U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND
GROUND VEHICLE SYSTEM CENTER
BROAD AGENCY ANNOUNCEMENT

W56HZV-24-A-0003

02 January 2024 – 02 January 2027

ISSUED BY:

U.S. Army Contracting Command
Detroit, MI

Special Notes

1. Formatting of the Announcement

The following table provides an overview of the outline structure of this announcement:

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I. OVERVIEW OF THE FUNDING OPPORTUNITY

The U.S. Army Combat Capabilities Development Command (DEVCOM) Ground Vehicle Systems Center (GVSC), located in Warren, MI, is the United States Armed Forces' research and development facility for technology development in ground systems. Current technology focus areas include Power and Mobility, Autonomous Systems, Force Projection, Survivability, Electronics and Architecture, Cyber Engineering and Software Integration. GVSC Mission is to develop, integrate, demonstrate, and sustain ground vehicle systems capabilities to support Army modernization priorities and improve readiness.

GVSC provides the warfighter with enhanced capabilities and ensures readiness by maximizing the research, development, prototyping, transition, and sustainment of technologies, and technology integration across ground systems. GVSC provides engineering support for more than 2,800 Army systems, and many DoD/Army high-priority joint development programs. GVSC provides world-class engineering across the acquisition life-cycle and develops and experiments with the new technologies needed to ensure US Army ground dominance as part of the Multi-Domain Operations MDO construct. In the near future, GVSC aims to develop systems that are resistive to immediate obsolescence and overmatch. GVSC will invest in the technologies, competencies, and organic infrastructure that will achieve the exponential capability offset that will guarantee future dominance in the ground domain.

The GVSC Broad Agency Announcement (BAA) seeks proposals from institutions of higher education, nonprofit organizations, state and local governments, foreign organizations, foreign public entities, and for-profit organizations (i.e. large and small businesses) for research based on the following Science & Technology (S&T) campaigns: Power and Mobility, Autonomous Systems, Force Projection, Survivability, Electronics and Architecture, Cyber Engineering and Software Integration. Further details are described in the GVSC Strategy. These documents are subject to periodic refinements which may result in taxonomy inconsistencies. These inconsistencies should not affect the efficacy of the BAA to present a complete portfolio of GVSC research.

Proposals are sought for cutting-edge innovative research that could produce discoveries with a significant impact to enable new and improved Army technologies and related operational capabilities and related technologies along with development and demonstration of innovative technologies which enable modernized capabilities aligned with Army priorities. The specific research areas and topics of interest described in this document should be viewed as suggestive, rather than limiting. Prospective applicants contemplating submission of a whitepaper or proposal are strongly encouraged to contact the appropriate Technical Point of Contact (TPOC). The TPOCs' names and email addresses are listed immediately after each research area of interest. If requested by the TPOC, a whitepaper should be prepared in accordance with the instructions contained in this BAA. Upon receipt, a whitepaper will be evaluated and the applicant will be advised of the results. Applicants whose whitepapers receive a favorable evaluation may be encouraged to prepare a proposal in accordance with instructions contained in this BAA. The costs of whitepapers and/or proposals in response to this BAA are not considered an allowable expense to the normal bid and proposal indirect costs specified in FAR 31.205-18. Proposals may be submitted at any time during the announcement period.

In accordance with federal statutes, regulations, and Department of Defense (DoD) and Army policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from the Army.

Applicants submitting proposals are cautioned that only a Contracting or Grants Officer can obligate the Government to any legal instrument involving expenditure of Government funds.

All administrative inquiries regarding this BAA shall be submitted via email to: usarmy.detroit.devcom-gvsc.mbx.amo@army.mil. Scientific and technical questions should be referred to the TPOCs shown following each research area of interest. Interested parties are encouraged to periodically check www.sam.gov.website for updates and amendments to this announcement.

Michael K. Cadieux, Director
U.S. Army Combat Capabilities Development Command, Ground Vehicle Systems Center

(End of Section)

A. Required Overview Content

1. **Agency Name:**
   Ground Vehicle Systems Center (GVSC)

   Issuing Acquisition Office:
   U.S. Army Contracting Command- Detroit Arsenal (ACC-DTA)

2. **Research Opportunity Title:**
   GVSC Broad Agency Announcement (BAA) 02 January 2024– 02 January 2027

3. **Sam.gov Assistance Listing (formerly Catalog of Federal Domestic Assistance (CFDA) Number and Title):**

   12.431 – Basic Scientific Research

4. **Response Dates:**

   This BAA is a continuously open announcement valid throughout the period from the date of issuance through 02 January 2027 unless announced otherwise.

(End of Section)

B. Additional Overview Information

This BAA sets forth research areas of interest to the GVSC. This BAA is issued under paragraph 6.102(d)(2) of the Federal Acquisition Regulation (FAR), which provides for the competitive selection of basic and applied research proposals, and 10 U.S.C. 4001, 10 U.S.C. 4021 and 10 U.S.C. 4022 which provide the authorities for issuing awards under this announcement for basic and applied research. The definitions of basic and applied research may be found at 32 Code of Federal Regulations (CFR) 22.105.

Proposals submitted in response to this BAA and selected for award are considered to be the result of full and open competition and in full compliance with the provisions of 10 USC 3201 – Full and Open Competition and subsequent amendments.

The DoD agencies involved in this program reserve the right to select for award all, some, or none of the proposals submitted in response to this announcement. Due to Government budget uncertainties, no specific dollars have been reserved for awards under this BAA. The participating DoD agencies will provide no funding for direct reimbursement of whitepaper or proposal development costs.

Whitepapers and technical and cost proposals (or any other material) submitted in response to this BAA will not be returned to the applicant. Unless noted in an applicant's proposal to the contrary, unsuccessful proposals will be retained for six (6) months from declination and then properly destroyed. It is the policy of participating DoD agencies to treat all proposals as sensitive, competitive information and to disclose their contents only for the purposes of evaluation.

An applicant may withdraw a proposal at any time before award by written notice or by email sent to the Government point of contact identified in Section G of this BAA.

(End of Section)

II. DETAILED INFORMATION ABOUT THE FUNDING OPPORTUNITY

A. Program Description: The U.S. Army Combat Capabilities Development Command Ground Vehicle Systems Center (DEVCOM GVSC) is the Army's Center for developing advanced military ground vehicle technologies and systems engineering and integration expertise that delivers unmatched ground vehicle solutions in:

- Power and Mobility.
- Autonomous Systems.
- Force Projection.
- Survivability.
- Electronics and Architecture.
- Cyber Engineering.
- Software Integration.

DEVCOM GVSC TOPIC/INTEREST AREAS:

1. GROUND VEHICLE MATERIALS ENGINEERING (GVME) is responsible for providing materials technology and engineering support to ground systems from cradle to grave to enhance warfighter readiness. The use of evolutionary materials and conventional manufacturing methods by combat vehicle manufacturers results in heavy vehicles limiting mobility and transportability frequently with extended manufacturing timelines. GVME uses in-house laboratories and technical expertise to support legacy and future ground vehicle in the areas of advanced manufacturing, coatings and corrosion, vehicle structural materials, joining, characterization and failure analysis, and process-aware design optimization.

GVME is interested in technologies that can improve the durability, manufacturability, or transportability of Army ground vehicles while maintaining survivability and lethality. Technologies that touch more than one Army ground vehicle platform, both next generation and legacy, are important to the Army. Novel solutions for initial manufacturing through end-of-life are relevant to this topic area.

Additive and Advanced Manufacturing are not synonymous. Definitions are as follows:

Additive Manufacturing. The process of joining materials to make parts from 3D model data, usually layer upon layer, as opposed to subtractive manufacturing and formative manufacturing methodologies.

Advanced Manufacturing. Advanced manufacturing refers to activities that depend on the use and coordination of information, automation, computation, software, sensing, and networking, and/or make use of cutting-edge materials and emerging capabilities enabled by the physical and biological sciences. It encompasses new ways to manufacture existing products and the manufacturing of new products resulting from advances in technology. It includes, but is not limited to, additive manufacturing (also known as three-dimensional (3D) printing), artificial intelligence, robotics, and advanced composite materials.

a. Structural Metallic Materials: Materials relevant to ground vehicle structures, which must withstand extreme loads and have extended anticipated service life cycles. Topics include:

i. Novel alloys for conventional manufacturing methods such as casting and forging.
ii. Modeling for conventional processing of metals
iii. Processing methods to improve properties such as weldability, cracking resistance, toughness, fatigue life, and strength.
iv. Optimization of structures for weight reduction via conventional manufacturing.

Technical Point of Contact: Katherine Sebeck, katherine.m.sebeck.civ@army.mil

b. Structural Composite Materials: The structural composite materials topic area focuses on applied research and development to support the integration of lightweight structural composite materials into military ground vehicles. Technologies developed in this program will have a significant impact on reducing the weight of military ground vehicles, thus improving mobility, durability, and life-cycle costs. Topics under this program will increase the integration of lightweight composite materials technologies into tactical and combat vehicles by reducing barriers to transition, such as: raw material and manufacturing process costs, repair challenges, and lack of accurate computational modeling tools for fiber-reinforced composite materials. Topics of interest include, but are not limited to:

i. Novel approaches to affordable composite materials manufacturing.
ii. Design optimization of fiber-reinforced composites.
iii. Three-dimensional reinforced composite materials.
iv. Characterization techniques for thick composite laminates.
v. Repair techniques.
vi. Computational modeling methods.

Technical Point of Contact: Robert Hart, robert.j.hart113.civ@army.mil

c. Welding: The welding topic area focuses on the ability to manufacture vehicles with new structural materials and join high strength and/or dissimilar materials to enable optimized designs for military applications. Materials for application include both metallic and welding: composite materials used for structural or armor solutions. Topics of interest include, but are not limited to:

i. Fusion based joining technologies (i.e., gas metal arc welding, gas tungsten arc welding).
ii. Solid phase joining technologies (i.e., friction stir welding, diffusion bonding, linear friction welding).
iii. Hybrid joining solutions to include a combination of any joining processes not limited to just welding but must be included.

Technical Point of Contact: Martin McDonnell, martin.m.mcdonnell3.civ@army.mil

d. Adhesives: The ability to join a wide variety of materials and dissimilar materials via additional layers to enable high performance designs in Army ground vehicle systems with challenges (including, but not limited to, reversibility, high strain rate performance, durability, strength and ability to predictively model the process). Topics of interest include, but are not limited to:

i. Ability to join dissimilar metals with good strength at high strain rates.
ii. Adhesive joint design optimization through modeling and testing.
iii. Improve application characteristics.
iv. Widen scope of adhesive applications for military vehicles.
v. Improve various adhesives for a variety of characteristics.

Technical Point of Contact: Trevor Langton, trevor.c.langton.ctr@army.mil

e. Fasteners: Mechanical methods for joining materials for Army ground vehicle systems, including, but not limited to bolts, rivets, screws and pins. Topics of interest include, but are not limited to:

i. Evaluating changes in torque and clamping force of fasteners in different materials and coatings.
ii. Development of test methods and specifications for weld nut push out testing.
iii. Ultrasonic test methods for bolts for critical or safety applications.

Technical Point of Contact: Greg Martinez, gregorio.martinez35.ctr@army.mil

f. Advanced Manufacturing: The advanced manufacturing topic area focuses on application, integration and adoption of manufacturing technology that realizes additional value over traditional methods. Examples of value provided can include design optimization for performance or weight reduction, manufacturing time, supply chain improvements, new design capability, reduction of scrap material, improvement to prototyping and design cycle, manufacturing cost, combination of parts, and part customization. Topics of specific interest include, but are not limited to:

i. *In situ* process monitoring & controls.
ii. Inspection methods for complex geometries.
iii. Design optimization software and technology.
iv. Solid state additive manufacturing processes.
v. Alloys specifically for additive and advanced manufacturing processes.
vi. Process qualification.

Technical Point of Contact: Aaron LaLonde, aaron.d.lalonde4.civ@army.mil

g. High Strain Rate Characterization: Alternative models and test methods for coupon and component level characterization of materials at a strain rates greater than $500s^{-1}$. Detailed topics include:

i. Subscale test methods for high strain rate.
ii. Novel methods for monitoring strain at elevated rates, including imaging- based methods.
iii. Biaxial or shear loading methods for high strain rate characterization.
iv. Automated fitting methods for strain rate sensitive constitutive models.

Technical POC: Katherine Sebeck, katherine.m.sebeck.civ@army.mil

h. High Throughput Characterization: Techniques for rapid or automated characterization of novel materials or material processing, including:

i. Subscale test methods for impact toughness, tensile properties.
ii. Methods for rapid or automated sample preparation.
iii. Biaxial or shear loading methods for high throughput characterization.

Technical Point of Contact: Katherine Sebeck, katherine.m.sebeck.civ@army.mil

i. Materials for Thermal Management: Novel materials for high temperature engine applications, materials and/or heat management for components such as electronics, batteries. Topics include:

i. High strength material with elevated temperature oxidation resistance.
ii. Coatings for improved oxidation resistance at elevated temperatures and high stresses.
iii. Durable materials for passive heat exchangers.

Technical POC: Katherine Sebeck, katherine.m.sebeck.civ@army.mil

j. Feedstock Development for Advanced Manufacturing: The feedstock development topic focuses on materials and processes needed for the development of high strength feed stock that will improve availability, manufacturability, and/or durability of components and vehicles. The product form of the feed stock material can be in powder, wire or bar. Topics include:

i. Metallic, Polymeric, and Composite Materials feed stocks.
ii. Processing of materials to obtain final product form.
iii. Pre and Post heat treatment development needed to obtain final high strength properties.
iv. *In situ* secondary processing of feed stock materials.

Technical Point of Contact: Demetrios A. Tzelepis, demetrios.a.tzelepis.civ@army.mil

k. Machine Learning for Manufacturing: The machine learning for manufacturing topic focuses

on optimization of manufacturing processes through development of cutting-edge analytical, computational, and experimental approaches to advance manufacturing processes. The goal is to reduce the cognitive burden on humans and improve manufacturing performance within the Army through human-machine teaming. Machine learning research is needed for manufacturing processes such as:

i. Joining technologies.
ii. Additive manufacturing.
iii. Subtractive manufacturing.

Technical Point of Contact: Martin McDonnell, martin.m.mcdonnell3.civ@army.mil

2. GROUND VEHICLE POWER & MOBILITY (GVPM) GVPM is responsible for everything needed to power and move the Army's ground systems. GVPM uses its unique in-house laboratories and subject matter expertise to serve as the Army's technical authority in the following areas:

- Engines, Transmission, Powertrain Cooling, Embedded Controls and Powertrain Integration.
- Tires, Track and Suspension Systems.
- Vehicle Electrification, Energy Storage Systems, and Fuel Cell Technology.
- Test & Evaluation of Individual Powertrain Components, Integrated Propulsion Systems, Cooling Systems, Energy Storage, Fuel Cells, and Electrification Components.

Tracked and Suspension: Identify, develop, evaluate, and field emerging technologies for track and suspension systems.

a. Track Impact on Vibration: Determine analytically the effects of track and suspension design that has the largest impact to vehicle vibration. Potential outcomes:

i. Improved track design requirements to ensure track design doesn't negatively impact the soldier effectiveness from vibration and improve electronic capability.
ii. Isolation down to one (1) or two (2) of the key track variables that make the largest impact on vehicle vibration.
iii. Assessment of how single track variables impact vehicle vibration such as pitch length, rubber stiffnesses, rubberized vs non-rubberized wheels, suspension spacing (equal and unequal)

Technical Point of Contact: Craig Schmehl, craig.w.schmehl.civ@army.mil

b. Track Throw: Research and determine technology and sensors that can be embedded into track components (idler wheel, road wheel, idler arm, track, suspension, vehicle, etc.) to determine when track is about to be thrown with software and custom algorithms. Potential outcomes:

i. Inform drivers of robotic tracked vehicles when vehicle is being driven too fast or turning too hard to prevent immobilizing vehicle out in the field.
ii. Physically control the vehicle by limiting mobility when limits are reached.

Technical Point of Contact: Craig Schmehl, craig.w.schmehl.civ@army.mil

c. Track Vehicle Road Wheel Force Transducer: Collect accurate forces and moments at suspension and idler wheel spindles while a vehicle is driven over Army test courses. Potential outcomes:

i. Improved component designs for road wheel, track, idler wheel, idler arm, and suspension.
ii. Improved dynamic analytical models with accurate data for validation.
iii. Potential use as a sensor that feeds data to reduce track throw.
iv. Potential use as a sensor to determine track, suspension, and road wheel remaining life for reduced logistical burden and reduced maintenance down time.

Technical Point of Contact: Craig Schmehl, craig.w.schmehl.civ@army.mil

d. Tracked Vehicle External Strut Conversion: Develop a spring/damper strut to be used for converting 40–50-ton internal suspension system into external suspension systems for tracked vehicles. Potential outcomes:

i. Gain in internal hull volume in existing vehicle.
ii. Increased suspension adjustment capability for varying vehicle weights and axle loads
iii. Determination of the most economical manufacturing method to convert the existing hull to accept an external spring/damper strut based suspension.

Technical Point of Contact: Joel Litchfield, joel.a.litchfield2.civ@army.mil

e. Active Track Tensioner: Design a track tensioning system that can keep constant track tension dynamically while a vehicle moves thru various terrains. Potential outcomes:

i. Improved track durability by limiting pressure spikes within the tensioner/track adjusting link (TAL) with rocks and debris.
ii. Allow adjustment of track tension when used with a hydro pneumatic suspension system to compensate for height changes and track tension changes that occur from gas charge heating and cooling.
iii. Allows track adjustment to improve off-road mobility or vehicle height changes while on the move.

Technical Point of Contact: Craig Schmehl, craig.w.schmehl.civ@army.mil

Fuel Cell and Hydrogen Research: Pursue non-primary power technology research, development, component testing and evaluation for the current and future manned ground vehicle fleet and unmanned ground vehicle fleet.

f. Fuel Cell Technology:

i. Hydrogen based fuel cells and supporting systems: Seeking fuel cells that operate off compressed hydrogen gas, from power levels including 300W to 1MW. Integration of fuel cells into developmental vehicles in order to conduct assessments for learning purposes. Supporting balance of plant hardware development for performance improvements. Innovative ideas on using hydrogen fuel cells for military applications, which include extreme temperature and humidity variations, shock and vibration challenges, and connecting to a vehicle electrical system, which can include the Army's 600V standard.
ii. Liquid and gas hydrocarbon fuel-based fuel cells and supporting systems: Seeking fuel reformation and fuel cell systems that can operate of MIL- SPEC JP-8 fuel, as well as a host of other hydrocarbon and sustainable fuels. Integration of these systems into developmental vehicles in order to conduct assessments for learning purposes. Supporting balance of plant hardware development for performance improvements. Innovative ideas on using hydrocarbon-based fuel cells for military applications, which include extreme temperature and humidity variations, shock and vibration challenges, and connecting to vehicle electrical system, which can include the Army's 600V standard.
iii. Other fuel-based fuel cells and supporting systems: Seeking fuel cell technologies that operate off other fuel sources other than described above. Integration of these systems into developmental vehicles in order to conduct assessments for learning purposes. Supporting balance of plant hardware development for performance improvements. Innovative ideas on using other fuel based fuel cells for military applications, which include extreme temperature and humidity variations, shock and vibration challenges, and connecting to a vehicle electrical system, which can include the Army's 600V standard.

Technical Point of Contact: Kevin Centeck, kevin.s.centeck.civ@army.mil

g. Hydrogen Technology:

i. Hydrogen storage and supporting systems: Seeking storage of hydrogen onboard a vehicle as well as large-scale mobile hydrogen storage suitable for logistics support (gas, liquid, or in solid form). Also seeking hydrogen storage at an installation level, suitable to meeting resilience requirements for the Army.
ii. Hydrogen storage and supporting systems: Seeking storage of hydrogen onboard a vehicle as well as large-scale mobile hydrogen storage suitable for logistics support (gas, liquid, or in solid form). Also seeking hydrogen storage at an installation level, suitable to meeting resilience requirements for the Army.
iii. Hydrogen Technology: Seeking technologies like liquid organic hydrogen carriers (LOHC), hydrogen liquefaction, compressed hydrogen storage development, cryo-compressed hydrogen storage and delivery, and the supporting systems and hardware that enable these technologies.

Technical Point of Contact: Kevin Centeck, kevin.s.centeck.civ@army.mil

Powertrain Electrification: Investigate, test, and develop advanced propulsion components to

achieve improved system efficiency including electric and hybrid electric, and other non-conventional propulsion architectures for manned and unmanned combat vehicles, wheeled, tracked, and other alternative forms of mobility.

h. Next Generation Advanced Power Dense Wide Band Gap Switching Devices: Next generation switching devices with a >4x increase in power density are needed to further improve inverter and converter power density. This improved power density will enable inverters being mounted to electric sprocket drives and generators. Mounting inverters and controllers at their source/load eliminates bulky power wiring between devices. The resulting devices have the potential to provide (open-up) 10+ cubic feet for ammo, fuel, soldiers, or enable shorter/lighter platforms.

Technical Point of Contact: Alec Soles - alexander.m.soles.civ@army.mil

i. Next Generation Advanced Inverter: VNext generation inverter with a >4x increase in power density is needed to further improve inverter and converter power density. This improved inverter power density will enable mounting to electric sprocket drives and generators. Mounting inverters at their source/load eliminates bulky power wiring between devices. The resulting devices have the potential to provide (open-up) 10+ cubic feet for ammo, fuel, soldiers, or enable shorter/lighter platforms.

Technical Point of Contact: Alec Soles alexander.m.soles.civ@army.mil

j. Next Generation Power Dense Electric Sprocket Drives and Generators: The Army is interested in significantly increasing the power density of electric sprocket drives and generators. Improved power density will enable reducing under-armor packaging and potentially moving the drive outboard have multiple drives per trackside. External mounting of the drives potentially provides (opens-up) 10+ cubic feet for ammo, fuel, soldiers, or enable shorter/lighter platforms.

Technical Point of Contact: Maroune El-Hosni, maroune.d.el-hosni.civ@army.mil

k. Rare-Earth Magnet Free Electric Sprocket Drives and Generators: Rare- earth magnet free power dense motor and generator architectures are sought. Adversaries of the Army control most of the world's supply of rare earth magnets. It is highly preferable that the rotating equipment leverage conventional inverter topologies for power control. The new designs should maintain or improve upon current rotating equipment efficiency.

Technical Point of Contact: Maroune El-Hosni, maroune.d.el-hosni.civ@army.mil

Energy Storage: Conduct advanced research, development, and testing of future energy storage technologies to support the future force while supporting the current force on fielded systems with a lead acid emphasis.

l. Advanced Energy Storage Technologies for Army Vehicle Applications: The Advanced Energy Storage area focuses on developing cell and battery technologies to develop scalable/modular high energy density energy storage systems for Army vehicle applications

including extended silent operations, hybrid powertrains and electrified systems. Battery research is focused on developing new approaches for high voltage systems, high temperature operation, extended cycle life and improved survivability for operation in specific military environments and applications. Development of technologies that will improve battery safety under ballistic and abuse conditions as well as advanced thermal management technology and approaches are also being sought. Finally, advanced manufacturing processes and systems to enhance battery reliability, safety and cost effectiveness are of interest to the Army. Specific technologies of interest include:

i. Rechargeable Li (Li-Ion) Batteries: Research in electrode and electrolyte materials for cells and stacks of cells using liquid or polymeric electrolytes capable of providing, at the packaged cell level, specific energies greater than 250 Wh/kg, specific power greater than 50 W/kg continuous, and greater than 10 kW/kg pulse power over the full military temperature range. The development of manufacturing technology and/or improved safety for these technologies is also an area of interest.
ii. Advanced battery chemistries capable of achieving at a packaged cell level of over 450 Whr/kg while maintaining a cycle life of at least 500 cycles to a 100% depth of discharge. Investigation in lithium metal rechargeable batteries including Li solid state, Li-S and Li-Air as well as development of new cathodes and electrolytes for rechargeable lithium batteries that reduce or eliminate dendrite formation.
iii. Innovative approaches to improve overall high voltage battery system modularity, thermal management, safety, control and system level fast recharge for vehicle applications are of interest to the Army.
iv. In support of future all-electric combat vehicles, technologies and systems capable of generating up to 15MW of electrical power in an austere environment is of interest. In support of this capability, technologies to enable short-range wireless power transfer of 1.5MW+ is also of interest.

Technical Points of Contact: Laurence Toomey, laurence.m.toomey2.civ@army.mil; David Skalny, david.a.skalny.civ@army.mil

Powertrain: Identify, develop, evaluate, and integrate next generation, power dense propulsion technologies for combat & tactical vehicles.

m. Tracked Vehicle Series Hybrid Propulsion for Light-to-Medium Combat Vehicles: Design the electrical and mechanical drive components for a Light-to- Medium Combat series hybrid propulsion system:

i. Improve energy utilization in series hybrid drive propulsion from energy source to the sprocket, as well as energy transfer between sprockets during steering.
ii. Improve high-speed maneuverability of series hybrid tracked vehicles.
iii. Improve vehicle mobility performance and capability for electric-drive tracked combat vehicles.
iv. Increase operating temperature environment and reduce SWAP-C impact of series hybrid drive components.

Technical Points of Contact: Tony Combi, anthony.j.combi.civ@army.mil; Michael Claus, michael.d.claus.civ@army.mil

n. Electric Turbocharger for Improved Engine Efficiency within Combat and Tactical Applications: Research, design and develop an electric turbocharger for engine applications to provide instantaneous power & torque response while increasing engine efficiency:

i. Provide a compact turbo charger with an integrated electric motor operating at elevated temperatures with the addition of energy recuperation to provide a positive effect of battery charging, with the benefit of harvesting waste exhaust energy.
ii. Allows for increase engine performance without any power or torque loss common in diesel engines.
iii. Improved air handling offering high power output to enable vehicle performance and fuel efficiency as vehicle weights increase.

Technical Point of Contact: Gus Panagos, constantine.panagos.civ@army.mil

o. Electrified Tracked Transmission Propulsion System for Combat Vehicles: Develop and design a novel, electrified cross-drive transmission offering an improved propulsion system for combat vehicles that enable high electrical power capability to vehicle systems:

i. Compact, high efficient multi-speed cross-drive transmission with an integration of an electrical generator/motor to provide silent drive and onboard electrical power.
ii. Improve energy utilization in combat vehicle systems from energy source to the sprocket, by providing consistent power split of energy across propulsion and onboard electrical systems.

Technical Points of Contact: Tony Combi, anthony.j.combi.civ@army.mil ; Michael Claus, michael.d.claus.civ@army.mil

Real Time Control Systems: Research, develop, and transition electronic control solutions for Army ground vehicle powertrain components (engines, transmissions, hybrid electronics, etc.) using in-house developed Electronic Control Module (ECM) hardware, and application-specific software, to meet and exceed program requirements.

p. Common Transmission Software (CTS): Algorithm for the common transmission software (CTS) using the in-house already developed Army controller (neXtECU). The effort would have the RTCS group develop a common software controls scheme to control any of the combat transmissions (32 speed transmission, HMPT, or Allison 4/6 speed transmission) which will allow a common solution to all transmission controls to enable autonomous designs, eliminate adaptive kits, seamlessly transition from driver controls to autonomous mode, and enable Army-specific controls to support modifications to meet operational needs. This solution will provide additional functionality and lessen logistic footprint having a common controller to support all of the powertrains in the combat fleet. This will also enable a common solution to integrate a compact high efficient multi-speed cross-drive transmissions with a state of the art electrical generator/motor to provide silent drive and onboard electrical power while controlling all of the

supervisory and transmission controls in a single controller.

Technical Point of Contact: Joe Stempnik, joseph.m.stempnik.civ@army.mil

3. GROUND VEHICLE ELECTRICAL POWER SYSTEM (GVEPS): The GVEPS campaign focuses on advancing electrical power systems up to 1.5MW of power for use on Military ground vehicles. The goal of this campaign is to meet the Army's increasing electrical power needs while improving vehicle efficiency and the power density of power electronics. This will be made possible by exploiting the gains made in emerging power electronic designs and the use of cutting-edge electrical components. These advances will significantly impact future Army vehicle design and will enable the Army to have a decisive overmatch to near peer adversaries.

a. Power System Architecture up to 1.5MW: The objective of power system architecture topic under the GVEPS campaign is to investigate emerging architectures that are suitable for GVEPS up to 1.5MW of power. These architectures need to account for hybrid electric or all electric powertrains, high energy loads like cooling system, energy weapons, power export, and legacy 28Vdc/600Vdc power systems. There are three (3) key areas of investigation for this effort: 1) what safety features are needed to make the architecture a viable product; 2) is a voltage greater than 600Vdc needed; and 3) are electric components available at these voltage/power levels.

Technical Point of Contact: Jason Spina, 586-214-2751, jason.a.spina.civ@army.mil

b. Advance Power Electronic Design: This topic focuses on taking advantage of cutting-edge power electronic design to significantly increase power density and power efficiency which will result in smaller devices that require less cooling. This will significantly impact vehicle design as under armor volume is at a premium and traditionally power electronics are large and cumbersome to package. This topic includes, but is not limited to, advance designs such as wideband gap semiconductors, soft switch, zero-volt switching, zero-current switch, modular multi-level converter, active filtering, and all other techniques to meet the focus of increased power density and power efficiency.

Technical Point of Contact: Aric Haynes, 586-202-4190, aric.l.haynes.civ@army.mil

c. Artificial Intelligence or Machine Learning (AI/ML) in Power Management Systems: This topic focuses on advancement in power management systems for ground vehicles as power management will enable more efficient vehicles. This topic incorporates advancements in AI/ML algorithms and knowledge base to adapt to how the vehicle is being used and learn the most efficient way to operate the vehicle. This topic also has two (2) key enablers: 1) power system modeling; and 2) hardware in-the loop software development which are key in advancing AI/ML power system development.

Technical Point of Contact: Jason Spina, 586-214-2751, jason.a.spina.civ@army.mil

d. Wireless Power Transfer: This topic focuses on wireless power transfer up to 1MW of power as there are two (2) target areas for wireless power transfer on Army ground vehicles. The first focus area is vehicle level battery charging (as hybrid and all electric Army ground vehicles become a reality in the Army) a safe, reliable way to recharge the vehicles will be through wireless recharge stations. The second focus area is wireless power transfer to transfer power between a hull and turret. This can have a large impact on ground vehicle designs because the removal of power transfer from the slipring will allow that component to shrink or be able to do other important features like higher data transfer rates.

Technical Point of Contact: Aric Haynes, 586-202-4190, aric.l.haynes.civ@army.mil

e. Power System Physical Interfaces: Often when developing advance power electronics, the height and width of the design is dictated by the physical interface components, such as connectors, coolant fitting, and cabling. This topic focuses on the necessary advancement of interface components to reduce the physical size of the design. Also, these physical interface components often have very long lead times which can be problematic for procurement and integration, so advanced manufacturing approaches to reduce component lead time will also be explored under this topic.

Technical Point of Contact: Ed Schwartz, 586-571-5381, edward.c.schwartz2.civ@army.mil

4. GROUND VEHICLE SURVIVABILITY & PROTECTION (GVSP): GVSP is responsible for ground vehicle ballistic protection, blast mitigating technologies, and hit and kill avoidance initiatives for the Department of Defense. GVSP uses its unique in- house laboratories and subject matter expertise to reinforce its reputation as the
Army's technical authority on survivability in the following research areas:

- Ballistics and blast testing.
- Armor component fabrication and characterization.
- Dynamic impact/impulse testing.
- Vehicle crash and rollover assessment.
- Active protection testing.
- Laser and fire protection studies.
- Signature management
- Cooperative/Collaborative defense
- Survivability and Protection technology integration on ground platforms

a. **Projectile Deceleration by Pulsing a Magnetic Field**: High velocity projectiles pose threats to military personnel and vehicle platforms. Research has demonstrated that magnetic fields may be used to decelerate or redirect these projectiles. Advancing this applied research area to determine its effectiveness and applicability is desired. Research and development in this technical area could potentially significantly augment traditional survivability systems. The interaction of moving conductors with

magnetic fields can yield substantial forces. The optimization of these forces, both in magnitude and direction, by the creation of either static or time varying magnetic fields is desired. The state-of-the-art, both now and in the projected future, for the capability of decelerating or redirecting incoming threats using magnetic fields is desired. The integration issues of placing such a "magnetic shield" onto a vehicle needs study. In addition, a magnetic field generation system may also provide a sensing capability, whereby the incoming conductor's velocity/mass might be determined. This would provide information allowing the repulsive magnetic field to be optimally generated both in time and in space to deflect the incoming threat. Study of this composite approach, where the magnetic field system is used both for detecting the threat and dealing with it is needed.

Technical Points of Contact: Dr. Eric Polson, GVSP STE, erik.s.polsen.civ@army.mil; Joshua Peterson, AAD GVSP, Joshua.s.peterson14.civ@army.mil

b. **Survivability Basic and Applied Research:** This overarching topic will consider whitepapers and proposals that may or may not directly align to the current research and integration efforts being executed by GVSP, but are aligned to the overarching GVSP mission in one or more of the above areas. GVSP is always interested in innovative research whitepapers and proposals that demonstrate a strong alignment to its research and integration competencies, with the potential to transition into advanced technology development programs for both manned and unmanned ground platforms.

Technical Point of Contact: Dr. Erik Polsen, GVSP STE, 586-215-2387, erik.s.polsen.civ@army.mil

c. Improved Transparent Armor Materials, Manufacturing, and Integration: Current military transparent armor is laminated in an autoclave using commercial thermoplastic urethanes to combine multiple layers of transparent glasses and plastics into a single laminate. However, such configurations are susceptible to delamination in the field due to thermal cycling, UV, and water/chemical intrusion. Further, currently known material and design choices that can improve resistance to delamination have also been found to reduce ballistic efficiency of the armor. Therefore, there is interest in researching alternative materials, processes, and integration methods that could generate transparent armor configurations that are affordable and provide high resistance to delamination while maintaining ballistic efficiency.

Technical Point of Contact: Mr. Matthew Magner, GVSP Technical Specialist for Transparent Armor, 586-282-5725, matthew.j.magner.civ@army.mil

5. BRIDGING LIFECYCLE ENGINEERING (BLE): Bridging Lifecycle Engineering Team functions as an idea clearinghouse, identifying and maturing technologies to support TACOM Life Cycle Management Command (LCMC) Community, Condition Based Maintenance Plus (CBM+) Policy strategy and implementation for the Army's military bridging systems.

a. Bridge Health Monitoring System: Multiple military bridges use a "fatigue monitor" inspection coupon, calibrated to crack before the bridge fails, to supplement visual inspections to evaluate the bridge's current condition. The current process is inaccurate and unable to determine the bridge's remaining service life before maintenance is required. Currently the Army mitigates readiness issues by posturing additional bridges for use.

BLE is seeking to capture technologies from industry for further development and engineering to determine the condition of military bridges, with an initial focus being placed on assault bridges such as the Heavy Assault Scissor Bridge. The proposed technology(s) would:

- Employ autonomous capabilities that comprehensively captures data for early anticipation of requirements to improve equipment availability and fleet readiness.
- Forecast or employ solutions that enable continuous operations without operational pause
- Evaluate the condition of equipment by performing periodic (offline) or continuous (online) equipment condition monitoring.
- Identify pending system failure or performance deterioration.
- Use open systems architecture across the U.S. Army systems.
- Gather vehicle crossing data i.e., estimated vehicle weight, overload weight indicator, vehicle classification, tracked or wheeled vehicle, estimated vehicle speed.
- Collect, distributes, stores, analyze and visualizes near real time, relevant sensor, and/or maintenance data.
- Analyze collected vehicle crossing and sensor data to determine fatigue damage and remaining service life.

Technical Points of Contact: Dr. Bernard Sia, GVSC BLE, Bernard.j.sia.civ@army.mil; Ms. Renee Gardner, GVSC BLE, renee.n.gardner2.civ@army.mil.

(End of Section)

B. Federal Award Information

ACC-DTA has the authority to award a variety of instruments on behalf of GVSC; however, anticipated awards will be in the form of other transaction agreements. The Government will consider contracts and cooperative agreements and reserves the right to select the type of instrument most appropriate for the effort proposed. Applicants should familiarize themselves with these instrument types and the applicable regulations before submitting a proposal. Following are brief descriptions of the possible award instruments:

1. Procurement Contract. A legal instrument, consistent with 31 U.S.C. 6303, which reflects a relationship between the Federal Government and a state government, a local government, or other entity/contractor when the principal purpose of the instrument is to acquire property or services for the direct benefit or use of the Federal Government.

   Army contracts are primarily governed by the following regulations:

   a. Federal Acquisition Regulation (FAR)
   b. Defense Federal Acquisition Regulation Supplement (DFARS)
   c. Army Federal Acquisition Regulation Supplement (AFARS)

2. Cooperative Agreement. A legal instrument, consistent with 31 U.S.C. 6305, the principal purpose of the relationship is to transfer a thing of value to the State, local government, or other recipient to carry out a public purpose of support or stimulation authorized by a law of the United States instead of acquiring (by purchase, lease, or barter) property or services for the direct benefit or use of the United States Government. No fee or profit is allowed.

3. Other Transaction Agreements (OTAs). There are two types of OTAs that could be awarded under this BAA:

   a. A legal instrument, consistent with 10 U.S.C. 4022, for prototype projects directly relevant to enhancing the mission effectiveness of personnel of the Department of Defense or improving platforms, systems, components, or materials proposed to be acquired or developed by the DoD, or to improvement of platforms, systems, components, or materials in use by the armed forces.

   b. A legal instrument, consistent with 10 USC 4021, for carrying out basic, applied, and advanced research projects.

   c. OTAs are primarily governed by the following:
      i. Federal statutes
      ii. Office of the Under Secretary of Defense for Acquisition and Sustainment Other Transactions (OT) Guide

4. The following websites may be accessed to obtain an electronic copy of the governing laws and regulations:

a. U.S. Code: https://uscode.house.gov
b. FAR, DFARS, and AFARS: http://acquisition.gov/
c. Code of Federal Regulations: http://www.ecfr.gov

(End of Section)

C. Eligibility Information

1. Eligible Applicants

Eligible applicants under this BAA include institutions of higher education, nonprofit organizations, state and local governments, foreign organizations, foreign public entities, and for-profit organizations (i.e. large and small businesses). Whitepapers and proposals will be evaluated only if they are for fundamental scientific study and experimentation directed toward advancing the scientific state of the art or increasing basic knowledge and understanding. Whitepapers and proposals focused on specific devices or components are beyond the scope of this BAA.

For foreign public entities or foreign organizations, see Section II.C.3.a below for further information. There is no restriction on the place of performance for awards issued under this BAA.

2. Cost Sharing or Matching

. Cost-sharing requirements for prototype OTAs are applicable IAW 10 U.S. Code § 4022.

In addition, if cost sharing is proposed on a cooperative agreement, the award will be subject to the restrictions at 2 CFR 200.306. If cost sharing is proposed on a contract proposal, the award will be subject to the restrictions at FAR 35.003.

3. Other

a. Foreign public entities or foreign organizations are advised that security restrictions and Export Control laws and regulations may apply that could preclude their participation under this BAA.

b. Pursuant to the policy of FAR 35.017 and supplements, selected Federally Funded Research and Development Centers (FFRDC) may propose under this BAA as allowed by their sponsoring agency and in accordance with their sponsoring agency policy**.**

(End of Section)

D. Application and Submission Information

1. Address to View Broad Agency Announcement

This BAA may be accessed via the following website:

System for Award Management (SAM.gov)

Amendments to this BAA, if any, will be posted to this website when they occur. Interested parties are encouraged to periodically check SAM.gov website for updates and amendments.

The information contained in the below, Content and Form of Application Submission, is for those wishing to respond to the BAA.

2. Content and Form of Application Submission

a. General Information

i. Preliminary Inquiries: GVSC receives several hundred research proposals annually. Because of financial constraints, we are only able to provide support for a limited number of the proposals received. We realize the preparation of a research proposal often represents a substantial investment of time and effort by the applicant. Therefore, in an attempt to minimize this burden, we strongly encourage applicants interested in submitting proposals to make preliminary inquiries as to the general need for the type of research effort contemplated, before expending extensive effort in preparing a whitepaper and/or detailed proposal or submitting proprietary information. The TPOC names, telephone numbers, and email addresses are listed immediately after each research area of interest and they should be contacted, as appropriate, prior to the submission of whitepapers or proposals.

*NOTE: The Government will not be obligated by any discussion that arises out of preliminary inquiries.

ii. Classified Submissions: Classified proposals are not expected. However, in an unusual circumstance, the applicant may be notified that access to classified information and/or controlled unclassified information will occur under the work proposed. In those instances where an effort is awarded requiring access to classified information and/or controlled unclassified information, clause FAR 52.204-2 shall be in effect, as well as a DD254, if issued. For questions regarding the potential for access to classified information and/or controlled unclassified information, please coordinate with the TPOC for that topic area prior to proposal submission.

iii. Use of Color in Proposals: All proposals received will be stored as electronic images. Electronic color images require a significantly larger amount of storage space than black-and white images. As a result, applicants' use of color in proposals should be minimal and used only when necessary for details. Do not use color if it is not necessary.

iv. Post-Employment Conflict of Interest: There are certain post-employment restrictions on former federal employees, including special Government employees (18 U.S.C. 207). If a prospective applicant believes a conflict of interest may exist, the situation should be discussed with the TPOC listed in the BAA for their area of scientific research who will then coordinate with appropriate GVSC legal counsel prior to the applicant expending time and effort in preparing a

proposal.

v. Statement of Disclosure Preference: In accordance with Section II.D.2.e.iii of this BAA, Protection of Proprietary Information (Form 1, Attachment 1) shall be completed stating your preference for release of information contained in your proposal. A copy of the form is attached to this announcement.

vi. NOTE: Proposals may be handled for administrative purposes by support contractors. These support contractors are bound by non-disclosure and/or conflict of interest requirements as deemed appropriate.

vii. Equipment (see instrument-specific regulations provided in Section II.B of this BAA): Normally, title to equipment or other tangible property purchased with Government funds vests with nonprofit institutions of higher education or with nonprofit organizations whose primary purpose is conducting scientific research if vesting will facilitate scientific research performed for the Government. For-profit organizations are expected to possess the necessary plant and equipment to conduct the proposed research. Deviations may be made on a case-by-case basis to allow for-profit organizations to purchase equipment, but regulatory disposition instructions must be followed.

b. The Application Process

The application process is in three stages as follows:

i. Stage 1- Verify the accuracy of your Unique Entity Identifier (formerly DUNS) at the Dun and Bradstreet (D&B) website http://fedgov.dnb.com/webform before registering with the System for Award Management System (SAM) at https://www.sam.gov. Prospective applicants must be registered in SAM prior to submitting an application or plan. In SAM registrants must provide Legal Business Name, Doing Business Name (DBA), Physical Address, and Postal Code/ Zip+4 data fields from D&B. If corrections are required, registrants will not be able to enter/modify these fields in SAM; they will be pre-populated using D&B Unique Entity Identifier record data. When D&B confirms the correction has been made, the registrant must then re-visit sam.gov and click a “yes”" to D&B's changes. Only at this point will the D&B data be accepted into the SAM record. Allow a minimum of two (2) business days for D&B to send the modified data to SAM.

ii. Stage 2 - Prospective applicants are requested to submit whitepapers prior to the submission of a complete, more detailed proposal. The purpose of whitepapers is to minimize the labor and cost associated with the production of detailed proposals having very little chance of being selected for funding. Based on assessment of the whitepapers, feedback will be provided to the applicants to encourage or discourage them from submitting proposals. Whitepapers should present the effort in sufficient detail to allow evaluation of the concept's scientific merit and its potential contributions of the effort to the Army mission.

iii. Stage 3 - Interested applicants are required to submit proposals. All proposals submitted under the terms and conditions cited in this BAA will be reviewed regardless of the feedback on, or lack of submission of, a whitepaper. If applicants have not submitted whitepapers,

proposals may still be submitted for funding consideration. Proposals must be submitted in order for the applicant to be considered for funding.

iv. Requests for waiver of electronic submission requirements may be submitted via email to: usarmy.detroit.devcom-gvsc.mbx.amo@army.mill and contract specialist.

c. Whitepaper Preparation

i. Whitepapers should focus on describing details of the proposed research, including how it is innovative, how it could substantially increase the scientific state of the art, Army relevance, and potential impact.

ii. Whitepapers are limited to seven (7) total pages; five (5) pages for whitepaper technical content, one (1) cover page and a one (1) page addendum as discussed below. Evaluators will only review the whitepaper cover page, up to five whitepaper technical content pages, and the one-page addendum.

Whitepapers must be in the following format but do not require any special forms:

- Page Size: 8 ½ x 11 inches
- Margins – 1 inch
- Spacing – single
- Font – Times New Roman, 12 point

iii. All files and forms shall be combined into a single PDF before submitting.

iv. Format and content of whitepapers:

(1) COVER PAGE (not to exceed one page):

The whitepaper cover page shall include at a minimum: Title of the whitepaper, name of the individual and organization submitting the whitepaper, the research area and number against which the whitepaper is submitted, and the TPOC name.

(2) TECHNICAL CONTENT (not to exceed five pages):

(a) A detailed discussion of the effort's scientific research objective, approach, relationship to similar research, and level of effort shall be submitted. Also include the nature and extent of the anticipated results and, if known, the manner in which the work will contribute to the accomplishment of the Army's mission and how this contribution would be demonstrated.

The type of support, if any, the applicant requests of the Government, such as facilities, equipment, demonstration sites, test ranges, software, personnel or materials, shall be identified as Government Furnished Equipment (GFE), Government Furnished Information (GFI), Government Furnished Property (GFP), or Government Furnished Data (GFD). Applicants shall indicate any Government coordination that may be required for obtaining equipment or facilities necessary to perform any

simulations or exercises that would demonstrate the proposed capability.

(b) The cost portion of the whitepaper shall contain a brief cost estimate revealing all the component parts of the proposal, including research hours, burden, material costs, travel, etc.

(3) ADDENDUM (not to exceed one page):

Include biographical sketches of the key personnel who will perform the research, highlighting their qualifications and experience.

v. RESTRICTIVE MARKINGS ON WHITEPAPERS:

(1) Any proprietary data (or section of white papers) that the applicant intends to be used only by the Government for evaluation purposes must be clearly marked with the bold text "PROPRIETARY." In the absence of such written identification, the Government will conclude there are no limitations or restrictions on data (e.g., technical data, computer software, etc.) included in the whitepaper. It is the intent of the Army to treat all whitepapers as procurement sensitive before award and to disclose their contents only for the purpose of evaluation.

Care must be exercised to ensure that classified, sensitive, and critical technologies are not included in a whitepaper. If such information is required, appropriate restrictive markings in bold text and procedures must be applied prior to submission of the whitepaper.

(2) Applicants are cautioned, however, that portions of the whitepapers may be subject to release under terms of the Freedom of Information Act, 5 U.S.C. 552, as amended.

vi. EVALUATION AND DISPOSITION OF WHITEPAPERS:

(1) Evaluation Process: Applicants are advised that invitations for proposals will be made based on the whitepaper submission and the availability of funding. The whitepaper will be evaluated for the concept's scientific merit and potential contributions of the effort to the Army mission. Applicants whose whitepapers are evaluated as having significant scientific merit may be invited to submit a proposal. However, an applicant may submit a proposal despite not submitting a whitepaper or receiving a proposal invite from the Government.

(2) Disposition Process: The applicant will be notified in writing after completion of the evaluation. Whitepapers will not be returned to applicants.

d. Whitepaper Submission

All whitepapers must be emailed directly to the TPOC. In the email subject line, include the phrase "Whitepaper Submission," the BAA number W56HZV-24A-0003 and the research topic number from Section II.A of this BAA. Whitepapers submitted via email must be in a single PDF formatted file as an email attachment.

e. Preparation of Proposals

i. COVER PAGE:

(1) A Cover Page is required. Cover Page should include:

i. Topic Name
ii. TPOC Name
iii. Institution Name
iv. POC name
v. White paper expiration date

(2) Should the project be carried out at a branch campus or other component of the applicant, the branch campus or component should be identified.

(3) The title of the proposed project should be brief, scientifically representative, intelligible to a scientifically-literate reader, and suitable for use in the public domain.

(4) The proposed duration for which support is requested should be consistent with the nature and complexity of the proposed activity. Applicants shall discuss the preferred performance period with the TPOC.

(5) Specification of a desired starting date for the project is important and helpful; however, requested effective dates cannot be guaranteed.

(6) Pursuant to 31 U.S.C. 7701, as amended by the Debt Collection Improvement Act of 1996 [Section 31001(I)(1), Public Law 104-134] and implemented by 32 CFR 22.420(d), federal agencies shall obtain each awardees' Taxpayer Identification Number (TIN). The TIN is being obtained for purposes of collecting and reporting on any delinquent amounts that may arise out of an awardees' relationship with the Government.

(7) Applicants shall provide their organization's Unique Entity Identifier (formerly DUNS). This number is a nine-digit number assigned by D&B Information Services. See Section II.D.3 of this BAA for requirements pertaining to the Unique Entity Identifier.

(8) Applicants shall provide their assigned Commercial and Government Entity (CAGE) Code. The CAGE Code is a 5-character code assigned and maintained by the Defense Logistics Service Center (DLSC) to identify a commercial plant or establishment.

ii. TABLE OF CONTENTS:

Use the following format for the Table of Contents:

SECTION	PAGE NUMBER
Table of Contents	A-1
Statement of Disclosure Preference (Attachment 1)	B-1
Research and Related Other Project Information	B-2
Project Abstract	C-1
Project Description (Technical Proposal)	D-1 - D-□
Biographical Sketch	E-1 - E-□
Bibliography	F-1 - F-□
Current and Pending Support	G-1 - G-□
Facilities, Equipment, and Other Resources	H-1 - H-□
Proposal Budget	I-1 - I-□
Appendices List Appendix Items: _____	-□

Applicants should show the location of each section of the proposal, as well as major subdivisions of the project description.

iii. STATEMENT OF DISCLOSURE PREFERENCE (FORM 1): Complete and sign FORM 1.

iv. RESEARCH AND RELATED OTHER PROJECT INFORMATION: Must be completed and signed by all applicants.

v. PROJECT ABSTRACT:

(1) The project abstract shall be completed on the form entitled "Publicly Releasable Project Abstract" (Attachment 2).

(2) Unless otherwise instructed in this BAA, the project abstract shall include a concise statement of work and basic approaches to be used in the proposed effort. The abstract

should include a statement of scientific objectives, methods to be employed, and the significance of the proposed effort to the advancement of scientific knowledge.

(3) The abstract should be no longer than one (1) page (maximum 4,000 characters).

(4) The project abstract shall be marked by the applicant as publicly releasable. By submission of the project abstract, the applicant confirms that the abstract is releasable to the public.

vi. PROJECT DESCRIPTION (TECHNICAL PROPOSAL): The technical portion of the proposal shall contain the following:

(1) A complete discussion stating the background and objectives of the proposed work, the scientific approaches to be considered, the relationship to competing or related research, and the level of effort to be employed. Include also the nature and extent of the anticipated results and how they will significantly advance the scientific state-of-the-art. Also, if known, include the manner in which the work will contribute to the accomplishment of the Army's mission. Ensure the proposal identifies any scientific uncertainties and describes specific approaches for the resolution or mitigation of the uncertainties.

(2) A brief description of your organization.

(3) The names of other federal, state, or local agencies, or other parties receiving the proposal and/or funding the proposed effort. If none, state so. Concurrent or later submission of the proposal to other organizations will not prejudice its review by the GVSC if we are kept informed of the situation.

(4) A statement regarding possible impact, if any, of the proposed effort on the environment, considering as a minimum its effect upon water, atmosphere, natural resources, human resources, and any other values.

(5) A statement regarding the use of Class I and Class II ozone- depleting substances. Ozone depleting substances are any substance designated as Class I by EPA, including but not limited to chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform, and any substance designated as Class II by EPA, including but not limited to hydrochlorofluorocarbons. See 40 CFR Part 82 for detailed information. If Class I or II substances are to be utilized, a list shall be provided as part of the applicant's proposal. If none, state so.

(6) The type of support, if any, requested by the applicant (e.g., facilities, equipment, and materials).

vii. BIOGRAPHICAL SKETCH:

(1) This section shall contain the biographical sketches for key personnel only.

(a) Primary Principal Investigator (PI): The Primary PI provides a single or initial point of

communication between the GVSC and the awardee organization(s) about scientific matters. If not otherwise designated, the first PI listed will serve as the Primary PI. This individual can be changed with notification to GVSC. GVSC does not infer any additional scientific stature to this role among collaborating investigators.

(b) Co-Principal Investigators: The individual(s) a research organization designates as having an appropriate level of authority and responsibility for the proper conduct of the research and submission of required reports to GVSC. When an organization designates more than one PI, it identifies them as individuals who share the authority and responsibility for leading and directing the research, intellectually and logistically. GVSC does not infer any distinction among multiple PIs.

(2) The following information is required:

(a) Relevant experience and employment history including a description of any prior Federal employment within one year preceding the date of proposal submission.

(b) List of up to five publications most closely related to the proposed project and up to five other significant publications, including those being printed. Patents, copyrights, or software systems developed may be substituted for publications.

(c) List of persons, other than those cited in the publications list, who have collaborated on a project or a book, article, report or paper within the last four years. Include pending publications and submissions. Otherwise, state "None."

(d) Names of each investigator's own graduate or post-graduate advisors and advisees.

NOTE: The information provided in (c) and (d) is used to help identify potential conflicts or bias in the selection of reviewers.

(3) For the personnel categories of postdoctoral associates, other professionals, and students (research assistants), the proposal may include information on exceptional qualifications of these individuals that merit consideration in the evaluation of the proposal.

(4) The biographical sketches are limited to three (3) pages per investigator and other individuals that merit consideration.

viii. BIBLIOGRAPHY: A bibliography of pertinent literature is required. Citations must be complete (including full name of author(s), title, and location in the literature).

ix. CURRENT AND PENDING SUPPORT:

(1) All project support from whatever source must be listed. The list must include all projects requiring a portion of the PI's and other key personnel's time, even if they receive no salary support from the project(s).

(2) The information should include, as a minimum: (i) the project/proposal title and brief

description, (ii) the name and location of the organization or agency presently funding the work or requested to fund such work, (iii) the award amount or annual dollar volume of the effort, (iv) the period of performance, and (v) a breakdown of the time required of the PI and/or other key personnel.

x. FACILITIES, EQUIPMENT, and OTHER RESOURCES: The applicant should include in the proposal a listing of facilities, equipment, and other resources already available to perform the research proposed.

xi. PROPOSAL BUDGET:

(1) Each proposal must contain a budget for each year of support requested and a cumulative budget for the full term of requested support. Each budget year and the cumulative budget for the full term must be documented on ARO Form 99 (Attachment 3). ARO Form 99 may be reproduced, but you may not make substitutions in prescribed budget categories nor alter or rearrange the cost categories as they appear on the form. The proposal may request funds under any of the categories listed so long as the item is considered necessary to perform the proposed work and is not precluded by applicable cost principles. In addition to the forms, the budget proposal should include budget justification for each year.

(2) A signed summary budget page must be included. The documentation pages should be titled "Budget Explanation Page" and numbered chronologically starting with the budget form. The need for each item should be explained clearly.

(3) All cost data must be current and complete. Costs proposed must conform to the following principles and procedures:

Institutions of Higher Education: 2 CFR Part 200
Nonprofit Organizations: 2 CFR Part 200
For-Profit/Commercial Organizations: FAR Part 31, DFARS Part 231, FAR Subsection 15.403-5, and DFARS Subsection 215.403-5.

* For those nonprofit organizations specifically exempt from the provisions of Subpart E of 2 CFR Part 200 (see 2 CFR 200.401(c)), FAR Part 31 and DFARS Part 231 shall apply.

(4) Sample itemized budgets and the information they must include for a contract and for grants and cooperative agreements can be found at Section II.H of this BAA (Other Information). Before award of a cost-type contract or assistance instrument it must be established that an approved accounting system and financial management system exist.

f. Submission of Proposals

Proposals must be submitted by email. Proposals must be submitted through the applicant's organizational office having responsibility for Government business relations. All signatures must be that of an official authorized to commit the organization in business and financial affairs.

i. EMAIL SUBMISSION:

(1) Proposals may be emailed directly to Katherine Shaffer, katherine.w.shaffer.civ@army.mil, Contract Specialist – ACC DTA and Katarzyna Szkubiel, katarzyna.k.szkubiel.civ@army.mil, Procurement Specialist- GVSC. Do not email full proposals to the TPOC. All emailed proposals must adhere to the format requirements and contain the information outlined in Section II.D.2.e of this BAA.

(2) The applicant must include with its proposal submission the representations required by Section II.F.2.a.i of this BAA. The representations must include applicant point of contact (POC) information and be signed by an authorized representative. Note: If the applicant's SAM Representations and Certifications include its response to the representations a hard copy representation is not required with proposal submission.

(3) All forms requiring signature must be completed, printed, signed, and scanned into a PDF document. All documents must be combined into a single PDF formatted file to be attached to the email.

(4) Proposal documents (excluding required forms) must use the following format:

- Page Size – 8 ½ x 11 inches
- Margins – 1 inch
- Spacing – single
- Font – Times New Roman, 12 point, single-sided pages

(5) The applicant must include validity date in the proposal submission if less than 180 days.

3. Unique Entity Identifier (UEI) and System for Award Management (SAM)

a. Each applicant (unless the applicant is an individual or Federal awarding agency that is exempt from those requirements under 2 CFR 25.110(b) or (c), or has an exemption approved by the Federal awarding agency under 2 CFR 25.110(d)) is required to:

i. Be registered in SAM prior to submitting its application; ii. Provide a valid unique entity identifier (formerly DUNS) in its application; and iii. Maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency.

b. The Federal awarding agency may not make a Federal award to an applicant until the applicant has complied with all applicable unique entity identifier and SAM requirements. If an applicant has not fully complied with the requirements by the time the Federal awarding agency is ready to make a Federal award, the Federal awarding agency may determine that the applicant is not qualified to receive a Federal award and use that determination as a basis for making a Federal award to another applicant.

4. Submission Dates and Times

a. Proposals

Proposals will be considered until and including the closing date of this announcement (see cover page of this announcement for opening/closing dates), except for special programs identified in this BAA that may announce specific opening/closing dates. Proposals submitted after the closing date will not be considered by the Government.

b. Email Submission: Proposals are to be submitted via email to Contract Specialist Kate Shaffer katherine.w.shaffer.civ@army.mil and Katarzyna Szkubiel, katarzyna.k.szkubiel.civ@army.mil, Procurement Specialist- GVSC Katarzyna Szkubiel at katarzyna.k.szkubiel.civ@army.mil. Note: An applicant should not consider its proposal received by the agency unless an email confirmation of receipt of proposal is confirmed received from GVSC.

c. Proposal Validity: Proposals shall be valid for at least 180 days from date of submission.

5. Funding Restrictions

There are no specific funding restrictions associated with this BAA (e.g., direct costs, indirect costs, etc.).

a. **Other Submission Requirements:** Information to Be Requested from Successful Applicants: Applicants whose proposals are accepted for funding will be contacted before award to provide additional information required for award. The required information may include requests to clarifying budget explanations, representations, certifications, and some technical aspects.

b. **For Contracts Only**: Performance Work Statements (PWS). Prior to award, the Contracting Officer may request that the contractor submit a PWS for the effort to be performed, which will be incorporated into the contract at the time of award.

6. Program security classification: Unclassified

a. Program Protection Plan. The government will address any critical program information (CPI) with a potential requirement for a program protection plan (PPP) generated as part of this effort as needed. The Government may require Operations Security (OPSEC) measures (when applicable) to protect sensitive unclassified information. If access to unclassified sensitive information (For Official Use Only - FOUO) is authorized, the awardee may access only the information related to the subject matter of their award.

b. Export Control: It is anticipated that Export Control laws and regulations (e.g., International Traffic In Arms Regulation (ITAR) 22 CFR 120-130, Export Administration Regulations (EAR) 15 CFR 730-780, etc.).) will apply to some efforts under this BAA. Export Control laws and regulations may apply to individual tasks depending on the nature of the research tasks. It is the awardee's responsibility to determine applicability of all Export Control laws and regulations and ensure the awardee's compliance.

c. Reporting: Awards may contain a requirement for awardee to report a violation of administrative security procedures or Export Control laws and regulations that would subject critical unclassified information to possible compromise by non-U.S. persons or foreign national employees.

(End of Section)

E. Application Review Information

1. Criteria

Proposals submitted in response to this BAA will be evaluated using the factors listed below (in descending order of importance):

a. The overall scientific and/or technical merits of the proposal.

b. The potential contributions of the effort to the Army mission and the extent to which the research effort will contribute to balancing the overall GVSC research program.

c. The applicant's capabilities, related experience, facilities, techniques, or unique combinations of these, which are integral factors for achieving the proposed objectives.

d. The qualifications, capabilities, and experience of the proposed PI, team leader, or other key personnel who are critical to achievement of the proposed objectives.

e. The applicant's record of past performance.

f.

**NOTE: Cost sharing will not be considered in the evaluation.

2. Review and Selection Process

a. Upon receipt of a proposal, the GVSC staff will perform an initial review of its scientific merit and potential contribution to the Army mission and will also determine if funds are expected to be available for the effort. Proposals not considered to have sufficient scientific merit or relevance to the Army's needs, or those in areas for which funds are not expected to be available, may not receive further review.

b. All proposals are treated as procurement sensitive and are disclosed only for the purpose of evaluation. Proposals not declined as a result of an initial review will be subject to a peer review by highly qualified scientists. While the applicant may restrict the evaluation to scientists from within the Government, to do so may prevent review of the proposal by those most qualified in the field of research covered by the proposal. The applicant must indicate on the appropriate proposal form (Attachment 1) any limitation to be placed on disclosure of information contained in the proposal.

c. Each proposal will be evaluated based on all the evaluation criteria in Section II.E.1 of this BAA rather than against other proposals for research in the same general area.

d. Upon completion of an evaluation against the criteria in Section II.E.1, a proposal selected for possible award will be analyzed for reasonableness of costs. Proposal costs must be determined

reasonable before the Government can make an award.

3. Recipient Qualification

a. Cooperative Agreement Proposals:

i. The Agreements Officer is responsible for determining a recipient's qualification prior to award. In general, an Agreements Officer will award cooperative agreements only to qualified recipients that meet the standards at 32 CFR 22.415. To be qualified, a potential recipient must:

(1) Have the management capability and adequate financial and technical resources, given those that would be made available through the grant or cooperative agreement, to execute the program of activities envisioned under the grant or cooperative agreement;

(2) Have a satisfactory record of executing such programs or activities (if a prior recipient of an award);

(3) Have a satisfactory record of integrity and business ethics; and

(4) Be otherwise qualified and eligible to receive a cooperative agreement under applicable laws and regulations.

Applicants are requested to provide information with proposal submissions to assist the Agreements Officer's evaluation of recipient qualification.

ii. In accordance with Office of Management and Budget (OMB) guidance in parts 180 and 200 of Title 2, CFR, it is DoD policy that DoD Components must report and use integrity and performance information in the Federal Awardee Performance and Integrity Information System (FAPIIS), or any successor system designated by OMB, concerning grants, cooperative agreements, as follows:

If the total Federal share will be greater than the simplified acquisition threshold on any Federal award under a notice of funding opportunity (see 2 CFR 200.88 Simplified Acquisition Threshold):

(1) The Federal awarding agency, prior to making a Federal award with a total amount of Federal share greater than the simplified acquisition threshold, will review and consider any information about the applicant that is in the designated integrity and performance system accessible through SAM (currently FAPIIS) (see 41 U.S.C. 2313);

(2) An applicant, at its option, may review information in the designated integrity and performance systems accessible through SAM and comment on any information about itself that a Federal awarding agency previously entered and is currently in the designated integrity and performance system accessible through SAM;

(3) The Federal awarding agency will consider any comments by the applicant, in addition to the other information in the designated integrity and performance system, in making a judgment about the applicant's integrity, business ethics, and record of performance under Federal awards when completing the review of risk posed by applicants as described in 2

CFR 200.205 Federal awarding agency review of risk posed by applicants.

b. Contract Proposals:

i. Contracts shall be awarded to responsible prospective contractors only. See FAR 9.104-1 for a listing of the general standards against which an applicant will be assessed to determine responsibility.

Applicants are requested to provide information with proposal submission to assist the Contracting Officer's evaluation of responsibility.

ii. FAPIIS will be checked prior to making an award. The web address is: https://www.fapiis.gov/fapiis/. The applicant representing the entity may comment in this system on any information about the entity that a federal government official entered. The information in FAPIIS will be used in making a judgment about the entity's integrity, business ethics, and record of performance under Federal awards that may affect the official's determination that the applicant is qualified to receive an award.

(End of Section)

F. Award Administration Information

1. Award Notices

Applicants whose proposals are recommended for award may be contacted by a Contract Specialist to discuss additional information required for award. This may include representations and certifications, revised budgets or budget explanations, certificate of current cost or pricing data, subcontracting plan for small businesses, and/or other information as applicable to the proposed award. The anticipated start date will be determined at that time.

The notification email must not be regarded as an authorization to commit or expend funds. The Government is not obligated to provide any funding until a Government Contracting/ Grants Officer signs the award document.

The award document signed by the Government Contracting/Agreements Officer is the official and authorizing award instrument. The authorizing award instrument, signed by the Contracting/ Agreements Officer, will be emailed to the PI.

2. Administrative and National Policy Requirements

a. Required Representations and Certifications:

i. Contract Proposals:

(1) Representations and certifications shall be completed by successful applicants prior to award. FAR Online Representations and Certifications are to be completed through SAM at https://www.SAM.gov. As appropriate, DFARS and contract-specific certification packages

will be provided to the contractor for completion prior to award.

(2) FAR 52.203-18, PROHIBITION ON CONTRACTING WITH ENTITIES THAT REQUIRE CERTAIN CONFIDENTIALITY AGREEMENTS OR STATEMENTS—REPRESENTATION (JAN 2017)

(a) Definition. As used in this provision--

"Internal confidentiality agreement or statement", "subcontract", and "subcontractor", are defined in the clause at 52.203-19, Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements.

(b) In accordance with section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions), Government agencies are not permitted to use funds appropriated (or otherwise made available) for contracts with an entity that requires employees or subcontractors of such entity seeking to report waste, fraud, or abuse to sign internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or subcontractors from lawfully reporting such waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

(c) The prohibition in paragraph (b) of this provision does not contravene requirements applicable to SF 312, (Classified Information Nondisclosure Agreement), Form 4414 (Sensitive Compartmented Information Nondisclosure Agreement), or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

(d) Representation. By submission of its offer, the applicant represents that it will not require its employees or subcontractors to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or subcontractors from lawfully reporting waste, fraud, or abuse related to the performance of a Government contract to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information (e.g., agency Office of the Inspector General).

(3) FAR 52.209-11, REPRESENTATION BY CORPORATIONS REGARDING DELINQUENT TAX LIABILITY OR A FELONY CONVICTION UNDER FEDERAL LAW (FEB 2016)

As required by sections 744 and 745 of Division E of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L 113-235), and similar provisions, if contained in subsequent appropriations acts, the Government will not enter into a contract with any corporation that--

Has any unpaid Federal tax liability that has been assessed, for which all judicial

and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency is aware of the unpaid tax liability, unless an agency has considered suspension or debarment of the corporation and made a determination that suspension or debarment is not necessary to protect the interests of the Government; or

Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency is aware of the conviction, unless an agency has considered suspension or debarment of the corporation and made a determination that this action is not necessary to protect the interests of the Government.

The applicant represents that—

It is [ ] is not [ ] a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability; and

It is [ ] is not [ ] a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

ii. Cooperative Agreement Proposals:

1. To apply for other funding opportunities the applicant entity must be registered in the System for Award Management (SAM). Proposals will not be accepted through Grants.gov or other methods unless the entity is registered in SAM. Registration in SAM now includes the acceptance of Certifications and Assurances. SAM may be accessed at: https://sam.gov.

The Federal Assistance Certifications Report is an attestation that the entity will abide by the requirements of the various laws and regulations; therefore, as applicable, you are still required to submit any documentation, including the SF LLL Disclosure of Lobbying Activities (if applicable), and informing DoD of unpaid delinquent tax liability or a felony conviction under any Federal law.)

Below is the required certification:

CERTIFICATION AT APPENDIX A TO 32 CFR PART 28 REGARDING LOBBYING: Certification for Contracts, Grants, Loans, and Cooperative Agreements the undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension,

continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit SF-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub- recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than
$10,000 and not more than $100,000 for each such failure.

2. In accordance with Continuing Appropriations Act, 2017 (Pub. L. 114-223), or any other Act that extends to fiscal year (FY) 2017 funds the same prohibitions as contained in section 743, division E, title VII, of the Consolidated Appropriations Act, 2016 (Pub. L. 114-113), none of the funds appropriated or otherwise made available by that or any other Act may be made available for a grant or cooperative agreement with an entity that requires its employees or contractors seeking to report fraud, waste, or abuse to sign internal confidentiality agreements or statements prohibiting or otherwise restricting those employees or contractors from lawfully reporting that waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive the information.

PROHIBITION ON CONTRACTING WITH ENTITIES THAT REQUIRED CERTAIN INTERNAL CONFIDENTIALITY AGREEMENTS – REPRESENTATION

Agreement with the representation below will be affirmed by checking the “I agree” box in block 17 of the SF424 (R&R) as part of the electronic proposal submitted via Grants.gov. The representation reads as follows:

By submission of its proposal or application, the applicant represents that it does not require any of its employees, contractors, or sub-recipients seeking to report fraud, waste, or abuse to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting those employees, contractors, sub-recipients from lawfully reporting that waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

*Note that: Section 743 states that it does not contravene requirements applicable to SF 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

(2) Recipients are required to submit the following representation with the application package IAW the instructions at Section II.D.2.f.ii of this BAA:

REPRESENTATIONS UNDER DOD ASSISTANCE AGREEMENTS: APPROPRIATIONS PROVISIONS ON TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant is ( ) is not ( ) a "Corporation" meaning any entity, including any institution of higher education, other nonprofit organization, or for-profit entity that has filed articles of incorporation.

If the applicant is a "Corporation" please complete the following representations:

(a) The applicant represents that it is ( ) is not ( ) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

(b) The applicant represents that it is ( ) is not ( ) is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

NOTE: If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the agency suspension and debarment official (SDO) has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore should provide information about its tax liability or conviction to the agency's SDO as soon as it can do so, to facilitate completion of the required considerations before award decisions are made.

PROHIBITION ON CONTRACTING WITH ENTITIES USING CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Section 889 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2019 (Public Law 115-232) prohibits the head of an executive agency from obligating or expending loan or grant funds to procure or obtain, extend, or renew a contract to procure or obtain, or enter into a contract (or extend or 105 renew a contract) to procure or obtain the equipment, services, or systems prohibited systems as identified in section 889 of the NDAA for FY 2019. For more information on how this applies to all grant recipients and sub-recipients after August 13, 2020, please see DoD Research General Terms and Conditions (SEP 2020) NP Article IV. Other national policy requirements, paragraph 18.

i. PROTECTION OF HUMAN SUBJECTS:

(4) Assistance Instruments:

(a) The recipient must protect the rights and welfare of individuals who participate as human subjects in research under this award and comply with the requirements at 32 CFR part 219, Department of Defense Instruction (DoDI) 3216.02, 10 U.S.C. 980, and when applicable, Food and Drug Administration (FDA) regulations.

(b) The recipient must not begin performance of research involving human subjects, also known as human subjects research (HSR), that is covered under 32 CFR part 219, or that meets exemption criteria under 32 CFR 219.101(b), until you receive a formal notification of approval from a DoD Human Research Protection Official (HRPO). Approval to perform HSR under this award is received after the HRPO has performed a review of the recipient's documentation of planned HSR activities and has officially furnished a concurrence with the recipient's determination as presented in the documentation.

(c) In order for the HRPO to accomplish this concurrence review, the recipient must provide sufficient documentation to enable his or her assessment as follows:

(i) If the HSR meets an exemption criteria under 32 CFR 219.101(b), the documentation must include a citation of the exemption category under 32 CFR 219.101(b) and a rationale statement.

(ii) If the recipient's activity is determined as "non-exempt research involving human subjects", the documentation must include:

- Assurance of Compliance (i.e., Department of Health and Human Services Office for Human Research Protections (OHRP) Federal Wide Assurance (FWA)) appropriate for the scope of work or program plan; and

- Institutional Review Board (IRB) approval, as well as all documentation reviewed by the IRB to make their determination.

(d) The HRPO retains final judgment on what activities constitute HSR, whether an exempt category applies, whether the risk determination is appropriate, and whether the planned HSR activities comply with the requirements in paragraph (a) of this section.

(e) The recipient must notify the HRPO immediately of any suspensions or terminations of the Assurance of Compliance.

(f) DoD staff, consultants, and advisory groups may independently review and inspect the recipient's research and research procedures involving human subjects and, based on such findings, DoD may prohibit research that presents unacceptable hazards or otherwise fails to comply with DoD requirements.

(g) Definitions for terms used in this article are found in DoDI 3216.02.

(5) Contracts: The appropriate clauses shall be added to the award.

ii. ANIMAL USE:

(1) Assistance Instruments:

(a) Prior to initiating any animal work under the award, the recipient must:

(i) Register the recipient's research, development, test, and evaluation or training facility with the Secretary of Agriculture in accordance with 7 U.S.C. 2136 and 9 CFR section 2.30, unless otherwise exempt from this requirement by meeting the conditions in 7 U.S.C. 2136 and 9 CFR parts 1-4 for the duration of the activity.

(ii) Have the recipient's proposed animal use approved in accordance with DoDI 3216.01, Use of Animals in DoD Programs by a DoD Component Headquarters Oversight Office.

(iii) Furnish evidence of such registration and approval to the grants officer.

(b) The recipient must make the animals on which the research is being conducted, and all premises, facilities, vehicles, equipment, and records that support animal care and use available during business hours and at other times mutually agreeable to the recipient, the United States Department of Agriculture Office of Animal and Plant Health Inspection Service (USDA/APHIS) representative, personnel representing the DoD component oversight offices, as well as the grants officer, to ascertain that the recipient is compliant with 7 U.S.C. 2131 et seq., 9 CFR parts 1-4, and DoDI 3216.01.

(c) The recipient's care and use of animals must conform with the pertinent laws of the United States, regulations of the Department of Agriculture, and regulations, policies, and procedures of the DoD (see 7 U.S.C. 2131 et seq., 9 CFR parts 1-4, and DoDI 3216.01).

(d) The recipient must acquire animals in accordance with DoDI 3216.01.

(2) Contracts: The appropriate clauses shall be added to the award.

iii. BIOLOGICAL SAFETY PROGRAM REQUIREMENTS:

(1) Assistance Instruments and Contracts: Awards may be subject to biological safety program requirements IAW:

(a) Army Regulation (AR) 385-10, Chapter 20
http://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/r385_10.pdf

(b) Department of Army (DA) PAM 385-69
http://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/p385_69.pdf

(c) DoD Manual 6055.18-M, Enclosure 4, Section 13
http://www.dtic.mil/whs/directives/corres/pdf/605518m.pdf

(d) DoD Executive Agent List (see item 3) http://www.oaa.army.mil/aea_functions.aspx

iv MILITARY RECRUITING:

(6) Assistance Instruments: This is to notify potential applicants that each grant or cooperative agreement awarded under this announcement to an institution of higher education must include the following term and condition:

(a) As a condition for receiving funds available to the DoD under this award, you agree that you are not an institution of higher education (as defined in 32 CFR part 216) that has a policy or practice that either prohibits, or in effect prevents:

(i) The Secretary of a Military Department from maintaining, establishing, or operating a unit of the Senior Reserve Officers Training Corps (ROTC)—-in accordance with 10 U.S.C. 654 and other applicable Federal laws—-at that institution (or any sub-element of that institution);

(ii) Any student at that institution (or any sub-element of that institution) from enrolling in a unit of the Senior ROTC at another institution of higher education.

(iii) The Secretary of a Military Department or Secretary of Homeland Security from gaining access to campuses, or access to students (who are 17 years of age or older) on campuses, for purposes of military recruiting in a manner that is at least equal in quality and scope to the access to campuses and to students that is provided to any other employer; or

(iv) Access by military recruiters for purposes of military recruiting to the names of students (who are 17 years of age or older and enrolled at that institution or any sub-element of that institution); their addresses, telephone listings, dates and places of birth, levels of education, academic majors, and degrees received; and the most recent educational institutions in which they were enrolled.

(b) If you are determined, using the procedures in 32 CFR part 216, to be such an institution of higher education during the period of performance of this award, we:

(i) Will cease all payments to you of DoD funds under this award and all other DoD grants and cooperative agreements; and

(ii) May suspend or terminate those awards unilaterally for material failure to comply with the award terms and conditions.

(7) Contracts: Each contract awarded under this announcement to an institution of higher education shall include the following clause: DFARS 252.209-7005, Military Recruiting on Campus.

v. SUBCONTRACTING:(1) Assistance Instruments: N/(A) Contracts: Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. § 637(d)), it is the policy of the Government to enable small business and small disadvantaged business (SDB) concerns to be considered fairly as subcontractors. All other than U.S. small businesses proposing contracts expected to exceed $750,000 and that have subcontracting possibilities are required to submit a subcontracting plan IAW FAR 19.702(a) and shall do so with their proposal.

Subcontracting plans are determined to be acceptable or unacceptable based on the criteria established at FAR 19.705-4, DFARS 219.705-4, and AFARS 5119.705-4. Goals are established on an individual contract basis and should result in realistic, challenging and attainable goals that, to the greatest extent possible, maximize small business participation in subcontracting for Small Business, SDB, Woman-Owned Small Business (WOSB), Economically-Disadvantaged Woman-Owned Small Business (EDWOSB), Service-Disabled
Veteran-Owned Small Business (SDVOSB), Veteran-Owned Small Business (VOSB), and Historically Underutilized Business Zone (HUBZone) Small Business consistent with applicants' make-or-buy policy, the pool of and availability of qualified and capable small business subcontractors, their performance on subcontracts, and existing relationships with suppliers.

Subcontracting goals should result in efficient contract performance in terms of cost, schedule, and performance and should not result in increased costs to the government or undue administrative burden to the prime contractor. For reference, DoD Small Business Subcontracting Goals may be found at: https://business.defense.gov/About/Goals-and-Performance/ ,

i. EXPORT CONTROL LAWS:

(8)Assistance Instruments: N/A

(9) Contracts: Applicants should be aware of current export control laws and are responsible for ensuring compliance with all International Traffic in Arms Regulation (ITAR) (22 CFR 120 et. Seq.) requirements, as applicable. In some cases, developmental items funded by the DoD are now included on the United States Munition List (USML) and are therefore subject to ITAR jurisdiction. Applicants should address in their proposals whether ITAR restrictions apply or do not apply, such as in the case when research products would have both civil and military application, to the work they are proposing to perform for the DoD. The USML is available online at http://www.ecfr.gov/cgi-bin/text-idx?node=pt22.1.121.

ii. DRUG-FREE WORKPLACE:

(10) Assistance Instruments: The recipient must comply with drug-free workplace requirements in Subpart B of 2 CFR part 26, which is the DoD implementation of 41 U.S.C. chapter 81, "Drug Free Workplace."

(11) Contracts: The appropriate clause(s) shall be added to the award.

iii. DEBARMENT AND SUSPENSION:

(12) Assistance Instruments: The recipient must comply with requirements regarding debarment and suspension in Subpart C of 2 CFR part 180, as adopted by DoD at 2 CFR part 1125. This includes requirements concerning the recipient's principals under an award, as well as requirements concerning the recipient's procurement transactions and sub-awards that are implemented in DoD Research and Development General Terms and Conditions PROC Articles I through III and SUB Article II.

(13) Contracts: The appropriate clause(s) shall be added to the award.

iv. REPORTING SUBAWARDS AND EXECUTIVE COMPENSATION:

(14) Assistance Instruments: The recipient must report information about sub-awards and executive compensation as specified in the award term in Appendix A to 2 CFR part 170, "Reporting sub-award and executive compensation information," modified as follows:

(a) To accommodate any future designation of a different Government wide Web site for reporting sub-award information, the Web site "http://www.fsrs.gov" cited in paragraphs a.2.i. and a.3 of the award provision is replaced by the phrase "http://www.fsrs.gov or successor OMB designated Web site for reporting sub-award information";

(b)To accommodate any future designation of a different Government wide Web site for reporting executive compensation information, the Web site "http://www.sam.gov" cited in paragraph b.2.i. of the award provision is replaced by the phrase "https://www.sam.gov or successor OMB-designated Web site for reporting information on total compensation"; and

(c)The reference to "Sec. _.210 of the attachment to OMB Circular A-133, "Audits of States, Local Governments, and Non-Profit Organizations" in paragraph e.3.ii of the award term is replaced by "2 CFR 200.330, as implemented in DoD Research and Development General Terms and Conditions SUB Article I of this award."

(15) Contracts: The appropriate clause(s) shall be added to the award.

v. NATIONAL SECURITY:

(16) This announcement requires that all current and pending research support, as defined by Section 223 of the FY21 National Defense Authorization Act must be disclosed annually, for all covered individuals identified in the proposal. Such disclosure will be updated annually during the performance of any research project selected for funding, and whenever covered individuals are added or identified as performing under the project.

(17) Any decision to accept a proposal for funding under this announcement will include full reliance on the applicant's statements. Failure to report fully and completely all sources of project support and outside positions and affiliations may be considered a material statement within the meaning of the federal False Claims Act, and constitute a violation of law.

(18) The funding agency will conduct a pre-award security review of any proposal selected for funding, and may impose additional security requirements on a resulting award, based on that review. Additional award requirements, where applicable, may include requirements for personnel or facility security clearances, additional background reporting on participants, including students and post graduate researchers, and/or imposition of citizenship requirements on participants. Offerors are advised that any significant national security risk identified may be a basis for the rejection of an otherwise awardable proposal.

3. Reporting

a. Additional reports including number and types will be specified in the award document but will include as a minimum monthly financial status reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed upon before award. Reports and briefing material will also be required as appropriate to document progress in accomplishing program metrics. A final report that summarizes the project and tasks will be required at the conclusion of the performance period for the award.

b. SERVICE CONTRACT REPORTING (SCR): For Contracts Only. The Office of Management and Budget (OMB) requires federal agencies to report on activities performed by service contractors annually. Entities with service contracts (including subcontractors) are required to submit a report on all cost-reimbursement, time-and-materials, and labor-hour service contracts and orders. The contractor is required to completely fill in all the information in the format using the following web address: https://sam.gov/. The following contracts are subject to Service Contract Reporting (SCR):

Federal contract awards, not indefinite delivery vehicles (IDVs), are subject to Service Contract Reports (SCRs)

Contract awards include:

- Purchase orders
- Delivery or task orders
- Blanket purchase agreement (BPA) calls
- Definitive contracts

(End of Section)

G. Agency Contacts

1. Questions of a technical or programmatic nature shall be directed to the TPOC for each research area of interest. The TPOC information may be found in the description of each research area of interest in Section II.A of this BAA.

2. Questions of a business or administrative nature are to be directed to the following email: Katarzyna.k.szkubiel.civ@army.mil

3. Comments or questions submitted should be concise and to the point, eliminating any unnecessary verbiage. In addition, the relevant part and paragraph of the announcement should be referenced.

4. Requests to withdraw a proposal shall be directed to the Contract Specialist.

(End of Section)

H. Other Information

The Government will provide the required format and supporting data to be submitted when it requests a formal proposal.

DCAA-Accepted Accounting System

i. Before a cost-type contract can be awarded, the Contracting Officer must confirm that the applicant has a DCAA-accepted accounting system in place for accumulating and billing costs under Government contracts per DFARS 252.242-7006(a)(1) [If the applicant has documentation confirming DCAA acceptance of its accounting system, this should be provided to the Contracting Officer (i.e. attached or referenced in the proposal). Otherwise, the Contracting Officer will submit an inquiry directly to the appropriate DCAA office and request a review of the applicant's accounting system.

ii. If an applicant does not have a DCAA-accepted accounting system in place, the DCAA review process can take several months depending upon the availability of the DCAA auditors and the applicant's internal processes. This will delay contract award.

iii. For more information about cost proposals and accounting standards, view the link titled "Information for Contractors" on the main menu of the DCAA website.

(End of Section)