Precise Indirect Fires

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Raytheon
DOD Operational Goals for Transformation

- Protecting Critical Bases of Operations
- Assuring Information Systems in the Face of Attack and Conducting Effective Information Operations
- Projecting and Sustaining U.S. Forces in Distant Anti-Access or Area-Denial Environments
- Denying Enemies Sanctuary by Providing Persistent Surveillance, Tracking and Rapid Engagement With *High-Volume Precision Strike Through a Combination of Complimentary Air and Ground Capabilities*. *At Various Ranges and in All Weather Conditions*

- Enhancing the Capability and Survivability of Space Systems
- Leveraging Information Technology
Why Precision?

- Increased Lethality
- Improved Survivability
- Reduced Collateral Damage
- Reduced Logistics Footprint
The Benefits of Accuracy

✔ Increased Lethality
Improved Survivability
Reduced Collateral Damage
Reduced Logistics Footprint
Indirect Fire Support in Urban/Complex Terrain

A command post in an urban environment.

A 20m X 20m structure.

10m Target Location Error
Indirect Fire Support in Urban/Complex Terrain

Current M549 vs 20X20 structure: 147 rounds
XM982 vs 20X20 structure: 3 rounds
The Benefits of Accuracy

- Increased Lethality
- ✓ Improved Survivability
- Reduced Collateral Damage
- Reduced Logistics Footprint
Guided Projectiles And The Close Fight
Echelon Fires for the Light Infantry Attack/Defense*

* Close Fire Support (RED, 0.1% PI, Max Range
Guided Projectiles And The Close Fight
Echelon Fires for the Light Infantry Attack/Defense*

* Close Fire Support (RED, 0.1% PI, Max Range
Results From 17 Hrs of Combat, NEA, Modeled in FIRESIM
The Benefits of Accuracy

- Increased Lethality
- Improved Survivability
- Reduced Collateral Damage
- Reduced Logistics Footprint
Indirect Fire Support in Urban/Complex Terrain

Current M549 vs 20X20 structure: 147 rounds
The Benefits of Accuracy

- Increased Lethality
- Improved Survivability
- Reduced Collateral Damage
  - Reduced Logistics Footprint
C-130J Sorties Required

**Scenario**
17 hrs of combat in SWA
124 DPICM Missions fired at 18 km+

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<thead>
<tr>
<th>To Achieve 20 % EFD</th>
<th>To Achieve 30 % EFD</th>
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<tr>
<td>M864</td>
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<td>Excalibur</td>
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To Achieve 20 % EFD

To Achieve 30 % EFD
Why Precision?

- Increased Lethality
- Improved Survivability
- Reduced Collateral Damage
- Reduced Logistics Footprint
- Key to DOD Operational Goals for Transformation and Success of Army Objective Force

Benefits Seem Clear, but ....
The Challenges

- Competing Munitions
  - “Dumb” Rounds vs Smart Rounds

- Competing Delivery Systems
  - Cannons vs Rockets vs Missiles

- Accurate Target Location
  - Single System Target Locations Errors (TLE) vs Joint Reconnaissance, Surveillance and Target Acquisition Capabilities

- Cost
  - AUPC vs Total System Costs

The Army Needs a Mix of Capabilities; We Must Help Them Achieve That Objective