Dr. Barton Halpern
Joint Service Small Arms Program (JSSAP) Technology
Research & Development Strategy
23 May 2011
Our #1 initiative is the successful transition of technology for small arms related technology to PM Programs of Record

- Achieve this through a balanced portfolio strategy
- Focused on Capability Gaps as identified in the Joint Small Arms Capability Assessment and Army Small Arms Capability Based Analysis
- Focused on identified requirements from through the Joint Service Small Arms Master Plan
- Focused on leveraging:
  - Technology
  - Academia
  - Industry
  - Weapon concepts feasible for further research and development
JSSAP Small Arms Systems R&D Strategy

- Intensive management of the DoD small arms tech base
- Harmonization of requirements
Technology Investments Of 2025

- R&D Focus on Technology to support Documented and Emerging Requirements
- Weapon and ammunition must provide a revolutionary increase in capability, while also being as lightweight as possible
- Protect The Soldier
- Unburden the Soldier
- Empower the Soldier

### 2025 Investments

<table>
<thead>
<tr>
<th>Category</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threat Engagement</td>
<td></td>
</tr>
<tr>
<td>Target Acquisition</td>
<td></td>
</tr>
<tr>
<td>Breaching</td>
<td></td>
</tr>
<tr>
<td>Weapon Detection</td>
<td></td>
</tr>
<tr>
<td>Operational and Maintenance</td>
<td></td>
</tr>
</tbody>
</table>
2012-2015 Planned Technology Investments

**Advanced Small Unit Small Arms Technology Concepts R.ARD.2012.03**

**Purpose:** Identify and advance technologies leading to the ability to improve Small Unit Level effectiveness. Utilize new small arms technological concepts to improve range overlap capability against like-sized threat elements.

**Results:**
- TRL 2 Concept development
- TRL 3 Demonstrations of components and technologies
- TRL 4 Concept tests
- Critical new concept designs

**Payoff:**
- Dramatic increase in range overlap over current small arms systems
- Maximized Operational Utility and Survivability
- Assured Lethality

**Small Arms Material & Process Technology R.ARD.2012.04**

**Purpose:** Assess and develop state-of-the-art material and process component technology to enhance the operability and maintainability of small arms weapons for current and future warfighters.

**Product:**
- Target and harvest state-of-the-art material and processes applicable to weapons, ammunition, optics, suppressors and barrels that increase the useable life, decrease weight, reduce signature and improve reliability of small arms weapons.

**Payoff:**
- Increased weapon lifetime
- Reduced maintenance or lubrication
- Increased reliability
- Decreased weapon signature
- Reduced weight
- Transition to PM Soldier Weapons or other technology programs

**Demonstration Small Arms Grenade Munitions Integration and Evaluation D.ARD.2012.02**

**Purpose:** Demonstrate integration of component technologies and improve effectiveness of 40mm Low Velocity Grenade.

**Product:**
- Integrated small fragmenting payloads through directionality and materials for increased effectiveness leveraging broadboard technologies developed under Advanced Lethal Armaments ATO-R

**Tasks:**
- Award 3 Contracts
- Mature MEMS Fuze & Sensor Technology
- Improve Warhead Fragmentation
- Integrate Fuze & Warhead
- Shoot Off Ax Down Select
- Optimize Interior, Exterior & Terminal Effects
- Test System in Relevant Environments

**Small Arms Weapons & Fire Control Integration D.ARD.2012.03**

**Purpose:** To demonstrate the integration of advanced fire control component technology which improves capability to determine range, track moving targets, and increase probability of hit. System will be evaluated on relevant current and developmental small arms weapons.

**Product:**
- Integrated Fire Control system leveraging broadboard technologies developed under Advanced Fire Control ATO-R

**Tasks:**
- Contract Negotiation/Award of Two (2) Contracts
- Mature Fire Control
- Component Hardware Technologies
- Improve Target Tracking Algorithms
- Down-select to One (1) Contractor
- Integrate Component Technologies into Fire Control System
- Test, Assess & Redesign (Relevant Environments)
2015-2018 Planned Technology Investments

**Advanced Small Unit (Platoon and Company) Weapon Technology Concepts Research**

**Purpose:** Identify and advance technologies leading to the ability to improve Small Unit Level effectiveness. Utilize new small arms technological concepts to improve range overmatch capability against like-sized threat elements.

**Results:**
- TRL 2 Concept development
- TRL 3 Demonstrations of components and technologies
- TRL 4 Concept tests
- Critical new concept designs

**Payoff:**
- Dramatic increase in range overmatch over current small arms systems
- Maximized Operational Utility and Survivability
- Assured Lethality

**Advanced Energy Small Arms Concept Exploration Research**

**Purpose:** Identify power and energy sources to integrate ancillary devices onto small arms while reducing size, weight and power.

**Results:**
- TRL 2 Concept development
- TRL 3 Demonstrations of components and technologies
- TRL 4 Concept tests
- Critical new concept designs

**Payoff:**
- Dramatic increase power management over current small arms systems
- Improved lasers and other systems employing directed energy applications
- Assured Lethality

**Advanced Small Unit Small Arms Technology Concepts Demonstration**

**Purpose:** Identify and advance technologies leading to the ability to improve Small Unit Level effectiveness. Utilize new small arms technological concepts to improve range overmatch capability against like-sized threat elements.

**Results:**
- TRL 4 concept tests
- TRL 6 prototypes and assessments
- Technology demonstration and quantification of benefits

**Payoff:**
- Dramatic increase in range overmatch over current small arms systems
- Maximized Operational Utility and Survivability
- Assured Lethality

**Small Arms Material & Process Technology Demonstration**

**Purpose:** Assess and develop state-of-the-art material and process component technology to enhance the operability and maintainability of small arms weapons for current and future warfighters.

**Product:**
- TRL 4 concept tests
- TRL 6 prototypes and assessments in existing weapons systems
- Technology demonstration and quantification of benefits

**Payoff:**
- Increased weapon lifetime
- Reduced maintenance or lubrication
- Increased reliability
- Decreased weapon signature
- Reduced weight
- Transition to PM Soldier Weapons or other technology programs
New Funding may be available in FY14 to mature and demonstrate technology that focuses on developing increasingly smaller, lighter, and cheaper small arms technology components.
JSSAP is delivering an integrated Small Arms R&D Capability Package by attacking the documented capability gaps of Threat Engagement, Target Acquisition, Breaching, Weapon Detection and Operational and Maintenance Issues for Small Arms.