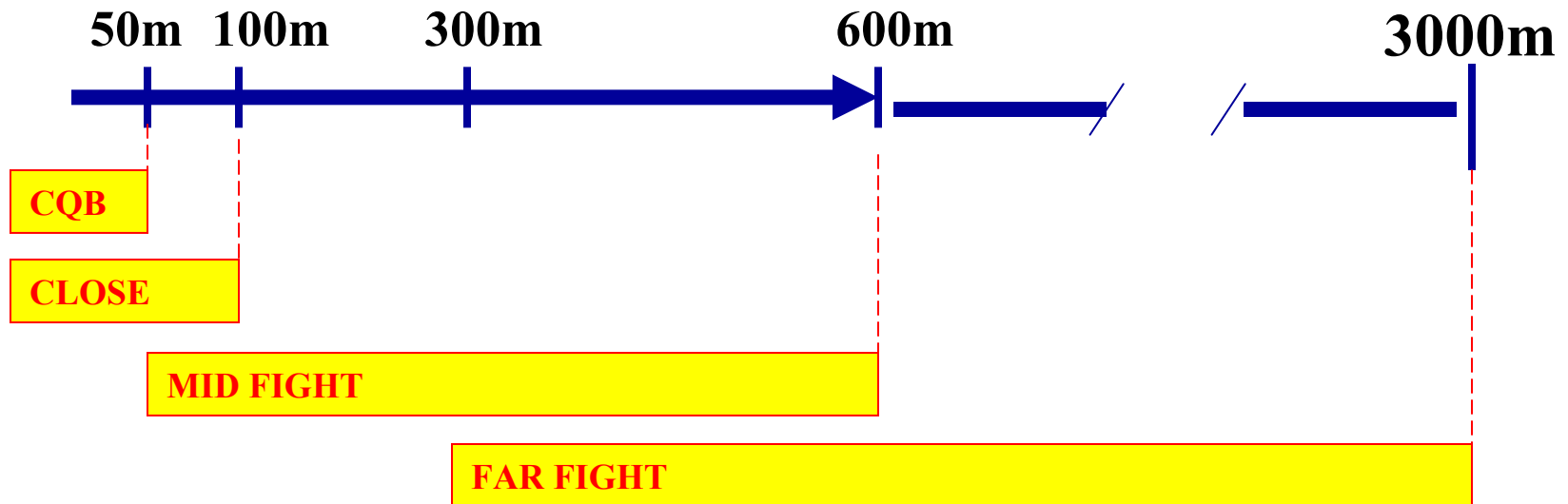
## The Gaps in Context Battlespace Depth



# NDIA Joint Service Small Arms Symposium



## The Gaps in Context Battlespace Depth-- **Overlap**

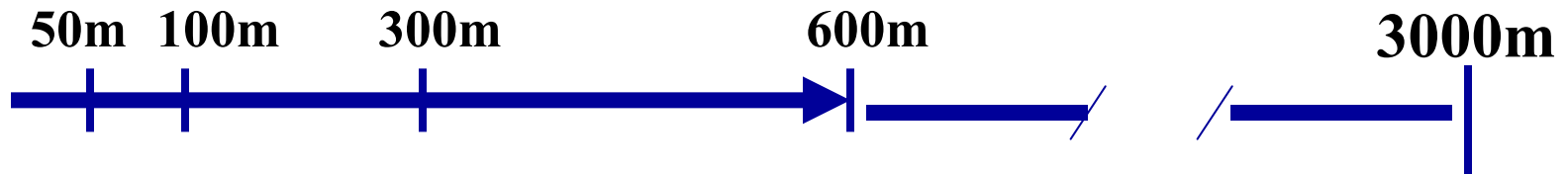


# NDIA Joint Service Small Arms Symposium



## The Gaps in Context

### Battlespace Depth– Weapon Category Mapping



**CQB**

**CLOSE**

**MID FIGHT**

**FAR FIGHT**

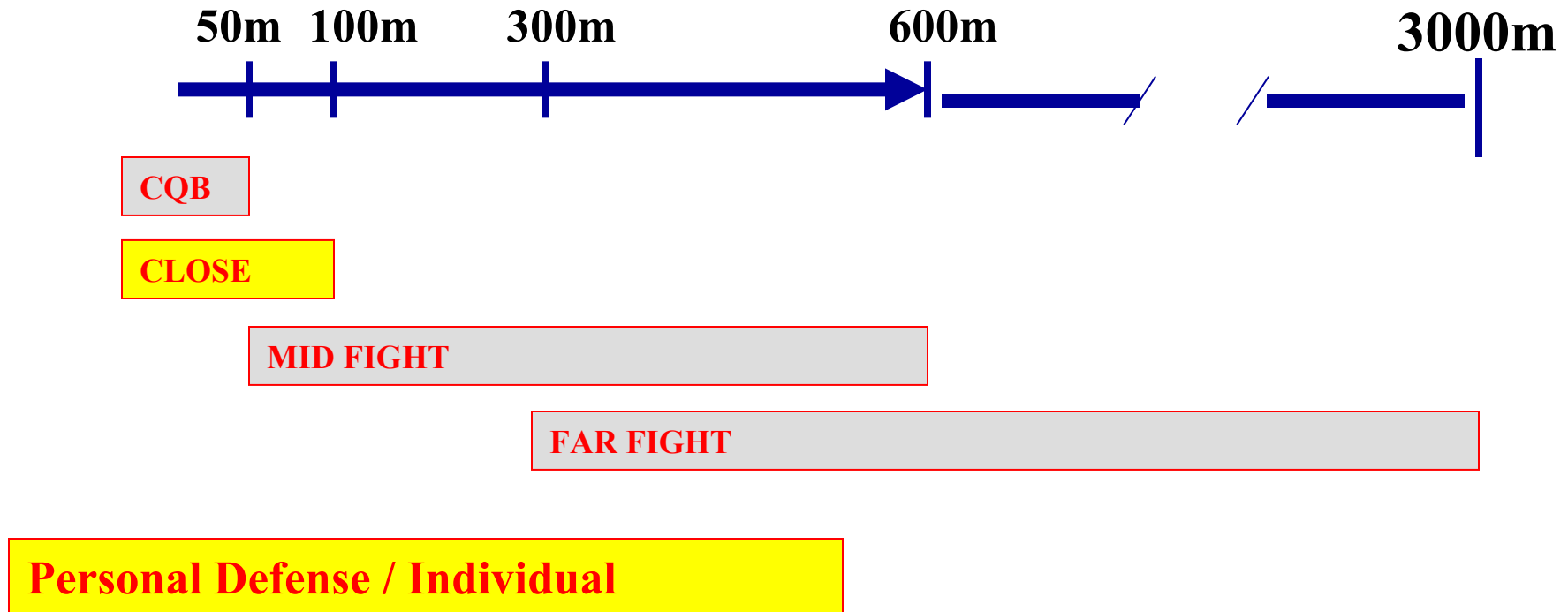
**Personal Defense / Mission-Specific / Direct Action**

# NDIA Joint Service Small Arms Symposium



## The Gaps in Context

### Battlespace Depth– **Weapon Category Mapping**

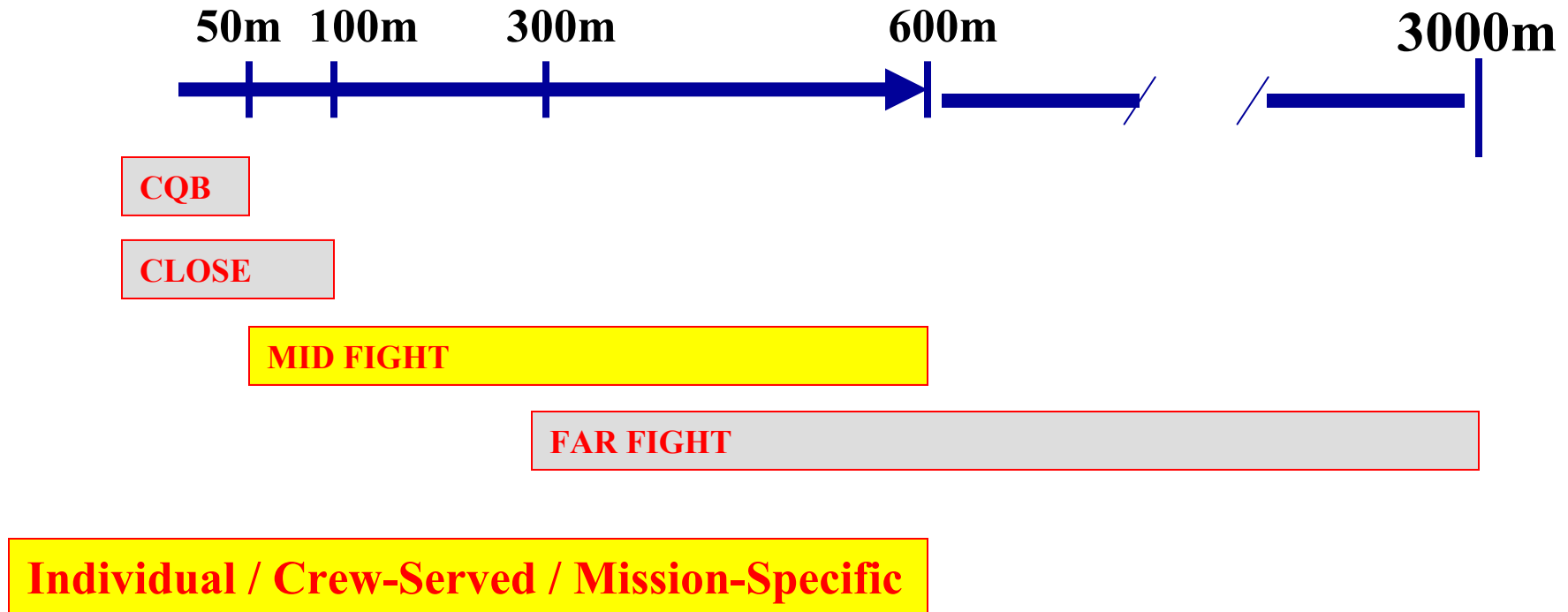


# NDIA Joint Service Small Arms Symposium



## The Gaps in Context

### Battlespace Depth– Weapon Category Mapping



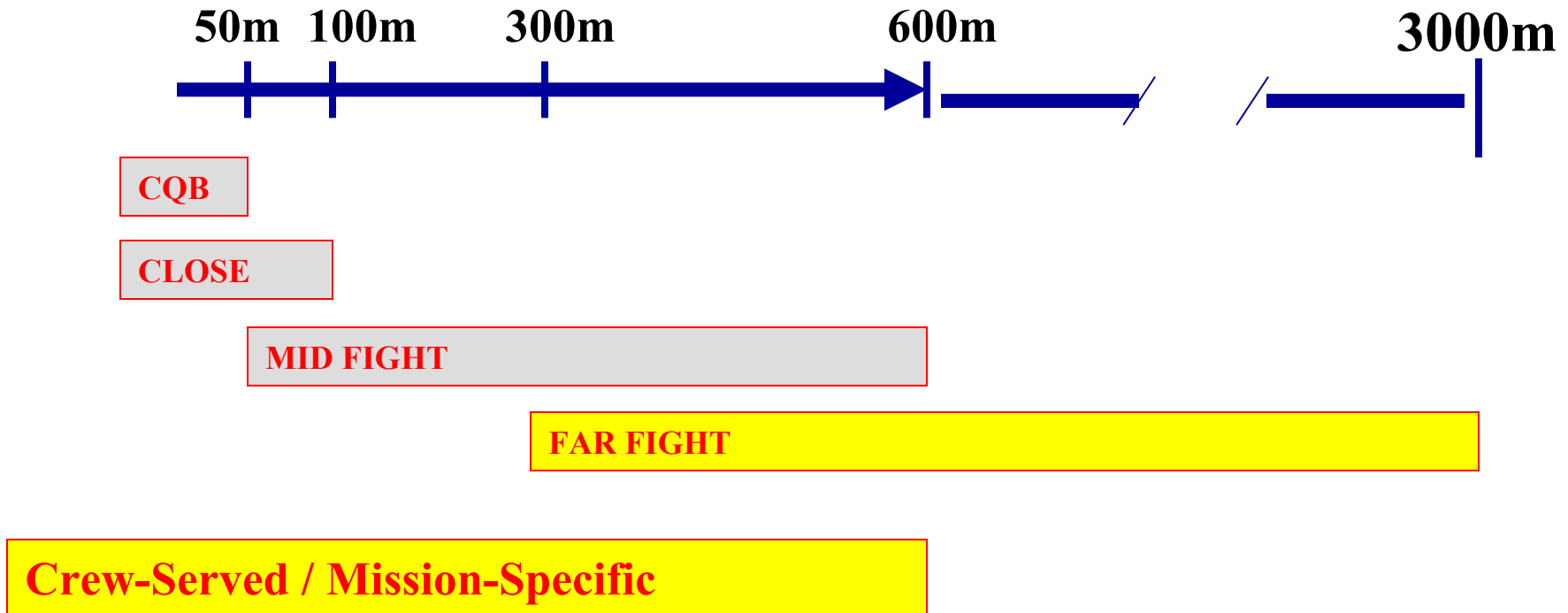


# NDIA Joint Service Small Arms Symposium



## The Gaps in Context

### Battlespace Depth– Weapon Category Mapping



# NDIA Joint Service Small Arms Symposium



## Stage Setting

### JCIDS: Functional Needs Analysis—*A Brief Summary*

- Initial assessment: *74 gap metrics* → ***18 major gap areas***
- Gaps described in terms of time: *mid-, near-, and far term*
- Shortfalls: *Increased Lethality; Non-lethal capabilities; breaching, tag and marking; receive and transmit to include combat identification*
- User concerns (lessons-learned): *justifiably focused on functional characteristics, e.g., weight, length, ergonomics, portability, reliability, in addition to operational tasks*

# NDIA Joint Service Small Arms Symposium



## Gaps Synopsis

### RECEIVE & TRANSMIT (5 areas)

- **Cannot Recognize / Identify Personnel Targets @ Extended Ranges**
- **Cannot Recognize / Identify Vehicle Targets @ Extended Ranges**
- **Cannot Obtain data on, nor Acquire + Recognize /Identify Targets in defilade**
- **Cannot Sufficiently Distinguish Friend, Foe or Non-Combatant**
- **Sight Picture is not enhanced w/ Real-time Picture of the Battlespace**

# NDIA Joint Service Small Arms Symposium



## Gaps Synopsis

### NEUTRALIZE & SUPPRESS (7 areas)

- **Cannot Hit Targets from Defilade Positions to Standard**
- **Desire Greater Probabilities for hit and incapacitation**
- **Cannot Deliver Lethal Effects against Enemy Targets in Defilade**
- **Non-lethal Effects Against Personnel are Limited in Range & Effect**
- **Cannot Deliver Non-Lethal Effects Against Vehicles throughout Battlespace**
- **Cannot Suppress at the far reaches of the battlespace**
- **Cannot Suppress with non-lethal options**

### BREACH ( 1 area)

- **Cannot Breach (6' x 4') from Distances beyond 40 meters**

# NDIA Joint Service Small Arms Symposium



## Gaps Synopsis

### PERSONAL DEFENSE ( 3 areas)

- **Cannot Deliver Lethal Effects to Desired Range to Standard**
- **Cannot Deliver Non-Lethal Effects to Range and to Standard**
- **The Time from Threat to Engagement is not Near-Instantaneous**

### AVOID DETECTION ( 1 area)

- **Weapons' Signatures Not Reduced throughout Battlespace Depth**

### TAG & MARK ( 1 area)

- **Cannot Overtly / Covertly Tag and Mark at Range**

# NDIA Joint Service Small Arms Symposium



## Finally: NSATC—*Looking for Ideas*

The US Army National Small Arms Center and the National Small Arms Technology Consortium—*Forward Progress*

- Develop Small Arms Weapons technologies that advance state-of-the-art
- Improve US industry, government and academia capabilities to sustain US military supremacy in RD&E and production of small arms technologies
- Insert these technologies into legacy and developmental platforms and ammunition as quickly and effectively as possible

# NDIA Joint Service Small Arms Symposium



## QUESTIONS