



January 30, 2004

Dear Colleague:

The Center for Program/Project Management Research (CPMR) is pleased to issue the attached Research Announcement soliciting proposals from the academic community to conduct research in the field of program and project management in complex aerospace engineering environments. **In particular, we seek proposals that are well structured, defensible, that demonstrate a solid return on investment to NASA, and that will lead to practical downstream applications.**

The CPMR was recently established to support NASA's Academy of Program and Project Leadership (APPL) Program by providing access to the research capabilities of the broader academic community to address the critical management challenges in today's aeronautics and space programs, while also supporting academia's mission in workforce development, conducting cutting edge research, and in the management of university based projects and programs.

This release of the CPMR Research Announcement, Φ1-RA 04-01, solicits Phase 1 proposals in program and project management research, which will be competitively awarded through a peer review process. Subsequently, CPMR intends to fund multi-year awards following competitive selection of Phase 2 proposals from successful Phase 1 Principal Investigators (PIs). Selected PIs will become CPMR Fellows, and invited to participate in the full range of Institute activities, thus becoming a repository of knowledge and expertise to assist NASA with its challenging issues in program and project management. These appointments might also lead to opportunities for personnel exchanges, and other potential collaborations between the CPMR, NASA and participating organizations. Given the objectives of the CPMR, eligibility is open to university-led proposals; however, where appropriate, participation from other organizations through teaming arrangements with the PIs is encouraged. Check the CPMR Web site periodically to receive any updates or additional guidance regarding this solicitation.

We look forward to reviewing your proposal to this exciting endeavor.

Sincerely yours,

Lewis Peach
Interim Director, CPMR



CPMR Φ1-RA 04-01

**Center for
Program/Project Management Research**

RESEARCH ANNOUNCEMENT

**PHASE I
CPMR**

Proposals Due:

March 15, 2004

CPMR Research Announcement

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I. INTRODUCTION

This Research Announcement (R/A) is the first of a series from the newly-created Center for Program/Project Management Research (CPMR), designed to solicit research proposals from the community of researchers involved in disciplines relevant to program and project management (P/PM) in highly complex aerospace engineering environments. This document provides an introduction to CPMR and related organizations, defines what the CPMR is looking for, how proposals will be selected, and how CPMR will utilize this important new resource. For additional information, please follow the hyperlinks, included in the text, to auxiliary Web sites.

The [Universities Space Research Association](#) (USRA) is developing a new research institute under the sponsorship of the NASA/[Academy of Program and Project Leadership](#) (APPL) Program. CPMR will draw upon the resources of the national and international university community to advance the knowledge and practice of program and project management relevant to the nation's aeronautics and space program. The CPMR is being established to leverage the capabilities of university professionals to strengthen the discipline of program/project management, to facilitate research collaborations, and to develop new tools, capabilities and approaches to improve the performance of project management. The CPMR will explore a broad range of topics, including: best practices, complex decision-making processes and new and revolutionary management approaches. These efforts will support NASA's APPL Program by providing access to the research capabilities of the broader academic community to address the critical management challenges in today's aeronautics and space programs, while also supporting academia's mission in workforce development, conducting cutting-edge research, and in the management of university based projects and programs.

The CPMR, which commenced operation October 1, 2003, directly supports the mission and goals of the NASA/APPL. APPL's unique role is providing development and consulting expertise to the Agency's program project management community, functioning as the NASA-wide program support office for individual and project team development and support. The Academy resides within the Office of the Chief Engineer and collaborates closely with other essential engineering and program/project management offices such as the Independent Program Assessment Office, the NASA Engineering Safety Center, System Management Offices and the Office of Safety and Mission Assurance. APPL provides assistance to NASA Enterprises in three traditional modes: **Performance Enhancement**, utilizing experienced practitioners, provides development capability to any project challenge within 24 hours. **Career Development** delivers customized and standardized learning for practitioners of programs and projects with multiple learning strategies tailored to real-time practitioner needs. **Knowledge Sharing & Tools** represents NASA's commitment to learning and project leader development through communities of practice, lessons learned forums, case studies and Web tools. It includes the award winning [ASK](#) magazine that serves as a focus for practitioner stories and perspectives consistent with GAO recommendations. **CPMR** is now the fourth of the Academy's business lines, augmenting internal and traditional support to the NASA Enterprises, serving as a focus for identifying, discussing and conducting competitive scientific research in this P/PM domain.

Under the auspices of USRA, a non-profit university consortium of more than ninety affiliate university members, CPMR operates as a virtual institute. The Center's primary purpose is to engage universities in world-class research that addresses internationally significant problems in the discipline of Program and Project Management - with particular emphasis on the nation's

aeronautics and space program. Through regularly scheduled research announcements, USRA will solicit proposals to address critical research topics of interest to NASA. Principal Investigators (PIs) on funded research projects will become "CPMR Fellows," and become a pooled resource for CPMR and APPL. CPMR Fellows will participate in the activities of the Institute through periodic teleconferences, regularly scheduled meetings, and through participation in ad-hoc activities where academic perspectives and specialized areas of expertise are needed to advance the mission of CPMR. The CPMR, in conjunction with APPL, will also sponsor regular workshops and public meetings to bring members of the community together and thus stimulate collaboration, communication and broad dissemination of research results. CPMR also plans to develop various exchange mechanisms to enable university faculty and students to participate in NASA R&D activities as well as encourage NASA P/PM practitioners to study and work at universities. It is anticipated that a broad number of potential personnel exchanges may be facilitated by involvement in the Center's research efforts, including sabbaticals, internships, associate fellowships and graduate student internships. It is also anticipated that the Center will develop collaborative relationships with other organizations of like interest in supporting research in this field.

As the first significant activity organized by the new Institute, CPMR hosted a workshop entitled *RESEARCH TOPICS IN PROGRAM AND PROJECT MANAGEMENT*, held on December 9th and 10th, 2003 in Columbia Maryland. The primary purpose was to obtain input from a broad community, academics and practitioners in fields relevant to P/PM, to identify, define, and prioritize the most critical research topics for inclusion in this first research announcement. Invitees included representatives from universities, industry, NASA, and other government agencies, and the meeting was highly successful. Following a series of speakers who discussed P/PM challenges from the perspectives of NASA enterprises, industry, and academia, participants divided into five topical working groups: **Best Practices and Lessons Learned, Future Opportunities & Innovative Approaches, Decision Making Tools, Methods and Metrics, Cultural and Sociological Issues for Project Teams, as well as Knowledge, Expertise, and Learning**. Each group produced a final report, which provided significant guidance for this RA. These reports, along with all the information on the workshop, can be found at the [CPMR Web site](#).

II. RESEARCH ANNOUNCEMENT OVERVIEW

USRA intends to issue two classes of CPMR awards: Phase I and Phase 2. Phase I awards, for which this solicitation is targeted, are intended to be for six months in duration, with a maximum value of \$75,000. Phase 2 awards will only be made based on a down select from successfully completed Phase I efforts. We envisage 24- to 36-month periods of performance for Phase 2 awards, with an anticipated maximum value of \$150,000 per year. USRA plans to solicit Phase I and Phase 2 proposals each year throughout the duration of the current five-year Cooperative Agreement with APPL. Phase I efforts are intended to support small limited scope research projects and/or to provide seed funding to develop a concept for a larger research project, which would be carried out during Phase II. As a result of this relationship, USRA plans to carefully integrate the two phases, and plans for this first cycle are illustrative.

The present schedule, as summarized in the table below, calls for Phase I awards, based on proposals received from this Research Announcement, to be issued in the spring of 2004. Specifically, proposals are due March 15th, notification to PIs will take place during the week of May 24th; contractual sub award agreements (awards under USRA's prime Cooperative Agreement) will be fully executed before July 1, 2004. There will be a kick-off meeting of the CPMR Fellows in July and a research progress review meeting in early December, during the course of the Phase I six-month period of performance. This will enable PIs to review and report on progress, to exchange experiences with their peers, and to receive feedback from CPMR and APPL to help with their Phase 2 proposals. Phase I reports, as well as plans/proposals for Phase 2 will be due January 14, 2005. PI notifications of Phase 2 awards are scheduled for March 25th, with formal sub-awards issued before May 1, 2005. Nominally, there will be an Annual Meeting seven months following Phase 2 awards. However, for the second year of the program, this meeting may be combined with the Fellows meeting, in December, 2005, consistent with the second cycle Phase I schedule. The Annual Meeting is intended primarily to enable the Phase 2 PIs to report and share results of their research - with each other, with APPL and CPMR, as well as the interested public.

CPMR Cycle 1 Schedule

Event	Date
R/A Release	1/30/04
Proposals Due	3/15/04
Notify PIs	5/24/04
Phase 1 Awards Executed	6/24/04 (~7/1/04)
Phase I Kick-Off Meeting	7/04
Phase I Fellows Meeting	12/1-2/04
Phase I Final Report & Phase II Plan Due	1/14/05
Notify PIs	3/25/05
Phase II Awards Executed	4/25/05 (~5/1/05)

USRA will utilize a formal peer review process to competitively select awards based on highest technical merit, and other criteria, as outlined in this announcement. All proposals are to be submitted electronically, and the peer review process will be conducted over the internet, resulting in an efficient and paperless process. The CPMR staff and participants in peer

reviews will follow a Conflict of Interest Avoidance Plan developed by USRA. All participants will certify as to their adherence to the Plan. Peer reviewers will be carefully selected to cover the requisite areas of expertise. Three individuals will review each proposal. USRA will convene a review panel to help interpret and calibrate the reviews and to reach consensus on the top-ranked proposals. USRA will make awards following a concurrence briefing to the NASA sponsor(s). USRA is required to provide the NASA procurement office advanced notification of all sub-awards in excess of \$100,000 in value. In addition, in accordance with NASA policies, USRA will also send any sub-award for non-U.S. institutional participation to the NASA procurement office for review prior to final issuance.

All participants in CPMR's R/A process should know that, although proposal materials will be treated as confidential and proprietary, all funded research activities will be considered public domain. Final reports generated as a result of CPMR-funded concept development and briefings given by CPMR Fellows at CPMR-sponsored meetings will be made available to the public on the CPMR Web site. Therefore, the Institute discourages the inclusion of proprietary data and/or trade secrets in proposals submitted to the CPMR (see Appendix A).

The CPMR is functionally independent from NASA and the concepts it selects for government support will be the result of an external review by respected technical experts. NASA intends that the best products of the Institute will be infused into NASA's current and future programs, within the constraints of budget realities. The CPMR will attract ideas from a greatly expanded community and will create a dynamic interchange of competing future options. This interchange will be a completely open debate and discussion; participation will be limited only by the quality of proposers' ideas. Eligibility is discussed in more detail below, but generally: (a) CPMR intends to make awards to university-based PIs, and (b) teaming is encouraged with international, governmental, and industrial partners.

In many cases, research projects will need access to NASA data, P/PM teams, and/or individual NASA practitioners. Proposers need to anticipate this access and to describe clearly what level of cooperation is required. CPMR and APPL will endeavor to facilitate required access to funded awardees, however this access cannot be assured. Therefore, it is the responsibility of the PI to document contacts with and commitments from individuals within appropriate NASA organizations, where possible, particularly when teaming with an appropriate NASA organizational element that is integral to the successful completion of the proposed research project. Again, **CPMR seeks proposals that are well structured and defensible, that demonstrate a solid return on NASA investment, and that will lead to practical downstream applications.**

III. CPMR PRIORITY CHALLENGES

Based upon the results of the workshop and discussions with our NASA sponsors, USRA believes the following topics constitute some of the highest priority P/PM challenges that we hope to address through this research opportunity:

- Validating and implementing needed changes to the risk assessment and safety review culture within NASA. This end result rests on the need for improvement in our understanding of the major elements and/or variables that determine and shape an organizational culture.
- Developing the Careers of Program/Project Managers at NASA - recruiting, selection, training, coaching, and incentivizing
- Development of a highly effective knowledge sharing system; e.g., a linked Lessons Learned/Best Practices (LL/BP) process, within NASA to ensure good Agency-wide communication and, of equal or greater importance, the system's adoption, implementation and usage by successive generations of P/PMs
- Identification of NASA-specific strategic project types with supporting rationale as a means for development of P/PM baseline templates to guide but not constrain project and program managers
- Improving P/PM review, interaction, team-building, leadership, decision-making, human capital planning, and communication processes - particularly within the NASA environment

IV. WORKSHOP WORKING GROUP CHALLENGES AND SAMPLE RESEARCH OBJECTIVES

In addition to the priorities included above, this section contains some background material drawn from reports on the primary challenges and related research objectives, identified within each of the five subject areas, which were the focus for the individual working groups at the December workshop. Readers will notice that certain of the following working group challenges and/or research objectives have been picked up and are contained in the overall CPMR Priority Challenges, listed above. Individuals developing proposals in response to this R/A should consider these topical areas to be of considerable interest to both CPMR and NASA/APPL. However, they are not exhaustive. Proposals on topics outside of the areas identified within these two sections will indeed be considered for selection, but the burden will be upon the PI to document and justify the merits of the subject area as well as the nature of the specific research proposal. Note, these subject areas are not listed in priority order. (To review the verbatim working group reports, please visit the [CPMR Web site](#)).

Best Practices and Lessons Learned

Top Research Challenges:

1. Refinement and acceptance of best practices (BP) parameters and metrics
2. Definition and quantification of a matrix of BP versus differing project types
3. Sustainable, consistent approach (with motivations) to collecting/organizing lessons learned (LL) -- both historical and ongoing

Sample Research Objectives:

1. Establish a taxonomy on how BP info will be classified, verify the utility, and survey NASA and its user community's acceptance of the proposed BP taxonomy
2. Classify distinct project types and attributes (e.g., risks), determine specific Best Practice parameters associated with each type, and evaluate effectiveness of matrix approach through case studies
3. Determine, within NASA, how LL are currently acquired and compare against other national and/or international organizations, establish a classification taxonomy, and explore ways to motivate the lessons-learned enablers, both in-project and post-project.

Decision-Making Tools, Methods, and Metrics

Top Research Challenges:

1. Expert P/PM management of the decision-making processes
2. Effective team interaction methodologies within the decision-making process.
3. Definition of program metrics, with traceable results, addressing stakeholder and customer interests.

Sample Research Objectives:

1. Identify common elements, processes, considerations, and methodologies in decision-making and thereby the diversities of experiences, skills, and talent required for a successful process.
2. Understand the different culture and perspectives, and develop methods for fostering communications, between various necessary decision team elements; e.g., Systems Engineering and Systems Management.

3. Within a P/PM decision-making environment, identify and validate the meaningful metrics on which to judge performance.

Future Opportunities and Innovative Approaches

Top Research Challenges:

1. Developing a strategic system approach to Project and Program Management, relevant to NASA and other similar organizations
2. Developing, institutionalizing, and replicating Project Management excellence
3. Optimizing the project review processes

Sample Research Objectives:

1. Develop an integrated strategic systems approach to project management of large projects and programs and a framework for distinction among NASA projects.
2. Develop tools for the identification of potential exceptional program managers; understand what makes these managers unique; and/or develop methodologies for duplication of P/PM excellence.
3. Identify what is missing in the traditional review processes; identify different processes for different project types; document the relative values of peer review and internal versus external reviews.

Knowledge Learning and Expertise

Top Research Challenges:

1. Understanding and identifying the systemic relationships affecting knowledge sharing and transfer in the NASA project and program management environment.
2. Recruiting, motivating and training the next generation of young project managers and systems engineers into the NASA, contractor, and international space working environment
3. Identifying and creating a greater understanding of the natural tensions and dynamics between project and program management roles in complex aerospace endeavors.

Sample Research Objectives:

1. Identify the systemic relationships (including those arising from process, structure, culture, diversity, political influences, etc) that either encourage or form barriers to the effective transfer of knowledge within the NASA project and program management environment; investigate support needed by experienced NASA (and other) personnel to assist them in recognizing and articulating their tacit knowledge so that it can be transferred
2. Track career choices of young post-docs and post-grads who are recipients of NASA P/PM experience and training; perform a comparative study of the opportunities, methods, attitudes in the different NASA Centers and Enterprises for young P/PM practitioners.
3. Identify and validate the respective knowledge, skill, and experience prerequisites for effective fulfillment of a program management role vs. a project management role; examine the factors influencing the transitions between roles.

Cultural and Social Issues for Project Teams

Top Research Challenges:

1. What P/PM techniques work best in NASA's unique high risk and safety culture
2. What P/PM techniques most effectively ensure long-term needed cultural changes at NASA
3. Identify techniques and procedures to improve P/PM communication and trust within the NASA organization, as well as how to implement needed changes or corrective measures.

Sample Research Objectives:

1. Determine valid measurement criteria for ascertaining a healthy safety culture; develop techniques for improving the safety culture and more effectively managing risk; build and validate a theoretical model of organizational risk; recognize and inhibit the drift of an organization to a state of heightened or unacceptable risk.
2. Understand how a complex and highly cost-constrained organization maintains a culture of learning from experience, particularly failures, and improves over time.
3. Beyond acceptance of a need for change, define and validate methodologies for successful cultural change implementation (at NASA).
4. Communication effectiveness within NASA and areas for improvement; identify the means to measure and match a communication style to what is appropriate for a given P/PM environment.

V. ELIGIBILITY AND GENERAL GUIDANCE

Eligibility:

USRA anticipates all awards will be to U.S. university-based Principal Investigators. However, in order to bring together the diversity of viewpoints and experience likely needed to address the complex research challenges, we strongly encourage proposals that involve teaming with representatives from industry, government, other associations, non-U.S. institutions, plus other U.S. universities, as team members.

Consistent with NASA and USRA policies and objectives, and responsive to the national need to expand the participation of minority students in the various fields related to STEM (Science, Technology, Engineering, and Mathematics), CPMR is keenly interested in involving HBCUs (Historically Black Colleges and Universities) and OMIIs (Other Minority Institutions) in the funded research activities. This can be either as a lead institution or as a participating team member on another university proposal.

General Guidance:

Fundamental to the CPMR's mission to generate knowledge, effect change and have an impact, is the need to conduct research that not only identifies what should be investigated or changed but – as importantly – suggests how to introduce changes into common practice within NASA. Therefore, research topics and the plans contained in proposals need to be relevant to the current NASA environment, and there should be either an obvious application of the research proposal to NASA's needs or a cogent explanation or plan for how, and at what point, the results of the proposal would be applied

As described in the R/A Overview, PIs need to build into the proposal a modest level of support for their participation as a CPMR Fellow. The Institute intends to serve as a broadly based resource to NASA in the areas relevant to the Agency's P/PM challenges. In parallel, we intend for the CPMR Fellows to gain valuable experience through hands-on exposure to the NASA environment. CPMR will draw upon the expertise of the research groups from time to time during the award period(s). Proposals should assume, at minimum, the PI, or CPMR Fellow, would set aside travel costs and time to attend two CPMR meetings (i.e., the Annual and Fellows meetings -- each approximately 2 days), to support 1-2 hour teleconferences (~ bi-monthly), and to conduct ~ 8 hours of work related to ad-hoc topical discussions, CPMR program development, and/or policy recommendations on behalf of the Institute. On a case-by-case basis, CPMR Fellows will become more integrally involved in specific work of the Institute. Along with APPL, CPMR is very interested to utilize these research awards so they serve as a springboard for more broadly based relationships with the university community, e.g., through personnel exchanges and student internships. However, NASA, or other organizations, to support these exchanges, will provide a separate funding mechanism, and these funds will not be a part of the research awards through this R/A process.

The CPMR is specifically NOT interested in proposals that would:

- Simply develop a theoretical model for a new P/PM system, process, or technique, which is unlikely to have a significant impact;
- Duplicate/replicate previous studies or current studies on-going elsewhere; or,
- Solely perform research studies without meaningful applications to critical challenges of interest to NASA.

One of the evaluation criteria (see Section VI I) pertains to education and/or public outreach. This is based on recognition within the P/PM community that there is a considerable lack of knowledge about the key role that P/PM plays in complex and highly technical organizations. To improve this situation, it is very important for students to be exposed to P/PM issues, and to have the opportunity to develop experiences, gain knowledge and participate in research that might eventually permit them to choose this as a viable career track. Activities with students and/or faculty from other academic disciplines – to expose and involve diverse communities in P/PM issues -- will also be welcome. Finally, we encourage teams to include plans to broadly disseminate the results of their research efforts.

VI. SPECIFIC INSTRUCTIONS FOR RESPONDING TO THE CPMR RESEARCH ANNOUNCEMENT

A. General

1. Proposals received in response to a CPMR R/A will be used only for evaluation purposes.
2. A proposal that results in a CPMR award becomes part of a public record of that transaction. It is envisioned that the final report will be available to NASA and the public through the CPMR Web site; however, information or material that the CPMR and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law.
3. Sub award agreements will be used to accomplish the effort funded in response to a CPMR Phase I R/A. Sub awards will be awarded and administered in accordance with the [NASA Grant and Cooperative Agreement Handbook](#) (NPG 5800.1D) and USRA procurement policies.
4. The CPMR does not intend to hold formal discussions as part of the award process so proposals should be as complete as possible in the initial submission. However, should a question arise after release of this R/A and prior to the proposal due date, questions will be entertained under the following rules:
 - a. Questions should be e-mailed to the CPMR at cpmr-questions@usra.edu.
 - b. The Director of CPMR will review the questions and answer by return e-mail to the proposer, and/or, will specify a time period when the proposer can call the CPMR for discussions.
 - c. Questions and clarifications of a general nature related to non-proposal-specific issues will be available to the public through the CPMR Web site, (cpmr.usra.edu). All persons interested in proposing to the CPMR should check this site periodically for information related to this Announcement.
 - d. Due to the potentially high volume of questions, the proposer should submit questions as early as possible before the proposal due date. While the CPMR will provide a response as soon as possible, the CPMR assumes no responsibility for the impact of the questions and answers on proposal quality or on the timeliness of the proposal submission.
5. The CPMR is chartered to operate as a virtual institute. The CPMR is equipped with the latest office communications systems, electronic technology and staffed at a much lower level than that employed in traditional paper-based operations. This fact necessitates that proposal transmissions in response to this R/A conform to the following requirements:
 - a. The proposer's technical and cost proposal shall be attached as separate files to one e-mail and sent to cpmr-phase1@usra.edu. Both proposals shall be converted by

the proposer to a portable document format (.pdf) prior to transmission. (Information regarding .pdf files is available at www.adobe.com.)

- 1) The technical proposal .pdf file name shall be the Principal Investigator's (see C.1.b.5) last name and first initial "_t.pdf" (Example: The PI's name is Thomas Carter. The technical proposal file name is `cartert_t.pdf`). If the proposer's computer operating system limits the number of characters to eight (8) in the file name, then use the first five (5) characters of the last name and the first character of the first name (Example: `cartet_t.pdf`).
 - 2) Technical proposals converted to .pdf shall not exceed 1 MB in size. Proposers are cautioned against using gratuitous graphics that unduly increase the file size and do not contribute to the technical content of the proposal.
 - 3) The cost proposal .pdf file name shall contain "_c.pdf" following the PI's last name and first initial. (Example: The PI's name is Thomas Carter. The cost proposal file name is `cartert_c.pdf`). If the proposer's computer operating system limits the number of characters to eight (8) in the file name, then use the first five (5) characters of the last name and the first character of the first name (Example: `cartet_c.pdf`).
 - 4) There is no electronic file size limitation for the cost proposal. However, proposers are cautioned against using gratuitous graphics that unduly increase the file size.
- b. Proposals transmitted by any other method, format or size than that specified above shall not be considered by the CPMR for award.
6. To be considered for award, a submission must present a specific area of study containing sufficient technical and cost information to permit a meaningful evaluation. Also, it must not merely offer to perform standard services or to just provide computer facilities or services, and not significantly duplicate research pursuant to a more specific or pending solicitation.
 7. Proposals submitted in response to this solicitation must arrive electronically at the CPMR on or before 12:00 midnight on **March 15, 2004** to be considered in this cycle. Furthermore, all proposals must be in English and all costs in U.S. dollars.

B. Schedule and Deliverables

1. Phase I efforts will be for approximately six months. The period of performance will commence upon award of the sub agreement.
2. Phase I Deliverables:
 - a. Written status reports to the CPMR Director by the 1st day of the third and fifth months following the beginning of the sub award.
 - b. A final written report, following the conclusion of the effort, is scheduled for submission – along with a Phase 2 proposal/plan – on January 14, 2005. (There will also be some contractual/financial reports due to close out the sub award).

- c. All reports are to be submitted as Portable Document Files (.pdf) attached to an e-mail message.
- d. CPMR Fellow (PI) participation at the CPMR Fellow and Annual Meetings, periodic teleconferences and meetings, as well as ~ 8 hours of ad-hoc CPMR Fellowship “activities.”

C. Proposal Content and Format

1. Transmittal Letter / Technical Proposal

- a. Transmittal letter or prefatory material (one-page maximum, not included in the page count of the technical proposal):

- 1) The legal name and address of the organization and specific division or campus identification, if part of a larger organization.
- 2) A brief project title suitable for use in the public press.
- 3) Type of organization if an Historically Black College or University or Other Minority Institution.
- 4) Name, telephone number, fax number and e-mail address of the Principal Investigator and business personnel who may be contacted during evaluation and negotiation.
- 5) Identification of other organizations currently evaluating a proposal for the same effort.
- 6) Identification of this Research Announcement by number and title.
- 7) Dollar amount requested, desired starting date and duration of project.
- 8) Date of submission.

- b. Technical Proposal (*12 pages and 1 MB file size maximum*)

- 1) Abstract

Include a 150-300 word abstract. This abstract should address the evaluation criteria in these instructions.

- 2) Study Description

This section of the technical proposal shall be a detailed description of the hypothesis to be investigated. It should include objectives and expected significance, relation to the present state of knowledge, and relation to previous work done on the project and to related work in progress elsewhere. The description should address the evaluation criteria in these instructions.

3) Work Plan

This section of the technical proposal should outline the plan of work and a description of analysis methods and procedures. Also, any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Also, although it will likely not be implemented during the Phase 1 award, the PI must describe a coherent plan for how the results of the research will ultimately lead to practical downstream application relevant to NASA.

4) Management Approach

In the event that efforts involving interactions among numerous individuals or other organizations are proposed, plans for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described.

5) Personnel

The PI will serve as a Fellow of the Center, and is responsible for supervision of the work and participates in the conduct of the research regardless of whether or not compensated under the award. Include a short biographical sketch of the PI, a list of any publications relevant to the proposed study and any exceptional qualifications. Omit social security numbers and other personal items that do not merit consideration in evaluation of proposals. Give similar biographical information for other senior professional personnel who will be directly associated with the project. Provide the names and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. List the approximate number of students or other assistants, together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described. Letters of commitment should also be provided from co-investigators who are outside of the PI's organization.

6) Special Matters

a) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other Government-wide guidelines. If the proposed study is selected for sub award negotiation, signed statements from authorized personnel and/or committees will be required.

b) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal.

c) Also include a description and/or plan for anticipated education and public outreach activities to take place as part of, or in parallel with, the research.

2. Cost Proposal (*No page limit, see Appendix B*)

- a. The cost proposal shall be submitted as a separate document. As applicable, include separate cost estimates for direct labor, fringe benefits, equipment, expendable materials and supplies, services, domestic and foreign travel, ADP

- expenses, publication or page charges, consultants, subcontracts, other miscellaneous direct costs and individual components of relevant indirect costs (e.g., F&A, on-campus overhead, etc).
- b. Explanatory notes should accompany all elements of cost proposed to provide insight into the justification for each. Also, include the basis for indirect cost computation and clarification of other items in the cost proposal that are not self-evident. The award of an otherwise acceptable technical proposal may be delayed for insufficient cost information regarding the basis of estimate for any or all proposed costs.
 - c. Do not use separate “confidential” salary pages. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants and technical and other non-professional personnel).
 - d. At the conclusion of your cost proposal section, include a projected total monthly funding profile. The grand total of this monthly funding profile should very closely approximate the total proposed cost in the cost section. See Appendix B for an example.
 - e. Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 1831 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).
3. Classified Material

Proposals shall not contain any classified material.

D. Length

A concerted effort should be made to keep proposals as brief as possible, concentrating on substantive material. The maximum technical proposal size is 12 pages and 1 MB file size. The proposal transmittal letter shall be included with the technical proposal .pdf file and is not included in the technical proposal page count so long as it does not exceed one page in length. The cost proposal has no page limit. The entire proposal must be in a font size that is easily readable, in a 8.5 by 11 inch format and contain a minimum of 1-inch margins.

E. Representations/Certifications

The representations/certifications are not to be submitted with either the technical or cost proposals. Should a proposal be selected by the CPMR for a Phase I award, the proposer must supply fully executed originals of these representations/certifications prior to award.

F. Joint Proposals

Where multiple organizations are involved, the proposal must be submitted by only one organization. It should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards could be made.

G. Late Proposals

A proposal or modification received after the date specified in this Research Announcement will not be considered by the CPMR during this proposal cycle.

H. Withdrawal

The proposer may withdraw his/her proposal at any time before award. Proposers are requested to notify the CPMR if the proposal is funded by another organization or of other changed circumstances, which dictate termination of the peer review for that particular proposal.

I. Evaluation Criteria

1. The principal elements considered for the technical evaluation (of approximately equal weight) are its relevance to NASA's and the CPMR's objectives, intrinsic merit, and projected impact. Specific aspects of these elements are as follows:
 - a. Is the proposed study responsive to the R/A, does it exhibit relevance and practicality for application to NASA's challenges, and is the expected impact clearly demonstrated?
 - b. Does the study explore innovative approaches to project management? To what extent does the proposed activity suggest and explore creative and original concepts that may initiate a revolutionary paradigm change?
 - c. Has the proposed work been put in context with documentation of relevant studies within the scientific or technical literature; i.e., is there reasonable certainty it does not duplicate extant work?
 - d. To what extent is the proposal demonstrated to be technically feasible?
 - e. Is the study work plan feasible in terms of schedule, and does the team have appropriate key personnel and proven experience?
 - f. Does the plan include an effective education and public outreach component?
2. Cost evaluation considerations will include the realism and reasonableness of the proposed cost and available funds.

J. Selection Process

1. The CPMR Director, based on recommendations from the peer review panel, will make the final selection decision. In all cases, proposals are subject to scientific review by discipline specialists in the area of the proposal.

K. Selection for Award

1. Following selections, all proposers will be notified by electronic or postal mail of the decision on their proposals. The CPMR may desire to select only a portion of a proposer's area of study, in which case the proposer will be given the opportunity to accept or decline such partial support.
2. When a proposal is not selected for award, the proposer will be notified. The CPMR will explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange to supply additional information and/or a debriefing.
3. When a proposal is selected for award, USRA personnel will negotiate the CPMR sub award. The proposal is used as the basis for negotiation. Certain additional business data may be requested prior to award, e.g., Representations/Certifications. USRA will forward a draft award instrument and other pertinent information to the awardee, for review and concurrence, at the conclusion of negotiations and prior to the issuance of the formal sub agreement.

L. Cancellation of Requirement

Due to unlikely and unforeseen events, the CPMR reserves the right to make no awards under this R/A and to cancel this R/A. USRA assumes no liability for canceling the R/A or for any entity's failure to receive actual notice of cancellation. Awards are contingent upon NASA's continuation of USRA's prime cooperative agreement as well as continued funding. USRA will assume no responsibility for costs incurred by any individual or organization in the preparation of a proposal in response to this R/A.

APPENDIX A

NASA White Paper on Property Rights

Any ideas or concepts generated during performance of a CPMR subcontract fall under either the Patent Rights clause (or New Technology clause for large businesses) or the Rights in Data - General clause, or both.

If the idea or concept has not been developed in sufficient detail to the level of an "invention" that satisfies statutory requirements, then the information or data on that idea falls exclusively under the Rights in Data - General clause and the Government obtains unlimited rights. Unlimited rights means the right of the Government to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose, and to have others to do so.

If the idea or concept is developed to the point that it satisfies the statutory requirements for obtaining a patent, then the "invention" falls under the Patent Rights clause and the contractor can, at its option, decide to pursue patent protection on that invention. If the contractor pursues patent protection the contractor will own title to the invention and the Government obtains a minimum government purpose license to use for its purposes, including future procurement. If the contractor decides not to pursue patent protection on the invention then NASA can, at its option, pursue patent protection. NASA would own title to which NASA can license third parties.

If the idea or concept is software related (with actual code creation), it falls under both the Patent Rights clause and the Rights in Data – General clause. Both patent and copyright protection may be established in software. Under the Rights in Data - General clause NASA does not have to grant the contractor permission to assert claim to copyright in the software if it is the desire of NASA to make the software freely available to the public.

Any ideas generated at private expense, and outside the contract, that are proposed to be "further developed" under the contract, could be marked by the participant as proprietary or a trade secret. If NASA decides it is acceptable for the Center to consider and accept proprietary ideas then that data would be delivered with a notice or legend as "limited rights data" with appropriate restrictions placed on its dissemination. NASA and the CPMR plan to disseminate all technical information reported to the Center, accepting such limited rights data could restrict such dissemination and is not recommended.

In summary, in the private sector, ideas may be kept as trade secrets. Ideas that reach the level of inventions may also be kept as trade secrets. There is nothing mandating that someone in the private sector select patent protection as the form of intellectual property over a trade secret as the form of intellectual property. However, in the world of Government contracts, there are no trade secrets to ideas or inventions generated under contracts funded by the Government. Data on ideas can be disseminated. Patent protection is available if the idea or concept has been sufficiently developed to satisfy statutory requirements for obtaining a patent. The patent provides its owner with the right to exclude others from making, using and selling the invention but the idea is fully disclosed in the published patent. Copyright protection, if available, protects the expression of an idea, not the idea itself.

The Patent Rights Clause (52.227-11), or the New Technology Clause (1852.227-70) where appropriate, must flow down to the CPMR subcontractors. The rights and procedures established by the Rights in Data - General clause (52.227-14) should also flow down, although this is not the data clause used in our standard sub agreement instruments if the Sub award decides to use a sub award.

APPENDIX B

Cost Breakdown Format

DIRECT LABOR

Principal Investigator
Co-Investigators
Students
Other Institutional Labor
Subcontractors

SUBTOTAL DIRECT LABOR

FRINGE BENEFITS ON LABOR

(Show different rates/categories, if applicable)

MATERIALS

EQUIPMENT

SUBCONTRACTS

(Show individual breakout, if more than one)

TRAVEL

OTHER DIRECT COSTS

SUBTOTAL DIRECT COSTS

INDIRECT COSTS

(Show components, e.g., G & A or F&A, on-site overhead, etc.)

SUBTOTAL COSTS

FEE

TOTAL PRICE