Advanced Lethality Armament Technology for Small Arms
Outline

- Introduction
- ATO Overview
- Technical Approach
- Project Portfolio
- Project Updates
- Results
- Summary
What is the Advanced Lethal Armament Technology for Small Arms ATO?

An Army Technology Objective (ATO) effort funded thru the JSSAP office which was started in 2008. The aim of this effort is to identify, find, mature, and demonstrate those small arms technologies which, when developed, integrated, tested, and fielded will provide leap ahead benefits to significantly augment the effectiveness of the next generation War-Fighter.
Objective:
− To improve the ability to incapacitate targets in defilade.

Challenges:
− Small payload
− Payload efficiency
− Delivery accuracy
− Effectiveness on defilade targets
− Recoil

Overcoming Challenges:
− Improve the distribution of warhead fragments.
− Alter flight trajectory.
− Altering the warhead orientation near the target.
− Provide advance fuzing to set-off warhead at the optimum distance from the target.
− Improve accuracy.

Expected Outcome
TRL 4 (Brass board) component technologies which, when matured, integrated, and fielded will lead to multiple capability gaps mitigation.
Small Fragmenting Munitions  Technologies related to small arms munition which has been designed to generate ballistic fragments in a specified way (specified size, weight, spread, velocities) against a specified array of threats (anti materiel, anti personnel, etc) in specified scenarios (range, defilade, etc).

Control of Directionality of Fragments
This research area include technologies related to focusing on the augmentation of the munition system’s ability to direct, channel, or otherwise enhance the performance of the fragmenting munition's warhead in its given role.

Combined Lethal & Non-Lethal Warhead.
The purpose of this research area is to advance variable effect component technology. Variable effect technology is defined as technology that limits or directs the effectiveness of the warhead in a controlled and precise way. Ideally, we are seeking to advance technology components that will eventually enable the war-fighter to deliver a selectable level of effect (ranging from less-than-lethal to lethal) to one or more targets across the full operational range envelope. Variable effects will give commanders more options in complex settings while potentially reducing the logistical footprint and/or weight of carried munitions.
<table>
<thead>
<tr>
<th>Project Name</th>
<th>Technology Provider</th>
<th>Metrics Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>40mm Directed Fragmentation Munition</td>
<td>Battelle</td>
<td>1,2</td>
</tr>
<tr>
<td>Optically-Fuzed Airburst Munition</td>
<td>Metal Storm</td>
<td>1,2</td>
</tr>
<tr>
<td>Advanced Warhead Effort</td>
<td>ARDEC</td>
<td>1,2</td>
</tr>
<tr>
<td>Dynamically Reshaped Fragmenting Warhead</td>
<td>Dindl Firearms</td>
<td>1,2</td>
</tr>
<tr>
<td>“Programmable” Fragmentation Warhead</td>
<td>ARDEC</td>
<td>1,2</td>
</tr>
<tr>
<td>Localized Annealing Fragmentation</td>
<td>Los Alamos National Lab (DOE) / ARDEC</td>
<td>1,2</td>
</tr>
<tr>
<td>40mm Precision Grenade</td>
<td>Georgia Tech RI</td>
<td>1,2</td>
</tr>
<tr>
<td>Adv. Lightweight Recoil Attenuation</td>
<td>Knight’s Armament Co.</td>
<td>3,4</td>
</tr>
<tr>
<td>Kinematic Recoil Chain Attenuation</td>
<td>ARDEC</td>
<td>3,4</td>
</tr>
<tr>
<td>Thermal Management for Smalls (Carbon Foam)</td>
<td>Oak Ridge National Labs (DOE)</td>
<td>1,3</td>
</tr>
<tr>
<td>Lethal /Non Lethal Door Breaching 40mm round</td>
<td>Dindl Firearms</td>
<td>5</td>
</tr>
<tr>
<td>Lethal/Non Lethal Munition</td>
<td>(Award Pending)</td>
<td>5</td>
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<tr>
<td>Enhanced Fragmentation Munition</td>
<td>(Award Pending)</td>
<td>1,2</td>
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**Metrics (Advanced Lethal Armament ATO)**

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<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Enhanced Effects on Target</td>
</tr>
<tr>
<td>2</td>
<td>Dispersion and Control of Effects on Target</td>
</tr>
<tr>
<td>3</td>
<td>Reduced Recoil / Weight</td>
</tr>
<tr>
<td>4</td>
<td>Reduced Recoil Impulse</td>
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<tr>
<td>5</td>
<td>Combined Lethal/ Non Lethal</td>
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</tbody>
</table>
Project Updates

Small Fragmenting Munition

40mm Directed Fragmentation Munition

Dynamically Reshaped Fragmenting 40mm Warhead

40mm “Selectable” Fragment Warhead

Enhanced Fragmentation Munition
Project Updates

Control Directionality of Fragments

Optically Fuzed Air-Burst Munition (OFAB)

Enabling Technology

High-Temperature/ High Strength Carbon Foam

40mm Precision Grenade
Project Updates

Recoil Reduction

Kinematic Recoil

Advanced Recoil Attenuation

Combined Lethal / Non-Lethal

Lethal / Non-Lethal Munition

Lethal/Non-Lethal Door Breaching Round
Results

Progress on ATO

• Improvements in Probability of incapacitation.
• Improvements in Lethal Area compared to legacy round.
• Improvements in Fragmentation patterns.
• Demonstrated 90% decrease in recoil impulse compared to M240 MG.
• Transition Carbon Foam material for barrel wrap application.
Thank You!!!
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