

1 Introduction

1.1 Background

The National Center for Science and Engineering Statistics (NCSES) is housed within the National Science Foundation (NSF), an independent federal agency focused on supporting basic research across the science and engineering (S&E) disciplines. NCSES' primary role originated in the National Science Foundation Act of 1950 (42 U.S.C. 1862 (a) (6): To provide a central clearinghouse for the collection, interpretation, and analysis of data on scientific and engineering resources and to provide a source of information for policy formulation by other agencies of the federal government.

NCSES is one of thirteen principal statistical agencies within the U.S. federal government. NCSES provides objective information on the U.S. S&E enterprise in a global context. It serves a vital role in the collection, interpretation, and analysis of S&E data with respect to research and development (R&D), the workforce, U.S. competitiveness in science and technology (S&T), and educational attainment in the STEM fields.

1.2 Purpose

The purpose of this Broad Agency Announcement (BAA) is to provide research opportunities to U.S. universities and other institutions of higher education, and their partners, to conduct a variety of research projects that will support the strategic objectives of the National Center for Science and Engineering Statistics (NCSES) and partner Federal Statistical Agencies. NCSES would like to collaborate with universities, research institutions, and teams of researchers to address the following research priorities:

- SOGI @ Work: Current State of Measuring Sexual Orientation and Gender Identity (SOGI) in the Workplace
- Computationally-scalable Black-box Tool for Bayesian Model Estimation
- Formal Privacy for Establishment Statistics
- Measuring the Impact and Value of Federal Statistics
- Analysis of Linked Science and Engineering Enterprise Data
- Exploring Auxiliary Data to Understand the Career Pathways of the Skilled Technical Workforce

2 Research Priorities Areas

The research priorities titled in Section 1.2 are further explained below.

A. SOGI @ Work: Current State of Measuring Sexual Orientation and Gender Identity (SOGI) in the Workplace

There is an ever-expanding need for quality measures and data about sexual orientation and gender identity (SOGI) in the U.S. population. In particular, there is a need for SOGI data about the federal scientific workforce because it is currently not collected from federal employees or those seeking federal employment. The lack of data exemplifies a fundamental knowledge gap regarding the representation of

sexual and gender minorities¹ (SGMs) in the scientific workforce and its impact on productivity. SOGI measures are currently collected in internal surveys like the Federal Employee Viewpoint Survey and a recent [National Institutes of Health \(NIH\) Workplace Climate and Harassment Survey](#). The NIH climate survey revealed that SGM individuals reported a higher incidence of being victims of harassment at the workplace. Specifically, 46% of survey respondents who self-identified as SGM reported experiences of sexual harassment. Although the number of self-identified SGM respondents is small, the finding suggests that SGM employees may not be treated equally and with respect, which is against NIH's fundamental values as a premier place for diverse talent to work.

With the June 2020 U.S. Supreme Court ruling that the 1964 Civil Rights Act protects gay, lesbian, bisexual, and transgender employees from discrimination based on sex, employee protections can now be more broadly enforced. Without SOGI data, it is difficult for federal agencies to implement the [Management Directive-715](#) policy guidance to ensure a diverse and inclusive workforce and create effective equal employment opportunity (EEO) programs for all federal employees. Expansion of SOGI questions in our employment data collection is crucial to address the employment barriers of SGM employees. The data will allow federal agencies and other workforce sectors to analyze the obstacles SGM employees face for an equal employment opportunity and career advancement compared to non-SGM employees.

NCSES and the NIH propose to contract a qualitative study to understand the SOGI data collected by employers across various STEM industries. Human resource (HR) departments will most likely be the source for collecting this information. The research should:

1. Review the current state of SOGI data collection in workforce systems across sectors, including public, private, academic, and non-profit, with a focus on STEM fields;
2. Identify gaps in knowledge and data collection efforts; and
3. Highlight lessons learned and next steps for increasing SOGI data collection across STEM field sectors.

The key research questions of interest are:

1. What is the current state of SOGI data collection by employers for STEM industries?
2. What are the current SOGI measures being used? How were they selected?
3. Do current HR practices collect adequate information about their SGM workforce? Are more questions needed?
4. Are the SOGI data used, and if so, how?
5. Do STEM industries have plans to change the way they collect SOGI data?

NCSES and the NIH will be active partners in this effort. Contact people from these agencies will meet regularly with the contracted institution to stay informed of progress, provide relevant agency-specific

¹Sexual and gender minority (SGM) populations include, but are not limited to, individuals who identify as lesbian, gay, bisexual, asexual, transgender, Two-Spirit, queer, and/or intersex. Individuals with same-sex or -gender attractions or behaviors and those with a difference in sex development are also included. These populations also encompass those who do not self-identify with one of these terms but whose sexual orientation, gender identity or expression, or reproductive development is characterized by non-binary constructs of sexual orientation, gender, and/or sex (NIH definition).

information and guide next steps to aid the progress of the project. NCSSES and NIH would look favorably on proposals that support the work and development of postdoctoral fellows or graduate students.

B. Computationally-scalable Black-box Tool for Bayesian Model Estimation

Bayesian models are increasingly used by U.S. Federal Statistical Agencies for the modeling of domain-indexed (e.g., geographic entity (county, state) crossed with industry) population statistics (e.g., total employment) composed as sampling-weighted sums (direct estimates). The direct estimates are constructed from survey responses (e.g., business establishments) within each domain. The Bayesian paradigm allows formulation of richly-parameterized, hierarchical probability models to discover the correlation structure among the direct estimates to produce more efficient (lower variance) model-based estimators.

There is strong interest in capturing the dependency structure more fully within domains by performing modeling at the survey respondent level. Survey respondent level modeling is also commonly performed for the purposes of missing data imputation, to generate and release synthetic micro data that encodes a formal privacy protection, or to release summary statistics in lieu of releasing the closely-held private data.

The relatively large number of data observations that arise when modeling survey respondents or a large collection of small domains (like counties) induces an overly long computation time to complete the exact estimation of the distribution for model parameters using Markov Chain Monte Carlo (MCMC) algorithms. The overly long MCMC computation is exacerbated when the number of parameters employed is a function of the number of data observations. The models for imputation or small domain estimation typically use random effects whose number increases in proportion to the size of the data.

There are many promising black-box algorithms currently under development that perform approximate Bayesian estimation including Laplace approximations to compute marginal distributions and variational Bayes algorithms with non-diagonal mass matrices. Expectation Propagation is another algorithm that facilitates distributed computations. These approximate algorithms may provide high quality, computationally-scalable estimations of the model posterior distributions for the class of hierarchical linear probability models on which we are focused.

This project seeks delivery of a computation tool that uses a high-quality approximate (rather than exact) method to estimate such Bayesian models that include random effects under millions of data observations in a matter of minutes or hours, rather than weeks or months. The tool would provide an easy-to-use, expressive syntax for a user to specify and input their model. The tool would offer a black-box, algorithmic based solver, such that estimation may be performed for any reasonable Bayesian probability model. The black box tool would work with or within the R computing platform that is increasingly used within BLS and federal statistical agencies to perform small domain estimation. The tool would also facilitate relatively accurate estimates of the parameter variances that are needed to subsequently estimate domain-level variances.

Project teams are encouraged to incorporate the following priority characteristics for this black-box tool:

- Targeted to hierarchical linear mixed effects models used for small domain estimation and respondent-level data modeling, with the possibility to support a broader class of models, including nonparametric priors, such as a Dirichlet process or Gaussian process prior formulations.
- Facilitates deep learning where the number of model parameters may be proportional to the number of data observations (e.g., accommodates both “global” and “local” parameters, including the possibility for estimating observation-indexed random effects).
- Facilitates model-based estimation of domain variances (composed from estimated parameter distributions).
- Allows specification of improper, weight-exponentiated distributions for estimation on data acquired from complex survey samples and to accommodate various forms of distribution tempering.
- Ideally works within the R programming platform or produces outputs that allow an easy interface to R.
- Ideally integrated within a commonly used black-box Bayesian tool, such as Stan or, alternatively, offers an intuitive and expressive language for model specification. (Existing Stan ADVI is not sufficiently robust for consideration as a solution).

Following the development phase, BLS expects to evaluate the black box solution through an application of respondent-level modeling techniques to employment estimates from the Current Employment Statistics (CES) survey. CES is a large-scale establishment survey that publishes monthly estimates of employment and other indicators of the US economy at the national level across industries defined by the North American Industry Classification System [NAICS]), as well as for a multitude of domains constructed from a combination of geographies and subindustries. The CES sampling design and estimation method are detailed in their [Handbook of Methods](#). It is anticipated that the modeling will use CES matched respondent levels for employment and wage variables, the number of survey respondents in each domain, and respondent sampling weights for as many months (used for past publications) as are available. The use of these respondent-level data are confined to perform modeling to produce domain-level estimates.

For this evaluation, BLS will formulate a joint model for the monthly establishment-indexed employment variable and the associated sampling weights. The respondent-level models may include establishment, month, geography or industry-indexed random effects (as well as global fixed effects). The summed domain-level estimator will be constructed using the random effects, so that they must be directly estimable in a scalable fashion.

NCSES, particularly those representing the Statistics and Methods Program (SMP), and BLS, particularly those representing the Office of Survey Methods Research (OSMR), will be active partners in this effort. NCSES and BLS representatives will meet regularly with the contracted organization to stay informed of progress, provide relevant agency-specific information and guide next steps to aid the progress of the project. NCSES and BLS would look favorably on working with a team that includes a postdoctoral fellow or PhD student interested in building a career in this topic area.

C. Formal Privacy for Establishment Statistics

The 2020 Decennial census has spurred significant developments in formal privacy research for population-level databases with categorical responses. Recently, the American Community Survey has begun investigating differential privacy approaches to data collected from complex survey samples of individuals in households. While promising, this still leaves a major gap in the federal statistical system -- formal privacy methods for establishment-level data from surveys and other data collections.

Most published federal statistical data on establishments are tables based on aggregated responses from multiple establishments. The current methods of disclosure avoidance include techniques like: the p%-rule, pq-rule, cell suppression, and evaluations of potential attacks without consideration of other published tables. This leads to a fallible and inconsistent review process that can lead to a non-uniform level of protection across publications. This research aims to replace these disclosure avoidance methods and review processes with ones based on formal privacy guarantees across publications.

Formal privacy methods such as differential privacy have the following properties that make them appealing:

- Mathematical Proofs. Any formal privacy method must conceptualize privacy loss as a mathematical concept and demonstrate that the proposed method does not exceed this target loss.
- Transparency. Any perturbation or other method of formal privacy does not rely on the secrecy of the parameter settings (such as level of noise) to protect privacy. Therefore, sharing of more detail of the privacy protection method is possible, which may lead to increased utility for the end user.
- Invariance to Secondary Analysis. Any data product released from a formal privacy method may be reused and combined with external data. The hybrid product(s) still maintains the same level of privacy protection as the original release.
- Composition. When two separate products using the same confidential data are released, the aggregate privacy loss is a simple arithmetic operation. Comprehensive risk assessments are reduced to simple book-keeping of all data products (e.g. tables, public use micro data, parameter estimates from statistical models, etc.) using the same source data.

While differential privacy is one class of formally private methods, there are some key features of direct or naïve differential privacy that make it less appealing for producing federal statistics from establishment data. For instance, differential privacy ensures the same level of protection for every variable in a dataset, even if every other value in the dataset is known. However, the real-world risks of these variables are quite different. Treating all variables as equally “risky” leads to overprotection - a very high level of privacy, often too high for some establishment data. Because of that high level of protection, much of the data utility is often lost after applying a differentially private disclosure limitation process.

The Bureau of Labor Statistics (BLS), in partnership with the National Center for Science and Engineering Statistics (NCSES), would like to support research to develop a disclosure limitation method that is formally private but is based on a more tailored conceptualization of risk than pure differential privacy (e.g., the Pufferfish framework or some form of relaxed differential privacy). The method would allow customization

for different types of risks and attackers and allow varying levels of protection (including no protection) to different data elements and individuals, while still providing a formal guarantee of the protection. The ideal method would be appropriate for BLS establishment data, providing both a transparent guarantee of protection to the public and a more systematic way to evaluate publications for potential privacy concerns. The research would not only advance the field in terms of new approaches for using formal privacy with complex, establishment-based, time-dependent data, but would also provide insight into the feasibility of using this approach in the federal statistical system.

Data of particular interest for this new form of privacy treatment are: employment data from the Current Employment Statistics survey, the Quarterly Census of Employment and Wages, and the Occupational Employment Statistics survey; price data published in the Consumer Price Index and Producer Price Index; and occupational characteristic data used to publish the Occupational Requirement Survey and Survey of Occupational Injury and Illness tables. At a minimum, the work should address treatments for the Quarterly Census of Employment and Wages.

The complexities of establishment data from surveys pose several challenges that should be addressed when developing such a method. These challenges include:

- establishments in certain industries can be unique in a given area
- lack of anonymity; (unlike households, the location and identity of businesses is often known)
- skewed and unbounded response scales (e.g. value of sales)
- unequal probabilities of selection resulting in unequal weighting for estimation
- standard error estimates accounting for a complex survey design
- responses from multiple establishments connected to a single firm often are not independent
- longitudinal and linked responses.

The project team should anticipate widely disseminating the findings of this research and application to BLS data through both internal and external channels. Outreach and training activities with federal staff including disclosure review boards is strongly encouraged. This may include helping staff understand the properties of formally private methods and how to evaluate risks associated with new publications and products.

NCSES, particularly those representing the Statistics and Methods Program (SMP) and the Research and Development Statistics Program (RDS), and BLS, particularly those representing the Office of Survey Methods Research (OSMR), will be active partners in this effort. NCSES and BLS representatives will meet regularly with the contracted organization to stay informed of progress, provide relevant agency-specific information and guide next steps to aid the progress of the project. NCSES and BLS would look favorably on working with a team that includes a postdoctoral fellow or PhD student interested in building a career in this topic area.

D. Measuring the Impact and Value of Federal Statistics

High quality, trustworthy and relevant evidence and appropriate use of that evidence is needed to inform

decision making. Statistical activities—which include the collection, processing, or tabulation of statistical data for publication, dissemination, research, analysis, or program management and evaluation—help to provide such evidence. In fact, the data provided by statistical sources, and supported and disseminated by statistical infrastructure, are crucial inputs to public- and private-sector policymaking, program management, and evaluation. Yet, understanding how to assess, evaluate, and estimate the impacts and value of such statistical activities (and related statistical infrastructure) is challenging.

NCSES proposes to contract a study to assess the impacts and value of federal statistics and federal statistical infrastructure, with a focus on NCSES statistics. This research should include a literature review, meta-analysis or similar method to review and summarize:

- quantitative and qualitative methods for assessing the impacts and estimating the value of statistics and statistical infrastructure in general, and federal statistics and statistical infrastructure in particular
- estimates of the impacts and value of statistics and statistical infrastructure, with a focus on federal statistics and federal statistical infrastructure
- applications of federal statistics including specific examples of uses of federal statistics and associated outcomes
- gaps in knowledge, methods, and estimates.

Applying the findings from this background work, the contracted institution should design methods to estimate the impacts and value of federal statistics and federal statistical infrastructure, including identifying a suite of indicators.

NCSES will be an active partner in this effort. Contact people from NCSES will meet regularly with the contracted institution to stay informed of progress, provide relevant agency-specific information and guide next steps to aid the progress of the project. NCSES would look favorably on proposals that support the work and development of postdoctoral fellows or graduate students.

E. Analysis of Linked Science and Engineering Enterprise Data

Linking science and engineering research enterprise auxiliary data (publications, patents, and research grants) with the National Center for Science and Engineering Statistics' survey data (STEM education, workforce, and R&D funding and expenditures) will greatly expand the scope for future research and policy investigations that are currently limited by conducting separate analyses on each data source. Connected data networks will make it possible to go beyond descriptive summaries towards informing policy decisions with deeper evidence-based insights.

In recent years, NCSES conducted projects to link the survey respondents of the Survey of Earned Doctorates (SED) and the Survey of Doctorate Recipients (SDR) to scientific publications indexed by the Web of Science and Scopus. Additional work is underway to expand the linked data networks to include PatentsView, federal research grants, and other NSF funded programs. This effort has delivered novel and powerful datasets containing rich demographic, educational and occupational information coupled with

comprehensive bibliometrics, patent, and research funding data at the individual researcher level.

NCSES is seeking a partnership with a research institution or research teams to conduct novel analyses of these linked network data to inform science policy. The areas of particular interest include:

- Patterns of educational training, federal funding, research experiences, and background characteristics and their influence on career trajectories, research collaboration networks, and research output of U.S.-trained doctorate recipients.
- Research profiles of U.S.-trained doctorate recipients in terms of research mobility, post-graduation career decisions, choice of research fields, and engagement in emerging research topics.
- Interdisciplinary research: relationship between declaring multiple fields for one's doctoral research and research focus, research productivity, career choices, collaboration networks, grant funding and other research outputs and outcomes.
- The dynamics of the scientific ecosystem through the lens of individual researchers' careers; this research could include enhancement of the linked data networks by creating additional linkage to other data sources at the researcher level.
- Analysis of our matching procedures to develop a methodology that is readily applicable to future survey samples, reduces linkage errors, improves recall, and includes approaches for data quality assessment.

NCSES, particularly those representing the Statistics and Methods Program (SMP), the Human Resources and Statistics Program (HRS), and the Science and Engineering Indicators Program (SEI), will be an active partner in this effort. NCSES representatives will meet regularly with the contracted organization to stay informed of progress, provide relevant agency-specific information and guide next steps to aid the progress of the project. The contracting institution is required to obtain a data use agreement with NCSES and other institutions providing the source data and is responsible for obtaining non-NCSES source data necessary to support the project. The contracting institution is also required to conduct the proposed analyses in a designated secure data access and computing environment identified by NCSES. The expected deliverables include co-author presentations and/or peer reviewed manuscripts with NCSES staff for public dissemination. NCSES would look favorably on proposals that support the work and development of postdoctoral fellows or graduate students.

F. Exploring Auxiliary Data to Understand the Career Pathways of the Skilled Technical Workforce

A recent effort within NCSES is to measure and understand the characteristics of the skilled technical workforce (STW) – defined as individuals in occupations that require science and engineering knowledge and skills, but do not require a bachelor's degree. The STW is a population of emerging interest and importance, but one for which limited survey data exists. Therefore, NCSES is looking to harness unique auxiliary data sources to more fully study this population.

Non-degree credentials such as occupational or professional licenses, industry certifications, and educational certificates are critical to understanding the STW. However, initial research on the role of

these credentials in education and training related to skilled technical workforce development suffers from limitations due to the inconsistencies in available data across credential-issuing entities such as governmental agencies and industry bodies. To that end, the National Science Board (2019) recommended “the National Science Foundation should promote partnerships between governmental and non-governmental (industry, academia) stakeholders in the STW to share data and develop tools for public use and workforce planning.”

To address this paucity and inconsistency of information on the STW and the role of non-degree credentials in the STW career pathway, NCSSES seeks research on available auxiliary data, focusing on three areas of interest:

1. Landscape scan – Perform a scan of the efforts conducted to date related to acquiring, assessing, and analyzing non-degree credential administrative and other non-survey data to inform workforce research/policy discussions, particularly discussions of the skilled technical workforce. A valuable product of this scan would be a repository of the known data sources, and potentially supplementing that with documentation of the data acquisition process and quality assessment results.
2. Quality assessments – Conduct quality assessments of known non-degree credential administrative and other non-survey data to investigate the strengths and limitations of the data source relevant to its ability to inform workforce research/policy discussions. The assessment should be built on an established quality assessment framework (e.g., Amaya et al. 2020) that enables comparability across data sources and reproducibility among researchers. Any necessary modifications or further developments to the established framework are encouraged and should be documented for use by future researchers.
3. Auxiliary data analysis – Analyze non-degree credential administrative and other non-survey data (including linkages with other data sources) to inform workforce research/policy discussions. Depending on the data sources acquired, the analyses may focus on specific geographic areas, credential types, industries, and population subgroups within the overall workforce or skilled technical workforce.

Key research/policy questions of interest to NCSSES as part of an auxiliary data analysis effort include, but are not limited to:

- How prevalent are non-degree credentials in the workforce and the skilled technical workforce?
- How does the prevalence of non-degree credentials among the U.S. workforce and the skilled technical workforce vary by geography, industry, occupation, and demographics?
- What are the economic and employment opportunities associated with non-degree credentials?
- How is non-degree credential attainment related to employment outcomes?
- Do non-degree credentials influence an individual’s ability to enter, maintain relevance within, or seek advancement within the workforce and the skilled technical workforce?

NCSSES, particularly those representing the Human Resources Statistics Program (HRS) and the Statistics

and Methods Program (SMP), will be an active partner in this effort. NCSSES representatives will meet regularly with the contracted organization to stay informed of progress, provide relevant agency specific information and guide next steps to aid the progress of the project. NCSSES would look favorably on proposals that support the work and development of postdoctoral fellows or graduate students.

3 Program Guidelines

This BAA, due to its broad research focus, does not lend itself to the use of a common work statement. As such, no single North American Industry Classification System (NAICS) code will be issued for the BAA. NAICS codes will be specific to each individual contract award, as determined by the type of activity in which the offeror will be engaged.

The Government reserves the right to select for award any, all, part, or none of the proposals received in response to this announcement. This BAA is an expression of interest only and does not commit the Government to pay any concept paper or proposal preparation costs.

This announcement constitutes the public announcement, as contemplated by Federal Acquisition Regulation (FAR) 6.102(d)(2) and FAR 35.016. A formal Request for Proposals or other solicitation regarding this announcement will not be issued.

3.1 Schedule

The open period for BAA concept papers is 45 calendar days after the BAA is posted in the Federal Business Opportunities (beta.sam) announcement. Following the submission of the concept paper, NSF may invite offerors to participate in the second step of the evaluation process by submitting a detailed technical and cost/price proposal (see Project Proposals, section 3.8.2). For offerors invited to participate in both steps, final decisions on awards are expected by June 1, 2021. Awarded projects will be expected to commence by or on September 1, 2021. For projects requiring data access or other preparatory steps before the primary research activities can begin, we encourage offerors to allow time for this prior to official kick-off.

This BAA and amendments issued thereto will be posted to the beta.sam website. It is the responsibility of the offeror and interested parties to be aware of BAA amendments by regularly checking the beta.sam website by registering there to receive notifications and updates to this specific solicitation.

3.2 Communications Protocol

Those parties interested in responding to this BAA are invited to contact the BAA Program Manager, the Director of the Statistics and Methods Program at NCSSES, via e-mail (see section 3.3) to discuss the prospective project prior to devoting resources towards completing the project concept paper. NCSSES welcomes proposals that expand the focus of the methodological projects listed in section 2. All non-technical inquiries should be directed to the BAA Contracting Officer.

Any exchanges of information must be consistent with procurement integrity requirements of section 27 of the Office of Federal Procurement Policy Act (41 U.S.C. 423, as amended) (see FAR 3.104).

Prior to and throughout the submission process, all information exchanges of a technical nature will be conducted through the BAA Program Manager, and exchanges of a non-technical nature through the Contracting Officer. There shall be no discussion of proposals submitted by other offerors or proposal evaluation data.

Offerors are advised that any indication of interest, in the affirmative, is not meant to imply nor in any way impart an obligation on the part of the Government that an award will be forthcoming for the offered work or project.

3.3 Data Sources and Points of Contact

All submissions shall be delivered in electronic format (Adobe PDF) to the BAA Program Manager with a copy to the BAA Contracting Officer, via the e-mail addresses listed below.

BAA Program Manager, Jennifer Sinibaldi	jsinibal@nsf.gov
BAA Contracting Officer, Keith Boyea	kboyea@nsf.gov

3.4 Offeror Eligibility

This solicitation is unrestricted. All qualified offerors, including universities, may submit project concept paper(s). All offerors must be registered in the System for Award Management (SAM) at www.sam.gov prior to project award.

3.5 Project Qualification Requirements

This BAA solicits research projects in response to the specific research themes listed in the Section 1.2 and corresponding to the research priorities in Section 2.

3.6 Program and Project Funding Limits

Funding for this program as appropriated in the Federal budget for NSF will make available approximately \$ 2 million for projects determined by the NSF to be technically consistent with the objectives of this BAA and of interest to the Government. Awards are subject to the availability of funds. NSF reserves the right to expand the award amount to allow for projects with exceptional merit.

No funding provision or commitment can be made at the time of award for phased or expanded work or projects beyond the initial or base phase funded at the time of award that the applicant may propose in its submissions. If appropriated funds are authorized, NSF may, at its discretion, provide additional funding for phased or expended effort under existing awards.

Awards may be of any dollar value, but it is anticipated that most individual awards (or that part of the Government's portion in a cost sharing arrangement) will have dollar values ranging between \$50,000 and \$500,000, over 1 -2 years.

Awards resulting from this BAA will be made based on the evaluation results of a two-step process. The Government reserves the right to fund all, some, one, or none of the proposals submitted; may elect to fund

only part of a submitted proposal; and may incrementally fund any or all awards under this BAA. The Contracting Officer will have the ultimate authority and responsibility to make final scope determinations for selections of proposals that will not be totally funded to ensure the portion selected meets the solicited requirements. In addition, the Government reserves the right to create and maintain a reserve list of proposals for potential funding, if additional funding becomes available.

Offers considered unresponsive to the Government's requests for information in a timely manner, defined as meeting government deadlines established and communicated with the request, may be removed from further consideration.

3.7 Cost Sharing

For the purposes of this BAA, cost sharing is a generic term denoting any situation where the contractor or institution bears some burden of the reasonable, allocable, and allowable contract cost. The term encompasses cost matching, participation in-kind, or other investment of resources as a means of venture sharing in lieu of a formal cost sharing arrangement, third-party in-kind contributions, cost limitations (direct or indirect) and similar concepts. Generally, many forms of cost participation, by their very nature and definition, minimize or negate the opportunity for profit or fee.

Cost sharing by awardees is not mandatory under this BAA, but because of the potential for long-term benefits to those firms or institutions involved in these research, development and demonstration activities, NSF prefers to share costs.

3.8 Project Selection Process

This BAA selection process is structured as a two-step process.

3.8.1 Project Concept Papers

The first step of the process is the submission and evaluation of project concept papers. As detailed in Section 4, the concept paper provides a brief overview of the research effort, including the current state of research in the field, the proposed technical approach for furthering this research according to NCSES' goals and interests, and rough order magnitude cost and schedule data. Concept papers will be used to gauge applicability of and the Government's interest in the proposed approach to the research. All offerors must first submit a project concept paper to be considered for an award.

Discussions between the offeror and NSF may be required at this point in the process to develop or refine project concepts and to avoid unnecessary work efforts, by either party, on project concepts that the Government does not value, or cannot fund.

Concept papers shall be submitted in electronic form via e-mail within 45 days of the posting of the BAA. NSF will work to complete concept paper evaluations within 30 days of receipt and will notify the offeror of final disposition. Actual timelines will depend on the volume of concept papers received.

3.8.2 Project Proposals

Following concept paper evaluation and discussion, NSF may invite the offeror to submit a detailed technical and cost/price proposal for award evaluation. Proposals shall be prepared in accordance with the requirements of Section 5. Submissions that are incomplete, materially lacking, or not responsive to the technical requirements of this BAA, may be returned unevaluated, or evaluated as is, without further opportunity for revision, at the discretion of the NSF's evaluation committee.

Project proposals shall be submitted in electronic form via e-mail. Deadline will be determined by NSF, allowing for approximately, if not exactly, 60 days to prepare the project proposal.

3.9 Intellectual Property Rights

Awards will generally contain detailed provisions concerning patent rights, rights in technical data and computer software, data reporting requirements, and other terms and conditions which may be negotiated as part of the award process.

Offerors must describe any limitations on any intellectual property (patents, inventions, trade secrets, copyrights, or trademarks) that will impact the Offeror's performance of the contract or impact the Government's subsequent use of any deliverable under the contract. The Offeror must describe the intellectual property in sufficient detail to describe the limitations (Data assertions of the Offeror or any subcontractor, potential patent licenses required by the Government, etc.), and to describe why or how the Government can accomplish the stated objectives of this BAA with the limitations described or proposed by the Offeror. This information must be included in Volume III, Supplemental Information, of the proposal.

3.9.1 Proprietary Data Restrictions

Offerors are advised that the project concept papers and/or proposals may contain data the offeror does not want disclosed to the public for any purpose or used by the Government except for evaluation purposes. If the offeror wishes to restrict such data, the cover page of all submittal documents must be marked with the following legend, and relevant sheets marked as instructed.

This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed – in whole or in part – for any purpose other than to evaluate this proposal. However, if a contract is awarded to this offeror as a result of – or in connection with – the submission of these data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in these data if they are obtained from another source without restriction. The data subject to this restriction are contained in Sheets [insert numbers or other identification of sheets].

Each restricted data sheet shall be marked as follows:

Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this document.

To the extent that such restrictions on proprietary data or information would not interfere with the intent of the Government to make the results of the work and projects awarded under the BAA available to all interested parties, and if in conformance with the Freedom of Information Act (5 U.S.C. 552, as amended), the Government will honor those desires.

3.9.2 Other Award Information

Awards under this BAA may be subject to the requirements of Section 508 of the Rehabilitation Act, depending on the type of final products or reports to be delivered under each award. The Act requires that all electronic products prepared for the Federal Government be accessible to persons with disabilities, including those with vision, hearing, cognitive, and mobility impairments. Proposers can view Section 508 of the Rehabilitation Act (<http://www.access-board.gov/508.htm>) and the Federal IT Accessibility Initiative (Home Page) (<http://section508.gov/>) for detailed information.

The Paperwork Reduction Act of 1995 (PRA): Offerors are advised that any activities involving information collection (i.e., surveys, questionnaires, etc.) from 10 or more non-Federal entities, including States, are subject to PRA requirements and may require the NSF to coordinate an OMB Information Collection Clearance, a process that generally takes six months or more.

4 Project Concept Papers

No project will be considered for an award without an approved project concept paper. All project concept papers must respond to the specific research themes in Section 1.2. The NSF will not evaluate concept papers that do not correspond to a research priority in Section 1.2. In the case of multiple project proposals from a single offeror, a separate concept paper is required for each project. Project concept papers can cover multiple research priority areas, but the concept paper must explicitly identify all priority areas covered by the concept paper.

Project concept papers shall be prepared simply and economically and shall provide a concise description of the proposed research project, organized as defined in the following sections. Concept papers shall be no more than four (4) pages in length (excluding cover page); no less than 11-point font, 1" margins, and 1.15-spacing; single-sided US-letter size pages. Project concept paper submissions should not include promotional brochures, advertisements, recordings, or other extraneous material.

4.1 Cover page

Project concept papers shall include a cover page containing the following information:

- Working title of the proposed project
- BAA Research Priority Title (Section 1.2)
- Names, phone numbers, mailing and e-mail addresses for the principal technical and contractual points of contact (person or persons authorized to negotiate on the behalf of the offeror and who can contractually obligate the offeror organization) and DUNS number of the submitting organization

- Secondary offeror organization addresses (project partners), if any
- Date of submission
- Proprietary data restrictions, if any (See Section 3.9.2)

4.2 Technical Approach

The Technical Approach shall contain the Abstract, Scope of Work, and Expected Outcomes and Dissemination Plan.

4.2.1 Abstract

In this section, the offeror shall describe the following:

Summary statement - Provide a succinct statement of the aim of the project (i.e. the problem being addressed) and the expected final product. In most cases, the summary statement will be two or three sentences.

Context – Briefly describe the current state of research in the area and the specific issue intended to be solved or improved. Please provide only a couple key citations pointing to critical literature. At this stage of the proposal process, thorough citation of background information is not necessary.

Proposed approach – Describe the proposed research plan.

4.2.2 Scope of Work

The offeror shall describe the general scope of work planned for this research activity. This section shall describe (as applicable) the methods, testing, software development, field work, and analysis activities, as well as the data used and generated, in sufficient detail to communicate the breadth of activities proposed. A detailed work breakdown structure is not required. The offeror shall indicate major progress milestones and associated deliverables as part of this section.

4.2.3 Expected Outcomes and Dissemination Plan

Identify the significant outcomes expected from the project and potential papers, presentations, and other publicly disseminated materials. Proposals designating NCSES-Awardee co-authored presentations and manuscripts for peer review is important to this BAA program. A virtual final presentation to NCSES and/ or its federal agency partner is expected.

4.3 Qualifications

The Qualifications section of the concept paper shall introduce the project team, the team's experience, and any unique capabilities.

4.3.1 Project Team

List all key offerors proposed for the project, including offerors from outside the prime offeror's institution. Organize the team by institution name and briefly describe each person's roles and responsibilities on the project. Provide a short synopsis of each key person's education, experience, and other qualifications applicable to the

proposed project, as well as any supervisory relationships. If applicable, provide information on the business type (small, large, non-profit, or disadvantaged) for each offeror organization. Designate who will be the main point of contact for regular check-ins with the NCSES methodological team during the project. Proposals including funding for graduate students and postdoctoral fellows is important to this BAA program.

4.3.2 Unique Capabilities

Briefly describe any unique capabilities that the offeror team possesses that may reduce project risk or duration or may improve project financial performance. Describe these capabilities within the context of the research topic BAA and the proposed project's scope of work.

4.4 Schedule and Cost Estimate

Provide milestones for the proposed project that include start, finish, and major activity completion times. Express milestone dates as the number of weeks from project start.

Provide a rough order magnitude cost estimate. Provide a breakdown of these costs (percentage) for each institution in the project team.

Provide a funding plan for the project. Identify each funding source and their contribution to the whole, expressed as a percentage. Include all anticipated sources, including offeror internal sources, government funds, and other offeror institution.

5 Project Proposals

Following review, evaluation and discussion of the concept paper, NSF may invite the offeror to submit a formal proposal for the project. The project proposal builds upon the contents of the concept paper, as modified through discussions between the offeror and NSF. Additional content and more detailed information are required in the proposal document, as described in the sections that follow.

Proposal documents are produced to the same formatting requirements as the concept papers, except for a 10-page limit. This 10-page limit is for Volume I only (not including the cover page). Proposals shall be no less than 11- point font, 1" margins, and 1.15-spacing; single-sided US-letter size pages.

Submissions that are incomplete, materially lacking, or not responsive to the technical requirements of this BAA, may be returned unevaluated, or evaluated as is, without further opportunity for revision, at the discretion of the NSF's evaluation committee.

The proposal shall contain a Cover Page and relevant data organized into 3 Volumes:

Volume I: Technical Proposal

Volume II: Cost and Pricing Data

Volume III: Supplemental Information

Offerors are advised that the NSF's technical evaluation of a project for possible award is based solely on the

contents of the offeror's project proposal document, and the offeror's answers to any technical clarification questions, as transmitted through the Contracting Officer.

It is the policy of NSF to treat all proposals as competitive source selection information.

Please note that prior to an award, the Government reserves the right to perform a review of past performance. Sources for past performance may include the Past Performance Information Retrieval System (PPIRS), the Federal Award Performance and Integrity System (FAPIS), and Government program managers and contracting officers who are familiar with the offeror's relevant past performance may also be contacted.

5.1 Cover Page

Project proposals shall include a cover page containing the following information:

- Working title of the proposed project
- BAA Research Priority Title (Section 1.2)
- "Project Proposal" written below the project title
- Names, phone numbers, mailing address and e-mail addresses for the principal technical and contractual points of contact (person or persons authorized to negotiate on the behave of the offeror and who can contractually obligate the offeror organization)
- Secondary offeror organization addresses (project partners), if any
- Date of submittal
- Proprietary data restrictions, if any (See Section 3.9.2)

5.2 Volume 1: Technical Proposal

The Technical Proposal shall contain the following sections, subject to the 10-page limit:

1. Abstract
2. Statement of Work
3. Project Management Plan
4. Capabilities and Experience

5.2.1 Abstract

Summary statement - Provide a succinct statement of the aim of the project (i.e. the problem being addressed) and the expected final product. In most cases, the summary statement will be two or three sentences.

Context – Briefly describe the current state of research in the area and the specific issue intended to be solved or improved. Proposals shall include references to relevant research and significant accomplishments in the area. A selective bibliography of (no more than 10) relevant peer reviewed and working papers that support the technical concepts and innovative ideas described in this proposal, shall be included in an appendix for technical reference. This appendix does not count towards the 10-page limit.

Proposed approach – Describe the proposed research. Offerors shall explain how the proposed methodological plan enhances the ability to meet the research topic goals; how it could be incorporated into the existing data collections or operations of NCSES or other federal statistical agencies; how the application of the results will bring about an improvement to NCSES’ work, the federal data system, or the field of survey methodology and data analytics. For some projects, it may be relevant to explain the impact on the science and engineering enterprise as a whole.

5.2.2 Statement of Work

There shall be no company-sensitive or proprietary data included in the Statement of Work.

This statement of work shall contain the following information:

Work Scope: Describe the work to be accomplished as part of the research project, organized as it is expected to be performed. Separate the work effort into major tasks and subtasks as numbered paragraphs, or in a table. Include the objectives and goals of the task, methodology and techniques that will be used and developed, analysis plan, field work, requirements in order to move to the next task, major milestones, and the expected outcomes.

Deliverables: All project deliverables should be clearly listed and described. Proposals designating NCSES-Awardee co-authored presentations and manuscripts for peer review is important to this BAA program. A virtual final presentation to NCSES and/ or its federal agency partner is expected.

Future phases: Proposals may include a discussion of optional, future phases of work. The original phase or work shall in no way depend on work described under future phases to meet the program criteria.

5.2.3 Project Management Plan

The proposal shall contain a detailed management plan for the project based upon the following minimum requirements.

Tasks and Resources – Using the tasks (and relevant subtasks) in the Work Scope, in the same chronological order listed in the Work Scope, specify the following:

- Task or subtask title
- resources, facilities and equipment required
- data used or generated
- the expected completion date
- any deliverables or output associated with the task to signal its completion

In this section, designate a kick-off meeting and periods of: pre-kick off preparation, field work (if applicable), testing/evaluation, and preparation of deliverables and manuscripts. If these items are integrated as part of a task that was listed in the Scope of Work, please separate them and note the specifications requested (e.g., resources, data,

etc.).

We request bi-weekly check-ins between the institution's point of contact and the collaborators at NCSES throughout the project but these do not need to be explicitly represented in the Work Scope or Task and Resources sections.

Organizations– Deliver a list of institutions and organizations involved in the project, illustrating resource roles and reporting relationships. Include all offeror organizations. Clearly highlight organizations that are participating in cost sharing activities. Identify the type of business (large, small, disadvantaged, or educational) for each offeror organization.

Subcontracts/Teaming/Cost Sharing Management Plan – Identify and describe the offeror's plans for subcontracting, teaming, and cost sharing. Clearly identify the roles and responsibilities of all organizations working within the project team, including technical and financial elements.

5.2.4 Capabilities and Experience

List all key personnel, including those from outside the prime offeror's institution. Organize the team by institution name and briefly describe each person's roles and responsibilities on the project. Identify and describe the capabilities and experience of key personnel and organizations as these elements relate to the proposed project. Descriptions of experience should serve to demonstrate the key personnel's ability to successfully conduct the proposed research or project, including access to critical resources for the project. Designate any supervisory relationships and who will be the main point of contact for regular check-ins with the NCSES methodological team during the project. Provide condensed resumes (2-page maximum) for all key personnel on the project. Resumes shall be organized in an appendix to the proposal. Resumes do not count toward the 10-page limit for the proposal.

In addition to key personnel, designate any graduate students or postdoctoral fellows funded by the proposed research. If named, provide no more than a half-page biographical sketch of their background and research interests. The biographical sketch should be included as an appendix with the resumes and does not count against the page limit.

Describe any unique capabilities that the offeror team possesses that may reduce project risk, reduce project duration, and/or improve project financial performance. Describe these capabilities within the context of the objectives of the BAA and the proposed project's scope of work.

5.3 Volume II: Cost and Pricing Proposal

See Appendix A for specific requirements for cost and pricing information content and formatting requirements. Cost and pricing proposals must conform to the requirements in Appendix A and below.

5.3.1 General Requirements

Identify each funding source and their contribution to the whole, expressed as a percentage. Include all anticipated sources, including offeror internal sources, government funds, and other offeror organizations.

The cost or pricing portion of the project proposal should contain a cost estimate for the proposed effort to allow

for meaningful evaluation and determination of price reasonableness and cost realism. The cost estimate shall account for the entire cost of the project, inclusive of that portion of cost the applicant or other offerors would bear in any proposed cost sharing arrangement or other investment of resources, as a means of venture sharing, in lieu of a formal cost sharing arrangement. The cost estimate shall be broken down for each year of the proposed work, and by all years combined. At a minimum, the cost estimate shall include the following information:

Labor - A breakdown of direct labor and hourly rate, by WBS index number, identifying the labor categories or individuals and projected hours, and their associated subtotals.

Overhead and/or fringe - Labor overhead and/or fringe rate(s) and base(s), and cumulative effect on labor costs.

Materials, supplies, and equipment - Description and cost of materials, supplies, and equipment, to include the basis of the cost estimate (e.g., historical data, competitive market quotes, and in-house transfers). Specific mention should be made of any highly specialized or costly test equipment or supplies needed to accomplish the project.

Travel and transportation - Breakdown of travel and transportation costs.

Subcontracts - Breakdown of individual subcontracts. State the amounts of time of subcontractor/consulting services to be devoted to the project, including the cost to be charged to the proposed contract/agreement.

ODC - Breakdown of other direct costs (reproduction, computer time, and consultants).

Misc. - Identification of any other direct or indirect cost elements not identified elsewhere. For each indirect rate (identified here or elsewhere), indicate if the proposed indirect rate and allocation base have been approved by a government audit or cognizant agency for use in proposals and when the rate(s) was approved and the name of and telephone number of the cognizant auditor or approving official.

General and Administrative - G&A rate and base.

Profit or fee - Profit or fee may be proposed, and if proposed, is subject to negotiations and applicable statutory limits.

Cost Sharing/Cost Participation - Identify extent of cost sharing/cost participation, if any (exclusive of the offeror's prior investment), to include the actual dollars or the percentage of the cost share of the proposed research or technology project, to be provided by the applicant, or third party contributors or other Federal funding sources, if allowable; the type and extent of cost limitations (direct or indirect); or the specifics for and extent of similar concepts indicative of cost participation. (Note: The applicant may be required to certify that it has secured the appropriate cost share funding levels, and identify the source of funding.

5.3.2 Recommended Procurement Instrument and Pricing Arrangement

Offerors shall include a summary of the recommended procurement instrument (e.g., contract or "other arrangement") and pricing arrangements (e.g., firm-fixed-price, cost, cost-plus-fixed-fee, etc.) and include the rationale for their use. However, the NSF reserves the right to negotiate and award the types of instruments

determined most appropriate under the circumstances. If warranted, portions of resulting awards may be segregated into pre-priced options. It should be noted that cost reimbursable type contractual arrangements are not permissible unless the awardee has an accounting system that has been approved by the Government as adequate to support the determination of costs applicable to the contract.

If the offeror is seeking an “other arrangement,” (similar in nature to an “Other Transaction”) it must explain to NSF the basis for seeking the other arrangement and the areas of regulatory relief requested by the offeror. The NSF will consider awarding an other arrangement only if it is in the best interests of NSF. NSF will not award grants or other types of financial assistance as a result of this BAA.

5.4 Volume III: Supplemental information

All proposals must respond to the following items.

5.4.1 System for Award Management (SAM) Registration

To be eligible for award of a contract resulting from this solicitation, offerors must be registered in the Federal Government’s SAM system. The registration can be accomplished by accessing the following website:

<https://www.sam.gov/SAM/pages/public/index.jsf>

NOTE: Contractor must ensure that the registration process has been completed in SAM as award may not be made until the contractor is registered in the system.

5.4.2 Administrative and Audit Offices

Offerors requesting cost reimbursement type contracts shall indicate which audit offices will represent them. For DCAA offices, offerors can identify their DCAA office by going to the following website: <https://www.dcaa.mil/> and entering their ZIP code.

Cost reimbursable type contractual arrangements are not permissible unless the awardee has an accounting system that is adequate to permit timely development of all necessary cost data in the form required by the proposed contract type. Additionally, the accounting system will be subject to audit and surveillance during the awardee’s performance to provide reasonable assurance that efficient methods and effective cost controls are being used.

5.4.3 Subcontracting Plan

Any offeror, other than small businesses, submitting a proposal for an award anticipated in excess of \$750,000 must submit a subcontracting plan in accordance with FAR 19.704(a) (1) and (2) or if no subcontracting opportunities exist, a statement to that effect. This information, if applicable, must be included in Volume III, Supplemental Information, of the Phase II full proposal. The plan format is outlined in FAR 19.7. 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 concerns to be considered fairly as subcontractors to contractors performing work or rendering services as prime contractors or subcontractors under Government contracts, and

to assure that prime contractors and subcontractors carry out this policy.

A subcontracting plan identifies the offeror's approach to awarding subcontracts to small business, small disadvantaged business, women-owned small business, service-disabled veteran owned small business, and Historically Underutilized Business Zone (HUBZone) small business concerns, and Historically Black Colleges and Universities/Minority Institutions (HBCU/MI) on this effort. An approved master subcontracting plan may be submitted in lieu of an individual subcontracting plan. The offeror must demonstrate how small business concerns will be used in the performance of the contract. The plan must also specify how the offeror will identify small business concerns throughout contract performance that can be added to the contract team. The emphasis of the plan must be to maximize small business participation to the maximum extent practicable. The current NSF subcontracting goals are as follows:

Percentage of subcontracted dollars

Small Business Type	
Small Business	31.70%
Small Disadvantaged Business Participation Program	5.00%
Historically Underutilized Business Sone (Hubzone) Program	3.00%
Service-Disabled Veteran Owned Small Business Procurement Program	3.00%
Woman-Owned Small Business (WOSB) Program	5.00%

Note: Provide rationale if these goals cannot be achieved.

6 Past Performance

Prior to award, the Government reserves the right to perform a review of past performance. Sources for past performance may include the Past Performance Information Retrieval System (PPIRS), the Federal Award Performance and Integrity System (FAPIIS), and Government program managers and contracting officers who are familiar with the offeror's relevant past performance may also be contacted.

7 Evaluation and Award

The BAA evaluation process shall be conducted in accordance with FAR Subpart 35.016 (d) and (e). Offerors will be notified of evaluation results via letter.

7.1 Project Concept Papers

Project concept papers will be evaluated for overall technical value to the NSF's area of interest, within the context of available funding. NSF will consider the degree of the potential impact on the realization of research topic goals and the reasonableness of estimated costs for each concept paper submitted. NSF will also consider the offeror's

capability to perform the work based on the technical approach, background, and referenced resources provided in the concept paper.

NSF may request formal project proposals for project concepts that are deemed to have value to the NSF's objectives and are found to fit within funding constraints. Project concept papers are not evaluated, or considered, as part of the project proposal evaluation process. NSF will notify each offeror of the disposition of their project concept paper.

7.2 Project Proposals

Proposals will be evaluated solely on the criteria published in this announcement.

The criteria provided below are listed in order of relative importance:

7.2.1 Technical Factors

Responsiveness to BAA Objectives and Requirements

The degree to which the proposed project meets the program objectives of the BAA and conforms to the funding limitations detailed herein. The degree to which the proposal is responsive to the requirements published in this announcement.

Technical Approach

The degree to which the project approach impacts the realization of research priority goals.

7.2.2 Cost and Pricing Factors

Project proposals that are evaluated favorably from a technical perspective, have no outstanding issues or areas for clarification, and are determined to be consistent with the objectives of the BAA and of interest to the Government, will be subject to a cost/price evaluation.

In accordance with FAR 35.016(e), NSF will consider cost realism and reasonable to the extent appropriate.

7.2.3 Past Performance Factors

Technically acceptable proposals that are considered realistic and reasonable in terms of proposed cost, and fee, if applicable, may be subject to a review of past performance information provided by the offeror or obtained from sources other than those identified by the offeror.

8.1 Awards

Proposal received as a result of this BAA will be evaluated in accordance with the evaluation criteria specified above through a peer review process. The primary basis for selecting proposals for acceptance shall be technical, importance to agency programs, and fund availability.

8.2 Notifications and Negotiations

All offerors will receive written notification of the final disposition of their proposal. If selected for award, the Contracting Officer will contact the offeror with further instructions, including negotiation procedures, if needed.

Appendix A – Cost Proposal Format and Preparation Instructions

The cost proposal must include, at a minimum, two separate sections (provided in one submission): a cost summary, not to exceed two-pages (see ‘A’, below), must precede the detailed cost portion (see ‘B’ below) of the cost proposal. Additionally, include detailed cost submissions for all subcontractors and consultants.

A. Cost Summary

A summary cost proposal must be prepared that includes the cost elements presented in the following table based on 12-month increments. Add as many years to the summary as will be included in the full proposed period of performance. Note: The periods of performance must match the information presented in the Statement of Work.

Cost Element	Year 1	Year 1	Year 1	Year 2	Year 2	Year 2	Year 3	Year 3	Year 3
	Rate	Quantity	Total	Rate	Quantity	Total	Rate	Quantity	Total
	Hrly, Mthly	No. Hrs, No. Months	Amount	Hrly, Mthly	No Hrs, No. Months	Amount	Hrly, Mthly	No Hrs, No. Months	Amount
Direct Labor (List each direct labor category or individual separately)									
ABC Category	\$	XX	\$	\$	XX	\$	\$	XX	\$
Dr XYZ	\$	XX	\$	\$	XX	\$	\$	XX	\$
TOTAL DIRECT LABOR		XX	\$		XX	\$		XX	\$
Labor Burden	Labor Burden Rate	Lbr Burden Applied To: (direct labor \$\$...)	Total Amount	Labor Burden Rate	Lbr Burden Applied To: (direct labor \$\$...)	Total Amount	Labor Burden Rate	Lbr Burden Applied To: (direct labor \$\$...)	Total Amount
Fringe Benefits	%	\$	\$	%	\$	\$	%	\$	\$
Overhead	%	\$	\$	%	\$	\$	%	\$	\$
TOTAL LABOR BURDEN			\$			\$			\$
Material/Equipment	Matl O/H Rate	Matl O/H Applied To: (direct matl \$\$...)	Total Amount	Matl O/H Rate	Matl O/H Applied To: (direct matl \$\$...)	Total Amount	Matl O/H Rate	Matl O/H Applied To: (direct matl \$\$...)	Total Amount
TOTAL MATL/EQUIPMENT	%	\$	\$	%	\$	\$	%	\$\$	
TOTAL TRAVEL COSTS			\$			\$			\$
TOTAL ALL OTHER DIRECT COSTS			\$			\$			\$
TOTAL SUBCONTRACTOR COSTS			\$			\$			\$
TOTAL DIRECT COSTS			\$			\$			\$

G&A OR F&A	G&A or F&A Rate	G&A/F&A Rate Applied to: (total cost \$\$...)	Total Amount	G&A or F&A Rate	G&A/F&A Rate Applied to: (total cost \$\$...)	Total Amount	G&A or F&A Rate	G&A/F&A Rate Applied to: (total cost \$\$...)	Total Amount
TOTAL G&A OR F&A	%	\$	\$	%	\$	\$	%	\$	\$
TOTAL FACILITIES CAPITALCOST OF MONEY (COM)			\$			\$			\$
TOTAL COSTS			\$			\$			\$
Fee or Profit	Fee Rate	Fee Rate Applied to: (total cost, excluding COM...)	Total Amount	Fee Rate	Fee Rate Applied to: (total cost, excluding COM...)	Total Amount	Fee Rate	Fee Rate Applied to: (total cost, excluding COM...)	Total Amount
FEE OR PROFIT	%	\$	\$	%	\$	\$	%	\$	\$
TOTAL COST PLUS FEE			\$			\$			\$

* Note: Itemize any planned items costing greater than \$5,000 (unit cost) immediately following the table; include all equipment/material (greater than \$5000 unit cost) in Total Direct Material/Equipment in table. See Equipment/Government Property - Section 'C' herein.

B. Detailed Cost (no page limit) Offeror format acceptable provided it includes a detailed cost breakdown of all costs by cost element and SOW tasks based on 12-month increments. The offeror must also provide a narrative to support the requirements in each cost element. In addition, the detailed cost proposal must provide separate cost proposals for each subcontractor or consultant, which includes the same level of details required of the prime offeror. **The detailed cost proposal will include the following three sections: (1) Tabular cost breakdown by cost element and SOW tasks based on 12- month increments; (2) Narrative to support the requirements in each cost element; and (3) Subcontractor cost breakdown, as appropriate.**

Budgeted cost elements should reflect the following:

- a) Individual labor categories or persons (principal investigator, graduate students, etc.), with associated labor hours and unburdened labor rates. Allowable charges for graduate students include salary, appropriate research costs, and tuition. Allowable charges for undergraduate students include salary and research training costs, but not tuition.
- b) Cost of equipment, based on most recent quotations and itemized in sufficient detail for evaluation (see Section 'C' below).
- c) Estimate of material and operating costs.
- d) Travel costs and the relevance to stated objectives; number of trips, destinations, duration, if known, and number of travelers per trip. Travel cost estimations should be based on rates referenced on the General Services Administration's (GSA) per diem web page (<http://gsa.gov/perdiem>).
- e) Publication and report costs.

- f) Consultant fees (indicating daily or hourly rate) and travel expenses and the nature and relevance of such costs.
- g) Computer services.
- h) Subcontract costs and type (the portion of work to be subcontracted and rationale).
Include detailed cost summary.
- i) Communications costs not included in overhead.
- j) Other Direct Costs.
- k) Indirect costs.
- l) Fee/Profit, if any.

C. Equipment/Government Property.

Contractors generally are expected to provide the equipment needed to support proposed research. Where specific additional equipment is approved for commercial and non-profit organizations, such approved cost elements shall be separately negotiated.

Offerors desiring that the Government purchase the equipment under the proposed effort shall provide a justification of need for the equipment and rationale for why the offeror is unable or unwilling to furnish the equipment. Government purchase of equipment that is not included in a deliverable item will be approved on a case-by-case basis.

Proposals that include Equipment must itemize each item and its respective cost in Volume II – Cost Proposal. “Equipment” is a tangible item that is functionally complete for its intended purpose, durable, nonexpendable, and needed for the performance of a contract. Equipment is not intended for sale, and does not ordinarily lose its identity or become a component part of another article when put into use.

Equipment does not include material, real property, special test equipment or special tooling. Further, it is tangible property having a useful life of more than two years and an acquisition cost of \$5,000 or more per unit. The justification for this type of equipment and its cost must be disclosed in the cost proposal to include as applicable:

- Vendor Quote: Show name of vendor and number of quotes received and justification of intended award (i.e. lowest price, best value, etc...).
- Historical Cost: Identify vendor, date of purchase and whether or not cost represented the lowest bid. Include release(s) for not soliciting current quotes.
- Estimate: Include rationale for estimate and reasons for not soliciting current quotes.
- Special Test Equipment to be fabricated by the contractor for research purposes and its cost.
- Standard equipment to be acquired and modified to meet specific requirements including acquisition and modification costs, listed separately.
- Existing equipment to be modified to meet specific research requirements and modification costs. Do not include as special test equipment those items of equipment that, if purchased by the contractor with contractor funds, would be capitalized for Federal income tax purposes.
- Specification as to whether or not each item of equipment will be included as part of a

deliverable under a resulting award.

In accordance with FAR 35.014, title of equipment or other tangible property purchased with government funds may be vested in institutions of higher education or with non-profit organizations, whose primary purpose is the conduct of scientific research.