

3/9/2005

United States Geological Survey

National Earthquake Hazards Reduction Program

External Research Program

<http://erp-web.er.usgs.gov>

Proposals for Grants – Fiscal Year 2006

Program Announcement 06HQPA0001

Closing Date: May 10, 2005

NEW THIS YEAR:

**APPLICATIONS MUST BE SUBMITTED ELECTRONICALLY VIA THE
GRANTS.GOV WEB SITE, AS WELL AS ON PAPER. SEE INSTRUCTIONS.**

TABLE OF CONTENTS

	Page
Changes in the Announcement for FY2006	2
I. Application Closing Date.....	3
II. Application Delivery Instructions	3
III. Funds	4
IV. Application Requirements.....	5
V. Research Emphasis and Priorities.....	5
VI. Collaborative Proposals	5
VII. Multi-year Project Periods.....	6
VIII. Renewals.....	7
IX. Out-of-Cycle Awards.....	7
X. Unsuitable Proposals.....	7
XI. Projects Previously Supported by the USGS/NEHRP	7
XII. Application Preparation Instructions.....	7
XIII. Evaluation of Applications	10
XIV. Rejection of Applications After Initial Review.....	11
XV. Involvement of Federal Employees.....	11
XVI. Award Terms and Conditions	12
XVII. Paperwork Reduction Act Statement.....	12
Attachment A – Research Emphasis and Priorities	13
Attachment B – Application for Federal Assistance, SF 424.....	28
Attachment C – Certifications for Federal Assistance.....	30
Attachment D – Assurances, SF 424B.....	32
Attachment E – Budget Summary.....	34
Attachment F – NEHRP Proposal Information Summary.....	35
Attachment G – Key Words for USGS/NEHRP Proposals.....	36
Attachment H – Applications Checklist	37
Attachment I – Special Terms and Conditions.....	38
Attachment J – General Provisions.....	49

Changes in the External Research Program Announcement for Fiscal Year (FY) 2006

Section II. Application Delivery Instructions (VERY IMPORTANT CHANGES!)

- This year, for the first time, all proposals will be required to be submitted via two, parallel tracks: the traditional hard copy submission process and electronic submission using the www.grants.gov web site. Be sure to read this section carefully for the instructions for using the electronic submission.

Section III. Funds and Start Dates

- The earliest starting date that can be requested for new grants is **December 1, 2005**. Because delays in the Department of the Interior and USGS budgets appear to be an annual occurrence, it is no longer possible for our Contracts Office to guarantee processing awards with November 1 or earlier start dates

Section V. Research Priorities for Fiscal Year 2006 (Attachment A)

- Proposals for the maintenance and operation of long-term seismic and geodetic monitoring studies, including permanent GPS arrays, borehole strain meters and creep meters, are solicited every three years and funded as three-year cooperative agreements. The next such solicitation will be a year hence (for funding in fiscal years 2007 to 2009). Therefore, these types of proposals **should not** be submitted in response to this solicitation. If you have any questions about what constitutes long-term seismic or geodetic monitoring, contact the Program Manager.
- **Attachment A (research priorities) has been extensively revised; please read it carefully.**
- NOTE: All proposed work should indicate how the expected results could be applied to reducing losses from earthquakes in the US. This application of the proposed research should be clearly stated in a separate paragraph of the proposal, and **this statement is a necessary condition for consideration of any proposal.**

Section VI. Collaborative Proposals. Please note the conditions for Collaborative Proposals.

- Please read the instruction concerning what constitutes a collaborative proposal.
- Each collaborator must submit a complete proposal.

Section XI. Application Instructions.

- Lists of previously supported projects are located on the External Research Program Web Page (<http://erp-web.er.usgs.gov>). See Section XI for information.

Section XVII. Award Terms And Conditions

- Please note that all reports are now required in hard copy and in digital form including all figures, photographs and maps in their original digital format.
- Please note the expectation that the results of funded research will published in a peer-reviewed form and that all data products and computer codes will be made readily available.

ANNOUNCEMENT 06HQPA0001

I. Application Submission Opening date: April 4, 2005

Application Submission Closing date: 4:15p.m. local time, May 10, 2005

II. Application Delivery Instructions

In preparation for using only the www.grants.gov website for future electronic submission of all proposals, the USGS will follow a two-pronged approach for submission of proposals for the FY2006 funding cycle. All applicants will be required to submit hardcopy of their complete proposals in the same way as was done in past years. In addition, the proposals should also be submitted using the Federal Government's www.grants.gov website for electronic submission of the same material. For this year only, the traditional hard copy method of submission will take precedence over the electronic submission, so, all proposals must be received in hard copy form by the due date of May 10, 2005.

Please be aware that the electronic submission system is relatively complex for first-time users and involves several preliminary steps to be taken before the proposal information can actually be submitted (go to www.grants.gov, and click on the "Get Started" tab for the steps). Be advised that it is virtually impossible to begin the process of electronic submission for the first time if you start just a few weeks before the due date. If you are from a university, contact your Office of Sponsored Programs. They may already have completed the registration process and should work with you to submit the application.

The due date for electronic submission will be the same as that for the hard copy of the proposals, May 10, 2005. Please note additional instructions and information below under heading "C. Applications submitted electronically."

A. Applications delivered by mail.

1. The applicant must use the following address:

U.S. Geological Survey
Office of Acquisition and Grants – MS 205G, Room 6A331
12201 Sunrise Valley Drive
Reston, VA 20192

Note: 20192 is the correct zip code for the USGS. Do not allow express mail companies to change the zip code.

2. Applications will be accepted by the Office of Acquisition and Grants at the address specified on this page from April 4, 2005, to 4:15pm local time on May 10, 2005. Applications not received by 4:15pm local time on May 10, 2005, at the specified address on this page, will be late and the application will be returned to the applicant. It is the responsibility of the applicant to ensure that applications are received at the place and by the time specified.

Note: If the applicant can show with written documentation that delivery of his proposal was delayed due to mishandling by the delivery firm, courier service, or slower than anticipated mail delivery, late receipt of the application may be considered. But, it is in the applicant's best interest to not depend on last-minute mailings to meet the closing date.

B. Applications delivered by hand.

1. An application that is hand delivered shall be taken to the USGS, Office of Acquisition and Grants – MS 205G, Room 6A331, 12201 Sunrise Valley Drive, Reston, VA 20192.
2. The Office of Acquisition and Grants will accept hand delivered applications between 7:45a.m. and 4:15 p.m. daily, from April 4, 2005, to the closing time of 4:15pm local time, on May 10, 2005, except Saturdays, Sundays, and Federal holidays.
3. An application that is hand delivered will not be accepted by the Office of Acquisition and Grants after 4:15 p.m. on the closing date.

C. Applications submitted electronically (NEW REQUIREMENT).

1. Electronic applications must be made through the www.grants.gov website.
2. **The due date for electronic submission will be the same as that for the hard copy of the proposals, May 10, 2005. The requirements for the contents of the material submitted electronically are identical to that required by the hard copy detailed below, except that allowances for total number of pages can be made for figures.**
3. **Your electronic submission will consist of completion of forms SF-424, SF-424a and SF-424b plus your project narrative. Any information that is not contained in the SF-424 forms will be pasted together as one file and submitted in the Project Narrative Attachment section.**
4. **It is recommended that the application narrative be converted to PDF format for easiest submission. Also, when completing the SF-424 forms, all blocks in yellow must be filled out or the application submission will be rejected by grants.gov.**

III. Funds and Start Dates

Approximately \$6.0 million will be available for support of grants in fiscal year FY2006. Of this total amount, approximately \$0.4 million is already set aside for the second year of funding for two-year grants awarded in FY2005. We estimate that the remaining \$5.6 million available will be able to fund 90 to 100 new grants. This estimate does not bind the USGS to a specified number of awards or to the amount of any award unless that amount is specified by statute or regulation. Congress has not yet appropriated FY2006 funds for this program. All projects must propose start dates between December 1, 2005 and September 30, 2006.

IV. Application Requirements

- A. The majority, greater than 50 percent, of research activities must be conducted by the Applicant. The Applicant must retain administrative and technical control of project activities.
- B. Applications submitted by foreign organizations must be submitted in English and in U.S. dollars. Awards involving foreign governments may require additional coordination and approval by the U.S. Department of State.
- C. The Metric Conversion Act of 1975, as amended by the Omnibus Trade and Competitiveness Act of 1988 (Public Law 100-418), states a policy preference for the use of the metric system of measurements, except where the use of the system is impractical or likely to cause significant ineffectiveness in the accomplishment of Federally funded activities. Accordingly, it is the National policy to encourage Recipients of Federally-funded grants and cooperative agreements to use the metric system of measurements in their grant related activities. Recipients and sub-recipients of Federal funds are encouraged to take similar appropriate affirmative actions to use the metric system of measurements.
- D. Proposals for geologic investigations shall be clearly oriented toward earthquake hazard assessment. The program Research Emphasis and Priorities are described in Attachment A.
- E. Proposals to fund research in foreign countries will be considered when the research will provide knowledge or new techniques transferable to a U.S. seismic zone.

- F. Proposals to fund research in foreign countries must be based on cooperation with scientific groups in the host countries, with host country personnel being used for operational functions, and host countries providing financial support for such personnel. Proposals for cooperative efforts with agencies of foreign governments may be subject to additional approvals within the U.S. Government.

V. Research Emphasis and Priorities:

See Attachment A.

VI. Collaborative Proposals.

Two types of collaborative proposals are acceptable: Collaboration between two or more external organizations that are seeking funding from the USGS/NEHRP External Research Program, and collaboration between an external organization seeking funding from the USGS/NEHRP External Research Program and a USGS/NEHRP internal project.

It is important to differentiate between proposals that simply support USGS internal research goals and objectives, and those that are true collaborative efforts. Collaborative research between a USGS internal project and external investigator(s) is structured such that neither project could succeed without the other being funded. Many external research projects either directly or indirectly support or cooperate with ongoing internal USGS projects; these projects are not necessarily considered collaborative projects because their research objectives can be pursued with or without the existence of the internal USGS research.

External collaborative proposals are defined as work proposed by two separate institutions or organizations in which the individual organizations will accept responsibility for specific parts of the work proposed. Each PI and his/her institution will receive a separate grant and must accept financial responsibility for administering the grant. Collaborative proposals are not instances where persons from a second organization are hired as consultants or other contractual agreements to conduct work on behalf of the grantee.

Collaborative proposals between an external organization and a USGS/NEHRP project may be funded as a cooperative agreement or as a grant depending upon the extent and type involvement of the USGS in the work. Discussion and coordination between internal and external researchers is encouraged; however, USGS personnel are prohibited from helping an external organization prepare its proposal for competitive funding.

Collaborative proposals and their preparation are one of the least understood aspects of the USGS grants process. Questions about technical portions of a collaborative proposal should be directed to:

Dr. Michael Blanpied
(703) 648-6696 (Voice)
(703) 648-6642 (FAX)
mblanpied@usgs.gov

- A. A separate proposal must be submitted from each external organization involved in collaborative studies. Major sections of each proposal can be identical but each proposal must clearly define which tasks will be performed by which organization, **and each institution must submit a separate budget, which clearly reflects their tasks and responsibilities.**
- B. Collaborative proposals must be clearly identified in the proposal title. The application title shall read **“Proposal Title: Collaborative Research with First Institution name, and Second Institution name.”**

- C. USGS/NEHRP External Research reserves the right to fund either some or all of the Applicants involved in a collaborative study.
- D. In the case of collaborative proposals involving external organizations and USGS scientists, two separate proposals must be prepared. The USGS project chief must include the part of the proposed work being done by the USGS in his or her proposal for FY2006, either as a task or sub-task within the proposal; the USGS proposal must clearly delineate the nature of the collaborative work being done with the external institution. The external proposal must also describe the degree of collaboration and must include a letter of support from the internal USGS collaborator(s), attached to the external proposal.

VII. Multi-year Proposals

In certain situations, the USGS considers the support of a longer-term effort to be in the best interest of the Government. During the past few years we have encouraged submittal of two-year proposals. However, it has become apparent that many investigators assumed that two-year proposals are preferable to one-year proposals. If the proposed work is such that two years are required to complete the research, then a two-year proposal is appropriate and applicants are strongly encouraged to write their proposals accordingly. However, work that can be completed in one year should be proposed as a one-year project. Applicants should carefully consider their time commitments and request the required grant duration and funding to accomplish the project goals. Our Review Panels frequently recommend funding only the first year of two-year proposals when the proposed research is easily divided into two, one-year projects or when they feel that results from the first year's proposed work need to be evaluated before a second year of research is warranted.

The second year of funding of a two-year grant is contingent upon the availability of funds and satisfactory progress by the Recipient. Progress will be determined through technical review of a Progress Report by the Coordinator for External Research or his or her agent. The progress report shall be submitted by the Recipient, in accordance with grant award Special Terms and Conditions (see paragraph XVI), 60 days prior to the end of the first year of funding. Additional funding beyond the two years will be available on reapplication with a full proposal submitted for peer review. EXAMPLE: A proposal funded for two years beginning in the FY2004 cycle would be eligible for an additional funding in the FY2006 cycle on submission of a complete continuation proposal for peer review. Renewal of proposals funded for two years in FY2004 will be subject to all the requirements stated in the Announcement for FY2006.

VIII. Renewals

Certain ongoing projects may be "renewed" by submitting a renewal proposal for competitive evaluation. Renewal proposals are reviewed for funding by the peer review panels along with new proposals; they are not given special consideration by the peer review panels. The following criteria apply:

- A. Projects has the same title and continue the same line of research supported in the previous year(s).
- B. The same Principal Investigator continues on the project.
- C. The proposal is submitted by the same Recipient.

IX. Out-of-Cycle Awards

The USGS/NEHRP grants program may accept proposals outside of the normal competitive cycle under limited circumstances:

- A. Research proposals may be accepted and approved out-of-cycle (after the closing date) in cases where there is compelling circumstance or emergency (*e.g.*, seismic event), which must be acted on before the next competitive review cycle. In such an event, the USGS will solicit applications.

- B. Congress mandates directed awards to support activities that evaluate earthquake hazards and losses.

X. Unsuitable Proposals

The following proposals are ineligible for consideration under this Announcement:

- A. Proposals for regional seismic monitoring or establishing Data Centers.
- B. Proposals for long-term operation of geodetic networks or instruments.
- C. Proposals from U.S. Government agencies or U.S. Government employees.
- D. Proposals from Federally Funded Research and Development Centers (FFRDC).
- E. Proposals in which there is a real or the appearance of a conflict of interest.
- F. Proposals involving the direct procurement of a product or service.
- G. Proposals having subcontracts for 50 percent or greater of total direct costs.

XI. Projects Previously Supported by the USGS/NEHRP

Lists of currently supported projects may be obtained from the External Research Program Internet site at <http://erp-web.er.usgs.gov>.

XII. Application Preparation Instructions

Applicants shall submit one single-sided binder-clipped, signed original and one single-sided binder-clipped copy plus **10 stapled (double-sided)** copies of the application. Also submit, in addition to the application, seven stapled sets of the NEHRP Proposal Information Summary, Abstract, and Budget Summary (see XII.C, E. and F.) **The application must not exceed 25 single-spaced pages** (including figures, tables, references, appendices, curriculum vitae, etc.), and the type size shall not be smaller than 12-pitch/11 point type. All text, figures, and tables shall be on 8.5-inch by 11-inch pages. The Assurances, Certifications, and the indirect cost rate agreement shall be submitted with the original only and do not count against the 25-page total; color figures can be single-sided and count as one page. All pages of the application shall be numbered. Do not submit copies of published papers with the application. The application shall be assembled, **precisely**, in the following order:

- A. Application for Federal Assistance, Standard Form (SF) 424.
 - 1. Use the SF 424 (Attachment B) as the cover sheet for all applications. The SF 424 must be signed by an authorized representative of the institution or company. SF 424 should only be filled out by the office of the authorized representative signing the SF 424.
 - 2. The address provided in block 5 is the address that the USGS will issue potential awards to and correspond with. In most cases, this address should be the address for the authorized representative signing the SF 424 in block 18d.
 - 3. In block 6 complete the employer identification number (EIN) for the Dun and Bradstreet (DUNS) organizational number listed for the address specified in block 5. A new DUNS number can be obtained by calling Dun and Bradstreet at 1-800-333-0505. **The DUNS number must correspond to the address provided in block 5.**
 - 4. Enter the two-letter panel designation in the upper right hand block labeled "Applicant Identifier" to the left of the dash in the block.
- B. Assurances and Certifications. The authorized certifying official of the applicant shall certify Attachments C and D. **Include these forms with the original application only.**
- C. Proposal Information Summary. This summary is mandatory in all proposals and shall follow the same format as shown in Attachment F.
- D. Table of contents.
- E. Abstract. The abstract shall be no longer than one, single-spaced page. It shall include identification of the problem, a summary of the approach, project objectives, anticipated results, and the implications of the project results.

- F. Proposed budget. The proposed budget shall be presented in two parts, a one-page summary (with the format in Attachment E) followed by a detailed budget keyed to the summary sheet. **Place the budget summary, followed by the detailed budget, after the abstract.** Non-federal funds available to support the project may be reflected in the detailed budget or the SF 424 (line 15.b. -c.), as appropriate. The detailed budget must include the amount proposed for each of the following items in this order:
1. Salaries and wages. Identify individuals or categories of salaries and wages, estimated hours or percent of time, and the rate of compensation proposed for each person or category. Include an explanation of the amounts included for projected increases if the rate of pay shown is higher than the current rate of pay. Identify each person with a task in the project. Tuition remission and other forms of compensation paid as, or in lieu of, wages to students performing necessary work are allowable; provided that the tuition or other payments are reasonable compensation for the work performed and are conditioned explicitly upon the performance of the work.
 2. Fringe benefits/labor overhead. Indicate the rates/amounts in conformance with normal accounting procedures. Explain what costs are covered in this category and the basis of the rate computations. Indicate whether rates are used for proposal purposes only or whether they are also fixed or provisional rates for billing purposes.
 3. Equipment. Show the cost of all special-purpose equipment necessary for achieving the objectives of the project. "Special-purpose equipment" means scientific equipment having a useful life of more than 1 year and having an acquisition cost of \$5,000 or more per item. Each item should be itemized and include a full justification and a dealer or manufacturer quote, if available. General-purpose equipment must be purchased from the applicant's operating funds. Title to non-expendable personal property shall be vested solely with the Recipient. **Under no circumstances shall property title be vested in a sub-tier recipient.**
 4. Supplies. Enter the cost for all tangible property. Include the cost of office, laboratory, computing, and field supplies separately. Provide detail on any specific item, which represents a significant portion of the proposed amount. If fabrication of equipment is proposed, list parts and materials required for each and show costs separately from the other items.
 5. Services or consultants. Identify the tasks or problems for which such services would be used. List the contemplated sub-recipients by name (including consultants), the estimated amount of time required, and the quoted rate per day or hour. If known, state whether the consultant's rate is the same as she/he has received for similar services or under Government contracts or assistance awards.
 6. Radiocarbon Age Dating. Include number of samples and cost per sample.
 7. Travel. State the purpose of the trip and itemize the estimated travel costs to show the number of trips required, the destinations, the number of people traveling, the per diem rates, the cost of transportation, and any miscellaneous expenses for each trip. Calculations of other special transportation costs (such as charges for use of applicant-owned vehicles or vehicle rental costs) should also be shown.
 8. Publication costs. Show the estimated cost of publishing the results of the research, including the final report. Include costs of drafting or graphics, reproduction, page or illustration charges, and a minimum number of reprints. If not included under direct labor or other direct costs, the cost of manuscript typing shall be included.
 9. Other direct costs. Itemize the different types of costs not included elsewhere; such as, shipping, telemetry, computing, equipment-use charges, age dating, or other services. Provide breakdowns showing how the cost was estimated; for example, computer time should show the type of computer, estimated time of use, and the established rates.
 10. Total direct costs. Total items 1 through 9.
 11. Indirect cost/general and administrative (G&A) cost. Show the proposed rate, cost base, and proposed amount for allowable indirect costs based on the cost principles applicable to the

Applicant's organization. If the Applicant has separate rates for recovery of labor overhead and G&A costs, each charge should be shown. Explain the distinction between items included in the two cost pools. The Applicant should propose rates for evaluation purposes, which they are also willing to establish as fixed or ceiling rates in any resulting award. A copy of the indirect negotiated cost agreement with the Federal Government must be included. If one is not established, a letter from a Certified Public Accountant must be included to support the cost.

12. Amount proposed. Total items 10 and 11.
13. Total project cost. Total Federal and non-Federal amounts, if any.
14. Multi-year projects. The Applicant shall provide summary information (see Attachment E) as well as a detailed budget for the second year. **The SF 424, however, shall reflect support for the one year only.**

G. Proposal Body: The proposal body shall consist of the following parts:

1. Significance of the project. Discuss the specific problem addressed and its importance. Include a discussion of the significant contribution the project will make to the NEHRP. **All proposed work should indicate how the expected results could be applied to reducing losses from earthquakes in the US. This application of the proposed research should be clearly stated in a separate paragraph of the proposal, and this statement is a necessary condition for consideration of any proposal.**
2. Project plan. Discuss the specific hypotheses or research questions, the conceptual framework or model to be used, as well as the data collection and analysis plans, and continuing efforts. Plans should also include procedures to be used to insure objectivity and balance in the project.
3. Final report and dissemination. The U.S. Geological Survey considers dissemination of research data and results to potential users of those results to be an integral and crucial aspect of projects funded by this program. Beyond the requirements for a final report, describe your plan for dissemination of project data and results and the planned users of those results that will result in the greatest possible benefit to earthquake hazards reduction. Describe in detail your plans for dissemination of the project results and indicate the customers to whom the project is directed.
4. Related efforts. Describe significant, related studies conducted by members of the research team and discuss any planned coordination with other workers in the field.
5. Project personnel and bibliography of directly related work. Provide one-page curriculum vitae for the professional staff, summarizing education, experience, and last five years bibliographic information related to the proposed work. Curriculum vitae for post-doctoral researchers, who contribute significantly to the project, must also be included.
6. Institutional qualifications. State the resources available at, and the relevant experience of, the institution. Resources include personnel, computer and library facilities, and ties to both sources of data and potential users of the results.
7. Project management plan. Include the time and cost schedule for the proposed work and the time allocations and responsibilities for the project staff members. It should also schedule progress reports.
8. Current support and pending applications. List all sources of support (in addition to the proposed effort) to which the senior research members have committed a portion of their time for the period covered by the proposal. The information should account for 100 percent of the work time of each investigator and include titles, annual budget levels, period of the awards, and the person-months committed in each case. This section must also list research being considered by, or that will be submitted to, other possible sponsors. This information will not affect the evaluation of the proposal; however, if identical or similar work is also proposed to another institution (e.g., NSF), this should be explained briefly. Proposals submitted for funding to the Southern California Earthquake Center may not also be submitted to the USGS NEHRP External Research for funding.
9. Continuation projects. List the total amount of funding per year for which support was

provided by the USGS, as well as the duration of each increment (including no-cost extensions), and the total number of person months committed by each Principal Investigator each year.

XIII. Evaluation of Applications

- A. Proposals pertinent to one of the six NEHRP external program research areas will be evaluated by multi-disciplinary peer review panels. The panelists read all the proposals assigned to their panel prior to their meeting and at the panel meeting discuss each proposal according to the evaluation criteria. The panel members are scientists and engineers drawn from Federal, State, local, and regional agencies; universities; non-profit organizations; and private industry. The panels will evaluate the technical merit of the proposals especially in the context of development of an integrated program of investigations for that region with attention to the program priorities (see Attachment A). The peer review panel's decisions on ranking of proposals are final within each panel. The panels include five regional panels (including international proposals) and a panel for earthquake physics and earthquake effects. Applicants shall indicate on their proposal cover sheet (SF 424) (Attachment B) which panel is most appropriate for their proposal. The panel designation shall be entered in the upper right hand block labeled "Applicant Identifier". The USGS will reassign proposals to a more appropriate panel if necessary.

The panels and their designations are as follows:

Designation	Panel Name
SC	Southern California Region
NC	Northern California Region
PN	Pacific Northwest Region
CEU	Central/Eastern United States Region
NIW	National / Intermountain West
EP	Earthquake Physics and Effects Research

Note: Do not submit the same or a similar proposal to more than one panel. If unsure of which panel is most appropriate, contact the grants program manager or applicable regional or topical coordinator (see Contacts tab on the External Research Program web site, <http://erp-web.er.usgs.gov>).

B. All proposals are considered in accordance with the criteria set forth below:

1. Relevance and timeliness. This factor considers the relevance and timeliness of the proposed research activities as they relate to the USGS NEHRP program goals, including regional emphasis where appropriate (see Attachment A).
2. Technical quality of the proposal. This factor considers the scientific merit of the proposed approach and the probability of achieving positive results within the designated period.
3. Competence and Recent research performance of Principal Investigator(s) and research team. This factor considers experience and competence of the PI and coworkers; and promptness with which the research results were disseminated to the scientific community from previous funding. This factor includes performance records and capability to provide the necessary facilities and support that will insure satisfactory completion of the proposed work. The recent performance aspect is primarily concerned with the timely publication of project results and data in peer-reviewed scientific or technical journals, the impact of the report, and whether reporting requirements from previous USGS awards have been satisfied.
4. Appropriateness and reasonableness of the budget. This factor considers whether the proposed budget is commensurate with the level of effort needed to accomplish the project objectives and whether the cost of the project is reasonable relative to the value of the

anticipated results.

- C. The assembled panels make recommendations and provide advice by ranking proposals into priority groupings, funding levels, and the length of the project. Panels include USGS personnel; where necessary, to provide coordination with internal USGS/ NEHRP elements. The results of the review will assist the USGS in making final award determinations under this Announcement.

XIV. Rejection of Applications After Initial Review

If a proposal does not meet all requirements specified in the Announcement, as determined by the Contracting Officer in consultation with the Project Officer, the proposal will be promptly returned to the applicant indicating the reason for its return.

XV. Involvement of Federal Employees

Federal employees including USGS employees are prohibited from serving in any capacity (paid or unpaid) on any application submitted under this Announcement. Proposals that have a real or apparent conflict of interest will not be processed for evaluation. This does not prohibit cooperation or collaboration between USGS and non-USGS scientists in information exchange and data collection. (See paragraph VI.)

XVI. Award Terms and Conditions

Award Recipients must comply with grant award Special Terms and Conditions and General Provisions. The FY2006 Special Terms and Conditions and General Provisions may be obtained through the External Research Program web site (<http://erp-web.er.usgs.gov>).

- A. No-cost Extensions to the Project Period: No-cost extensions are discouraged. The Earthquake Hazards Program (EHP) awards grants and cooperative agreements for research that extends or supplements the ongoing research within the Geological Survey. The timely conduct of funded projects is of great importance to the achievement of the goals of the EHP. Applicants should consider their time commitments at the time of applying for a grant. Requests for no-cost extensions will be considered on a case-by-case basis. Applicants should supply documentation supporting their request for an extension.
- B. Supplementary Funds: Supplements to the amount awarded are also discouraged. The peer review panels recommend funding at a rate commensurate with their judgment of the scientific merit of a proposal and their expert knowledge of the expenses likely to be incurred in the conduct of the research. The EHP is aware that the course of any research cannot always be predicted. However the bulk of the funds available in this program are expended early in the fiscal year and little is retained for expenses beyond emergencies or special opportunities. Requests for supplementary funds will be considered on a case-by-case basis. Applicants should supply documentation supporting their request for supplementary funding.
- C. Dissemination of results: All award recipients shall complete their studies within the required time frame, their the results shall be published in a peer-reviewed form, and all data resulting from the research shall be released to the public domain in a timely fashion.

XVII. Paperwork Reduction Act Statement

This information is being collected to determine the eligibility of the applicant and as a basis for approval or disapproval of the proposed research. The purpose of the program is to support research in earthquake hazards and earthquake prediction to provide earth science data and information essential to mitigate earthquake losses. Response to this request is required to obtain and retain a grant, under the

Earthquake Hazards Reduction Act of 1977, Public Law 95-124. Public report burden for this collection is estimated to average 32 hours per grant application and 40 hours to prepare an annual or final technical report. Direct comments regarding the burden estimate or any other aspect of this collection to: Bureau Clearance Officer, USGS, 807 National Center, Reston, VA 20192. OMB No. 1028-0051 Expiration Date: January 31, 2007.

RESEARCH PRIORITIES FOR FY2006

The Research Priorities presented here are changed from the FY2005 priorities, and reflect the new Earthquake Hazards Program Five Year Science Plan, which is currently in the process of final approval and covers the FY2004-2008 period. The complete draft of the plan can be found at erp-web.er.usgs.gov, and proposers are encouraged to look at the plan to see how the high-priority targets listed below for each region fit into the plan. The five-year plan describes four major Program Elements that are the focus of the U. S. Geological Survey's Earthquake Hazards Program (EHP). These Elements are:

- I. National and regional earthquake hazards assessments;
- II. Earthquake information, monitoring and notification;
- III. Research on earthquake physics, occurrence, and effects; and
- IV. Earthquake safety policy.

These Elements are cast in six regional or topical areas. External support for regional seismic network operations and for geodetic monitoring (e.g., borehole strainmeters, creep meters, and GPS networks) done in response to Element II is carried out under a separate solicitation that funds these network operations with three-year cooperative agreements. The three-year awards for both the seismic and geodetic networks currently cover FY2004-2006, and the next solicitation is scheduled to be announced in the Spring of 2006. Proposals for short-term geodetic research or for research using the data from long-term studies still should be submitted to the appropriate regions/topical panel listed below.

The six regional or topical areas are:

1. Southern California (SC): From the Carrizo Plain south to the international border with Mexico
2. Pacific Northwest (PN): Washington, Oregon, Idaho, California north of Cape Mendocino (Cascadia), and Alaska
3. Central and Eastern United States (CE): The United States east of the Rocky Mountains, including Puerto Rico and the U.S. Virgin Islands
4. National / Intermountain West (NIW): This panel is focused on seismically active regions of the Intermountain West and also addresses proposals specific to the National Seismic Hazards Maps and to the National Earthquake Information Center (NEIC).
5. Northern California (NC): From Cape Mendocino to the central creeping section of the San Andreas fault and the adjacent Coast Ranges, with particular emphasis on the greater San Francisco Bay Area. Investigations related to SAFOD and Parkfield should be submitted to the EP panel.
6. Earthquake Physics and Effects (EP): Basic and applied research on the physics of earthquakes and their effects that is generic and has a demonstrable application to reducing earthquake losses in many geographic areas; this includes proposals related to the Parkfield experiment and to the San Andreas Fault Observatory at Depth (SAFOD).

Proposals submitted in response to this solicitation must indicate the program elements and regional or topical area the proposed research addresses. Regional and topical coordinators are available to assist applicants by describing related work being done internally within the USGS, identifying existing relevant data sets, and helping applicants establish contacts with USGS researchers working in similar areas. Coordinators are listed on the EHP Internet page, <http://erp-web.er.usgs.gov> and can be found under the "Contact Us" tab. Links to descriptions of USGS internal projects can be found on the same Internet page by clicking on "Current Projects". It is strongly recommended that the applicant contact the appropriate regional coordinator to ascertain how their proposed work can complement and help support the goals and objectives of these projects and efforts. Applicants targeting the NC panel should also note additional points of contact below.

The EHP places high priority on investigations in five geographic areas where large populations are exposed to significant seismic risk: Southern California, Northern California, the Pacific Northwest (including Alaska), the Inter-mountain West, and the Central/Eastern United States. Proposals for research on earthquake effects applicable to a specific region should be directed to the relevant regional

Attachment A

panel. Proposals for research on generic earthquake effects and for research related to the experiments at Parkfield, California should be directed to the EP panel. Proposals addressing earthquake research that is national in scope or in support of the National Seismic Hazard Maps should be directed to the NIW panel. Proposals for research on foreign earthquakes should be directed toward the regional panel most closely related to the foreign investigations.

Proposers are encouraged to use seismic monitoring data, including structural monitoring data, from the Advanced National Seismic System (ANSS). Specific ANSS coordination needs are included in several of the regional/topical priority areas, below. Proposals for research using ANSS data should explicitly state data needs and uses.

The EHP strongly encourages proposals for collaborative research making use of NSF's Major Research Equipment Facilities, EarthScope and NEES, as long as these proposals address EHP goals and objectives as put forth in the 5-year Plan. Such proposals should address specific Program Elements and appropriate regional/topical area. Proposals for USGS assistance in an EarthScope- or NEES-related project that is not directly related to EHP goals and objectives should be directed to NSF.

All proposed work must indicate how the expected results can be applied to reducing losses from earthquakes in the U.S. This application of the proposed research should be clearly stated in a separate paragraph of the proposal. This statement is a necessary condition for consideration of any proposal.

Pages 10-11 of this announcement describe the process of proposal evaluation by each of the above peer review panels.

The Elements identified by the EHP as being applicable for research done through the external grants program are described briefly below. These descriptions are followed by a list of Priority Tasks for these Elements in each geographical and topical area. We emphasize that this listing of Priority Tasks is not intended to discourage submission of proposals to accomplish other important tasks.

ELEMENT I. National and regional earthquake hazards assessments

The EHP prepares national and regional assessments, digital maps of the expected degree of ground shaking over various exposure times. These studies are the basis of the seismic safety elements of the model building codes upon which most local codes are based. The EHP also prepares long-term forecasts of future earthquake occurrences, and the shaking and ground deformation they may cause. These products are essential for development of cost-effective mitigation measures and practices in structure design, construction, and planning. The USGS is particularly interested in supporting research that contributes to improvements in the national hazards maps or to assessing earthquake hazards and reducing losses in urban areas. Other things being equal, preference will be given to qualified proposals addressing these interests.

ELEMENT II. Earthquake information, monitoring and notification

Carried out under a separate solicitation that funds these network operations with three-year cooperative agreements

ELEMENT III. Research on earthquake occurrence, physics and effects

With the goal of improving hazard assessments, earthquake forecasts, and earthquake monitoring products, the EHP supports research on earthquake processes and effects. This work is increasingly focused on developing models of earthquake and tectonic processes and of earthquake effects. Because large earthquakes occur infrequently, models have a central role in allowing lessons from one area to be applied in other areas and time frames. One important focus is the development of comprehensive, dynamic models of tectonic and earthquake processes and of the effects of earthquakes, *e.g.*, ground shaking (linear and non-linear) and ground failure.

ELEMENT IV. Earthquake safety policy

The EHP produces a significant quantity of data and information on earthquakes and related hazards. Experience has shown that production of data and reports is not enough, and that the Program must take an active role with the “user community” in the application and interpretation of Program results. Additionally, active engagement with our user community provides opportunities for dialogue on modifications to our existing products and new products that make our work and results more relevant and applicable. Opportunities for engaging the user community take place at both the national and regional levels.

High priority tasks that need to be addressed in each region and in earthquake physics and effects research are given below.

Priorities in Southern California (SC)

- Improve our estimates of fault characteristics, including:
 - Determine the activity of faults in southern California using paleoseismology, geomorphology, geologic mapping, and new dating techniques to develop long chronologies of past earthquakes and fault slip rates. Investigations of the San Andreas and San Jacinto fault zones and of the fault zones in the Transverse Ranges are solicited. **The southernmost San Andreas and Sierra Madre faults are the highest interest.** Establish baselines for post-earthquake investigations. Study evolution of faults in space and time.
 - Characterize the behavior of active fault segments and clarify differences between seismic and aseismic processes; evaluate seismogenic thicknesses and/or percentages of aseismic slip. The Los Angeles, Ventura, and San Bernardino basins are of particular interest.
- Improve predictions of ground shaking from future large earthquakes in southern California. **Of particular interest is research that will contribute to the SCEC efforts in the Fault Information System and Unified Structural Representation.** These include:
 - Compile seismic, structural, geotechnical, and geologic data from surface, and drill-hole observations necessary to predict regional ground motions and develop models to estimate variations in expected ground motions, accounting for bedrock excitation, nearby geologic structures, local topography, and soil-structure building interaction.
 - Use seismic data to determine earthquake source parameters and crustal structure, and state of the stress in the crust, including further development and testing of 2- and 3-D Earth models for southern California.
 - Develop credible earthquake planning scenarios for the Los Angeles and San Bernardino regions.
 - Utilize data from recent large earthquakes in Alaska and foreign countries for the investigation of earthquake source, ground motions, and other issues relevant to hazards in southern California.
 - Develop and verify methods for calculating time histories of strong ground motion, paying close attention to the quantification and propagation of both modeling and parametric uncertainties.
- Develop regional models of fault interactions and velocity structures, including:
 - Examine intermediate term (month to years) variations in deformation and seismicity rates.
 - Investigate Quaternary faulting, and develop regional models of active deformation and fault and earthquake interaction, **with particular interest in the southern San Andreas system.**
 - Contribute to the development of regional earthquake likelihood models in any of the following ways: develop workable models of the spatial and temporal distribution of earthquakes; quantify known and speculative faults in 3D space; contribute to a fault activity database of slip rates and other parameters; contribute to the historical earthquake catalog (e.g., quantify uncertainties of pre-instrumental events or provide focal mechanisms for instrumental events); or update magnitude versus area (or length) regressions. **Of particular interest are projects that contribute to the USGS-SCEC RELM project** (<http://pasadena.wr.usg.gov/research/RELM>).
 - Conduct geodetic and modeling studies, with particular emphasis on interpretation of SCIGN

Attachment A

data and the SCEC Crustal Motion Map, as well as modeling to optimize placement of future PBO instrumentation.

- Develop methods for improved analysis and modeling of precise geodetic data such as SCIGN continuous GPS data, interferometric SAR data, and airborne laser swath mapping data.
- Improve our products for emergency managers and planners to prepare for future earthquakes.
 - Compile and provide access to geotechnical, structural, and seismic databases that will provide useful information for mitigation and emergency response efforts.
 - Collaborate with the USGS and university-based seismic and geodetic networks to enhance tools needed for accurate and rapid portrayal of the severity and geographic distribution of strong ground shaking, surface rupture, and ground deformation. Develop software and pilot studies for seismic alert systems.
 - Contribute to the community-based, open-source seismic hazard analysis software development known as “OpenSHA” (click "Getting Involved" at <http://www.OpenSHA.org> for more information).

In addition to the publication in a peer-reviewed forum expected of all USGS-funded research, results that improve our understanding of the crustal structure or deformation field should be contributed to the SCEC Community Modeling environment.

Priorities in the Pacific Northwest (PN)

- Determine the “rupture planes”, occurrence, and rupture properties of the so-called episodic tremor and slip events (ETS) relative to the current models of the locked and transition zones in Cascadia. Proposals that critically examine the potential for using episodic tremor and slip events to improve models of the generation of great megathrust events are encouraged. Temporary deployments aimed at densifying observations of ETS events, and determining their temporal and spatial distribution in northern California, Oregon, and southern Washington, are encouraged.
- Improve the age dating of the onshore and offshore records of great Holocene plate-boundary Cascadia earthquakes to investigate the coastwise extent and recurrence intervals of plate-boundary ruptures, particularly before the most recent event at A.D. 1700. Proposals that examine the temporal history of great plate-boundary earthquakes compared to that of crustal earthquakes are encouraged, recognizing that there may be no relation or that the relation may differ along the subduction zone (e.g., northern California compared to northwestern Washington).
- Improve the vertical (elevation) accuracy and resolution of geologic estimates of land level changes from great Holocene plate boundary earthquakes in Cascadia or Alaska.
- Conduct InSAR permanent scatterer analysis (Ferretti et al., Eos, 24 Aug. 2004) to estimate submillimeter per year uplift and subsidence rates in the Puget Sound and Portland urban areas that have a tectonic origin.
- Perform studies of the near-field tsunami deposits generated by the Mw9 2004 Sumatra earthquake having direct application to improved understanding of near-field tsunami deposits generated by great plate-boundary Cascadia and Alaska earthquakes. Proposals for field studies should provide for full collaboration, including exchange visits, with scientists in Indian Ocean nations.
- Conduct field work to develop, date, and map evidence of strong ground shaking, coseismic uplift, ground failure, surface faulting, or tsunami deposits likely associated with late Holocene earthquakes throughout the Puget Sound or Portland urban areas.
- Develop models to predict strong ground motions that include effects of long duration codas expected from plate-boundary earthquakes in Cascadia as well as include state-of-the-art attenuation relations based on Nisqually recordings. One element of this study may include the inversion of seismic waveforms for the intrinsic attenuation factor in western Washington.
- Improve our understanding of seismic hazards posed by Benioff-zone earthquakes. Topics of interest include determining whether large, Nisqually-type in-slab earthquakes are possible beneath southwestern Washington and the greater Portland metropolitan area, efforts to explain the absence of significant aftershocks and/or the possibility of triggering activity in the overlying crust from these

Attachment A

events, and studying the effects of the thermal structure and bending stresses of the subducted slabs on seismogenesis.

- Conduct field work to continue characterizing site conditions at stations of the Advanced National Seismic System, the National Strong Motion Program, and the National Tsunami Hazard Mitigation Program in Oregon and Washington. Proposals must show coordination with the Pacific Northwest ANSS region.
- Studies of the Denali earthquake are encouraged. Because of limited funding and the remote field area, proposals need to focus on critical problems that clearly advance USGS research priorities. Examples include:
 - Examining the effect of the 2002 earthquake on time-dependent hazard calculations for Alaska.
 - Mapping surface faulting along the Susitna Glacier Thrust fault (particularly from the view as a possible analog to rupture anticipated along thrust fault systems in other regions).
 - Paleoseismic studies to document the slip history of selected portions of the Denali fault system that might establish a relation with earthquakes in the historical record.

Priorities in the Central / Eastern United States (CE)

- Projects that will directly improve the quality and usefulness of newly completed Memphis urban seismic hazard maps and develop similar maps in other high-risk urban areas are encouraged. In particular, the USGS is engaged in cooperative earthquake hazard mapping in St. Louis, MO and IL, and the Tri-State (Evansville) area of Indiana, Kentucky, and Illinois. Studies involving the USGS, working groups, professional organizations, and regional consortia are especially encouraged that:
 - Characterize regional wave propagation, particularly using seismic data from ANSS stations.
 - Develop region-specific relationships between lithologies and seismic wave velocities.
 - Locate and characterize seismogenic faults.
 - Conduct experiments to provide ground motion, geophysical and geotechnical data to investigate site response, particularly soil non-linearity and sedimentary basin effects.
- Proposals transferring results of CEUS Earthquake Hazards Program research to potential user groups, such as development of derivative outreach products for likely USGS urban seismic hazard map users, are particularly encouraged.
- Infer source characteristics of damaging CEUS earthquakes using instrumental recordings of large intraplate earthquakes in analog regions and of small, local earthquakes in the CEUS.
- Conduct paleoseismological investigations and analyze existing paleoseismological data to estimate the times, locations, and magnitudes of large prehistoric earthquakes. Conduct studies of modern liquefaction in regions with similar geology and where ground motion data exist, to constrain the causative loading and rheologic factors. Field studies are particularly encouraged that focus on highly populated, eastern urban areas for which there is geologic or other evidence of such events and on regions north of the New Madrid seismic zone.
- Collect direct measurements of the physical properties of deep sediments of the Mississippi embayment and Coastal Plain and of ground motions affected by them. High-quality direct and/or laboratory measurements of the dynamic properties (modulus and damping) of soils at high strains using undisturbed samples is particularly encouraged for the near-surface soil types in the Memphis, St. Louis, and Evansville areas. Conduct a comprehensive modeling study of non-linear processes appropriate to such thick sedimentary columns.
- Develop a collaborative project, with a funding strategy, to drill/log/instrument a deep borehole penetrating deep sediments of the Mississippi embayment and Coastal Plain.
- A new focus for FY05 is the development of synoptic, physical models of long-term deformation in intraplate areas. Proposals for such development should include strategies for using existing or collecting new data to constrain and validate models.
- Develop tools needed for accurate, rapid portrayal of shaking (e.g., ShakeMap) appropriate to sparsely recorded earthquakes in the CEUS.
- Systematically evaluate the temporal and spatial distributions of foreshocks and aftershocks of intraplate earthquakes, particularly in the CEUS.

Priorities in the National/Intermountain West (NIW)

We encourage those who are interested in writing proposals for Utah or Nevada to review the **region specific priorities** described at the end of this section.

- Convene multi-institutional workshops to organize sub discipline working groups or to obtain consensus information on fault parameters and ground motion characterization for different regions of the country. In particular a workshop is needed that would evaluate how the PEER Next Generation Attenuation Relations should be applied or considered in areas of the country outside of California. We strongly encourage proposals that will provide new information for use in the 2007 update of the U.S. National Seismic Hazard Maps.
- Collect shear wave velocity, density, or attenuation data for inclusion in community velocity models and to characterize liquefaction potential. We encourage use of ANSS data to calibrate the relationship of these velocity models to site response. Priority will be given to projects in urban areas along the Wasatch front region of Utah; Reno, NV; Las Vegas, NV; and the Jackson Hole-Teton-Yellowstone region, WY.
- Conduct Quaternary geologic, geomorphic, and paleoseismic investigations to estimate the recurrence, locations and magnitudes of large prehistoric earthquakes. Uncertainties of these parameters should be defined. Faults should generally have slip rates of at least 0.1 mm/yr near urban areas or 0.2 mm/yr in other areas. Priority will be given to projects located in urban areas along the Wasatch front region of Utah; Reno, NV; Las Vegas, NV; and the Jackson Hole-Teton-Yellowstone region, WY and studies of the faults described at: <http://geohazards.cr.usgs.gov/eq>.
- Develop methods that use geodetic data for estimating slip rates along faults or across regions and recurrence of earthquakes that can be applied to seismic hazard analysis.
- Develop or improve attenuation relations for the Intermountain-West that are needed for the U.S. National Seismic Hazard map and Shakemaps. Proposals that will provide new or updated information for the update of the hazard maps are encouraged.
- Define uncertainties of parameters and equations used in developing the U.S. National Seismic Hazard map. Develop procedures for testing the hazard maps.
- In consultation with NEIC personnel, develop and implement practical methods for improving global earthquake location accuracy and integrate with routine NEIC operations. Use creative data processing to improve NEIC's global detection algorithms, including detection and identification of secondary phases, and recovery and relative relocation of early aftershock distributions for major earthquakes.
- Develop practical methods for routine, rapid source characterization, including regional and global moment tensors, finiteness, and slip distribution, that can be readily implemented and integrated into NEIC operations.
- Develop new products and procedures allowing NEIC to deliver rapid and/or more accurate post-earthquake information, for example, earthquake impact, ground shaking, landslide potential, or likelihood of surface rupture.

Nevada and Utah State Priorities: The following list of research activities were developed by the states of Nevada (University of Nevada-Reno and University of Nevada-Las Vegas) and Utah (Utah Geological Survey, University of Utah, Utah State University, Utah Earthquake Working Groups) for earthquake hazard studies in those regions. These bullets are consistent with the 2006 RFP but are more specific. This year the highest priorities will be given to projects that provide information for the 2007 update of the U.S. National Seismic Hazard Maps.

Nevada State Priorities For Earthquake Studies – 2006

Faults

- Characterize high-hazard faults near Reno/Carson City and Las Vegas.
- Develop fault and earthquake parameter uncertainty input to urban hazard maps for Nevada.

Ground Shaking / Site Response

- Continue constructing a 3D community velocity model for Reno-Carson City, and Las Vegas.
- Collect shallow shear-wave velocity (V_s30) data to characterize engineering geologic units in urban/urbanizing areas of Washoe, Clark, Douglas Counties and Carson City, Nevada.
- Collect deeper (>30 m) shear-wave-velocity profiles to characterize velocities the Reno-Carson and Las Vegas valleys.
- Use ANSS data in ground motion studies in Reno/Carson City, and Las Vegas.
- Investigate the relation of ground shaking to geologic attributes in Nevada urban areas; assess the sufficiency of the IBC VS30 criterion for predicting ground shaking.
- Seek geologic constraints on ground motions in normal / transtensional environments relevant to predicting ground motions in the urban parts of the Intermountain West region.
- Evaluate whether stress drop for IMW earthquakes differs from the more active California faults, and the implications of such differences for strong ground motions.
- Considering that most of the urban regions of the Intermountain West (including Salt Lake, Reno, Carson City, and Las Vegas) are on the hanging wall of normal faults, apply a range of techniques (including modeling, geological constraints, extrapolation from other regions and from small events) to estimate the ground motions in large earthquakes under these conditions.

Workshops

- Organize a Nevada Seismic Hazard Workshop to develop a preliminary Nevada Community Fault Model (CFM) and Community Velocity Model (CVM), and to prioritize future efforts.
- Organize a workshop to focus on ground motion estimation from normal faulting earthquakes.

Modeling and Planning

- In conjunction with the USGS National Seismic Hazard Mapping Project, develop probabilistic seismic hazard models and planning scenarios for Reno and Las Vegas.

Utah State Priorities For Earthquake Studies – 2006

Faults

- Constrain earthquake timing on the West Valley fault zone.
- Resolve the timing of the most recent event on the Weber segment of the Wasatch fault zone.
- Extend the paleoseismic record back into the early Holocene/latest Pleistocene on the Weber segment of the Wasatch fault zone.
- Perform geophysical surveys and drilling of faults beneath Utah Lake to determine possible relation to Wasatch fault zone.
- Determine faulting history of various faults in southern Utah (Sevier/Toroweap, Washington, Paragonah, Enoch, Hurricane, and Red Hills faults).
- Determine earthquake timing on the Northern and Southern segments of the East Cache fault zone.
- Determine multiple earthquake record on the Clarkston fault
- Constrain earthquake timing on a Wasatch Range back-valley fault.

Ground Shaking/Site Response

- Evaluate and complete the Wasatch Front community velocity model (CVM) using observed wave forms; install CVM on web portal for general access.
- Use Wasatch Front CVM to evaluate the importance of basin structure (e.g., depth of unconsolidated and semi-consolidated sediment, basin edge effects, steep basin boundary effects, focusing) on strong ground motions.
- Begin planning for cooperative program with USGS NSHM Program to use Wasatch Front CVM to prepare large-scale probabilistic and scenario ground-shaking maps.
- Characterize shear-wave velocities down to R1 (boundary between unconsolidated and semi-consolidated sediments) and R2 (boundary between semi-consolidated sediments and consolidated bedrock) along the Wasatch Front.
- Use ANSS data in ground-motion studies along the Wasatch Front.

Liquefaction

- Pending results of Salt Lake Valley pilot project, compile geotechnical databases and begin probabilistic liquefaction potential and permanent ground displacement maps for Wasatch Front valleys outside Salt Lake Valley.
- In the 2004 pilot project area (northern Salt Lake Valley), perform field investigations to characterize liquefaction hazards in surficial geologic units where existing data are inadequate.

Priorities in Northern California (NC)

Listed below are high-priority efforts for NEHRP research and products for the Northern California region that were identified in open workshops held at the USGS in Menlo Park in January 2004 and January, 2005. Most of these efforts are on going, some with new emphases. Many require large-scale collaborations involving both internal USGS and externally funded researchers. Specific tasks within these efforts are identified below, in some cases they are categorized as short-term (to be completed in 1-2 years) and longer-term (to be completed in 3-5 years in most cases). (Note: This list of high-priority efforts is for a combined internal and external program, and in some cases, tasks will be carried out entirely internally. These tasks are denoted with ** in the list below.)

The highest priority for funding in the external program will be given to proposals that address these identified efforts and projects, although we always encourage submission of any creative, new ideas and projects directly applicable to a better definition of the earthquake hazard or reducing losses in northern California. It is recommended that external proposers contact the USGS researchers listed with each effort to ascertain how their proposed work may complement and support the goals and objectives of these projects and efforts.

At current funding levels, emphasis in the Northern California hazards program will be on the highly-urbanized, greater San Francisco Bay region, extending from Gilroy in the south and Santa Rosa to the north, and from the Coast Range-Central Valley boundary on the east to the Pacific coast on the west. This region constitutes the greatest population density in Northern CA and more than 25% of the nation's annualized risk (FEMA-366, February 2001: HAZUS99 Estimated Annualized Earthquake Loss for the United States, http://www.fema.gov/hazus/li_pubs.shtml)

I. Continue to upgrade and enhance capabilities and products of seismic and structural monitoring in Northern CA through the California Integrated Seismic Network (CISN).

USGS contacts: David Oppenheimer (oppen@usgs.gov), Woody Savage (wusavage@usgs.gov), Mehmet Celebi (mcelebi@usgs.gov).

Short-term tasks:

1. Develop and enhance tools for automated earthquake products to be implemented by CISN in Northern California, including:-
 - a. cross-correlation timing/double-difference locations,
 - b. locations based on 3-D velocity models,
 - c. reliable, intelligent automated S-wave picker,
 - d. methodologies for early warning and rapid assessment of earthquake size and tsunamogenic potential,
 - e. automated computation of maps depicting static stress changes based on slip distribution models (when available) or moment tensors for smaller quakes,
 - f. web interface to compute probabilistic ground motions from a time-dependent model such as the Jones/Weimer approach being utilized in southern California,
 - g. ShakeMap-style maps of predicted of liquefaction and landslide hazard immediately following a significant quake (also mentioned under hazard products),
 - h. regular updates to aftershock probabilities based on aftershock statistics of big quakes to be integrated with the Jones/Wierner model being utilized in southern California.
2. **Convert analog USGS-funded structural and free-field strong motion and arrays in Northern California to digital instrumentation.

Attachment A

3. **Install direct or dial-up capability for structural and stand-alone strong motion arrays in Northern California in order to utilize these data for ShakeMap or rapid post-earthquake structural evaluation.
4. In response to the guidelines issued in 2005 by the national ANSS Structural Instrumentation Guideline Committee, develop a prioritized list of specific structures to instrument in Northern California.

II. Construct a community 3D seismic velocity model for northern California that can be used for ground motion simulations, seismic event locations, source mechanism determinations, sedimentary basin response calculations, and the calculation of probabilistic hazard maps. USGS contact: Tom Brocher (brocher@usgs.gov).

This model will be a 3D multi-parameter physical model of the crust, including faults and seismic/lithologic boundaries. The initial 3D model will extend from Salinas north as far as Petaluma and Napa, east through the Coast Range as far as Antioch. We expect the model to be eventually extended south to encompass Monterey, north to the Geysers, and east as far as Sacramento. The model will be compatible with the 3D community velocity model being developed for southern California by SCEC and with the 3D geologic map being developed by the USGS for the greater San Francisco Bay region by the USGS National Cooperative Geologic Mapping Program <http://3d.wr.usgs.gov/docs/wgmt/3d> under the leadership of Bob Jachens (jachens@usgs.gov).

An initial version of a 3D velocity model for northern California will be available in April 2005. Several groups will be running ground motion simulation codes to test this model against 1989 Loma Prieta observations, and then to compute ground motions for a repeat of the 1906 earthquake.

Short-term tasks:

1. Develop a new northern California 3D crustal tomographic model that will serve as a background model for the deeper crust.
2. Better integration of the tomography with gravity and other geophysical databases as an initial calibration for the San Francisco Bay region 3D velocity model.
3. Develop and implement methodologies to add high frequencies and near surface effects to the ground motion simulation results. Apply initially to 1906 ground motion simulations, but later to other northern California earthquake scenarios.
4. Develop improved S-wave velocity models for the crust. Exploit existing earthquake data to extract useful shear-wave velocities (develop a reliable, intelligent automated S-wave picker—see Seismic Monitoring tasks). Adopt a suitable framework for the representation of the 3D model such that it can be readily accessed through the Web by all users. Develop tools for model utilization, visualization, and establish links to the database that is used to establish the model.
5. Enhanced regional and teleseismic tomographic modeling to characterize upper mantle velocity variations as well as regional attenuation.

Longer-term tasks:

6. Refine Northern California 3D seismic velocity model with targeted active and passive source seismic data, particularly for characterization of the basins and also for definition of seismic velocity structure within fault zones.
7. Develop enhanced tools for 3D model verification, modification, and visualization as well as tools for 3D wave propagation and scenario earthquake ground motion modeling. Adopt multi-parameter inversion schemes that utilize multiple seismic and geophysical data sets.
8. Expand the 3D velocity model to all regions within Northern California for which there is a priority for seismic monitoring and reporting. A second 3D model may be developed for the area encompassing Cape Mendocino and Eureka.
9. Adopt truly 3D approaches to seismic event locations and source mechanism determinations using high-performance computational schemes (see Seismic monitoring effort).
10. Develop an integrated, 3D seismic velocity model for the entire state of California (working with SCEC and others) that can be used for seismic monitoring, waveform calculation, and refined

Attachment A

hazard assessment.

11. Provide a 3D multi-parameter physical model of the crust, including faults and seismic/lithologic boundaries that can be used for fully 3D deformational modeling based on seismic slip and geodetic data for Northern California.

III. Construct a community Quaternary fault database that will include 3D information on fault locations and slip histories. USGS contact: Russ Graymer (rgraymer@usgs.gov).

The map database effort will focus on compilation and evaluation of critical information regarding fault location, orientation, behavior and activity throughout northern California. Priority will be given based on information need and potential hazard. This effort will link with the USGS National Fault database and SCEC's Fault Activity database (FAD) and community fault model efforts. Results will be integrated into the 3D geologic map being developed for the greater Bay region by the USGS National Cooperative Geologic Mapping Program: <http://3d.wr.usgs.gov/docs/wgmt/3d>.

Short-term tasks:

1. Compile and evaluate existing data, and develop new information, on the surface traces, and 3-D geometry of Quaternary faults (including blind faults) and folds for incorporation into the April 2006 release of the Northern California Quaternary Fault Map Database.
2. Relocate and provide geographic coordinates for several hundred photographs taken outside of San Francisco after the 1906 earthquake. These photos show fault rupture, landslides, building damage, and other earthquake effects. As part of an effort associated with the upcoming centennial of the 1906 earthquake, UC Berkeley's Bancroft Library has scanned hundreds of these photos to incorporate into their web-based 1906 historical database. The locations of many photos outside of San Francisco are poorly known, most are located by county only. To greatly increase the value of this photo archive for earth scientists and engineers, we would like to get precise geographic coordinates to be included in the database. We particularly encourage proposals that would involve undergraduate students in this endeavor and that would involve close coordination with USGS efforts working with these photos.

Longer-term tasks:

3. Develop new information on the surface traces and 3D geometry of Quaternary faults (including blind faults) and folds that are currently poorly constrained.
4. Extend the Quaternary fault database for the entire northern California region

IV. Develop new information on the behavior and source character of active faults in northern California through seismological, geodetic, geological and paleoseismological data. USGS Contact: David Schwartz (schwartz@usgs.gov).

Proposals are particularly encouraged for the Peninsula and North Coast segments of the San Andreas that address fundamental questions about the timing of the penultimate and earlier events, segmentation, rupture history, slip/event and slip rate along strike. This focus on the San Andreas fault, which dominates the seismic hazard of northern California, complements an on-going joint NSF-USGS NEHRP study to develop a paleoseismic record of the Northern San Andreas Fault from Holocene turbidite deposits off of the Northern California margin (For information on the turbidite study, contact Chris Goldfinger at Oregon State University, gold@coas.oregonstate.edu).

Tasks:

1. Develop a 2000+ year slip chronology for the major active faults both onshore and offshore in northern California. This is part of an on-going effort, the Bay Area Paleoseismic Experiment (BAPEX), <http://quake.usgs.gov/research/paleoseismology/bapex/>. Study sites and results to date can be viewed on the web site.
2. Other potential studies include:
 - a. Determine paleoearthquake chronologies and slip-per-event, refine slip-rate and recurrence

Attachment A

- estimates, and evaluate segmentation models for other major faults of the San Andreas system including the Hayward, Calaveras, San Gregorio, Concord-Green Valley, Rodgers Creek, Greenville, Maacama, and West Napa faults.
- b. Determine paleoearthquake chronologies and slip-per-event, refine slip-rate and recurrence estimates, and evaluate segmentation models for surface and blind thrust faults and folds in the greater San Francisco Bay region.
 - c. Please note also the task for relocation of photographs taken after the 1906 earthquake in regions outside of San Francisco after the 1906 earthquake. This task is listed under the 3D Quaternary fault database opportunity (Opportunity III).
3. Utilize geodetic and seismological data to constrain source information for historic Northern California earthquakes.

V. Analyze a Lidar dataset for coastal northern California recently acquired by NASA (in collaboration with the USGS). USGS contact: Carol Prentice (cprentice@usgs.gov).

This Lidar dataset provides a unique opportunity to quantify and precisely map geomorphic features relevant to Quaternary fault studies in northern California. The 418 square km area of lidar coverage includes a 70-km-long section of the North Coast San Andreas fault as well as a 120-km-long stretch of coastal marine terraces. The study area extends from near Fort Ross northward along the coast to the town of Mendocino, and inland 3-10 km. More information on this dataset, some sample images, and download directions are available at: <http://quake.usgs.gov/research/geology/lidar>.

Short-term tasks:

1. Tectonic analysis of the northern California Lidar data set for quantitative information on fault movement and/or coastal uplift.
2. Development of new tools and/or techniques for quantitative geomorphic analysis that can be applied to the Lidar dataset.

VI. Utilize crustal deformation measurements to constrain the regional deformation rates, fault slip rates, role of fault creep, fault mechanics, strain transients, and models of stress evolution for northern California. USGS contact: Wayne Thatcher (thatcher@usgs.gov).

Short-term tasks:

1. Develop a Northern California GPS velocity model product, build velocity models that integrate all available deformation data including GPS, InSAR, creepmeter, and seismicity.
2. **Develop a plan for operation and maintenance of the existing USGS low-frequency deformation network in northern CA (borehole strainmeters, creepmeters, magnetometers, pore pressure transducers, and water-level monitors). This plan should address immediate problems concerning upgrading instruments, modernizing telemetry, replacing failed instruments, closing down sites where geophysical return is minimal and installing new sites where expected geophysical return is optimal.
3. Reconcile geodetically and geologically-determined fault slip rates in northern California for incorporation into national seismic hazard map calculations.
4. Develop integrated time-dependent earthquake hazard models derived from deformation models.
5. **Make available to end-users in a web-accessible format fully-processed strainmeter, creepmeter, and other continuous deformation data products (including cleaned, corrected and processed multi-decade records) as well as analysis tools. Make data streams available in real-time where appropriate.
6. Develop a prototype event detection system using continuous GPS data from the Bay Area Regional Deformation (BARD) network: (<http://quake.geo.berkeley.edu/bard/bard.html>).
7. Augment PBO's strain and GPS networks with real-time telemetry.
8. Install new creepmeter technology preferentially located at PBO strain and GPS installations with the goal of low-cost, low maintenance operation, improved reliability, high long-term

stability (without sacrificing short-term precision), and ability to span a greater width of fault zone than at present.

Longer-term tasks:

9. Constrain the role of fault creep on seismic source zones in northern California to study deformation and slip transients. Quantify the occurrence and elucidate the role of slip transients and other deformation features in understanding fault strain energy budgets.
10. Quantify active deformation associated with areas of potential active thrust faulting and complex fault geometry such as step-overs and fault junctures (e.g., Mt. Diablo, Hayward-Calaveras juncture). This may require filling in gaps in current geodetic coverage as well as integration of GPS and InSAR analysis.
11. Develop a prototype real-time GPS processing system that can detect deformation transient of a range of durations (minutes to decades) to assist in early earthquake parameterization of source, for stress change studies, earthquake timing, triggering, and nucleation (precursors).
12. Integrate geodetic and seismic data to determine self-consistent earthquake source models.
13. Develop deformation models that incorporate higher-order fault and lithosphere rheology, time dependence, stress evolution etc.
14. Utilize InSAR data to identify boundaries of active aquifers, local settling regions relevant to near-surface fault geometry, landslide potential, tectonic uplift, and site response issues.

VII. Develop NEHRP hazard products for Northern California with the long-term goal of producing probabilistic hazard maps (shaking, liquefaction, and landslide) that include source directivity, 3D velocity effects, non-linearity, and complete recurrence models for faults. While these products will be published by the USGS, research is needed on methodology development and validation. USGS contact: Jack Boatwright (boat@usgs.gov).

Short term tasks:

1. Quantify earthquake effects (e.g. landslides, liquefaction, ground failure, loss estimations) utilizing 1906 ground motions simulations (see Task II. 3D community velocity model). Either deterministic or probabilistic methodologies can be applied. For information on the availability of the ground motions simulations, contact Brad Aagaard, USGS (baagaard@usgs.gov).
2. Complete a series of urban hazard maps for the Santa Clara Valley
 - a. Create a digital site amplification map of the Santa Clara Valley that includes the effects of basin-depth, basin-edge, and non-linearity effects. This map will be linked to a web-based database of amplification data from permanent and campaign seismic stations in Santa Clara Valley.
 - b. Create a library of time histories and response spectra for sites within Santa Clara Valley using finite-difference models for rupture scenarios for damaging Bay Area earthquakes defined by the Working Group on Earthquake Probabilities in the San Francisco Bay Region (<http://quake.usgs.gov/research/seismology/wg02/>) as well as for potential moderate earthquakes in the Santa Clara valley.
 - c. Complete a probabilistic liquefaction hazard map and scenario hazard map for northern Santa Clara valley.
3. Develop **non-technical** educational materials for understanding earthquake probabilities with specific examples taken from the WG02 report and extension to concepts such as 2% or 10% in 50 years ground motions.
4. Convene topical workshops for the user community in Northern California to assist them in effectively utilizing USGS earthquake information and hazard products. Examples include: utilizing the results of Working Group 02 for site-specific and regional hazard assessment in northern California, effective utilization of CISEN real-time earthquake products for emergency response, and reconciling inconsistent methodologies in developing design ground motions. Involve potential end users in the workshop process leading to the new Unified California Earthquake Probabilities Assessment.
5. Input all geotechnical data for USGS and ANSS strong motion stations into the National

Attachment A

Geotechnical Experimentation Sites database (<http://www.unh.edu/nges/>) being sponsored by COSMOS. In future, geotechnical assessments should be required of all instrumented sites as the instruments are deployed, not simply when they record significant ground motion.

6. Develop methods and collect geotechnical information to model the location and amount of permanent ground deformation--including liquefaction and landslides--expected from Bay Area scenario earthquakes
7. Conduct geotechnical assessments of accelerograph sites that recorded the 2003 M=6.5 San Simeon earthquake and the 2004 M=6.0 Parkfield earthquakes
8. Create a web-based digital library of time histories and response spectra for greater Bay Area sites from finite difference scenario models, exploiting the Bay Area 3D velocity model.

Longer-term tasks:

9. Develop a geotechnical parameter characterization of Quaternary geologic units in the urban Bay Area utilizing soon-to-be-completed (Fall 2005) maps of Quaternary deposits and liquefaction susceptibility for the greater San Francisco Bay Area done at 1:24,000 scale. The new maps will be similar to a preliminary map published in 2000: <http://geopubs.wr.usgs.gov/open-file/of00-444/>. Parameters to be characterized include thickness of Holocene units, seismic wave velocities, and physical properties.
10. Create a digital site amplification map for the extended Bay Area that includes the effects of basin-depth, basin-edge, and non-linearity effects. This map will be linked to web-based database of seismic amplification data from permanent and campaign seismic stations throughout the region.
11. Develop methodologies to refine liquefaction and landslide susceptibility assessment applicable to the Bay area.
12. Develop, in collaboration with the California Geological Survey, maps showing graded liquefaction and landslide hazard, these maps would to create thresholds and subdivisions of the current "in/out" CGS hazard zoning maps.
13. Develop criteria for validating hybrid and stochastic methods of generating time histories (this effort may be part of a future USGS/PEER/SCEC collaboration).

VIII. Convene workshops to develop collaborative proposals to capitalize on deployment of the NSF-funded EarthScope MRE facility to address NEHRP Northern California earthquake hazards goals.

Short term tasks:

1. Develop plans and proposals to capitalize on USArray deployment and piggyback experiments in the greater Bay Area as well as complementary NEHRP efforts to collect critical data for improved NEHRP hazard evaluation.
2. Anticipate and plan for PBO infrastructure and data to develop complementary activities that maximize the utility of these data for NEHRP supported studies.

Priorities in Earthquake Physics and Effects (EP)

As described in the 2003 National Research Council report *Living on an Active Earth: Perspectives on Earthquake Science*, continued progress toward understanding earthquake phenomena and evaluating earthquake hazards will increasingly require integrative, physics-based research involving theoretical studies of processes controlling earthquake phenomena, sophisticated numerical modeling, field observations, and laboratory studies. The EHP will pursue such research on earthquake processes for application to improved hazard assessment and risk-mitigation products throughout the Nation. Of particular interest are studies that utilize data collected by USGS and its partner organizations, including the ANSS, SCIGN and other geodetic networks, surface and borehole instruments in the San Andreas fault system in central California, and the USArray, PBO and SAFOD components of the EarthScope facility.

Priority topics in research on earthquake physics and occurrence

- Develop and test reliable, predictive models of earthquake occurrence, failure, time-to-failure, and clustering, and the observational data sets needed to test such models. Develop reliable time-dependent, intermediate-term earthquake forecasting techniques; validate and test such techniques in coordination with the USGS–SEEC RELM project (<http://pasadena.wr.usg.gov/research/RELM>).
- Develop strategies for estimating time-dependent earthquake probabilities and shaking hazard, to include the time of the last earthquake on a fault segment, and reflecting complex phenomena such as non-uniform earthquake slip, fault interactions, transient deformation, cascading ruptures, and changeable or non-existent fault segment boundaries.
- Quantify processes controlling fault stress accumulation, transfer and release. Apply findings to reconcile deformation rates inferred from geodetic, geologic and seismicity observations.
- Refine and test fault constitutive laws, both at quasi-static and rapid fault slip rates, through laboratory, field, and seismic observations, and numerical modeling.
- Refine and evaluate empirical approaches for modeling earthquake occurrence, including those for fault segmentation, the characteristic earthquake hypothesis, and shape of the recurrence probability density function. Develop improved data sets on past earthquakes, and test frequency-magnitude relationships with respect to these models and data.
- Assess the predictability of large earthquakes by focusing on the underlying physical processes and continue fault-monitoring experiments in search of possible earthquake precursors; develop objective null hypotheses against which to test prediction methods.
- Develop and test models of large or small earthquake occurrence at Parkfield using monitoring data and crustal properties measured both from the San Andreas Fault Observatory at Depth project (SAFOD), borehole seismic networks, and by other geophysical techniques. Proposals for fault monitoring in central California will need to be justified in light of the recent M6 Parkfield earthquake.
- Conduct field and laboratory studies to ascertain the mechanisms (e.g., fluid flow or fault rheology) responsible for non-volcanic tremor and periodic slip observed in subduction zones and on the San Andreas fault. Determine whether such phenomena may act as triggers for large earthquakes.
- Augment PBO strain and GPS networks by developing and/or improving creepmeter technology. Priority will be given for systems offering improvements in cost, maintenance, reliability, long-term stability, and length of baseline, without sacrificing short-term precision.

Priority topics in research on earthquake effects

- Develop and improve methods for producing broadband (0.1-20 Hz) synthetic seismograms for large earthquakes, including near-source directivity pulses, fault fling, 3D basin effects, nonlinear soil response, scattering, and frequency-dependent radiation pattern and directivity effects. These methods should be validated in the time and frequency (spectral response) domains by comparison with observed strong-motion records.
- Improve observations relevant to the shaking behavior of near-surface materials in high-risk urban areas. Characterize relevant soil parameters, conduct observational experiments to provide ground motion data, and study non-linear processes relevant to the behavior of thick sediments, especially those in basins and the Mississippi embayment and Gulf Coastal Plain. Compare calculations from nonlinear propagation programs to recorded data.
- Improve site characterization for building code and other applications. In particular, develop recommendations for improving soil classification methods and code site amplification factors; revise ground-motion prediction equations for use in engineering design and probabilistic seismic hazard analysis; and develop regional ground motion attenuation models and investigate the causes of regional variations. Develop quick and inexpensive methods to determine the shear-wave velocity profile at a site to a depth of about 200m.
- Improve relationships between ground shaking and damage in buildings and other structures. Develop tools and design guidelines to account for the effects of soil-structure interaction, low-frequency long-duration surface waves, and near-field and impulsive ground motions; develop tools to use data from instrumented structures to predict earthquake response, monitor structural health, and assess level of damage. Develop probabilistic methods to describe building performance in

Attachment A

response to strong shaking. Perform field measurement and analysis of structural properties for ANSS buildings, and develop baseline structural models for ANSS buildings.

- Document the occurrence, research the process, and determine the cause of earthquake-triggered ground failures including landslides and liquefaction, and improve techniques for ground-failure susceptibility and hazard assessment. Develop and apply methods for probabilistic mapping of liquefaction and other types of failure, using the results of probabilistic ground-motion mapping.
- Evaluate and test computer programs for calculating nonlinear response of soils, by comparing predicted seismograms with recorded data.
- Evaluate the variability and upper-bound limit of ground-motion distributions used in probabilistic seismic hazard assessment.

**APPLICATION FOR
FEDERAL ASSISTANCE**

1. TYPE OF SUBMISSION: Application <input type="checkbox"/> Construction <input type="checkbox"/> Non-Construction		2. DATE SUBMITTED	Applicant Identifier
Pre-application <input type="checkbox"/> Construction <input type="checkbox"/> Non-Construction		3. DATE RECEIVED BY STATE	State Application Identifier
		4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier

5. APPLICANT INFORMATION

Legal Name:		Organizational Unit:	
Organizational DUNS:		Department:	
Address:		Division:	
Street:		Name and telephone number of person to be contacted on matters involving this application (give area code)	
City:		Prefix:	First Name:
County:		Middle Name	
State: Zip Code		Last Name	
Country:		Suffix:	
		Email:	

6. EMPLOYER IDENTIFICATION NUMBER (EIN): □□-□□□□□□□□	Phone Number (give area code)	Fax Number (give area code)
--	-------------------------------	-----------------------------

8. TYPE OF APPLICATION: <input type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision If Revision, enter appropriate letter(s) in box(es) (See back of form for description of letters.) <input type="checkbox"/> <input type="checkbox"/> Other (specify)	7. TYPE OF APPLICANT: (See back of form for Application Types) Other (specify)
9. NAME OF FEDERAL AGENCY:	

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: TITLE (Name of Program): □□-□□□□	11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:
--	--

12. AREAS AFFECTED BY PROJECT (Cities, Counties, States, etc.):
--

13. PROPOSED PROJECT Start Date: Ending Date:	14. CONGRESSIONAL DISTRICTS OF: a. Applicant b. Project
--	--

15. ESTIMATED FUNDING:	16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?
a. Federal \$.00	a. Yes. <input type="checkbox"/> THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON DATE:
b. Applicant \$.00	b. No. <input type="checkbox"/> PROGRAM IS NOT COVERED BY E. O. 12372
c. State \$.00	<input type="checkbox"/> OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW
d. Local \$.00	17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?
e. Other \$.00	<input type="checkbox"/> Yes If "Yes" attach an explanation. <input type="checkbox"/> No
f. Program Income \$.00	
g. TOTAL \$.00	

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Authorized Representative		
Prefix	First Name	Middle Name
Last Name		Suffix
b. Title		c. Telephone Number (give area code)
d. Signature of Authorized Representative		e. Date Signed

INSTRUCTIONS FOR THE SF-424

Public reporting burden for this collection of information is estimated to average 45 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0043), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

This is a standard form used by applicants as a required face sheet for pre-applications and applications submitted for Federal assistance. It will be used by Federal agencies to obtain applicant certification that States which have established a review and comment procedure in response to Executive Order 12372 and have selected the program to be included in their process, have been given an opportunity to review the applicant's submission.

Item:	Entry:	Item:	Entry:																
1.	Select Type of Submission.	11.	Enter a brief descriptive title of the project. If more than one program is involved, you should append an explanation on a separate sheet. If appropriate (e.g., construction or real property projects), attach a map showing project location. For preapplications, use a separate sheet to provide a summary description of this project.																
2.	Date application submitted to Federal agency (or State if applicable) and applicant's control number (if applicable).	12.	List only the largest political entities affected (e.g., State, counties, cities).																
3.	State use only (if applicable).	13.	Enter the proposed start date and end date of the project.																
4.	Enter Date Received by Federal Agency Federal identifier number: If this application is a continuation or revision to an existing award, enter the present Federal Identifier number. If for a new project, leave blank.	14.	List the applicant's Congressional District and any District(s) affected by the program or project																
5.	Enter legal name of applicant, name of primary organizational unit (including division, if applicable), which will undertake the assistance activity, enter the organization's DUNS number (received from Dun and Bradstreet), enter the complete address of the applicant (including country), and name, telephone number, e-mail and fax of the person to contact on matters related to this application.	15.	Amount requested or to be contributed during the first funding/budget period by each contributor. Value of in kind contributions should be included on appropriate lines as applicable. If the action will result in a dollar change to an existing award, indicate only the amount of the change. For decreases, enclose the amounts in parentheses. If both basic and supplemental amounts are included, show breakdown on an attached sheet. For multiple program funding, use totals and show breakdown using same categories as item 15.																
6.	Enter Employer Identification Number (EIN) as assigned by the Internal Revenue Service.	16.	Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the State intergovernmental review process.																
7.	Select the appropriate letter in the space provided. <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">A. State</td> <td style="width: 50%;">I. State Controlled Institution of Higher Learning</td> </tr> <tr> <td>B. County</td> <td>J. Private University</td> </tr> <tr> <td>C. Municipal</td> <td>K. Indian Tribe</td> </tr> <tr> <td>D. Township</td> <td>L. Individual</td> </tr> <tr> <td>E. Interstate</td> <td>M. Profit Organization</td> </tr> <tr> <td>F. Intermunicipal</td> <td>N. Other (Specify)</td> </tr> <tr> <td>G. Special District</td> <td>O. Not for Profit Organization</td> </tr> <tr> <td>H. Independent School District</td> <td></td> </tr> </table>	A. State	I. State Controlled Institution of Higher Learning	B. County	J. Private University	C. Municipal	K. Indian Tribe	D. Township	L. Individual	E. Interstate	M. Profit Organization	F. Intermunicipal	N. Other (Specify)	G. Special District	O. Not for Profit Organization	H. Independent School District		17.	This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes.
A. State	I. State Controlled Institution of Higher Learning																		
B. County	J. Private University																		
C. Municipal	K. Indian Tribe																		
D. Township	L. Individual																		
E. Interstate	M. Profit Organization																		
F. Intermunicipal	N. Other (Specify)																		
G. Special District	O. Not for Profit Organization																		
H. Independent School District																			
8.	Select the type from the following list: <ul style="list-style-type: none"> • "New" means a new assistance award. • "Continuation" means an extension for an additional funding/budget period for a project with a projected completion date. • "Revision" means any change in the Federal Government's financial obligation or contingent liability from an existing obligation. If a revision enter the appropriate letter: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">A. Increase Award</td> <td style="width: 50%;">B. Decrease Award</td> </tr> <tr> <td>C. Increase Duration</td> <td>D. Decrease Duration</td> </tr> </table> 	A. Increase Award	B. Decrease Award	C. Increase Duration	D. Decrease Duration	18.	To be signed by the authorized representative of the applicant. A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office. (Certain Federal agencies may require that this authorization be submitted as part of the application.)												
A. Increase Award	B. Decrease Award																		
C. Increase Duration	D. Decrease Duration																		
9.	Name of Federal agency from which assistance is being requested with this application.																		
10.	Use the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested.																		

**U.S. DEPARTMENT OF THE INTERIOR
CERTIFICATIONS FOR FEDERAL ASSISTANCE**

PART A: Certifications Regarding Debarment, Suspension and Other Responsibility Matters - Primary Covered Transactions, Applies to all grantees and cooperators.

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 43 CFR Part 12, Section 12.510, Participants' responsibilities. The regulations were published as Part VII of the May 25, 1988 Federal Register (pages 19160-19211). For further assistance in obtaining a copy of the regulations, contact the issuing office.

(a) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals: (1) are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency; (2) have not within a 3-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property; (3) are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and (4) have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

(b) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The prospective primary participant further agrees by submitting this proposal that it will include the following clause, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions (see Appendix A of Subpart D of 43 CFR Part 12):

PART B: Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions.

(a) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(b) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

PART C: Certification Regarding Drug-Free Workplace. Alternate I. Applies to grantees other than individuals.

This certification is required by the regulations implementing the drug-free workplace requirements for Federal grant recipients under the Drug-Free Workplace Act of 1988 (43 CFR Part 12, Subpart D). A copy of the regulation is available from the issuing office.

A. The grantee certifies that it will or continue to provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition; (b) Establishing an on-going drug-free awareness program to inform employees about (1) the dangers of drug abuse in the workplace; (2) the grantee's policy of maintaining a drug-free workplace; (3) any available drug counseling, rehabilitation, and employee assistance programs; and (4) the penalties that may be imposed upon employee for drug abuse violations occurring in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will (1) abide by the terms of the statement; and (2) notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;

(e) Notifying the agency, in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer or other designee on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;

(f) Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted: (1) taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or (2) requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant;

Place of Performance (Street address, city, county, state, zip code)

Check ___ if there are workplaces on file that are not identified here.

PART D: Certification Regarding Drug-Free Workplace. Alternate II. Applies to grantees who are individuals.

This certification is required by the regulations implementing the drug-free workplace requirements for Federal grant recipients under the Drug-Free Workplace Act of 1988 (43 CFR Part 12, Subpart D). A copy of the regulation is available from the issuing office.

(a) The grantee certifies that, as a condition of the grant, he or she will not engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance in conducting any activity with the grant;

(b) If convicted of a criminal drug offense resulting from a violation occurring during the conduct of any grant activity, he or she will report the conviction, in writing, within 10 calendar days of the conviction, to the grant officer or other designee, unless the Federal agency designates a central point for the receipt of such notices. When notice is made to such a central point, it shall include the identification number(s) of each affected grant.

Part E: Certification Regarding Lobbying - Certification for Contracts, Grants, Loans, and Cooperative Agreements. Applies to recipients of awards exceeding \$100,000.

This certification is required by Section 1352, title 31, U.S. Code, entitled "Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions."

The undersigned certifies, to the best of his or her knowledge and belief, that:

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

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

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

As the authorized certifying official, I hereby certify that the above specified certifications are true.

Signature

Typed name and title

Applicant/Recipient

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE	
APPLICANT ORGANIZATION		DATE SUBMITTED

BUDGET SUMMARY¹

Project Title: _____

Principal Investigator(s): _____

Proposed Start Date: _____

Proposed Completion Date: _____

COST CATEGORY	Federal First Year	Federal Second Year²	TOTAL Both years²
1. Salaries and Wages	\$	\$	\$
Total Salaries and Wages	\$	\$	
2. Fringe Benefits/Labor Overhead	\$	\$	\$
3. Equipment	\$	\$	\$
4. Supplies	\$	\$	\$
5. Services or Consultants	\$	\$	\$
6. Radiocarbon Dating Services	\$	\$	\$
7. Travel	\$	\$	\$
8. Publication Costs	\$	\$	\$
9. Other Direct Costs	\$	\$	\$
10. Total Direct Costs (items 1-9)	\$	\$	\$
11. Indirect cost/General and Administrative (G&A) cost	\$	\$	\$
12. Amount Proposed (items 10&11)	\$	\$	\$
13. Total Project Cost (Total of Federal and non-Federal amounts)	\$	\$	\$

¹ This form shows the format of the budget summary. Use this sheet for the Budget Summary, which precedes the detailed budget. The detailed budget must be keyed directly to the Budget Summary page.

² These Columns only for multi-year projects

PROPOSAL INFORMATION SUMMARY

You must submit this summary with your proposal. Use the format below to provide the information in the order requested. Do not type on this page.

1. Regional Panel Destination: (Use two or three letter code, see XII.A)
2. Project Title: If a collaborative proposal, the title of the proposal must appear as follows: **"Title of Proposal: Collaborative Research with First Institution Name, and Second Institution Name"**.
3. Principal Investigator(s): (Name)
(Institute/Organization Name)
(Street Address/P.O. Box)
(City, State, Zip Code)

(Telephone Number), (FAX Number), (E-mail Address)
4. Authorized Institutional Representative: (Name)(Institute/Organization Name)
(Organizational Unit)
(Street Address/P.O. Box)
(City, State, Zip Code)

(Telephone Number), (FAX Number), (E-mail Address)
6. Element Designation (See Attachment A)
7. Key Words (Use only those provided in Attachment G,)
(Choose maximum of the three most pertinent)
8. Amount Requested: (List amount requested for Fiscal Year 2006 support)
(Two year projects list requests for FY 2006 and 2007)
9. Proposed Start Date: (The date you would like to start work; between December 1, 2005 and September 30, 2006)
10. Proposed Duration: (12 or 24 months, No awards are issued for less than 12 months)
11. New or Renewal Proposal; Proposal is a continuation of: (If a renewal, indicate current USGS award number) and (Title of Prior Year Proposal) **RENEWALS MUST RETAIN THE SAME TITLE AS THE PRIOR YEAR**
12. Active Earthquake-related Research Grants, and Level of Support: (List project title and funding source for all active awards)
13. Has this proposal been submitted to any other agency for funding, if so, which? (List name of agency, and program or division to which this proposal was submitted)
14. Proposal Abstract (From this proposal on separate sheet)
15. Proposal Budget Summary (From this proposal on a separate sheet)

Key Words for USGS/NEHRP Proposals

Key Words are to be entered on the NEHRP Proposal Information Summary (Attachment F)

Choose up to 3 of the most pertinent key words only from this list.

Geology

- Neotectonics
- Regional modeling
- Trench Investigations
- Fault Segmentation
- Quaternary Fault Behavior
- Paleoseismology
 - Recurrence interval
 - Rupture characteristics
 - Tsunami
 - Tectonic Geomorphology
 - Surface Deformation
 - Paleoliquefaction
- Geologic Mapping
 - Surficial Deposits
 - Tectonic Structures
- Age Dating
- Slope Failures (includes landslides)

Geophysics

- Seismology
 - Wave Propagation
 - Strong ground motion
 - Source characteristics
 - Engineering seismology
 - Seismotectonics
 - Reflection Seismology
- Tectonophysics
 - Thermophysical Modeling
 - Fault dynamics
 - Fault stress interactions
 - Laboratory studies
 - Borehole geophysics
- Geodesy
 - GPS-Continuous
 - GPS-Campaign
 - Leveling
 - Strain Measurements
 - Creep Measurements

Hazards and Engineering

- Structural
 - Building response
 - Soil-structure interaction
- Geotechnical
 - Liquefaction
 - Site effects
- Probabilistic Seismic Hazards
- Regional Seismic Hazards
- Strong ground motion
 - Amplification
 - Seismic zonation
- Building Codes

Socio-Economic

- Earthquake effects
- Earthquake forecasting
- Loss estimation
- Earthquake probabilities
- Earthquake scenarios
- Mitigation
- Planning
 - Emergency preparedness
 - Recovery and reconstruction
 - Land use
- Policy

Outreach and Education

- Education-professional
- Education-lay
- Information transfer
- Real-time earthquake information
- Database

APPLICATION CHECKLIST

1. Is one **original single sided** application signed, unbound and binder clipped?
2. Is one **single sided** copy of the application unbound and binder-clipped?
3. Are **10 additional double-sided** stapled copies of this application enclosed? (See paragraph XII.)
4. Is the original copy of the SF 424 signed by an authorized representative of the applicant? (See paragraph XII.A.1.)
5. Is the following information entered properly on form SF 424?
 1. Region ID in the Applicant Identifier box to the left of the dash.
 2. Title in box 11. If this is a collaborative proposal, is it clearly identified as such in the title? The correct format is: *Proposal Title: Collaborative Research (Names of Institutions Involved)*.
6. Are the original copies of the Certifications signed by an authorized representative of the applicant and included with the original application only? (see paragraph XII.B.)
7. Have you limited the length of your application to 25 pages? (See paragraph XII.)
8. Is your application assembled in the proper order? (See paragraph XII.)
9. Is one copy of your organization's indirect cost rate agreement included with the **original** application only? (See paragraph XII.F.10.)
10. Are continuation proposals submitted for renewal identified? (See Attachment F, line 10)
11. Are 7 copies of the NEHRP Proposal Information Summary (Attachment F), with the Abstract, and 1 page Budget Summary (Attachment E) included separately?

Please note additional requirements pertaining to electronic submission via grants.gov.

QUESTIONS?

For Technical issues regarding the proposal:
Call or Email: External Research Program

703-648-6722 or 703-648-6724
FAX: 703-648-6642
mblanpied@usgs.gov

For Administrative issues regarding the proposal:
Call or Email: Brenda Donnelly, Contracting

703-648-7489
FAX: 703-648-7901
bdonnell@usgs.gov

Special Terms and Conditions

1. Method of Payment

The U.S. Geological Survey (USGS) is using the Health and Human Services (HHS) Payment Management System (PMS) to provide electronic invoicing and payment for assistance award recipients. The Recipient has established or will establish an account with PMS. With the award of each grant/cooperative agreement, a sub account will be set up from which the Recipient can draw down funds. The sub account number will be shown in block 4 of the face page of each award or modification.

Payments will be made available through the PMS. The PMS is administered by the Department of Health and Human Services (DHHS), Division of Payment Management of the Financial Management Service, Program Support Center. The DHHS will forward instructions for obtaining payments to the recipients. Inquiries regarding payment should be directed to:

Division of Payment Management
Department of Health and Human Services
P.O. Box 6021
Rockville, MD 20852

The Division of Payment Management web address is www.dpm.psc.gov. Problems or questions with electronic draw down procedures should be directed to Fran Odgers (301) 443-2090.

Payments may be drawn in advance only as needed to meet immediate cash disbursement needs.

2. Definitions

A. Grant Agreement

A grant agreement is the legal instrument reflecting a relationship between the Federal Government and a State or local government or other recipient whenever:

- (1) the principal purpose of the relationship is the transfer of money, property, services, or anything of value to the State or local government or other recipient in order to accomplish a public purpose of support or stimulation authorized by Federal statute, rather than acquisition, by purchase, lease, or barter, of property or services for the direct benefit or use of the Federal Government; and
- (2) no substantial involvement is anticipated between the executive agency, acting for the Federal Government, and the State or local government or other recipient during performance of the contemplated activity.

B. Cooperative Agreement

A cooperative agreement is the legal instrument reflecting a relationship between the Federal Government and a State or local government or other recipient whenever:

- (1) the principal purpose of the relationship is the transfer of money, property, services, or anything of value to the State or local government or other recipient to accomplish a public purpose of support, or stimulation authorized by Federal statute, rather than acquisition, by purchase, lease, or barter, of property or services for the direct benefit or use of the Federal Government; and

- (2) substantial involvement is anticipated between the executive agency, acting for the Federal Government, and State or local government or other recipient during performance of the activity.

C. Grantee / Cooperator

Grantee or cooperator means the nonprofit corporation or other legal entity to which a grant or cooperative agreement is awarded and which is accountable to the Federal Government for the use of the funds provided. The grantee or cooperator is the entire legal entity even if only a particular component of the entity is designated in the award document. For example, a grant or cooperative agreement award document may name as the grantee one school or campus of a university. In this case, the granting agency usually intends, or actually requires, that the named component assume primary or sole responsibility for administering the grant-assisted project or program. Nevertheless, the naming of a component of a legal entity as the grantee or cooperator in a grant or cooperative agreement award document shall not be construed as relieving the whole legal entity from accountability to the Federal Government for the use of the funds provided.

The term “grantee” or “cooperator” does not include secondary recipients such as sub grantees, contractors, etc., who may receive funds from a grantee pursuant to a grant.

D. Recipient

Recipient means grantee or cooperator.

E. Principal Investigator

The Principal Investigator is the individual designated by the Recipient (and approved by the USGS) who is responsible for the technical direction of the research project. The Principal Investigator cannot be changed or become substantially less involved than was indicated in the Recipient's proposal, without the prior written approval of the Administrative Contracting Officer.

F. Grants Program Manager

- (1) The Grants Program Manager will work closely with the Principal Investigator, to ensure that all technical requirements are being met. The Grants Program Manager's responsibilities include, but are not limited to, providing technical advice on the accomplishment of the proposal's objectives; reviewing the technical content of reports and the other information delivered to the USGS; determining the adequacy of technical reports; and conducting site visits, in coordination with the Regional Coordinator and the Contracting Officer, as frequently as practicable.
- (2) The Grants Program Manager is Dr. Mike Blanpied, External Research Grants Manager, US Geological Survey, 905A National Center, 12201 Sunrise Valley Drive, Reston, VA 20192. The Grants Program Manager does not have the authority to issue any technical direction which constitutes an assignment of additional work outside the scope of the award; in any manner causes a change in the total cost or the time required for performance of the award; or change any of the terms, conditions, or general provisions of the award.

G. Regional Coordinator

- (1) Regional Coordinators are in charge of conducting the peer review panels to evaluate both internal USGS and external research proposals in their region or area of expertise. A Regional Coordinator will work closely with the Grants Program Manager and the Principal Investigator to ensure coordination with other appropriate Principal Investigators and appropriate USGS project

scientists working in the same region for overall conformance with USGS program goals and objectives within that region. The Regional Coordinator's responsibilities include, but are not limited to, providing technical advice on the accomplishment of the proposal's objectives; reviewing the technical content of reports and other information delivered to the USGS; determining the adequacy of the technical reports; and conducting site visits, in coordination with the Grants Program Manager and contract personnel, as frequently as practicable.

- (2) The Regional Coordinator does not have the authority to issue any technical direction which constitutes an assignment of additional work outside the scope of the award; in any manner causes a change in the total cost or the time required for performance of the award; or changes any of the terms, conditions, or general provisions of the award.

H. Contracting Officer (CO)

Contracting officers are individuals who have been delegated in writing by the USGS Office of Acquisition and Grants as the sole authority designated to obligate Federal funds and create terms and conditions of awards. They are the only individuals who have authority to negotiate, enter into, and administer awards resulting for this program. Contracting officers have responsibility to ensure the effective use of Federal funds.

Functions of the contracting officer include but are not limited to:

- (1) Issuing the grant program announcement in coordination with the grants program manager.
- (2) Receiving grant proposals and related documents in response to a grant program announcement. The contracting officer as receiving official shall mark all proposals with a control number and the date officially received. He shall notify each applicant of the receipt of its proposal.
- (3) Approving the grant program manager's Technical Evaluation Plan, which describes in detail the evaluation process for a competitive grant/cooperative agreement program. The contracting officer shall ensure the openness and fairness of the evaluation and selection process.
- (4) Serving in an advisory capacity at peer review panel meetings. He shall interpret grant management policies to panel members.
- (5) Notifying grant program applicants whether or not they were selected for funding or of any other disposition of their application.
- (6) Negotiating, as necessary, the final grant/cooperative agreement budget.
- (7) Issuing grant/cooperative agreement awards and revisions to awards.
- (8) Approving invoice payments.
- (9) Receiving all requests for changes to an award. The contracting officer shall serve as the mandatory control point for all official communications with the grantee which may result in changing the amount of the grant/cooperative agreement, the grant/cooperative agreement budget, or any other terms and conditions of the grant.
- (10) Receiving financial reports required by the terms and conditions of the award.

- (11) Closing out grant/cooperative agreement awards when all applicable award requirements have been complied with.

3. Dissemination of Results and Reporting Requirements

The Principal Investigator is strongly encouraged to disseminate research results promptly to the scientific community and appropriate professional organizations; local, state, regional and federal agencies; and the general public. The U. S. Geological Survey (USGS) encourages the Recipient to publish project reports in scientific and technical journals. The Government may publish, reproduce, and use all technical data developed as a result of this award in any manner and for any purpose, without limitation, and may authorize others to do the same.

Data generated as a part of work funded under this program is not subject to proprietary period of exclusive data access. Any data generated must be made available to the USGS as soon as it is available. The USGS reserves a royalty-free, nonexclusive and irrevocable license to reproduce, publish, or otherwise use, and to authorize others to use the data for Government purposes. Any project funded in whole or part with funds obtained under this program shall fall under this clause. The USGS Contracting Officer is the sole person to decide which data falls in this category should any question arise.

A. Required reports/documents. The Principal Investigator or Director, Sponsored Research Office are required to submit the following reports or documents:

Report/ Document	No. of Copies and Method of Transmittal	Submit To◇	When Due
(1) Publication*	3 reprints	Grants Program Manager	Immediately following publication. See Section B(1) below.
(2) Progress Report**	Original +2 copies	Grants Program Manager	Due 60 days before the end of the first project period. Second year funding is contingent on receipt of the report and demonstration of satisfactory progress. See Section B(2) below.
(3) Annual Project Summary	Send HTML or Adobe PDF (preferred) or word processor file as an email attachment or on a diskette, CD-ROM, or ZIP disk	Grants Program Manager	Due each November 1 of the project period. Report covers the period October 1, of prior year to September 30, of current year. See details of contents and formatting in section B(3) below.
(4) Final Technical Report plus Report Abstract	Unbound original and 5 bound copies. Also, send HTML or Adobe PDF (preferred) or word processor file as an email attachment or on a diskette, CD-ROM, or ZIP disk	Grants Program Manager	Within 90 calendar days after the end of each 12-month budget period. See details of formatting in section B(4) below.

(5) SF 272 Federal Cash Transactions Report	Original + 1	Contracting Officer	Required quarterly of each PMS sub-account. Quarterly reports are due 15 working days after the end of each fiscal quarter.
(6) SF 269 Financial Status Report (7) Final SF 269 Financial Status Report	Original + 1 Original + 1	Contracting Officer Contracting Officer	Required annually and is due 30 calendar days after the end of the annual budget period. The recipient will liquidate all obligations incurred under the award and submit a final SF 269 no later than 90 calendar days after the grant agreement completion date. Recipient will promptly return any unused federal case advances or will complete a final draw from PMS to obtain any remaining amounts due.

◇ See definitions in Section 2.

* Publication means any book, report, photograph, map, chart, or recording published or disseminated to the scientific community. Preprints of articles submitted for publications will be accepted as final reports.

** Applies only to multi-year awards. Recipients must submit a Progress Report to receive the second year of year-two funding.

B. **Report preparation instructions.** The Recipient shall prepare the reports/documents in accordance with the following instructions:

Note: Paper copies of all Summaries and Technical Reports should be submitted on paper containing at least 50% recycled waste paper materials.

(1) **Publications.** All publications that contain work performed during the project period shall include the following statements:

“Research supported by the U.S. Geological Survey (USGS), Department of the Interior, under USGS award

number (*Recipient, insert award number*). The views and conclusions contained in this document are those

of the authors and should not be interpreted as necessarily representing the official policies, either expressed

or implied, of the U.S. Government.”

(2) **Progress Report.** Recipients of multi-year awards shall submit a report that summarizes the progress of the project during the first funding period. Work that was proposed for the first year should have been completed in that year. The progress report shall consist of accomplishments, unanticipated problems encountered, plans for solving unanticipated problems, and any other information pertinent to the progress of the project. Funding expended by the Recipient during year one must also be detailed in the progress report.

- (3) **Annual Project Summary.** The Recipient is required to submit an Annual Project Summary each November 1 of the project period along with the Non-technical Project Summary. Report covers the period October 1, of the prior year to September 30, of the current year.

The Annual Project Summary should be between 3 and 8 pages long. For best results prepare your report as either an Adobe PDF¹ file or as an HTML-tagged document along with any illustration files in GIF or JPEG format. Alternatively, prepare the report in Microsoft Word or in WordPerfect with illustrations embedded in the file. Name the file with the grant or cooperative agreement number, e.g., 03HQGR0021.pdf or 03HQAG0401.htm.

Submit either the HTML file and accompanying JPEG or GIF files, or the word processor or Adobe file with embedded graphics in one of two ways:

As an **E-mail attachment** to **gd-erp-coordinator@usgs.gov**. The subject of your email should be "**Annual Project Summary - insert your grant / project number here**".

On Floppy disk, CD-ROM, or ZIP disk: Label the disk with the word processor type, filename, your name, grant/project number and mail to:

External Research -- Annual Summary
U.S. Geological Survey, MS 905A
12201 Sunrise Valley Dr.
Reston VA 20192

Format the Annual Summary as follows:

- Use 8 1/2" x 11" pages for text and figures
- Leave a 1" margin at top, bottom, and sides
- All text single spaced
- Embed figures in the pdf or word processor file or submit as JPEG, or GIF formatted files.
- Figure captions directly under figures
- Do not number pages

At the top of the first page the heading should be centered and include:

- Title of the project, as stated on the original proposal
- External Grant award number (see your award documents)
- Investigator(s) name(s)
- Institution
- Address
- Telephone number, FAX number, E-mail address, and URL

The body of the report should consist of the following:

- Investigations undertaken
- Results
- Non-technical Summary: one paragraph, not more than 100 words, in plain English.
- Reports published
- Include a statement describing the availability of seismic, geodetic, or processed data, along with the name, phone number, and e-mail address of the contact person, and the

format in which the data are available.

¹ URL for Adobe Acrobat: <http://www.adobe.com/prodindex/acrobat/main.html>

(4) Annual and/or Final Technical Report.

Final Technical reports are not the same as the Annual Project Summary. Final Technical Reports shall describe in detail the work performed and results obtained during the grant period and are due at the conclusion of the project period. If a project is funded for a single year only, a Final Technical Report is due 90 days after the conclusion of the project period.

(a) Prepare the Final Technical Report as an Adobe Acrobat PDF, html, or Microsoft Word or in WordPerfect file with all illustrations embedded in the word processor file. Submit the report in both hard copy and as an Adobe Acrobat PDF, or word processor file with all figures photograph and maps. Send all hard copies and electric formatted media to:

External Research-Annual/Final Report

U.S. Geological Survey
905A National Center
12201 Sunrise Valley Drive
Reston, VA 20192.

Send electronic copies as follows:

Email attachments: gd-erp-coordinator@usgs.gov

(b) The original copy of the report shall be unbound or unstapled. Of the remaining five copies, one must be unbound and the remainder may be bound or stapled at the discretion of the Principal Investigator.

(c) Final Technical reports shall consist of the following sections:

(1) Cover page with the following information:

Award Number

TITLE (ALL UPPERCASE) For collaborative projects the title should be in the form "Title: Collaborative Research with First Institution name, and Second Institution name."

Author and Affiliation with Address and ZIP Code

Author's Telephone numbers, fax numbers and E-mail address.

(2) Abstract

Repeat the information on the Cover page

Body of the abstract: The Abstract of the Final Technical Report shall also be submitted as a separate document.

Prepare the Abstract as an HTML-tagged document along with illustration files in GIF or JPEG format. Alternatively, you may prepare your report in WordPerfect or Microsoft Word with any illustrations embedded in the word processor file.

Submit these files either as an email attachment (the preferred method) or on a floppy

disk, CD-ROM, or ZIP disk. Please provide the complete grant or cooperative agreement award number, *e.g.*, **03HQGR0001**. Email the file(s) as attachment(s) to **gd-erp-coordinator@usgs.gov**. The subject of your email should be “**Abstract - your grant number**”. For more information about formatting and sending see the External Research Program WWW page at (<http://erp-web.er.usgs.gov>).

- (3) **Main body of the report.** The main body of the report shall be single-spaced on 8 2- by 11-inch paper. The main body of the report shall be printed double-sided, including figures and bibliography (see 2.B.(5)(d) below). Oversized (>8 2-inch by 11-inch) pages shall be placed in a pocket at the end of the report; not collated or bound with the report. Oversized pages should be used only if they are critical to convey data or conclusions. Electronic versions of oversized illustrations are also required to be sent with the electronic version of reports.
- (4) **Bibliography** of all publications resulting from the work performed during each 12-month period and at the conclusion of the project. Copies of publications are required if the Recipient has not previously submitted them to the Project Officer.
- (5) **SF 272, Federal Cost Transactions Report** is required quarterly for each PMS sub-account. Quarterly reports are due 15 working days after the end of each fiscal quarter and will be submitted to the contracting officer, unless otherwise instructed.

SF 269, Financial Status Report. The standard form 269 is required annually and is due 30 calendar days after the end of the annual budget period. Instructions are on the back of the SF 269.

- (6) **Final SF 269, Financial Status Report.** The recipient will liquidate all obligations incurred under the award and submit a final SF 269 Financial Status Report no later than 90 calendar days after the grant completion date. Recipient will promptly return any unused federal cash advances or will complete a final draw from PMS to obtain any remaining amounts due. This report is subject to audit.

C. Adherence to reporting requirements. **A Recipient's failure to submit the required reports/documents, in a timely manner, may result in the withholding of payment, in termination of the award, or in delay or non-issuance of a new award.**

4. Continuation Proposal

Required Continuation proposal documents. The Recipient, approved for multi-year funding, shall submit the following documents for continued funding in year 2 and beyond:

Document	No. of Copies	Submit To	Due Date
----------	---------------	-----------	----------

Progress Report	Original + 2	Grants Program Manager	At least 60 calendar days prior to the end of the budget period.
Revised SF 424	Original + 1	Contracting Officer	At least 60 calendar days prior to the end of the budget period.
Proposed Budget	Original + 1	Contracting Officer	Submit with the SF 424.
Negotiated Indirect Cost Rate Agreement (send only if new rate is negotiated)	1	Contracting Officer	Submit with the SF 424.
Changes, if any, in Proposed Technical Program	Original + 1	Contracting Officer	Submit with the SF 424.

5. Adherence to Original Research Objective and Budget Estimate

A. Any commitments or expenditures incurred by the Recipient in excess of the funds provided by this award shall be the responsibility of the Recipient. Expenditures incurred prior to the effective date of this award cannot be charged against award funds unless provided for in this award.

B. **The following requests for change require advance written approval by the Contracting Officer shown on your award. Your request must be submitted directly to the Contracting Officer at least 30 calendar days prior to the requested effective date of the change:**

- (1) Changes in the scope, objective, or key personnel referenced in the Recipient's proposal.
- (2) Request for supplemental funds.
- (3) Transfer of funds between direct cost categories when the cumulative amount of transfers during the project period exceeds 10 percent of the total award.
- (4) Foreign travel not approved at time of award.
- (5) Acquisition of nonexpendable personal property (equipment) not approved at time of award.
- (6) No-cost Extensions to the Project Period. **No cost extensions are discouraged.** The Earthquake Hazards Program (EHP) awards grants and cooperative agreements for research that extends or supplements ongoing research within the Geological Survey. The timely conduct of funded projects is of great importance to the achievement of EHP goals. Applicants should consider their time commitments at the time of application for a grant. Requests for no cost extensions will be considered on a case-by-case basis. The USGS reserves the right to limit the length of time and number of no-cost extensions. Applicants must supply documentation supporting their request for an extension. The Recipient shall include in the request the cause of the needed extension, a description of the remaining work to be completed, the proposed date of completion, the amount of funds remaining, and a revised budget for the remaining funds. If all funds have been disbursed to the Recipient, this must be indicated in the request. A request for an extension that is received by the Administrative Contracting Officer after the expiration date shall not be honored.
- (7) Creation of any direct cost line item not approved at time of award.

(8) Any other significant change to the award.

C. The Contracting Officer will notify the Recipient in writing within 30 calendar days after receipt of the request for revision or adjustment whether the request has been approved.

6. Nonexpendable Personal Property

Title to nonexpendable personal property acquired wholly or in part with Federal funds shall be vested in the Recipient unless otherwise specified in the award document. The Recipient shall retain control and maintain a property inventory of such property as long as there is a need for such property to accomplish the purpose of the project, whether or not the project continues to be supported by Federal funds. When there is no longer a need for such property to accomplish the purpose of the project, the Recipient shall use the property in connection with other Federal awards the Recipient has received. Under no circumstances shall title to such property be vested in a sub-tier recipient. Disposal of nonexpendable personal property shall be in accordance with the applicable OMB circular.

7. Record Retention Period

Unless a longer period is requested by the award, a Recipient shall retain all records for 3 years after the end of the project period for which it uses USGS award funds.

8. Pre-agreement Costs

Pre-agreement costs are not authorized under this program. Costs must be obligated during the project period.

9. Site Visits

Site visits may be made by U.S. Geological Survey representatives to review program accomplishments and management control systems and to provide technical assistance, as required.

10. Metric Conversion Requirements

All progress and final reports, other reports, or publications produced under this award shall employ the metric system of measurements to the maximum extent practicable. Both metric and inch-pound units dual units may be used if necessary during any transition period(s). However, the recipient may use non-metric measurements to the extent the recipient has supporting documentation that the use of metric measurements is impracticable or is likely to cause significant inefficiencies or loss of markets to the recipient, such as when foreign competitors are producing competing products in non-metric units.

11. Violation of Award Terms

If a Recipient materially fails to comply with the terms of the award, the Contracting Officer may suspend, terminate, or take such other remedies as may be legally available and appropriate in the circumstances.

12. Award Closeout

Awards will be closed out once all requirements have been met. Technical and financial reports must be submitted on time as specified in Item 2 of these Special Terms and Conditions. Failure to adhere to the reporting requirements may result in the non-payment of your final award invoice or in other adverse action.

13. Partnership with Grantees/Cooperators

The U.S. Geological Survey, through its federal grant/cooperative agreement awards, will collaborate with universities, federal state, local and tribal governments, and private organizations and businesses to provide relevant, timely, objective knowledge and information on natural resources, hazards and the environment.

14. Buy American Act Requirements

Notice: Pursuant to Section 307(b) of the Department of the Interior (DOI) and Related Agencies Appropriations Act, FY 2000, Public Law 106-113, please be advised on the following:

In the case of any equipment or product that may be authorized to be purchased with financial assistance provided using funds made available in FY 2000 and thereafter, it is the sense of the Congress that entities receiving the assistance should, in expending the assistance, purchase only American-made equipment and products.

15. Anti-Lobbying Requirements

Recipient shall not use any part of the Department of the Interior funds provided hereunder for any activity or the publication or distribution of literature that in any way tends to promote public support or opposition to any legislative proposal on which Congressional action is not complete.

16. Seat Belt Provision

Recipient of grants/cooperative agreements and/or sub-awards are encouraged to adopt and enforce on-the-job seat belt use policies and programs for their employees when operating company-owned, rented, or personally owned vehicles. These measures include, but are not limited to, conducting education, awareness, and other appropriated programs for their employees about the importance of wearing seat belts and the consequences of not wearing them.

17. Endorsement Provision

Recipient shall not publicize or otherwise circulate, promotional material (such as advertisements, sales brochures, press releases, speeches, still and motion pictures, articles, manuscripts or other publications) which states or implies governmental, Departmental, bureau, or government employee endorsement of product, services, or position which the recipient represents. No release of information relating to this award may state or imply that the Government approves of the recipient's work products, or considers the recipient's work product to be superior to other products or services.

End of Special Terms and Conditions

GENERAL PROVISIONS

The Recipient shall be subject to the following OMB circulars/regulations, as amended, which are incorporated herein by reference:

1. Educational Institutions

- A. OMB Circular A-21, Cost Principles for Educational Institutions.
- B. OMB Circular A-110, Uniform Administrative Requirements for Grants and other Agreements with Institutions of Higher Education, Hospitals and Other Non-Profit Organizations. (See also new location in 2 CFR Part 215)
- C. OMB Circular A-133, Audits of States, Local Governments, and Non-Profit Organizations.

2. State and Local Governments

- A. OMB Circular A-87, Cost Principles for State, Local and Indian Tribal Governments.
- B. OMB Circular A-102, Grants and Cooperative Agreements With State and Local Governments.
- C. OMB Circular A-133, Audits of States, Local Governments, and Non-Profit Organizations.

3. Nonprofit Organizations

- A. OMB Circular A-110, Uniform Administrative Requirements for Grants and other Agreements with Institutions of Higher Education, Hospitals and Other Non-Profit Organizations. (See also new location in 2 CFR Part 215)
- B. OMB Circular A-122, Cost Principles for Nonprofit Organizations.
- C. OMB Circular A-133, Audits of States, Local Governments, and Non-Profit Organizations.

4. A. Profit-Making Organizations

- A. General administrative requirements will be in accordance with the Federal Acquisition Regulations (FAR), subchapter E, parts 28, 29, and 30.
- B. Principles for determining the allowability of cost will be in accordance with the FAR, subchapter E, part 31.2.

5. Patents--Small Businesses and Nonprofit Organizations

Subject to the provisions set forth in 37 CFR 401 and 35 U.S.C. 203, a Recipient may retain the entire right, title, and interest throughout the world to each subject invention. With respect to any subject invention in which the Recipient retains title, the Federal Government will have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.

6. Code of Federal Regulations (CFR)

- A. 2 CFR Part 215 (new location for OMB A-110 Uniform Administrative Requirements for Grants and other Agreements with Institutions of Higher Education, Hospitals and Other Non-Profit Organizations.
- B. 43 CFR Part 12, Subpart A: Admin, Audit and Cost Principles
- C. 43 CFR Part 12, Subpart D: Government Debarment and Suspension (Nonprocurement) and Government wide Requirements for Drug Free Workplace.
- D. 43 CFR Part 12, Subpart E: Buy American Requirements for Assistance Programs
- E. 43 CFR Part 12, Subpart F: Admin – Higher Education Hospitals, and Other Non-Profit Organizations
- F. 43 CFR Part 17, Subpart A: Nondiscrimination of the Basis of Race, Color, or National Origin.
- G. 43 CFR Part 17, Subpart B: Nondiscrimination of the Basis of Handicap.
- H. 43 CFR Part 17, Subpart C: Nondiscrimination of the Basis of Age.
- I. 43 CFR Part 18, Lobbying