

**Committee of Visitors (COV) Report for the National Science Foundation (NSF)
Graduate Research Fellowship Program (GRFP)**

August 28-29, 2006

Introduction

The Graduate Research Fellowship Program (GRFP) is a hallmark program of the National Science Foundation, and it is critical to the mission of NSF. It has a significant and direct impact on both the quality of the scientific and technological research base of the United States, as well as on the science and engineering workforce. The Committee of Visitors (COV) identified three areas that require immediate attention in order to maintain the prestige and quality of the GRFP—**financial resources, staffing and broader participation**. Please refer to the body of our report in the template and to the last section, Summary and Recommendations, for a detailed account of our recommendations in these three areas.

The COV recognizes the outstanding accomplishments of the GRFP and the diligence of its staff. This report covers a three-year period (2004-2006). During that time, GRFP staff processed 26,234 applications; 1,579 panelists participated in the evaluation of the applicants; 2,953 (11.2%) applicants earned fellowships; and 3,500 active fellows submitted student activities reports. One NSF program director and two program assistants administered this enormous and complex program, while managing two sub-contractors.

The Committee of Visitors for the GREP met on August 28 and 29, 2006. Committee members were Dr. Jane Z. Daniels of The Henry Luce Foundation (chairwoman), Dr. Isaac “Ike” Colbert of Massachusetts Institute of Technology, Dr. Catharina “Tineke” J. Cunning of The Pennsylvania State University, Dr. Antonio Garcia of Arizona State University, Dr. Joan Lorden of University of North Carolina at Charlotte, and Dr. Margaret Petrochenkov of the National Research Council. Two of the six panel members had served on previous COV panels. None of the panel members had chaired a COV. The panel completed orientation via a two-hour webcast on August 14.

There are two unique characteristics of the GRFP that are pertinent to the understanding of this report. The COV template refers to “principal investigators” and “projects”. The GRFP has neither of these. The COV considered all references to “principle investigator” in the COV report template to refer to GRFP applicants or recipients as appropriate. Sections referring to “projects” were either marked Not Applicable or our interpretation of the questions was noted.

We wish to express our sincere appreciation to Dr. Earnestine Psalmonds, GRFP program director, who was extremely helpful and responsive to the COV throughout our work. We also wish to thank Esmeralda Barnes, technical writer, for her willingness and ability to make sense of the endless revisions we asked her to incorporate into the final document; Dr. Bernice Anderson, Senior Evaluation Advisor, EHR, for her role in conducting the first webcast COV orientation; Dr. Rosemary Hagggett, Acting Deputy Assistant Director, EHR for participating in our final feedback session; Mimi McClure and Yvette Jackson for providing technical support for the orientation and COV logistics; other DGE staff for their support; and the management consulting firm, Guardians of Honor.

**FY 2006 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

Date of COV: August 28-29, 2006			
Program/Cluster/Section: Graduate Research Fellowship Program			
Division: Division of Graduate Education			
Directorate: Directorate of Education and Human Resources			
Number of actions reviewed: Awards: 36		Declinations: 33	
Other (Honorable Mentions): 36			
Total number of actions within Program/Cluster/Division during period under review:			
	Awards:	Declinations:	Other:
2004	1020	5,855	2064
2005	1024	6,115	1994
2006	909	5,387	1,866
Manner in which reviewed actions were selected: Random sample by attributes of total application population—discipline, gender ethnicity, geography—to the extent possible.			

PART A. INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

A.1 Questions about the quality and effectiveness of the program's use of merit review procedures. Provide comments in the space below the question. Discuss areas of concern in the space provided.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCEDURES	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE¹
<p>1. Is the review mechanism appropriate? (panels, ad hoc reviews, site visits)</p> <p>Comments: The elements of the review are appropriate, professionally administered, and consistent over time, given the highly complex review</p>	Yes

¹ If "Not Applicable" please explain why in the "Comments" section.

<p>process. Considerable effort is devoted to advance preparation of each element of the process, to capturing and presenting relevant data to inform review participants, and to effecting modifications that will further improve the effectiveness of procedures. The COV is impressed with the extent and quality of the work in this area.</p> <p>RECOMMENDATION: The program should select a small number of participating institutions for site visits. These should be universities/colleges that do not have the bulk of awardees. A possible outcome would be increased visibility of the GRFP on those campuses as well as additional applicants.</p>	
<p>2. Is the review process efficient and effective?</p> <p>Comments: While the evaluation was completed within the time available, some reviewers indicated that they felt rushed. Calibration files are presently made available to panelists online, the practice exercise completed in advance, and panelists arrive at the meeting with their scores in hand. Efficiency is high, but additional use of web-based capabilities might reduce the number of on-site days at NSF that are required to review applications.</p> <p>RECOMMENDATION: The GRFP should develop a web-based orientation process for panelists, ideally scheduled for one-week prior to the on-site application review.</p> <p>The review is a complex and intense process that unfolds on a tight schedule, with numerous panels working in parallel; nevertheless, the COV believes that reviews are all completed in a timely and thorough manner without bias. Since COV members have not necessarily participated as panelists they are challenged to offer recommendations and observations without clearly understanding the actual experiences of those who serve.</p> <p>RECOMMENDATION: Future COVs should receive a summary of feedback from panels regarding the review process. (We note that feedback is solicited via a form included in the Panelist Information Folder.)</p>	Yes
<p>3. Do the individual reviews (either mail or panel) provide sufficient information for the principal investigator(s) to understand the basis for the reviewer's recommendation?</p> <p>Comments: Applicant-rating sheets appear to be sufficiently detailed and comprehensive. Together with other materials in applicant jackets, there is ample information to understand reviewer recommendations. Requiring detailed comments that further clarify applicant assessment is a welcome change from the past reliance on check-boxes; however, reviewer handwriting is not always legible, thereby diluting the effectiveness of feedback to the applicant.</p> <p>RECOMMENDATION: As NSF continues to expand electronic processing of applications, the program should develop electronic means to capture reviewers' comments.</p>	Yes

<p>4. Do the panel summaries provide sufficient information for the principal investigator(s) to understand the basis for the panel recommendation?</p> <p>Comments: Panel summaries are not applicable to the GRFP review process.</p>	<p>NA</p>
<p>5. Is the documentation for recommendations complete, and does the program officer provide sufficient information and justification for her/his recommendation?</p> <p>Comments: Documentation is thorough and sufficiently detailed to support the program officer's recommendation. This documentation includes meeting agendas, lists of panelists and their distribution by state, specific guidelines for panelist operations and processes, analyses to review panelist diversity, and more. The review process can be easily tracked from start to finish.</p>	<p>Yes</p>
<p>6. Is the time to decision appropriate?</p> <p>Comments: The COV sees no advantage in changing solicitation or notification timelines. The graduate community has adapted well to these schedules, and the FastLane application process appropriately enforces deadline dates. The award notification schedule has been in place for many years, remains timely and consistent with graduate admission processes at many institutions, and now culminates with electronic posting on FastLane. This is efficient and effective.</p>	<p>Yes</p>
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review procedures:</p> <p>Comments: More than 500 reviewers participate in the evaluation of GRFP applications each year, demonstrating wide participation by the academic community. Due to the required three day commitment for the review process, there is a challenge to increase the efficiency of the review process so that more faculty members would participate in it.</p> <p>RECOMMENDATION: An alternate review process should be considered for applications identified as "interdisciplinary." The current adaptation for interdisciplinary proposals seems to be an appropriate process to formalize as additional interdisciplinary applications are encouraged (see Section A.5.2 recommendation).</p> <p>RECOMMENDATION: When orienting panels, include some information about research on letters of recommendation, which might provide a useful framework for evaluating applications from men and women. Recent work by Virginia Valian emphasizes some specific ways in which the accomplishments and promise of equally excellent females and males are often presented and interpreted differently (e.g. Trix, F., & Psenka, C. [2003]. Exploring the color of glass: Letters of recommendation for female and male medical faculty. <i>Discourse and Society</i>, 14, 191 – 220).</p>	

A.2 Questions concerning the implementation of the NSF Merit Review Criteria (intellectual merit and broader impacts) by reviewers and program officers. Provide comments in the space below the question. Discuss issues or concerns in the space provided.

IMPLEMENTATION OF NSF MERIT REVIEW CRITERIA	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE ²
<p>1. Have the individual reviews (either mail or panel) addressed both merit review criteria?</p> <p>Comments: The new rating sheet focuses on both merit-review criteria.</p>	Yes
<p>2. Have the panel summaries addressed both merit review criteria?</p> <p>Comments: A panel summary is done for the entire session in the GRFP.</p>	Not Applicable
<p>3. Have the <i>review analyses</i> (Form 7s) addressed both merit review criteria?</p> <p>Comments: The GRF program officer does not submit a form 7; instead, a recommendation memorandum is generated.</p>	Not Applicable
<p>4. Additional comments with respect to implementation of NSF’s merit review criteria:</p> <p>Comment: GRF applications are reviewed holistically and NSF’s review criteria have been adapted effectively for this fellowship competition and this program focused on workforce development.</p>	

A.3 Questions concerning the selection of reviewers. Provide comments in the space below the question. Discuss areas of concern in the space provided.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE ³

² In “Not Applicable” please explain why in the “Comments” section.

³ If “Not Applicable” please explain why in the “Comments” section.

<p>1. Did the program make use of an adequate number of reviewers?</p> <p>Comments: There is a reasonable proportion of the number of reviewers to the number of applications.</p>	<p>Yes</p>
<p>2. Did the program make use of reviewers having appropriate expertise and/or qualifications?</p> <p>Comments:</p>	<p>Yes</p>
<p>3. Did the program make appropriate use of reviewers to reflect balance among characteristics such as geography, type of institution, and underrepresented groups?⁴</p> <p>Comments: The increase in representation of African-American panelists is good. If the percentage of Hispanic reviewers has decreased, that would clearly be a concern. This perceived decrease may be rooted in the way demographic data now are now collected.</p> <p>There seems to be a major imbalance in race and gender on a few evaluation panels. For example, 52 percent of the 2006 Bioengineering panel was comprised of Asian panelists, as was 77 percent of the Computer Science panel. Women made up only 17 percent of the Aerospace Engineering panel, but 92 percent of the Plant and Animal Science panels. So, although the overall statistics for participation of female reviewers was slightly under 50 percent, the balance within the panels was often quite skewed in one direction or the other.</p> <p>RECOMMENDATION: Although the overall pool of panelists may be balanced, more care should be taken to ensure that individual panels have better racial, ethnic and gender balance.</p>	<p>Yes</p>
<p>4. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments: The program recognized and resolved all conflicts of interest according to standard NSF business practices.</p>	<p>Yes</p>
<p>5. Additional comments on reviewer selection: none</p>	

⁴ Please note that less than 35 percent of reviewers report their demographics last fiscal year, so the data may be limited.

A.4 Questions concerning the resulting portfolio of awards under review. Provide comments in the space below the question. Discuss areas of concern in the space provided.

<p style="text-align: center;">RESULTING PORTFOLIO OF AWARDS</p>	<p style="text-align: center;">APPROPRIATE, NOT APPROPRIATE⁵, OR DATA NOT AVAILABLE</p>
<p>1. Overall quality of the research and/or education projects supported by the program.</p> <p>Comments: Jackets indicate very able students have been selected for awards. The large number of “honorable mentions” speaks to the quality of the overall pool of applicants as well. From the examples provided in the nuggets, it is evident that the GRFP continues to attract creative, technically well-trained, and highly motivated applicants.</p> <p>The GRFP does not fund projects, only fellowships for students to complete a research-based degree.</p>	<p style="text-align: center;">Appropriate</p>
<p>2. Are awards appropriate in size and duration for the scope of the projects?</p> <p>Comments: The GRFP is one of the oldest and most prestigious fellowship programs in existence. The NSF is recognized throughout the world because of this program’s rich legacy. The GRFP increased its stipend to the current level of \$30,000 in 2004, but the cost-of-education allowance has remained the same since 1998. No special allowance is made for students who use their stipend at institutions with very high tuition, located in areas with an unusually high cost of living. Other federal agencies (e.g. Department of Defense and Department of Energy) have increased their stipend amounts and other allowances.</p> <p>RECOMMENDATION: The NSF needs to begin an immediate and detailed review the current funding model and implement changes to ensure the NSF Graduate Research Fellowships support research and education among more of the most capable science and engineering graduate students in the United States.</p>	<p style="text-align: center;">Appropriate</p>
<p>3. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Innovative/high-risk projects?⁶ 	<p style="text-align: center;">Appropriate</p>

⁵ If “Not Appropriate” please explain why in the “Comments” section.

⁶ For examples and concepts of high risk and innovation, please see Appendix III, p. 66 of the Report of the Advisory Committee for GPRA Performance Assessment, available at <www.nsf.gov/about/performance/acgpa/reports.jsp>.

<p>Comments: Since the GRFP does not fund projects, we are responding to this question as though it refers to the appropriate balance of applicant institutions, applicants and recipients, and panelists from non-traditional Science, Technology, Engineering and Mathematics (STEM) populations. The balance of under-represented groups and females are consistent with GRFP goals. ASEE was charged with implementing efforts to increase the proportion of under-represented populations among the applicants, but there was no significant increase (11.09 percent to 11.38 percent) between the 2005 and 2006 applicants.</p> <p>It is encouraging to note that, over the past three years, the number of awards going to students with disabilities, while still small, has doubled.</p> <p>RECOMMENDATION: Utilize a wider range of strategies to attract applications from non-traditional STEM populations.</p>	
<p>4. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Multidisciplinary projects? <p>Comments: The GRFP does not fund projects. Awards are made to graduate students who propose to enroll in disciplinary programs. The awards are therefore reported by broad field of study.</p> <p>RECOMMENDATION: As STEM fields become increasingly interdisciplinary, the program may want to encourage, specifically identify and track those applications that are truly interdisciplinary in nature.</p>	Not Applicable
<p>5. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Funding for centers, groups and awards to individuals? <p>Comments:</p>	Not Applicable
<p>6. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Awards to new investigators? <p>Comments: We have interpreted this question to address the balance of applicants and recipients from the four levels (in brief): 1) students who have not begun graduate study; 2) graduate students in the beginning of their first year; 3) graduate students with no more than 12 months of full-time study; and 4) applicants with more than 12 months of full-time graduate study.</p>	Appropriate
<p>7. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Geographical distribution of Principal Investigators? <p>Comments: The program uses an algorithm that forces geographic distribution of awards among qualified recipients.</p>	Appropriate

<p>8. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> Institutional types? <p>Comments: Applicants come from a wide range of institutions, although awardees are more concentrated in a limited number of institutions. Non-traditional students and underrepresented students from non-research institutions may need additional support to be successful applicants.</p> <p>RECOMMENDATION: Regional and/or web-based workshops should be offered to result in more successful applications from students at non-research institutions.</p>	Appropriate
<p>9. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> Projects that integrate research and education? <p>Comments: Less than 10 percent of the recipients in each cohort indicated an integration of research and education. The committee is uncertain whether they understand what is being asked. Recipients are dependent upon the integration of research and education done in their institutional setting.</p> <p>RECOMMENDATION: Recipients' annual activity reports should include a clarification of this terminology to ensure that it is accurately reported.</p>	Data Unavailable
<p>10. Does the program portfolio have an appropriate balance:</p> <ul style="list-style-type: none"> Across disciplines and sub-disciplines of the activity and of emerging opportunities? <p>Comments: Some new and emerging disciplines, e.g. bio-infomatics, are not included in the current taxonomy.</p> <p>RECOMMENDATION: The taxonomy of disciplines and sub-disciplines should be updated.</p>	Yes
<p>11. Does the program portfolio have appropriate participation of underrepresented groups?</p> <p>Comments: The award-rate percentage is higher for underrepresented minorities than their percentage of participation in the program. However, the actual number and percentage of applications received from minority students does not reflect their representation among college-aged students. Numbers remain small, and growth limited, despite NSF and ASEE outreach efforts. The number of female applicants and recipients is appropriate; however, these numbers are skewed by the additional funding provided by the ENGR and CISE directorates.</p> <p>RECOMMENDATION: Additional strategies should be developed to increase the number of applications submitted by underrepresented students.</p>	Yes

<p>Nothing can be more important than training the next generation of leaders and scientists. Since large numbers of the PhDs produced in this country are from abroad, it behooves the country to encourage as many able young scientists in this country as possible.</p>	
<p>12. Is the program relevant to national priorities, agency mission, relevant fields and other customer needs? Include citations of relevant external reports.</p> <p>Comments: The GRFP is directly responsive to the clarion call from recent reports on global competitiveness and the nation's technical preeminence going forward as outlined in "American Competitiveness Initiative", Domestic Policy Council, Office of Science and Technology Policy and "Rising Above the Gathering Storm", National Academies Committee on Prospering in the Global Economy of the 21st Century)</p>	<p>Yes</p>
<p>13. Additional comments on the quality of the projects or the balance of the portfolio:</p> <p>RECOMMENDATION: The COV wishes to emphasize through repetition the critical need for increased funding and staffing required to secure the quality and balance of applicants and awards to the GRFP.</p>	

A.5 Management of the program under review. Please comment on:

<p>1. Management of the program.</p> <p>Comments: The COV believes that the GRFP is extremely well managed, particularly in light of the complexity of the program and volume of data.</p> <p>RECOMMENDATIONS:</p> <ul style="list-style-type: none"> • Give greater recognition and acknowledgement to the NSF GRF honorable mention (HM) recipients. Notify the graduate school at which the HM is enrolled. The HM's graduate school of enrollment is then more aware of and can encourage and support the HM (if they are eligible) to apply to the GRFP the following year. • Identify the GRFP applicants by level (i.e. graduating senior, first year graduate student, etc.) and notify their respective institutions. Presently, universities are not aware of applicants until awards are made; and, even then, universities are not aware of the entire pool of internal applicants. The action of identifying and notifying NSF applicants informs and allows the student recipient's current institution of enrollment to support student applicants in their quest to succeed. • Notify the institution's NSF coordinator or NSF university representative about the status of his/her institution's applicants (similar to U.S. Dept. of State's management of Fulbright applicants) and provide a list of NSF awardees – not only those currently attending the particular institution but also those who will be attending as incoming graduate students. Institutions are not notified about which students from their institution are finalists. Institutions
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are only able to access the list of finalists after announcements are made regarding awardees and honorable mentions.

- Provide each institution's NSF coordinator or NSF university representative access to their institution's NSF fellows' activity reports (that are required to be completed several times during the academic year). By doing so, reports can be shared with university community members and others in support of the NSF fellow.
- It is important to more directly inform our nation's legislators about the achievements of GRFP recipients. An added benefit from this approach is that this would also promote the program and attract highly talented students to apply. The COV recommends that senators be informed on an annual basis by identifying the newly selected GRFP recipients who graduated from their respective state's high schools. For example, last year the GRFP awarded 50 fellowships to GRF recipients who graduated from high schools in Massachusetts and 103 awards went to students who graduated from California high schools. Given the large investment of capital and support provided by the U.S. Congress, it is imperative senators gain a greater understanding of, and appreciation for, the impact that the GRFP has on their respective state's constituents.

2. Responsiveness of the program to emerging research and education opportunities.

Comments: The GRFP is a vitally important entity in NSF's efforts to aggressively respond to emerging research and education opportunities. Thus, it is of critical importance that the GRFP continue to receive increasing support from the NSF and all of its directorates. The evidence of GRFP's excellence lies in its more than 520 panel reviewers (who are leading scientists, engineers and mathematicians) who make the final selection of awardees and honorable mentions, as well as the multitude of extraordinary research projects (submitted by the over 9,000 applicants annually) that cover critically important research topics. The disciplines range from improving K-12 students' skills and comprehension of mathematics, science and technology to nanotechnology and national defense security.

RECOMMENDATION: The COV is aware of the challenge of responding appropriately to the applicants' interdisciplinary fields of research and suggests a greater support and recognition of research pursuits in those fields. Some students appear to be integrating research and educational experiences through outreach to K-12 and through the use of international supplements to enhance their programs of study. Greater sharing of these initiatives may encourage a broader group of recipients to take advantage of the opportunities inherent in these portable fellowships.

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.

Comments: The portfolio of awards is guided by distribution to NSF supported disciplines in proportion to application numbers in those fields. Special programs have been used to increase the participation of women in disciplines where their numbers are small or declining, e.g., computer science and engineering.

4. Additional comments on program management:

It is vital to engage potential NSF fellows earlier in their post-secondary academic careers. For

example, the undergraduate REU programs (and its participating students) can be more directly aligned to and become more familiar with the GRFP via promotion, institutional involvement and interaction among the REU, various other research opportunity programs and NSF fellows. Given the ever increasing need to more successfully encourage and engage America's future potential scientists, mathematicians and engineers, linkages between programs and more active interactions among the various participants (students, faculty, administrators, etc.) will be invaluable to promoting NSF (including the GRFP) and meeting the goals set forth by the U.S. Congress.

PART B. RESULTS OF NSF INVESTMENTS

NSF investments produce results that appear over time. The answers to the first three (People, Ideas and Tools) questions in this section are to be based on the COV's study of award results, which are direct and indirect accomplishments of projects supported by the program. These projects may be currently active or closed out during the previous three fiscal years. The COV review may also include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made. Incremental progress made on results reported in prior fiscal years may also be considered.

The following questions are developed using the NSF outcome goals in the NSF Strategic Plan. The COV should look carefully at and comment on (1) noteworthy achievements of the year based on NSF awards; (2) the ways in which funded projects have collectively affected progress toward NSF's mission and strategic outcomes; and (3) expectations for future performance based on the current set of awards. NSF asks the COV to provide comments on the degree to which past investments in research and education have contributed to NSF's progress towards its annual strategic outcome goals and to its mission:

- To promote the progress of science.
- To advance national health, prosperity, and welfare.
- To secure the national defense.
- And for other purposes.

Excellence in managing NSF underpins all of the agency's activities. For the response to the Outcome Goal for Organizational Excellence, the COV should comment, where appropriate, on NSF providing an agile, innovative organization. Critical indicators in this area include (1) operation of a credible, efficient merit review system; (2) utilizing and sustaining broad access to new and emerging technologies for business application; (3) developing a diverse, capable, motivated staff that operates with efficiency and integrity; and (4) developing and using performance assessment tools and measures to provide an environment of continuous improvement in NSF's intellectual investments as well as its management effectiveness.

B. Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals. Provide examples of outcomes (nuggets) as appropriate. Examples should reference the NSF award number, the Principal Investigator(s) names, and their institutions.

B.1 OUTCOME GOAL for PEOPLE: Developing "a diverse, competitive and globally engaged workforce of scientists, engineers, technologists and well-prepared citizens."

In responding to this section, the COV felt it important to review the national statistics so that the impact of the GRFP could be properly contextualized.

Graduate science and engineering enrollment in the U.S. is approaching half a million students. Of this population, a little more than 300,000 are U.S. citizens or permanent residents. Over the past 5 years, NSF has awarded approximately 5,000 GRFP fellowships. Based on these statistics and estimations, the percentage of graduate students in the U.S. who are GRFP fellows is about 1-2 percent.

RECOMMENDATION: The GRFP should be focused on developing diverse, competitive and globally engaged future leaders since these fellows, as a group, constitute an elite group of graduate students.

From the 2006 data GRFP, we conclude that all fields represented within NSF have GRFP recipients. It is also notable that more awards are given to engineering than any other gross field, followed closely by the life sciences. Given the number of applications in these areas and the percentage of U.S. citizens and permanent residents in graduate programs, this distribution is expected. Understandably, engineering receives proportionately more fellows than the overall pool of citizens and permanent residents in these graduate programs due to the positive impact of WIC and WENG.

The 2006 GRFP data also shows that women are receiving more awards than men in life sciences, chemistry, psychology, social sciences, and engineering, resulting in an overall gender split of about 56 percent women and 44 percent men in GRFP awards for the last competition. This statistic shows that gender diversity in the GRFP mirrors the increase in percentage of women enrolling in universities. While the numbers of underrepresented minority fellows has increased from 5 years ago, for the past two years, it has remained relatively constant. The number of African American citizen and permanent resident graduate students in science and engineering in the US is about 24,000, while the number of GRFP awardees in 2006 is 47. For Hispanics, these statistics are about 21,000 and 64 awardees respectively. Five awardees are Native Americans, while about 1,900 of them are enrolled in STEM graduate programs. When compared with statistics for majority students, these underrepresented groups are currently not being reflected in proportion to their graduate enrollment. Roughly a doubling of the number of awards to these groups would bring their share of GRFP awards more in line with the percentage awarded to the overall population.

RECOMMENDATIONS:

- In order to approach parity, the COV recommends that the NSF should set a goal of increasing the number of applications from underrepresented minorities to at least twice the current number.
- ASEE has used a combination of advertisements and regional visits to stimulate interest in the GRFP. They have done a good job of targeting those regions of the country with large numbers of underrepresented minorities and have partnered with LSAMP programs and some REU sites in several states. Judging from the agendas provided for those meetings, it appears that the outreach efforts are little more than information sessions. While these sessions may provide encouragement, students may need more detailed workshops to be successful applicants. The COV recommends that the ASEE be directed to use other tools such as web-based seminars and mentoring to provide support for students and faculty, particularly at institutions that have less experience with successful applications.

It is clear that the GRFP selection process is rigorous and highly competitive. Fellows have been reporting nearly one publication per fellow over the past 3 years. The number of patents has been increasing as well. However, according to the WestEd report, the disciplinary productivity is not significantly different from their peer groups, except for presentations at professional conferences, which are higher for GRF recipients. It would be valuable to conduct another study in 2007 to compare these productivity statistics for the preceding 5 years.

A concern in higher education is the increase in time to degree for doctoral studies. GRFP recipients have also seen a decrease in PhD 6-year completion rates, reaching 41 percent in the 1989-1993 cohort. While this is higher than their disciplinary peers, it is still problematic given the

national need to ensure the security and competitiveness of our nation. The WestEd report cited 11-year doctoral completion rates of 74 percent for GRFP recipients. Other studies and anecdotal evidence list many potential factors affecting this completion rate, such as the complexity of the discipline, dropping out for family reasons, and differences in minority group completion rates.

RECOMMENDATIONS:

- External evaluation should endeavor to understand how students take their three years of funding within the five-year time frame to see if there are currently any differences in gender or race/ethnicity.
- To encourage faster Ph.D. completion a bonus could be provided to fellows completing the degree within 6 years.
- The GRFP is a good source of exemplary students that can serve as role models. Hence, we recommend that the NSF work to create more widespread media coverage of their work in order to motivate more students around the country to pursue STEM fields.

The GRFP has developed a cohort of students motivated to present research at international conferences outside the US or spend time abroad in order to conduct research. Over the past three program years, the number of international achievements (study, conference presentation, thesis field work, or collaborative research activities abroad) reported by GRFP recipients nearly doubled from 357 in 2003-04 to 651 in 2005-06. Currently, global engagement is not compiled as a separate statistic by the NSF.

RECOMMENDATION: The GRFP should compile statistics on the fellows' Activities Reports regarding the time spent abroad on research and the number of international trips to present at conferences so that global participation by US students is more vigorously promoted.

B.2 OUTCOME GOAL for IDEAS: Enabling “discovery across the frontier of science and engineering, connected to learning, innovation, and service to society.”

Comments: The GRFP supports the next generation of scientists across the NSF-funded disciplines. These young investigators are producing significant new research findings, some of which can be described as transformative. A good example is provided in the GPRa nugget for Jennifer Weaver, a fellow at Harvard, who identified protein targets that arrest cellular development, a long-standing issue in molecular biology. Other examples include the work of Cullen Buie at Stanford University. His work on a fuel cell with an electroosmotic pump led to a patented discovery. A number of awardees have used their fellowships to study abroad, insuring that their work takes advantage of the highest levels of scholarship and creativity available globally. For example, Robert Webster, a fellow at Johns Hopkins University, has undertaken studies at the Scuola Superiore Sant' Anna in Pisa, Italy. He has worked with an internationally recognized biomedical engineer to develop ingestible, pill-like, reconfigurable robotic devices for endoluminal surgery. This is a partnership that has the potential to lead to innovation and to connect basic work in engineering to societal needs for improvements in health. A number of fellows are actively linking research and K-12 education. NSF awardee Damon Landau has used instruments developed as part of his graduate study to teach about aerospace engineering and moon exploration in high schools.

On a quantitative level, approximately 25 percent of the awardees reporting indicate that they have published papers and approximately 28 percent have given presentations at scientific meetings. A small but consistent number of students report that they are co-inventors on patents. It is difficult to

measure the significance of these percentages in the absence of comparative data. Recent studies of graduate education (e.g., Nettles and Millett) might be useful to NSF to provide data for judging the scholarly productivity of the fellows. The 2002 evaluation of the program does suggest that GRFP fellows demonstrate greater scholarly productivity than their peers.

RECOMMENDATION: Only about 100 students use the \$1000 international supplement each year. The GRFP should highlight the work of these students and encourage others to explore international options for study. Science is a global enterprise and it is important for the next generation of the nation's scientific leaders to be knowledgeable about the best in international science and comfortable in international collaboration.

B.3 OUTCOME GOAL for TOOLS: Providing “broadly accessible, state-of-the-art S&E facilities, tools and other infrastructure that enable discovery, learning and innovation.”

Comments: The GRFP is not designed to create facilities or tools. However, it is worth noting that several of the GPRA nuggets gleaned from annual reports of the fellows indicate that some of the fellows are developing tools that explore new or alternative technologies that have the potential to enable scientific advances. For example, NSF fellow, David Cuccia of UC-Irvine developed and tested an imaging method with a wide range of applications from fruit inspection to functional brain imaging. Michael Hefferman of Georgia Tech is advancing medical technologies through development of the first naturally degrading polymer that can be used to deliver therapeutic drugs. Robert Larson at the University of Illinois, Champagne-Urbana is improving fuel-cell technology that uses formic acid catalyzed by a nanoparticle based palladium film, promising longer battery life for small portable devices.

It is encouraging that at least some NSF fellows are engaged in bringing teams of individuals to projects in K-12 outreach. Siena Craig of Cornell is the author of an award-winning book that can be used by K-12 educators and museums for study of cultural anthropology, while Kristy Sundberg of UC San Diego organized the UCSD Neuroscience Graduate Program Educational Outreach Program.

The COV's review has identified NSF Fellows who are engaged globally and are bringing scientific expertise to significant societal problems. Their accomplishments suggest that in the long term, many of these fellows will contribute to the expansion of the scientific infrastructure as well as to the base of knowledge.

RECOMMENDATIONS:

- As appropriate, other programs and directorates should be encouraged to take advantage of the innovations developed by GRF fellows in K-12 outreach. Fellows should also be encouraged to share their expertise with local schools.
- The fellows would benefit from knowing what their peers are doing in integrating research and education, engaging societal problems, conducting outreach to K-12., and participating in international studies. It is not clear, even at institutions with large numbers of fellows, that there are adequate opportunities for this kind of exchange. NSF should consider ways of using technology to inform the fellows of the work of their peers.

B.4 OUTCOME GOAL for ORGANIZATIONAL EXCELLENCE: Providing “an agile, innovative organization that fulfills its mission through leadership in state-of-the-art business practices.”⁷

Comments: The GRFP has room for improvement in the attainment of this outcome goal. On the positive side, the orientation for the 2006 COV experimented with the use of web cast technologies. We suggest that this technology or other web-based technologies, once fine-tuned for easier implementation might improve orientation and calibration processes for the GRPF panels. Additional details are provided in Section A.1. On the negative side, the size and complexity of applications and review panels have slowed the adaptation of practices used by other NSF and federal programs. The trade-off between broad involvement and efficient operation is an uncomfortable one for the GRFP, especially since an agile organization must be staffed appropriately to respond in an innovative way to evolving business needs. As noted in the introductory observations, the GRFP is understaffed and thus less well equipped to respond rapidly. The GRFP should look carefully at Marshall Commission and U.S. Student Fulbright Program Fellowship procedures to see if any could be adapted to increase the ability to be perceived as a leader in state-of-the-art business practices.

⁷ For examples and further detail on the Organizational Excellence Goal, please refer to pp. 19-21 of NSF’s Strategic Plan, FY 2003-2008, at <http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf04201>.

PART C. OTHER TOPICS

C.1 Please comment on any program areas in need of improvement or gaps (if any) within program areas.

The GRFP is one of NSF's oldest programs and plays a key role in the pipeline for scientists, researchers, and educators at the college and university level. Evaluation of the program has been limited and has changed over time. There needs to be a consistent and more detailed evaluation of the program and its outcomes. The use of technology to provide more frequent updates of relevant variables would assist the small program staff in making formative adjustments. Evaluation would surely demonstrate the extremely important role that the GRFP plays in the educational and research enterprise of the United States.

RECOMMENDATION: The GRFP should consider guiding applicants to apply to and engage in interdisciplinary fields of study that address the national needs identified through STC, ERC, and other high-profile funding. Both applicants and reviewers could be provided with a summary of these key areas of study that could have a particularly important impact on the future development of science. These references could change each year in order to respond to new areas of study that need to be identified, and challenges that need to be addressed in this country and in the global enterprise.

C.2 Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

Over a period of decades, the GRFP has maintained an outstanding reputation as a highly competitive, prestigious fellowship program. This reputation has consistently attracted outstanding students and garnered recognition from universities that the fellowship is an important asset to their graduate STEM degree programs.

RECOMMENDATION: Consideration should be given to engaging institutions who receive NSF Fellows in the process of tracking their fellows' progress and reporting it to the NSF through FastLane. It also would be helpful for institutions to develop resources to assist those Fellows who are not progressing as they should.

Program reviewers have asked for better clarification on how to evaluate the broader impacts of proposed research and study. Furthermore, careful crafting of language needs to be undertaken to assist applicants in writing their personal statements and to better guide reviewers in evaluating them.

C.3 Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

Financial Resources

The COV finds it apparent, and to a significant degree appalling, that NSF priorities seem not to afford the GRFP more of the resources it needs to achieve its objectives, despite the continued excellence of the program. Given the clarion call from recent reports on global

competitiveness and the growing global competition for high-tech exports (especially from Pacific rim countries), the GRFP needs to be restored to its former position as the US's premier fellowship supporting graduate education in STEM fields.

The GRFP directly addresses the first priority of NSF's Strategic Goals—PEOPLE— yet NSF has not directed sufficient funds to provide both the number and size of awards for recipients and institutions to help the NSF achieve this goal. It is also apparent that there has been a failure to implement recommendations made by past COVs to increase awards and per-student support due to budget priorities.

RECOMMENDATION: The NSF should seek more funding from Congress and/or reallocate the NSF budget to provide more money in order to (1) increase individual GRFP stipends (2) increase the number of GRFP awards made each year (3) increase the cost of education allowance. It should be noted that recommendation #2 was made in the COV report in 2003, but flat funding in 2004 and 2005 and a decrease in 2006 made their recommendation impossible to implement.

As the nation continues to become more diverse, in order to broaden participation in science and engineering the NSF will need to attract more students with a number of financial issues: 1. limited family resources; 2. higher educational loan balances; and 3. family obligations. We applaud the NSF for increasing the GRFP stipends; however, stipends alone are not singularly sufficient to address the financial needs of many of these students. The COV fears that high-performing students will prefer non-scientific or professional careers to graduate study in science and engineering due to these factors. Moreover, institutions that enroll GRFP fellows are having to contribute to reducing the student costs because the COE allowance is insufficient. Yet, in the vast majority of cases, institutional resources alone cannot be relied upon to ensure that needy students have a quality educational experience so that they can finish their graduate studies.

Modest increments in stipends or cost of education allowances alone will not be sufficient to meet the needs of these students.

RECOMMENDATION: NSF should seek congressional appropriation for a loan forgiveness program or other instrument that will enable NSF and educational institutions to more effectively help these innovative young graduate students reach their full academic potential and make lasting contributions to the security and technological competitiveness of our nation.

As a final note on this subject, the COV is concerned about the impact of the low institutional allowance, given the rapidly rising cost of tuition. There are more important student costs that should be addressed such as health care, child care, and cost of living in high cost cities.

RECOMMENDATION: If the Cost of Education (COE) allowance is increased, the NSF should work with institutions to give students flexibility to use new funds to help meet these costs.

Staffing

The GRFP is critically understaffed. The normal responsibilities of an NSF program director are complicated by the size and complexity of the GRFP, including the enormous amount of data (e.g. processing applicants, recipients and analyzing student activities reports from

>3,500 active fellows, etc.) and the requirements for coordinating mission-critical processes among several subcontractors. The NSF's Organizational Excellence Goal is impossible to achieve unless sufficient investment is made in program staffing to reflect that goal. It should be noted that because of its dedicated and diligent staff, the NSF has been able to manage this program very well. However, increasing the number of GRFP personnel would give the program more flexibility to work with institutions and fellows to improve key performance metrics such as, for example, research productivity, completion rates, and time to degree. Enhancing personnel resources should make a critical difference in ensuring continued, growing success for the program and meeting the ever increasing efforts identified in NSF's mission statement: "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes."

RECOMMENDATION: NSF should make a more serious, permanent commitment to providing adequate staffing in support of the program's continually changing roles and responsibilities to gaining greater public confidence in the value of S& E research and education.

Encouraging Broader Participation

Broader participation should be considered a Foundation-wide responsibility.

RECOMMENDATIONS:

- Closer cooperation among GRFP, LSAMP, AGEP, and REU programs should be encouraged to support applications to the GRFP from underrepresented students in order to address the nation's scientific manpower needs.
- All directorates benefit from the GRFP fellows; and, outreach by all NSF directorates should include efforts to increase GRFP applicants and reviewers from traditionally underrepresented populations.
- It would be useful for NSF to determine how many faculty and researchers at US universities and colleges are alumni of the GRFP, highlighting the longitudinal impact on preparation of the of the nation's existing scientific workforce. This could be accomplished by adding a checkbox to the PI profile. If checked yes, then identify current post secondary institution of employment.

C.4 Please provide comments on any other issues the COV feels are relevant.

Current guidelines allow an NSF fellowship recipient to alternate tenure of an NSF application with another fellowship program as long as the awardees are not using two fellowships during any single year. This practice of "double-dipping" means that one student reaps the benefits of two fellowships during the course of his/her academic pursuits. However, given the difficulty of finishing a graduate degree in five years, or even six or seven, this may be a means by which graduate students are able to survive financially. It is important to note that when a student accepts two fellowships, another potential fellowship recipient has been eliminated. That is, the "wealth of the awards" benefits one but not potentially two highly talented emerging scientists.

RECOMMENDATION: The practice of “double dipping” should be closely monitored as this practice continues to expand.

The GRFP is one of the nation’s largest and most prestigious portable fellowship programs. Data on the fellows suggest that “time to degree” for NSF fellows is getting longer, and nearly a quarter of the students fail to complete their degrees. More information about the pre-doctoral experience of these students and factors that could improve completion would be useful to all involved in the effort to meet the nation’s needs for scientists. The Ph.D. Completion Project, a three-year, grant-funded project that addresses the issues surrounding Ph.D. completion and attrition, directed by The Council of Graduate Schools (CGS) may provide some insight into these issues. However, the next evaluation of the GRFP offers an excellent opportunity to address these questions specifically for this cohort of highly selected student scientists.

RECOMMENDATION: The COV recommends that the next assessment conducted by GRFP provide some consistency in questions with previous reviews so that longitudinal measures can be established. In addition, the past 10 years have produced a number of requests for reform in Ph.D. education, starting with the 1995 COSEPUP Report¹ that specifically addressed the education of scientists and engineers. The next GRFP evaluation should use these reports for guidance in developing questions regarding the experience of fellows in a variety of disciplines that are primarily under institutional control but that address research fields considered important for the preparation of the next generation of scientists.

Specific data about when fellows took receipt of their fellowships during their five-year award period differentiated by gender, ethnicity and race. Additionally, are there any data available related to additional funding sources NSF fellows may have received during their five-year award period?

CITATION:

¹ Committee on Science, Engineering, and Public Policy (COSEPUP). 1995. *Reshaping the Graduate Education of Scientists and Engineers*. Washington, DC: National Academy Press.

C.5 NSF would appreciate your comments on how to improve the COV review process, format and report template.

The COV review process, format, and template are effective and well organized. The GRFP experimented with several technological innovations that were helpful and which, with continued refinement, could increase the efficiency of future COV's.

RECOMMENDATIONS:

- Provide the COV with a CD containing program information prior to the meeting.
- Refine the use of web-casting for briefing the COV prior to the meeting.
- Use a shared drive for the template during the review. This expedited the work of the COV.

- Maintain continuity in the review process by including a member of the last COV on future committees or schedule a briefing by the past chair of the COV to permit questions and confidential dialog that can inform COV efforts and reduce duplication.

The COV also noted that the GRFP is unusual among NSF's portfolio of programs. The number of applicants and awardees is exceptionally large and spread across many disciplines. It is not possible for the COV to do a systematic review of the jackets as might be possible in other programs. Thus, the COV recommends the following changes to the COV procedures specific to the GRFP:

- Prepare more Excel spreadsheets of program statistics so that this information can be more easily digested and analyzed.
- Give the COV NSF information on the national picture and the state of graduate research and education in this format as well. Some of this information is on the NSF website, but the charts are not designed to be used in the context of the COV review.
- Use the Fellows' required annual activities reports to collect more information about the students' progress and educational experience and present these data in a summary form so that the COV can judge whether Fellows are making adequate progress toward their degrees. The program did provide information on the scholarly productivity of fellows and this was helpful, as were the vignettes presented in the GPRA nuggets.

PART D. SUMMARY AND RECOMMENDATIONS

The COV has made many recommendations which are set forth within the report template sections. In this summary, we would like to highlight three areas of recommendations that we believe warrant immediate attention. We prioritize them in this way:

FINANCIAL RESOURCES

The GRFP directly addresses the first priority of NSF's Strategic Goals—PEOPLE—and is responsive to the clarion call from recent reports on global competitiveness and the nation's technical preeminence going forward ("American Competitiveness Initiative", Domestic Policy Council, Office of Science and Technology Policy and "Rising Above the Gathering Storm", National Academies Committee on Prospering in the Global Economy of the 21st Century). Yet, NSF has not directed sufficient funds in recent years to provide the number of awards and size of award for recipients or institutions to be effective in meeting this goal.

It is particularly difficult to understand why the NSF allowed the GRFP budget to remain flat in 2004 and 2005, and even more difficult to fathom why NSF reduced the GRFP budget by \$2.5 million in FY 2006. There was a failure to implement important recommendations made by past COVs due to insufficient funding.

The COV made the following recommendations pertinent to financial resources:

- The NSF needs to begin an immediate and detailed review of the current funding model and implement changes to ensure the GRFP support research and education among more of the most capable science and engineering graduate students in the United States. (A.4.2)
- The NSF should seek more funding from Congress and/or reallocate the NSF budget to provide more money in order to (1) increase individual GRFP stipends (2) increase the number of GRFP awards made each year (3) increase the cost of education allowance. It should be noted that recommendation #2 was made in the COV report in 2003, but flat funding in 2004 and 2005 and a decrease in 2006 made their recommendation impossible to implement. (C.3)
- NSF should seek congressional appropriation for a loan forgiveness program or other instrument that will enable NSF and educational institutions to more effectively help these innovative young graduate students reach their full academic potential and make lasting contributions to the security and technological competitiveness of our nation. (C.3)
- If the Cost of Education (COE) allowance is increased, the NSF should work with institutions to give students flexibility to use new funds to help meet these costs. (C.3)

STAFFING

The GRFP is critically understaffed. The normal responsibilities of an NSF program director are complicated by the size and complexity of the GRFP. From 2004-2006, the GRFP coordinated 26,234 applications, 1,579 panelists, 2,953 new awards, and 3,500 Activities Reports from fellows. This was in addition to several subcontractors. The NSF's Organizational Excellence Goal is impossible to achieve unless sufficient investment is made in program staffing to reflect that goal.

It is essential that the NSF make a more serious, permanent commitment to providing adequate staffing in support of this hallmark program that directly addresses the NSF strategic goals and national priorities.

The COV made the following recommendations pertinent to staffing:

- NSF should make a more serious, permanent commitment to providing adequate staffing in support of the program's continually changing roles and responsibilities to gaining greater public confidence in the value of S&E research and education. (C.3)
- The GRFP should look carefully at Marshall Commission and U.S. Student Fulbright Program Fellowship procedures to see if any could be adapted to increase the ability to be perceived as a leader in state-of-the-art business practices. (B.4)

ENCOURAGING BROADER PARTICIPATION:

The GRFP has done an excellent job of ensuring that the diversity of award recipients is equal to or exceeds the diversity of the applications received. However, broader participation should be considered a Foundation-wide responsibility. Closer cooperation among GRFP, LSAMP, AGEP, and REU programs to support applications from

underrepresented students is important in addressing the nation's scientific manpower needs. Improved outreach is needed to HBCUs, HSIs, Tribal Colleges and other institutions whose students are significantly underrepresented among GRFP applicants. Regional workshops, campus visits and/or on-line Power Point presentations should be used to encourage applications and to help applicants from those institutions better understand how to prepare persuasive submissions. Similar outreach directed at faculty at these institutions should be used to secure greater diversity among panel members.

All NSF directorates/disciplinary areas benefit from prestige and work of the GRFP fellows, therefore outreach activities of all NSF directorates should include efforts to increase the participation of traditionally underrepresented populations as applicants and panelists.

The COV made the following recommendations pertinent to broader participation:

- The program should select a small number of participating institutions for site visits. These should be universities/colleges that do not have the bulk of awardees. A possible outcome would be increased visibility of the GRFP on those campuses as well as additional applicants. (A.1.2)
- Although the overall pool of panelists may be balanced, more care should be taken to ensure that individual panels have better racial, ethnic and gender balance. (A.3.3)
- Utilize a wider range of strategies to attract applications from non-traditional STEM populations. (A.4.3 and A.4.11)
- Regional and/or web-based workshops should be offered to result in more successful applications from students at non-research institutions. (A.4.8)
- The GRFP should be focused on developing diverse, competitive and globally engaged future leaders since these fellows, as a group, constitute an elite group of graduate students. (B.1)
- In order to approach parity, the COV recommends that the NSF should set a goal of increasing the number of applications from underrepresented minorities to at least twice the current number. (B.1)
- ASEE has used a combination of advertisements and regional visits to stimulate interest in the GRFP. They have done a good job of targeting those regions of the country with large numbers of underrepresented minorities and have partnered with LSAMP programs and some REU sites in several states. Judging from the agendas provided for those meetings, it appears that the outreach efforts are little more than information sessions. While these sessions may provide encouragement, students may need more detailed workshops to be successful applicants. The COV recommends that the ASEE be directed to use other tools such as web-based seminars and mentoring to provide support for students and faculty, particularly at institutions that have less experience with successful applications. (B.1)
- NSF should launch a study to understand how students take their three years of funding within the five-year time frame to see if there are currently any differences in gender or race/ethnicity. We also suggest that one possible approach to encourage faster completion is to provide a bonus to fellows for completing within 6 years. (B.1)

SIGNATURE BLOCK:

Committee of Visitors for the Graduate Research Fellowship Program (DGE/HER)
Jane Zimmer Daniels, Ph.D.
Chair

MEMORANDUM

DATE: December 31, 2006

TO: Bernice Anderson, Senior Program Director for Evaluation
Directorate for Education and Human Resources

FROM: **Earnestine Psalmonds**

SUBJECT: COV for Graduate Research Fellowship Program
COI and Diversity Memo

The Committee of Visitors report for the Graduate Research Fellowship Program was approved at the EHR Advisory Committee meeting held at NSF on November 1, 2006. The COV consisted of six members selected for their expertise related to the goals of the program. They provided a balance with respect to the type of institutions supported through the program, gender, and representation from underrepresented groups. The following table shows the main features of the COV's diversity.

Category of COV Membership	No. of COV Members in Category
Member of EHR Advisory Committee.....1.....
Institution Type: <input type="checkbox"/> University..... <input type="checkbox"/> Four-year College..... <input type="checkbox"/> Two-year College..... <input type="checkbox"/> K-12 School or LEA..... <input type="checkbox"/> Industry..... <input type="checkbox"/> Federal Agency..... <input type="checkbox"/> Other Private4.....2.....
Location <input type="checkbox"/> East..... <input type="checkbox"/> Midwest/North3.....1.....1.....1.....
Gender <input type="checkbox"/> Female..... <input type="checkbox"/> Male.....4.....2.....
Race/Ethnicity <input type="checkbox"/> White..... <input type="checkbox"/> Black..... <input type="checkbox"/> Hispanic..... <input type="checkbox"/> Asian..... <input type="checkbox"/> Pacific Islander.....4.....1.....1.....

The COV was briefed on Conflict of Interest issues and each COV member completed a COI form. COV members had no conflicts with any of the proposals or files. (or, if they did, use 'Proposals and files were not available to COV members in those cases where the member had a COI and members were not allowed to participate in discussions of actions with which they had conflicts.')