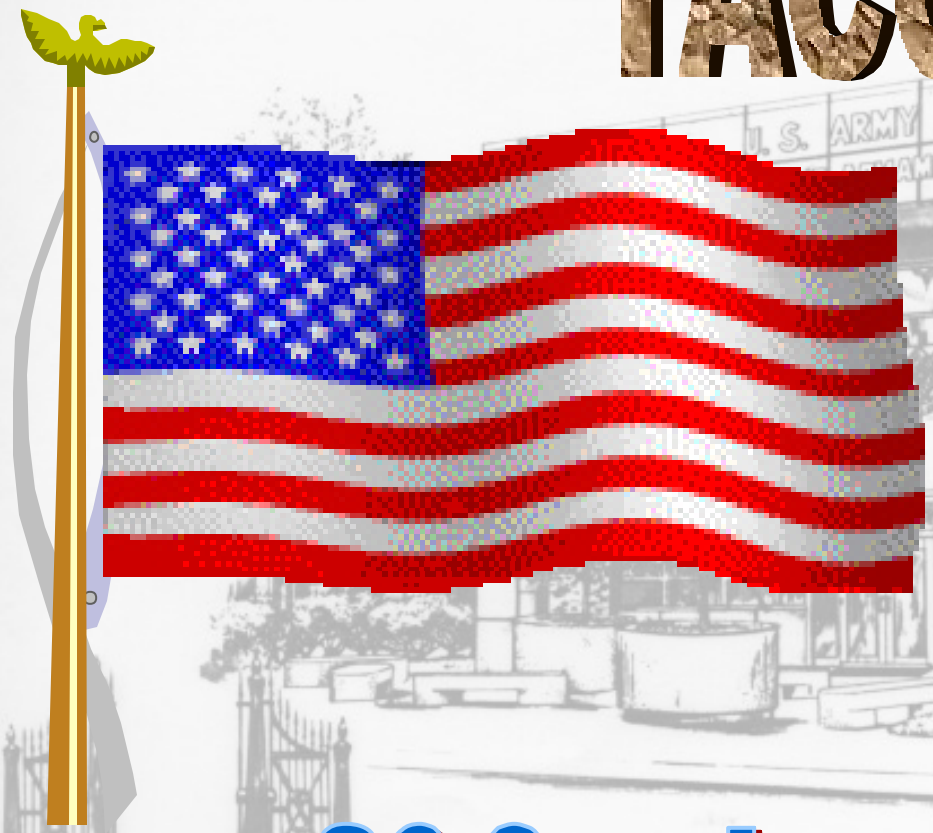
TACOM APBI



30 October - 1 November

Advanced Planning Briefing for Industry

Tank Automotive Research, Development, & Engineering Center

TACOM Advanced Planning Briefing for Industry

Dr. Richard E. McClelland
Director
U.S. Army Tank Automotive RD & E Center

1 November 2002

FCS Block I Technologies

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

- Lightweight Airborn Multi spectral Minefield Detection (LAMMDS)
- Multi-functional OTM Secure Adaptive Integrated Communications (MOSAIC)
- Lightweight Armor Solution for Vehicles
- Networked Sensors for the Objective Force
- Advanced Kinetic Energy Cartridge (AKE)
- On-the-Move Close-in Defeat APS
- Battlefield Tactical Navigation (BTN)
- System of Systems MANPRINT R&D for the Objective Force
- Integrated Army Active Protection System (IAAPS)
- Distance Learning for the Warfighter
- Extended Range Munitions, Mid-Range
- Next Generation Training and Simulation Systems
- Training for Networked C2 Environments
- Combat Hybrid Power Systems (CHPS)
- Precision Guided Mortar Munition (PGMM)
- Multi-Function Staring Sensor Suite (MFS3)
- Embedded Training for Dismounted Soldiers
- Crew Integration and Automation Test Bed (CAT)
- Water Generation and Purification
- Dismounted Warrior C4 Technologies
- Accelerating the Leader Development Cycle

- FCS Engine
- On-the-Move Tactical SATCOM Technology
- Multi-Mission Common Modular UAV Sensors ATD
- Robotic Follower
- Soldier Stamina-Biomedical Interventions
- Organic Air Vehicle (OAV)
- Objective Force Warrior (OFW)
- Re-supply and Precision Airdrop
- Foliage Penetration Radar (FOPEN)
- Loitering Attack Munition (LAM), Penetrating Attack Munition (PAM)
- Combat Coalition ID (CCID)
- Small UAV (SUAV)
- Hummingbird (A-160)
- Agile Commander
- Log C2
- Netfires C3 for NLOS/BLOS
- Combat Casualty Care
- Ground Standoff Mine Detection System
- C4ISR On-The-Move (OTM) Test Bed

TARDEC

ARDEC

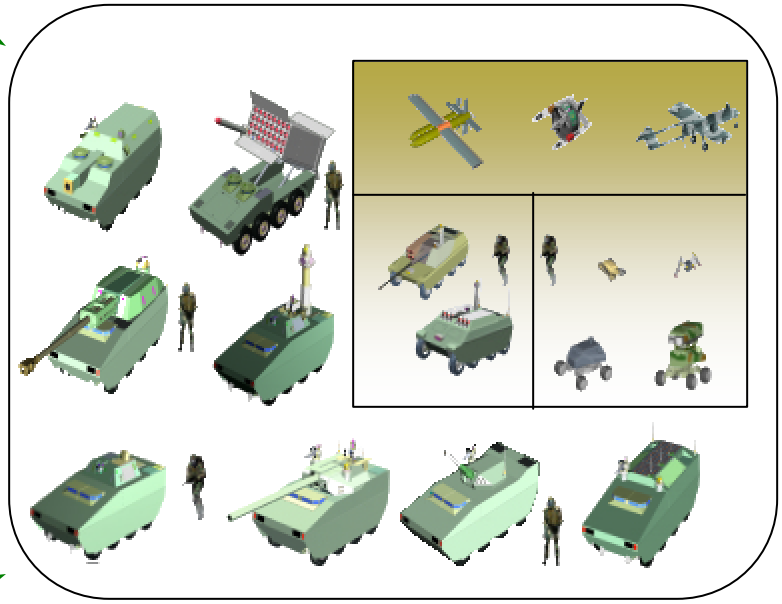
Tank-automotive & Armaments COMmand

Opportunities in FY03

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

Controls and Robotics

Agent Polluted Water Detection/ Removal



Vehicle Technologies

Power/Energy Systems

Auxiliary Power Units

Visualization/ Prototyping

Advanced Suspension

Agent Polluted Water Detection / Removal

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

Detection of Chemical-Biological Pollutant Agents in Water

- Hand held, self power device to analyze water
- Detect and monitor CB warfare agents in real time
- Economical and mass producible
- Require no specialized training

NBC Agent Water Contamination Removal Technologies

- Process to remove NBC warfare agents from water.
- Capable to contain waste for safe disposal.
- Minimal complexity and logistic burden.
- Power efficient.

Controls and Robotics

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

Robotic Imaging

- Terrain Characterization/World modeling
- 360° Safeguarding
- Pedestrian Detection
- Road Sign Identification

Navigation, Control, Path Planning

- Cooperative Situation Awareness (UGV/UGV & UGV/UAV)
- Mission Oriented Robotic Path Planning Incorporating Tactical Behaviors
- Use of A Remote Sensor Info for Path Planning and Execution (UGS, UGV's, UAV's)
- Robotic Planning Based on Mobility State Self-Awareness

Vehicle Technologies

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

Advanced Thermal Management Systems

- Areas of Interest: compressors, heat exchangers, systems packaging and vehicle integration for legacy and future truck systems
- Demonstrated return on investments based on reduced fuel consumption & O&S costs
- Vehicle integration should accommodate future truck high voltage bus and legacy systems

Next Generation Tactical Vehicle Architecture

- Areas of Interest: Electronic systems and subsystem controls, smart sensors, nano-technologies, MEMS, advanced power management architectures, embedded computing devices, smart actuators, and multiplexed electronics systems
- Integration of capability to analyze diagnostic systems and fault codes at the electronic control level with the different varieties of control structures of Army tactical wheeled vehicles

Vehicle Technologies (Cont'd)

Integration of Voice Activated Device with Onboard CPU

- Development of a voice interactive computing device to interface with Army truck platforms
- Voice activated control of on-vehicle systems and software on an Army tactical truck
- Control of communication equipment, equipment diagnostics, IETM Software, navigation, asset tracking, telematics systems

Advance Pumping Technologies for Parasitic Reduction

- Development of an objective design and prototype pumps and supporting cooling components that result in performance and design benefits
- Demonstrate both pump technology improvements and benefits to commercial and military vehicles utilizing worst case driving constraints

Vehicle Technologies (Cont'd)

Advanced Coatings Research

- Conduct research in coatings technology for ground vehicles
- Provide analysis into the causes of corrosion in fielded ground vehicle systems
- Develop techniques and technologies for corrosion detection
- Develop corrosion resistant coatings
- Evaluate new commercially developed corrosion preventive technologies
- Research application and maintenance techniques and identify best/recommended practices

Vehicle Technologies (Cont'd)

Tracked Hybrid Electric Vehicle

- Demonstrate hybrid electric drive on a Command and Control tracked vehicle (M577)
- Develop a power budget and power management system for the propulsion system and other onboard power users
- Investigate different energy storage devices

Auxiliary Power Units

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

Rotary Multi-Fuel Auxiliary Power Unit

- Onboard Military Vehicle
- Output 12 - 18 KW
- Operate on Heavy Carbon Fuels
- High Power Density
- Cold Start Capability
- Low Noise Output

Fuel Cell Based Ground Vehicle Auxiliary Power Unit

- Develop On-Board Fuel Cell Auxiliary Electric Power Generator
- Develop Robotic & individual mobility fuel cell power systems
- Demonstrate fuel cell passenger vehicles on military bases

Advanced Suspensions

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

Track Over Wheel Study

- 16 – 20 Ton Weight Class
- Configuration Optimization
- Application Feasibility

Magnetorheological and Compressible Fluids

- Combination/Integration of Fluids
- Strut Application
- Semi-Active Capability

Low Bandwidth Active/Compressible Fluids

- Height Control Capability
- Load Equalization
- Roll and Pitch Control
- Improved Ride for Less Cost and Complexity

Visualization and Prototyping

Integrated Program Management Framework

- Comprehensive, real time deployable collaboration solutions.
- Mitigate risk, time constraints and classification issues of developing new vehicle technologies.
- Capable of self-service management, milestone/activity task/resource tracking, online, and information visual.
- Integrate cost, schedule, earned value and programmatic information into a collaborative weapons system development environment.
- Provide virtual workspaces for globally dispersed teams.
- Interface with existing metrics to measure applications.
- Accelerate Army's vehicle development and fielding process.

Digital Human Modeling and Virtual Reality for Future Combat Systems

- Development of a biomechanically correct and optimized human models for the conduct of realistic studies of human factors in a virtual environment
- Construction of rigorous methods for quantifying human performance measures for implementation into design optimization techniques
- Address bandwidth management for feedback control

Rapid Prototyping

- Leverage commercial state-of-the-art rapid prototyping tools and technologies within manufacturing to assist in the design, development and production of military vehicle systems, subsystems and components.
- Delivery of first quality parts, optimizing component performance.
- Increase alternate design selection with minimum affect on costs
- Reduction in time from design to production
- Accessible to customer for interactive collaboration

Power/Energy Systems

Fuel Cell Power Systems for

- Robotics
- Individual Mobility
- Passenger Vehicles (on base)

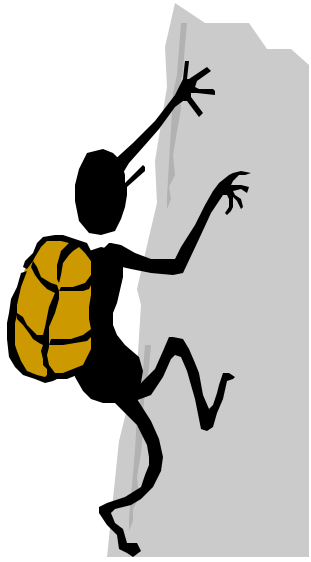
Broad Agency Announcements (BAA)

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

Only one announcement will be posted to TACOM website and FedBizOpps.

✳ November 2002 ✳

- **Broadly-defined topics of interest covering a range of TARDEC's requirements (must be within lab mission and agency programs).**
- **Contains instruction for preparation and submission of both abstracts and proposals.**
- **Contains criteria for evaluation and selection of proposals for award.**



BAA Process

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

BAA Announcement Issued

Day 30

Abstracts Received

Day 45

Abstract Review Complete

Day 50

Invitation Letters Issued

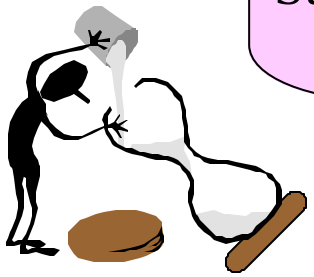
Day 95

Proposals Submitted

Day 125

Evaluations Complete

Day 145



Procurement Packages to the R&D Group

Day 170

Alpha Negotiation

Day 180

Award

Tank-automotive & Armaments COMmand

Small Business Innovation Research (SBIR)

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

Most SBIR Participants are firms of fewer than 10 employees

- *Three-phase program of product development*
- *Next Army solicitation available on WWW MAY 2003:*

www.acq.osd.mil/sadbu/sbir

Topic Pre-Release

MAY 2003

Phase I
Feasibility Study

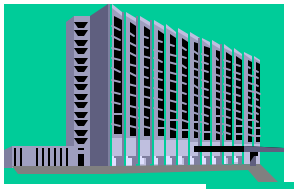
Up to $100K (Army $70K)

Phase II
Research & Development

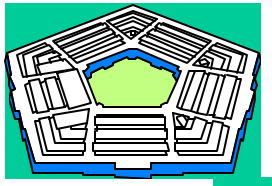
Up to $750K (Army $730K)

Phase III
Develop & market product

Other Govt



Commercial



Military

Successfully Transferring New Technologies from Concept to Market

- *Dual use technologies*
- *DoD funds feasibility and R&D*
- *Industry develops product & market*

SBIR PROGRAM

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

	CONTRACTS
• **PHASE I AWARDS**	
FY 00	18 ($ 1.3 M)
FY 01	30 ($ 2.1M)
FY 02	27 ($ 1.9 M)
• **PHASE II AWARDS**	
FY 00	11 ($ 8.0 M)
FY 01	19 ($ 13.9 M)
FY 02	18 ($ 13.8 M)
• **PHASE II FAST TRACK AWARDS**	
	1 ($ 0.7 M)
	1 ($ 0.7 M)

Total Army SBIR budget for FY02 about $151M
TARDEC SBIR budget for FY02 about $16M

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E-mail: sandela@tacom.army.mil

Timetable for SBIR Solicitation

Leadership
Teaming
Communication
Employee Support
Strategic Thinking
Organizational Climate

PHASE I SCHEDULE

Topic Pre-release on Web	MAY 2003
Solicitation Opens	JULY 2003
Solicitation Closes	AUG 2003
Proposal Evaluation	AUG - OCT 2003
Negotiate Contracts (Phase I)	NOV - DEC 2003

PHASE II SCHEDULE

Invite Proposals	MAY 2003
Proposals Due	JUNE 2003
Field Eval & OMLs	JUN - JUL 2003
TAC Eval & OMLs	JUL - AUG 2003
Phase II SEB	AUG 2003
Negotiate Contracts (Phase II)	AUG – DEC 2003

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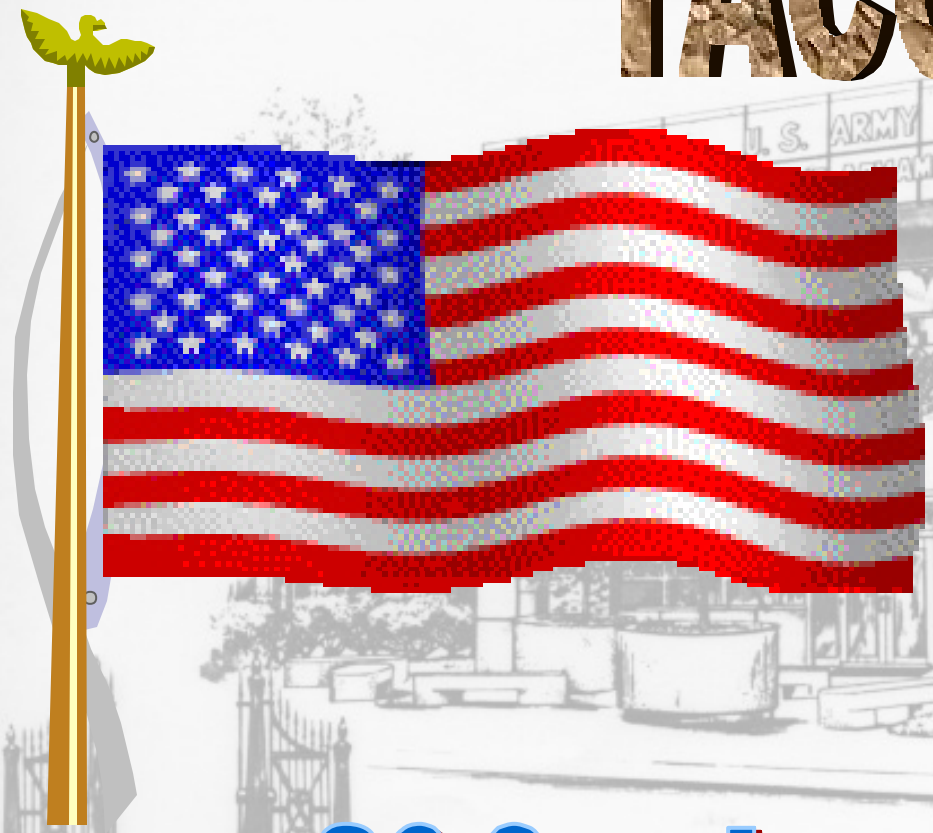

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