

NASA's Workforce Plan

for the use of the

NASA Flexibility Act Authorities

The NASA Flexibility Act of 2003 amends title 5, United States Code by inserting a new chapter 98 in that title. This chapter provides new authorities to the National Aeronautics and Space Administration to manage its human capital. Section 9802 of that Act requires the Administration to submit a written workforce plan to Congress, approved by the Office of Personnel Management, not later than 90 days before using any of these workforce authorities.

This Workforce Plan is submitted in accordance with that requirement. The Plan is organized into eight sections, corresponding to the information requested in subsection 9802(b) of the Act.

National Aeronautics and Space Administration Workforce Plan

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Due to its size, the Workforce Competency Dictionary will be sent electronically as a separate file.

I. NASA's Critical Needs

The Workforce Plan shall describe –

- (1) each critical need of the Administration and the criteria used in the identification of that need;*
- (2) the functions, approximate number, and classes or other categories of positions or employees that address critical needs and would be eligible for each authority proposed to be exercised under this chapter, and how the exercise of those authorities with respect to the eligible positions or employees involved would address each critical need identified;*
- (3) any critical need identified which would not be addressed by the authorities made available under this chapter and the reasons why those needs would not be so addressed..*

Background: Responding to Today's Challenges to Prevent Tomorrow's Crises

NASA faces significant human capital challenges that threaten the Agency's ability to accomplish its mission. As a world-class science and engineering agency, NASA must be able to recruit and retain the "best and the brightest" scientists and engineers to accomplish its core work and remain world-class. The Agency also must have a highly competent staff to support its technical programs and address its financial, acquisition, and business management responsibilities.

In years past, NASA had little difficulty in attracting exceptional talent to the Agency. The exciting mission and the opportunity for unique hands-on experience were powerful lures. But NASA has been facing increasing difficulty in attracting and retaining a world-class, diverse workforce.

There is not a single reason or trend behind this change. Many factors contribute to this: the shrinking science and engineering pipeline, the increased competition for technical skills in today's market, the perception among many engineering students that the aerospace industry is no longer a "career of choice", and an overall declining interest in government employment among many graduates. Because the trends are multiple, and have long-term implications for the applicant pool, it is critical that NASA take a strategic, proactive, and aggressive approach to addressing its workforce issues.

NASA's workforce demographics highlight the urgency. Within the science and engineering (S&E) workforce, the over-60 population outnumbers the under-30 population by nearly 3 to 1, and 25% of that workforce will be eligible to retire within five years. The potential departure of these individuals could deprive NASA of a wealth of knowledge, experience, and leadership essential to achieving the Agency's goals and objectives. As an agency with a highly technical mission, ensuring knowledge transfer

from the senior workers to the new generation of employees is critical. For that reason, NASA must take action now to recruit new employees who can benefit from mentoring by the experienced workforce. At the same time, the Agency must be able to provide incentives for those same experienced employees to remain as needed to mentor the new talent. In short, NASA must take action today to address tomorrow's human capital needs, or the Agency will be unable to fulfill its mission safely and successfully.

Methodology for Identifying NASA's Critical Needs

In response to these challenges, the Agency gave renewed emphasis on conducting effective workforce analysis and planning to align human resources with the Agency's mission, goals, and objectives. Toward that end, NASA has developed a Competency Management System (CMS) that, together with our newly-developed and powerful web-based analytical forecasting tools, enable the Agency to track, project, and analyze critical workforce competencies; identify current competency imbalances in the workforce relative to future needs, and assess the competency gaps (current and anticipated) to guide our recruitment, development, and redeployment initiatives.

Since these tools, and the analyses resulting from them, form the basis for identifying NASA's critical needs, their development and use are described in more detail in this section.

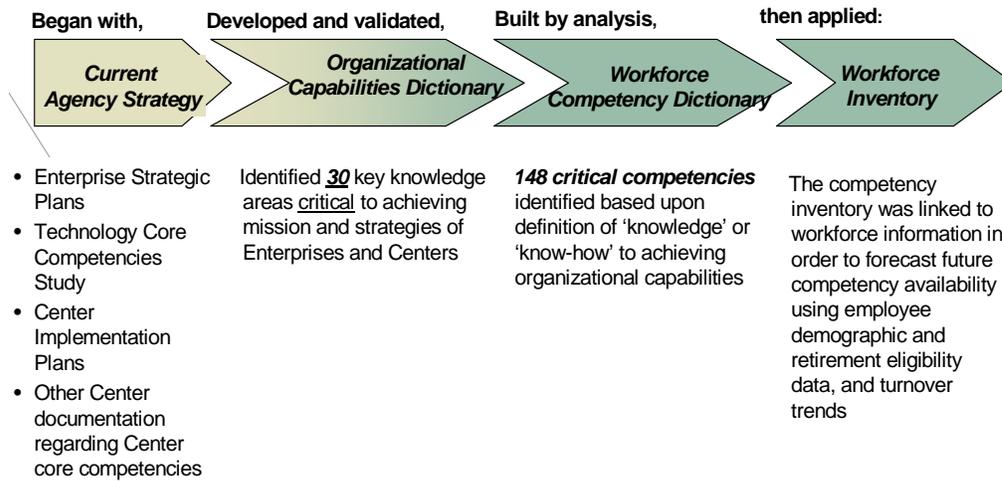
In developing the CMS, NASA first ensured that there was a common set of terms and definitions across the Agency that would be used to describe and identify competencies. Drawing on the Agency Strategic Plan, Enterprise Strategic Plans, Center Implementation Plans, and other documentation and studies to ensure alignment with NASA's mission, goals, and objectives, a comprehensive Organizational Capabilities Dictionary was developed. This dictionary identifies 30 key knowledge areas critical to achieving the mission and strategies of Enterprises and Centers.

The next stage of analysis went further, resulting in the development of NASA's Workforce Competency Dictionary. It drew from components inherent in the Organizational Capability definitions and Center workforce planning documents. This dictionary comprises 148 critical competencies that reflect the knowledge or "know how" needed to achieve NASA mission objectives. (See Appendix A). As appropriate, the information in it will be reviewed periodically to ensure that it is up-to-date.

Next, based on position requirements, a full inventory of competencies required within the NASA workforce was established. These competencies represent key capabilities linked to NASA's mission, goals, objectives, and business strategies.

In November, 2002, attrition models were applied to the competencies in the Agency workforce inventory. Using employee demographic and retirement eligibility data, as well as turnover trends, competency areas were identified in which there was potential for higher attrition than the Agency average.

The Process ...



Then, in June 2003, the Agency conducted an analysis to assess NASA's workforce requirements in several categories: (1) competencies "at risk", (2) competencies targeted for freshout recruitment, and (3) competencies linked to Space Shuttle Return to Flight objectives. The objective was to use NASA's CMS, workforce analysis automation tools, attrition modeling, and management's analysis of current and projected program requirements to identify those competencies that require immediate action to ensure that the competencies are sustained within the workforce at levels needed for mission success. The competencies in each category were ranked in terms of the number of projected Full Time Equivalents (FTE's) needed in those areas. Below are the top ten competencies within those categories and a definition of the criteria used to identify them.

Competencies at risk:

Competencies "at risk" represent competency areas in which additional workforce is needed to ensure minimum viability of the competency. The bench strength is weak, and strengthening it through other approaches (contractors, academia) is not a viable option. Typically, these are areas in which workforce cuts – possibly exacerbated by unanticipated attrition or difficulty in hiring for a specific competency – have been detrimental to performance.

- | | |
|-------------------------|------------------------------------|
| Systems Engineering | Design and Development Engineering |
| Integration Engineering | Program/Project Management |
| Test Engineering | Budgeting Management |
| Mission Assurance | Business IT Systems |
| Mission Execution | Business Management |

Competencies targeted for freshout hiring:

| | |
|---|------------------------------------|
| Competencies targeted for freshout hiring represent areas in which there is a need to hire freshouts in advance to ensure knowledge transfer with more experienced workers. These areas were identified by focusing on projected impacts of attrition. | |
| Systems Engineering | Program/Project Management |
| Integration Engineering | Budgeting Management |
| Test Engineering | Administrative Support |
| Mission Assurance | Acquisition & Contract Management |
| Mission Execution | Mathematical Modeling and Analysis |

Competencies associated with Space Shuttle Return to Flight objectives:

| | |
|--|------------------------------------|
| Space Shuttle Return to Flight (RTF) competencies were identified based on the preliminary findings from the Columbia Accident Investigation Board. | |
| Systems Engineering | Quality Engineering and Assurance |
| Program/Project Management | Integration Engineering |
| Propulsion Systems and Test | Design and Development Engineering |
| Safety Engineering and Assurance | Test Engineering |
| Mission Analysis and Planning | Mission Assurance |

Competencies overlapped in the three categories, so the final result reflected 17 discrete competencies. Senior management reviewed the analysis to ensure that it included competency areas needed for new initiatives (or initiatives involving new technology) that might not otherwise be captured through the workforce analysis tools. That review resulted in adding two additional competencies: nuclear engineering and human factors.

From these 19 competencies, management identified 10 as competencies that reflect needs across the Agency and therefore merit special focus in terms of the Agency’s recruitment strategy. These are referred to as NASA’s “corporate competencies.”

Corporate Competencies

| | |
|-------------------------|------------------------------------|
| Systems Engineering | Human Factors |
| Integration Engineering | Design and Development Engineering |
| Test Engineering | Quality Engineering and Assurance |
| Mission Assurance | Mission Execution |
| Nuclear Engineering | Business Management |

The above analyses identifies the “top 10” competencies within the different categories on the basis of projected numbers of FTE’s needed (constrained by FY09 project budget levels). Consequently, it does not capture all “at risk” competencies that are important to

individual Centers. Although the number of FTE's associated with a specific competency may be small relative to the other competencies, the possibility of a "single point failure" may be even greater if the employees associated with that competency leave NASA unexpectedly. For Centers with exceptional recruitment challenges due to their location or environment—such as Ames Research Center and Dryden Flight Research Center—a lack of bench strength in highly technical areas can greatly affect mission accomplishment. For that reason, those Center-specific at-risk competencies that fall below the "top ten" criterion are included as critical:

Additional At Risk Competencies Relative to Specific Centers

| | |
|-------------------------------------|-------------------------------|
| Intelligence/Adaptive Systems | Ames Research Center |
| Institutional Facilities Planning | Ames Research Center |
| Institutional Facilities Operations | Ames Research Center |
| Fundamental Human Factors Research | Ames Research Center |
| Aerodynamics | Langley Research Center |
| Advanced Exper & Test Technologies | Langley Research Center |
| Engineering & Science Support | Dryden Flight Research Center |
| Electrical & Electronic Systems | Dryden Flight Research Center |
| Airbreathing Propulsion | Glenn Research Center |
| Communications Networks & Eng | Glenn Research Center |
| Computer Systems & Engineering | Goddard Space Flight Center |
| Flight & Ground Data Systems | Goddard Space Flight Center |
| Financial Management | Goddard Space Flight Center |
| Human Resources | Headquarters |
| Public Communications & Outreach | Headquarters |
| Legal | Headquarters |
| Advanced Mission Analysis | Johnson Space Center |

This process resulted in identifying a total of 36 competencies (of the 148 competencies from the NASA Workforce Competency Dictionary) on which NASA must focus its recruitment, retention, and development efforts to meet its human capital challenges. These are the Agency's most significant competency requirements and represent our critical needs.

A summary chart identifying each competency by the five categories discussed on the preceding pages (at risk, freshout needs, return to flight, Center-at risk below the top ten threshold, and corporate) follows.

Competencies Representing NASA's Critical Needs

4th Quarter, FY 2004 Analysis

| Competency | Category of Competency | | | | |
|--|------------------------|---------|-----|----------|----------------|
| | Corporate | At Risk | RTF | Freshout | Center At Risk |
| Systems Engineering | X | X | X | X | |
| Integration Engineering | X | X | X | X | |
| Test Engineering | X | X | X | X | |
| Mission Assurance | X | X | X | X | |
| Human Factors | X | | | | |
| Nuclear Engineering | X | | | | |
| Design & Development Engineering | X | X | X | | |
| Quality Engineering & Assurance | X | | X | | |
| Business Management * | X | X | | | |
| Mission Execution | X | X | | X | |
| Program/Project Management | | X | X | X | |
| Business IT Systems | | X | | | |
| Budgeting Management * | | X | | X | |
| Propulsion System & Test | | | X | | |
| Safety Engineering & Assurance | | | X | | |
| Mission Analysis & Planning | | | X | | |
| Administrative Support (will be excluded) | | | | X | |
| Acquisition & Contract Management * | | | | X | |
| Mathematical Modeling & Analysis | | | | X | |
| Intelligent/Adaptive Systems | | | | | ARC |
| Institutional Facilities Planning | | | | | ARC |
| Institutional Facilities Operations | | | | | ARC |
| Fund Human Factors Research | | | | | ARC |
| Engineering & Science Support | | | | | DFRC |
| Electrical & Electronics Systems | | | | | DFRC |
| Communications Networks & Eng | | | | | GRC |
| Airbreathing Propulsion | | | | | GRC |
| Computer Systems & Engineering | | | | | GSFC |
| Financial Management * | | | | | GSFC |
| Flight & Ground Data Systems | | | | | GSFC |
| Human Resources * | | | | | HQ |
| Public Communications & Outreach * | | | | | HQ |
| Legal * | | | | | HQ |
| Advanced Mission Analysis | | | | | JSC |
| Adv. Experimentation & Test Technology | | | | | LaRC |
| Aerodynamics | | | | | LaRC |

The competencies resulting from this analysis include several that normally would not be considered within the scope of *important safety, management, engineering, research, science, or operations requirement* that further defines “critical need” in the NASA

Flexibility Act. For that reason, those competencies that do not fall within that description will not be considered “critical needs” for purposes of applying this Act. Specifically, the competency of “Administrative Support” is excluded, as are non-management positions associated with the asterisked administrative competencies.

It should be noted that the fact that a competency reflects a critical need does not necessarily mean that the use of the special workforce flexibilities or incentives is appropriate in every recruitment, retention, or reshaping actions taken to address that need. Labor market dynamics at a particular location and time will influence the tools that need to be used. Each case will be assessed on its individual merits to determine whether it is necessary or appropriate to use a specific incentive. For some competencies at some Centers the existing flexibilities and incentives may be adequate to hire or retain individuals. Generally, NASA anticipates using the new flexibilities predominantly in addressing science and engineering critical needs.

Critical needs: identifying categories of employees/positions

Occupational series – Employees are appointed and compensated on the basis of Office of Personnel Management (OPM) occupational series (in addition to other factors). Also, workforce reports on Federal civil servants typically convey information in terms of these occupational categories. Although NASA’s competency approach provides finer distinctions than the broad occupational categories, “crosswalking” the competencies to those series will prove useful in many contexts. This crosswalk is found at Appendix B. The chart indicates the occupational series with which a competency is most likely to be associated within NASA. In most cases, the competency may be found in positions classified to multiple series. For example, the competency of “systems engineering” may be associated with positions that are classified in four different series: General Engineer, Computer Engineer, Electronics Engineer, and Aerospace Engineer.

The determinations are based on several factors: the series of current NASA employees for whom the competency is considered “primary”; comparison of the competency definition against OPM’s occupational series definitions; and identification of the majors of undergraduate and graduate students who are working in the specified competency areas.

Level – NASA’s critical needs correspond to positions at multiple levels: entry, mid, and senior level. NASA’s legislative proposals specifically were developed to address that fact.

Type of appointment -- NASA strives to adapt to the changing needs of the future by creating and strengthening institutional flexibility. This requires developing an appropriate mix of permanent and non-permanent (i.e. temporary or term) civil servants. NASA will use the workforce flexibilities available in the NASA Flexibility Act to attract and retain both full-time permanent and other than full-time permanent employees to meet critical needs.

Critical needs: identifying approximate number of employees/positions

Identifying the number of employees or positions associated with the critical competencies identified above is influenced by changes in major programs and projects, budget considerations, and attrition patterns. Nevertheless, NASA is engaged in an effort to make as precise forecasts as possible using its competency management system and other workforce management tools. As a baseline, we are using information from each FY2003 program and project to identify how much time in terms of full time equivalents (FTE's) was associated with each competency. That data reflected the following:

| Competency | FY2003 FTEs |
|---|------------------------|
| Program/Project Management | 1163.0 |
| Engineering and Science Support | 568.3 |
| Acquisition and Contract Management | 419.1 |
| Business Management | 386.1 |
| Mission Execution | 384.7 |
| Test Engineering | 325.1 |
| Systems Engineering | 305.8 |
| Integration Engineering | 219.8 |
| Budgeting Management | 212.7 |
| Propulsion Systems and Testing | 212.3 |
| Business IT Systems | 205.5 |
| Design and Development Engineering | 181.9 |
| Quality Engineering and Assurance | 172.9 |
| Financial Management | 163.8 |
| Electrical and Electronic Systems | 142.7 |
| Human Resources | 141.3 |
| Safety Engineering and Assurance | 126.9 |
| Flight and Ground Data Systems | 111.5 |
| Public Communications and Outreach | 101.6 |
| Computer Systems and Engineering | 97.1 |
| Mathematical Modeling and Analysis | 88.4 |
| Intelligent/Adaptive Systems | 84.4 |
| Communication Networks and Engineering | 78.2 |
| Mission Assurance | 68.8 |
| Advanced Experimentation & Testing Techniques | 58.4 |
| Mission Analysis and Planning | 55.1 |
| Legal | 47.5 |
| Institutional Facilities Planning | 35.9 |
| Human Factors Engineering | 33.1 |
| Fundamental Human Factors Research | 23.1 |
| Institutional Facilities Operations | 22.7 |
| Aerodynamics | 17.5 |
| Advanced Mission Analysis | 11.3 |
| Airbreathing Propulsion | 7.2 |
| Nuclear Engineering | 1.8 |

The Agency now is in the process of working with Centers to estimate Agencywide needs for FY2004 and FY2007. When that analysis is complete, we will have the needed data points on which to base a competency gap analysis.

To address some of the Agency's immediate critical needs, NASA initiated an aggressive "corporate" recruitment effort to address our ten critical corporate competency needs. This corporate effort, which supplements other recruitment efforts in which the Centers are engaged, established specific hiring goals for FY04 and FY05 within the NASA baseline budget. For FY04, the target is 150 and for FY 2005, the target is 100. NASA anticipates filling 110 of the FY04 hires with freshouts and filling 75 of the FY05 hires with freshouts. Freshout hiring prior to the actual departure of current employees is a key emphasis in NASA's hiring initiatives over the next five years. The loss of intellectual capital and management talent in the absence of mentoring a younger generation threatens program execution.

Although the individual Centers' freshout recruitment needs with respect to the corporate competencies differ, each Center's top three needs (in terms of FTE's) are among the ten corporate competencies.

Using the Workforce Authorities to Address NASA's Critical Needs

The workforce authorities in the NASA Flexibility Act provide versatile tools to address the Agency's critical competency needs. This versatility is vitally important since different solutions are needed to address the multiple human capital challenges facing the Centers – challenges that are shaped by each Center's demographics, local labor market, and mission needs. As part of the workforce analysis conducted in June 2003, senior management considered these workforce authorities and how they could be used to address the workforce needs across the Agency. Below is a summary of the observations that were made:

For Centers anticipating higher-than-normal attrition and/or the need to recruit hard-to-fill competencies, there will be a strong need for the *recruitment* flexibilities and incentives. The use of the individual flexibilities is likely to vary, depending upon the category of employee being recruited: freshout, mid-level, or senior level.

- The recruitment, redesignation, and relocation bonuses will be used as hiring incentives when necessary to attract exceptional talent to the Agency. Historically, recruitment and relocation bonuses have been used across a variety of occupations, grade levels, and geographic locations.
- The enhanced annual leave provision and enhanced travel and relocation benefits will be very effective in attracting talent to the Agency, particularly at the mid-level and senior-level.
- Recruitment for expertise of a world-class nature is always difficult, since the private sector – including academia – has greater flexibility in offering attractive financial rewards. The pay authority for critical positions will allow NASA to compete more successfully to attract the exceptional talent that the Agency needs.

- Recognizing that effective recruitment methods are as important to success as the recruitment incentives, management anticipates using the Distinguished Scholar Appointment authority to address the need for permanent freshout hires. This streamlined hiring authority will enable the Agency to target the outstanding graduates when filling professional and scientific positions at the entry and intermediate levels.

Retention strategies are critical in a knowledge-based agency like NASA, and particularly at a time in which the older technical workforce outnumbers the younger technical workforce so dramatically. As a result of a decade of downsizing, many Centers have found that they have a generation gap that has created a discontinuity between the younger members of the workforce and those who normally would have preceded them and been their primary mentors. Until this “gap” is corrected, retention bonuses will be a valuable tool in incentivizing employees with critical, unique expertise to continue to work and transfer their knowledge to others in the workforce.

The superior qualifications pay authority will permit NASA to *leverage the expertise of its workforce*, by permitting adjustments in an employee’s pay when assigning the employee to a different position, based on his or her superior qualifications or a special need of the Agency. This tool was specifically designed to address critical needs of NASA; it provides an incentive for an employee to accept a position or new responsibilities for which he or she would not otherwise be interested and available, but for which the employee has exceptional or unique qualifications.

NASA recognizes the need to develop a more flexible workforce. The provision to permit longer-duration term appointments and to authorize conversion of term employees to permanent appointments will provide the Agency with greater flexibility in tailoring its workforce for program/project changes and will facilitate placing term employees in whom we have invested training into permanent vacancies that may occur. It is also possible that these two features (length of appointment and conversion eligibility) may make the concept of term appointments more attractive to potential applicants and thereby provide a more robust labor pool for the Agency.

Senior Executive Service (SES) members are critical to accomplishing the Agency’s mission. Management recognizes that over half of the SES workforce is eligible to retire within the next five years. The SES limited appointment authority will provide NASA with a more effective means of responding to short-term staffing needs associated with such positions.

In yet other areas, NASA needs the ability to *leverage external expertise*. Enhancing the Intergovernmental Personnel Act authority to permit assignments up to six years, rather than four, will facilitate knowledge transfer—an important goal of an Agency that must sustain its intellectual capital. This flexibility will allow individuals from academia or nonprofit institutions to continue to support long-term projects when the need for continuity is critical.

Recognizing that NASA's long-term ability to recruit highly-qualified technical personnel depends on a robust pipeline of graduates, NASA will use the Science and Technology Scholarship Program to guide students toward careers in academic disciplines needed by the Agency. This is an important investment for the Agency and, ultimately, for the country.

In summary, based upon the preliminary assessment made by senior management in June 2003, NASA anticipates that the authorities provided in the NASA Flexibility Act will be very effective tools in addressing NASA's current and projected workforce critical needs. Since the ability to attract and retain talent is a function of labor market dynamics over which NASA has no control, we cannot predict the extent to which these tools will be effective in the future. As indicated in other sections of this Workforce Plan, the Agency will maintain data on the use of these authorities in order to assess their impact in addressing workforce needs.

II. Criteria for Using Recruitment, Redesignation, Relocation, and Retention Bonuses

The Workforce Plan shall describe - the specific criteria to be used in determining which individuals may receive the benefits described in sections 9804 and 9805 (including the criteria for granting bonuses in the absence of a critical need) and how the level of those benefits will be determined.

Section A: Recruitment, Redesignation, and Relocation Bonuses

Section 9804 of the NASA Flexibility Act provides for payment of:

- Recruitment Bonus – Paid to an individual newly appointed as an employee of the Federal Government
- Redesignation Bonus – Paid to an employee of another Federal agency who is newly appointed to a NASA position in the same geographic area
- Relocation Bonus – Paid to a current Federal employee who is required to relocate to a different geographic area to accept a NASA position

General Requirements:

- All bonuses are to be used only in situations where the position is difficult to fill.
- Bonuses are appropriate when an individual selected for a difficult to fill position indicates an unwillingness to accept because of insufficient compensation. Before offering a bonus, other incentives and alternatives should be considered, e.g., superior qualifications appointments, either in lieu of or in conjunction with bonuses.
- All bonuses are to be offered in accordance with merit principles, and shall be in amounts, and under terms, commensurate with the needs of the Agency.
- Approving officials will assure that bonus packages and associated service agreements provide for a maximum return on the Agency investment.
- Approvals must be based on written documentation that addresses the requisite criteria. The documentation must indicate clearly whether the position addresses a critical need.
- No more than 25% of the total amount of bonuses awarded under this provision shall be awarded to supervisors or management officials.
- Payment of a bonus under these provisions is contingent upon the employee signing a service agreement with the Agency.

Determining Basic Eligibility: Any case in which the Agency is considering paying a bonus under these provisions must be evaluated using the basic eligibility criteria in the following matrix. If the situation does not meet the minimum requirements as identified below, no bonus payment may be made.

BASIC ELIGIBILITY CRITERIA
Recruitment, Resignation, Relocation Bonuses

| Criteria | Definition | Elements |
|-------------------------------------|--|---|
| Degree of Difficulty in Recruitment | Extent to which quality candidates possessing the required skills and experience are available in the labor force. | (a) Recent recruitment efforts for comparable positions in the same geographic area demonstrate that it is difficult to find highly qualified candidates. |
| | | (b) Positions requiring the skills are often vacant, and fill times are prolonged. |
| | | (c). Positions requiring the skills typically have a high turnover rate. |
| | | (d) Labor market trends demonstrate that the Agency is likely to experience difficulty in finding highly qualified candidates now and/or in the future. |
| | | (e) Position is in a new or emerging technical area where the organization has a demand for the skills, but little recruitment history. |

Evaluating “Degree of Difficulty in Hiring:” In order to meet the basic eligibility requirements for a bonus under this section, the position normally must meet:

1. any two of elements (a) through (d) OR
2. element (e).

All case files must include documentation explaining and supporting the determination that the individual meets the basic eligibility requirements for payment of a bonus.

Determining the Level of the Bonus: Whenever there has been a positive determination of bonus eligibility, a further determination must be made as to the appropriate level (amount) of the bonus. The determination must be consistent with these requirements and general principles:

- Individuals in positions addressing a **critical need**, as defined in this Plan, are eligible for a maximum bonus of 50% of annual rate of basic pay (including comparability payments) at the beginning of the service period multiplied by the service period. (Note: The total bonus payment may not exceed 100% of the annual rate of basic pay as of the beginning of the service period. Therefore, any individual receiving the maximum amount of the bonus will incur a service obligation of two years.)

- Individuals in positions **not** requiring competencies defined as critical needs are eligible for a maximum bonus of 25% of the employee’s annual rate of basic pay (excluding comparability payments) as of the beginning of the service period.
- There is no entitlement, either implied or explicit, for an employee to receive the maximum bonus allowable under the law.
- Even where the evaluation of the criteria may support payment of a high bonus, the organization should pay a smaller bonus if such an amount is sufficient to secure a candidate’s acceptance.

Within the parameters identified above, the guidelines in the following matrix should be used to determine the appropriate maximum level of bonus payment.

**BONUS LEVEL EVALUATION CRITERIA
Recruitment, Redesignation, Relocation Bonuses**

| Criteria | Definition | Elements |
|----------------------------|---|--|
| 1. Impact of Market Forces | Extent to which a specific candidate is likely to accept a job offer. | (a) Applicant provides evidence of a substantially higher competing offer of employment. |
| | | (b) Candidate’s current salary is substantially higher than the salary of the position being offered. |
| | | (c) Salaries in the candidate’s field are higher than for those of comparable positions at this location, as demonstrated by salary surveys or other objective evidence. |
| 2. Individual Attributes | Extent to which the individual possesses competencies that will enhance the Agency’s ability to accomplish its mission. | (a) Individual’s work experience and/or academic preparation have an unusually close and direct relevance to the position being filled. |
| | | (b) Individual has contributed to the expansion of the body of knowledge in the professional field as evidenced by research publications and/or leadership on professional panels, committees, and/or professional and honorary societies. |
| | | (c) Individual’s professional contributions have been formally recognized in the form of awards, citations, and/or commendations. |
| | | (d) Individual brings new skills or perspectives not previously available, as demonstrated by unique or unconventional professional achievements. |
| | | (e) FRESH-OUTS ONLY: Candidate possesses a high level and quality of educational attainment compared to the minimum educational requirements of the position. |

Candidates Not Meeting Any of the Criteria in the Matrix: In some cases, candidates may meet basic bonus eligibility, but do not meet any of the criteria in the matrix above. Such individuals will be paid bonuses that typically do not exceed one-third of the maximum percentage allowable under the law. That is, bonuses paid to candidates in critical need positions normally will not exceed approximately 17% (out of a maximum 50%) of basic salary; bonuses paid to candidates in positions not meeting a critical need normally will not exceed approximately 8% (out of a maximum 25%) of basic salary

- **Criterion 1, Impact of Market Forces:** Candidates who meet one or more of the elements may be offered a bonus sufficiently high to offset the salary imbalance and thereby create an incentive to accept the NASA position.
- **Criterion 2, Individual Attributes:**
 - **Candidates who meet Criterion 1**, and who also possess skills and knowledge with the potential to substantially enhance NASA's capabilities and reputation, may be considered for an increased bonus percentage.
 - **Candidates who do not meet Criterion 1**, but who demonstrate a high level of professional achievement, comparable to the elements outlined in the matrix, may be awarded bonuses higher than the minimum one-third of the maximum. There should be a correlation between the bonus percentage and the extent and level of the candidate's accomplishments.

All bonus level determinations beyond the minimum must be supported by documentation of the circumstances warranting the higher-level payment.

Section B: Retention Bonuses

Section 9805 provides for payment of retention bonuses. These may be paid to NASA employees who are likely to leave the agency for any reason. This includes individuals leaving NASA to accept positions outside the Federal government OR individuals leaving NASA to accept positions with other Federal agencies.

General Requirements

- Retention bonuses are to be used in situations where the employee is likely to leave, and it is essential to retain an employee's services because of the employee's unusually high or unique qualifications; or because of a special agency need.
- Retention bonuses are to be offered in accordance with merit principles, and shall be in amounts, and under terms, commensurate with the needs of the Agency.
- An employee may not receive a retention bonus for any period of time covered under a service agreement under PL 108-XXX, section 9804 or under title 5 United States Code section 5753.
- Approving officials will assure that bonus packages and associated service agreements (if any) provide for a maximum return on the Agency investment.
- No more than 25% of the total annual amount of bonuses awarded under this provision shall be awarded to supervisors or management officials.
- Approval must be based on written documentation that addresses the requisite criteria. The documentation must specifically identify whether or not the individual occupies a position supporting a competency designated as a critical need.
- Unless the employee is paid the full percentage of the bonus in bi-weekly installments, payment is contingent upon the employee signing a service agreement with the Agency.
- Individuals who are given a retention bonus under terms not requiring a service agreement are subject to annual verification. The approving official must certify that the employee/position continue to meet the criteria for payment of the bonus.

Determining Basic Eligibility: Any case in which the Agency is considering paying a bonus under these provisions must be evaluated using the basic eligibility criteria in the matrix below. If the situation does not meet the minimum requirements as identified below, no bonus payment may be made.

All cases must meet Criterion 1 AND

All cases must meet Criterion 2 OR Criterion 3.

BASIC ELIGIBILITY CRITERIA
Retention Bonuses

| Criteria | Definition | Elements |
|--|--|---|
| 1. Likelihood of Employee Loss | Extent to which the employee is likely to leave the Agency. | (a) The employee has expressed a specific intention of leaving the Agency. |
| 2. Program Impact | Extent to which the employee's departure affects Agency projects or programs. | (a) The employee has extensive subject matter expertise and experience in a project or program area. |
| | | (b) The employee serves as a key mentor and knowledge base for less experienced employees within the organization. |
| 4. Degree of Difficulty in Replacement | Extent to which quality candidates possessing the required skills and experience are available in the labor force. | (a) Recent recruitment efforts for comparable positions in the same geographic area demonstrate that it is extremely difficult to find highly qualified candidates. |
| | | (b) Positions requiring the skills are often vacant, and fill times are prolonged. |
| | | (c) Positions requiring the skills typically have a high turnover rate. |
| | | (d) Labor market trends demonstrate that the Agency is likely to experience difficulty in finding highly qualified candidates now and/or in the future. |
| | | (e) Position is in a relatively new or emerging technical area where there is limited recruitment history. |

- Criterion 1, Likelihood of Employee Loss: In order for the Agency to offer a retention bonus, there must be a likelihood that the employee would leave in the absence of such a payment. Eligibility is, therefore, contingent on the employment meeting this criterion.
- Criterion 2, Program Impact: Situations meeting this criterion must meet at least one of the two elements described in the matrix above.
- Criterion 3, Degree of Difficulty in Replacement: The contention that the employee possesses unique or high level skills must be supported by evidence that, should the employee leave, the Agency would find it extremely difficult to replace him or her with someone of equal caliber. The situation normally will meet either:
 - At least two of elements (a) through (d); OR
 - Element (e).

Determining the Level of the Bonus: Whenever there has been a positive determination of bonus eligibility, a further determination must be made as to the appropriate level of bonus payment. The determination must be consistent with the requirements and general principles below.

- Individuals in positions addressing a **critical need**, as identified in this Plan, are eligible for a maximum bonus of not more than 50% of annual rate if basic pay (including comparability payments).
- Individuals in positions that are **not** identified as addressing a critical need are eligible for a maximum bonus of not more than 25% of the employee’s annual rate of basic pay (excluding comparability payments).
- There is no entitlement, either implied or explicit, for an employee to receive the maximum bonus allowable under the law.
- Even where evaluation of the criteria may support payment of a high bonus, the organization should pay a smaller bonus if such an amount is sufficient to induce the individual to stay, or if budget or other appropriate concerns so dictate.
- Bonus Level Assessment: The following matrix should be used to determine the appropriate maximum level of bonus payment.

BONUS LEVEL EVALUATION CRITERIA
Retention Bonuses

| Criteria | Definition | Elements |
|-------------------------------------|---|---|
| 1. Impact of Market Forces | Extent to which an employee is likely to remain in his or her position. | (a) The employee provides evidence of a substantially higher competing offer of employment. |
| | | (b) Salaries in the employee’s field are higher than those of comparable position at the location where the employee works, as demonstrated by salary surveys or other objective evidence. |
| 2. Individual Attributes | Extent to which the employee possesses skills and competencies of an exceptionally high or unique nature. | (a) Employee possesses skills or perspectives that are unique in the workforce. |
| | | (b) Employee has contributed to the expansion of the body of knowledge in the professional field as seen by research publications and/or leadership on professional panels, committees, and/or professional and honorary societies. |
| | | (c) Employee’s professional contributions have been formally recognized by performance awards; and/or awards, citations, or commendations from professional groups. |

- **Candidates Not Meeting Any of the Criteria in the Matrix:** In some cases, candidates may meet basic retention bonus eligibility, but do not meet any of the criteria in the preceding matrix. Such individuals will be paid bonuses that typically do not exceed one-third of the maximum percentage allowable under the law. That is, bonuses paid to

candidates in critical need positions will normally not exceed approximately 17% of basic salary (out of a maximum 50%); bonuses paid to candidates in positions not meeting a critical need will normally not exceed approximately 8% of basic salary (out of a maximum 25%).

- **Criterion 1, Impact of Market Forces:** Candidates who meet one or both of the elements may be offered a bonus sufficiently high enough to provide some offset of the salary imbalance, and to create an incentive to remain in the NASA position.
- **Criterion 2, Individual Attributes:**
 - **Candidates who meet Criterion 1** and who also possess skills and knowledge that substantially enhances NASA's capabilities and reputation, may be considered for an increased bonus percentage.
 - **Candidates who do not meet Criterion 1**, but who demonstrate a high level of professional achievement, comparable to the elements outlined in the matrix, may be awarded bonuses higher than the minimum one-third of the maximum. There should be a correlation between the bonus percentage and the extent and level of the candidate's accomplishments.

All bonus level determinations beyond the minimum must be supported by documentation of the circumstances warranting the higher-level payment.

III. Safeguards to Protect Merit Principles

*The Workforce Plan shall describe -
the safeguards or other measures that will be applied to ensure that this chapter is carried
out in a manner consistent with merit system principles;*

NASA's Continuing Commitment

NASA has a longstanding and continuing commitment to compliance with merit system principles in all its human capital activities. Our Strategic Human Capital Plan reinforces this commitment through its emphasis on the alignment between Agency goals and effective management of employees, on the establishment of a performance culture based on results, motivation, and fairness, and on the goal of attracting and retaining a diverse and highly skilled workforce.

NASA has current evaluation systems in place to ensure compliance with merit system principles. Since the early 1990's, we have operated a compliance self-assessment system that evaluates and advances our human capital agenda through cyclical fact-based evaluation. NASA's self-assessment system is a structured process for measuring Agency human capital practices and ensuring they are merit-based and link to Agency vision, mission, strategic objectives, and expectations.

External reviews, such as those conducted by the Office of Personnel Management (OPM), provide an additional mechanism for evaluating compliance with merit system principles. OPM conducts cyclical agencywide and delegated examining reviews periodically to ensure not only that our employment policies and practices are in compliance with the merit systems principles and with all related legal and regulatory requirements, but that they are efficient and effective. OPM evaluators share their findings with NASA representatives, thus providing the necessary feedback for highlighting those areas that can be shared as best practices, and strengthening any that may be deficient.

To reinforce our commitment to merit systems principles, NASA is participating in the U.S. Office of Special Counsel (OSC) certification program. This is a voluntary program to assist agencies in informing employees and managers about their rights and responsibilities under Federal law. Among other things, participating agencies must train all supervisors to ensure their understanding of prohibited personnel practices and whistleblower protections. NASA has registered with the OSC and will complete the requirements for certification soon.

Existing Protections Remain in Effect

The authorities conferred by this legislation do not in any way eliminate or diminish existing requirements for merit-based decision making. They are by design expansions

of existing authorities; the other current requirements and procedures for use of those authorities remain in place. Among these are existing requirements for competition and affirmative employment. Further, NASA's expanded authorities do not provide for—nor did NASA seek—exemptions from employee protections contained in title 5 of the United States Code (U.S.C.). Our employees' rights and protections in the areas of non-discrimination, appeals and grievances, whistleblower protection, and labor-management relations are unchanged.

Merit System Compliance is Enhanced

The expanded authorities will enhance NASA's ability to conduct human capital management activities in compliance with merit system principles. Our need to attract a highly skilled, diverse, and productive workforce is now supported by new recruitment incentives and streamlined procedures that will allow NASA to place a renewed emphasis on hiring the "best and brightest" candidates for employment and building a workforce representative of the nation's diversity. Similarly, the expanded bonuses and critical pay authority will allow us to recognize excellent performance in a more meaningful way.

Safeguards Included in Implementation Plans

NASA's plans for implementing the specific authorities will focus on opportunities for proactive application of merit principles. For example, the criteria for recruitment, redesignation, relocation, and retention bonuses (described in Part II of this Plan) have been developed with the intent of ensuring fairness and equity in the identification of bonus recipients. This focus extends to the other authorities as well, and is reflected in specific implementation plans and policy documents.

Review and Evaluation

NASA will address merit system compliance as an integral part of our plan to evaluate the effectiveness of these authorities. (The issue of assessment methods is discussed further in Section V of this Plan.) We will use information derived from periodic assessments to evaluate merit system compliance and to make changes in policies or procedures where a need for improvement is indicated.

IV. Notification to Employees

*The Workforce Plan shall describe -
the means by which NASA employees will be afforded the notification required by the
Workforce Plan, including notification of any subsequent modifications to the Plan.*

NASA is fully committed to communicating and consulting with its employees and employee representatives regarding the Workforce Plan and the policies and procedures associated with implementing the authorities contained in the NASA Flexibility Act.

Toward that end, a Human Capital Legislation Implementation Team with representatives from all NASA Centers was formed in the late summer of 2003 in anticipation of enactment of NASA's human capital legislation. Its charter was to develop the Agency's Workforce Plan and draft the Agency policies and procedures needed to implement the individual authorities. In forming this Team, NASA contacted the national representatives for AFGE and IFPTE and invited them to participate on the Legislation Implementation Team. IFPTE accepted the offer and provided a member to serve on the Team.

As part of this effort, the Implementation Team developed a Communications Plan that outlined the actions to be taken to ensure appropriate notification and sharing of information with employees and employee representatives. (See Appendix C). This Plan serves as a comprehensive guide for the Agency to follow in its change management activities associated with the implementation of the NASA Flexibility Act. It addresses three critical components essential to successful change management: the tools and methods for communication; the roles and responsibilities of individuals; and the scope and content of the material being disseminated.

As the Communication Plan indicates, NASA will communicate information regarding the Workforce Plan and workforce authorities to employees through a variety of media including official written communications, a website devoted to the NASA Flexibility Act, "town hall" meetings and other forum. To ensure that the information is comprehensive yet understandable, the communication materials will include the official documents (e.g., the Act itself and NASA written policies), fact sheets, Frequently Asked Questions, and briefing charts.

A Change Management Subteam has been established to ensure that the strategies outlined in the Communications Plan are executed successfully, including providing appropriate employee notification as required by the NASA Flexibility Act.

V. Assessing the Success of the Workforce Authorities

*The Workforce Plan shall describe -
the methods that will be used to determine if the workforce authorities exercised under this chapter have successfully addressed each critical need identified*

In order to assess the effectiveness of the authorities provided in the NASA Flexibility Act, the Agency will measure the extent to which their use closes current or projected gaps of competencies needed to meet mission objectives.

To make this assessment, NASA will institute processes and procedures to capture and analyze the following categories of information (at a minimum) pertaining to hiring and retention efforts:

- Instances in which each authority was used to address a critical need as identified through NASA's Competency Management System [relative to the instances in which the authority was used otherwise]
- Declination rate among selectees who were offered jobs associated with critical needs when one or more of the workforce authorities were used in conjunction with the job offer.
- Turnover trends among employees in positions representing critical needs (and the percentage of those employees who had been hired/retained/redeployed through the use of one of the authorities)

As appropriate, NASA will analyze the impact of the use of these authorities on workforce demographics.

In order to comply with reporting requirements and to provide a basis for additional analyses of the effectiveness of the authorities, data will be maintained on each instance of the use of an authority so that NASA can determine the scope of its use and where it has been most effective.

Data from the Competency Management System, built on common Agencywide terminology and an inventory of current workforce competencies, will aid NASA to track its success in using the workforce flexibilities to close current and projected competency gaps.

VI. NASA's Recruitment Methods and Initiatives to Improve Them

The Workforce Plan shall describe - the recruitment methods used by the Administration before enactment of this chapter to recruit highly qualified individuals and the changes the Administration will implement after the enactment of this chapter in order to improve its recruitment of highly qualified individuals including how it intends to use nongovernmental recruitment agencies and internet technologies.

NASA's recruitment methods involve two key components: conducting accurate analyses to identify *recruitment needs* and developing and implementing sound *recruitment strategies* to address those needs. Both components are critical to success.

Identifying Recruitment Needs

NASA has long-recognized that a world-class workforce has been the key to its remarkable achievements, and uses all available flexibilities and authorities to ensure that that such a workforce is sustained. With an aging workforce and potential significant retirements on the horizon, the Agency has focused attention on recruitment initiatives and strategies.

To ensure that recruitment efforts are aligned with mission requirements, NASA has undertaken a substantial workforce planning and analysis initiative that will support hiring the right people with the right skills at the right time. A key component of this initiative is the Agencywide Competency Management System (CMS)—a system that compares future competency needs with the knowledge base of the Agency current workforce in order to identify projected shortfalls and surpluses. This system, along with a suite of web-based data analysis tools, allows managers to get a more accurate picture of the Agency's competency strengths and weaknesses.

As discussed in Section I, the workforce planning tools and the CMS were have been, and will continue to be, used by the Agency in planning for, and implementing, the new authorities provided in the NASA Flexibility Act. By so doing, NASA can target its use of these authorities appropriately to address the Agency's most critical competency needs.

The workforce planning tools provide NASA with data it needs to target future recruitment and outreach efforts. The next step is developing the recruitment strategies to address the identified needs.

Developing and Implementing Recruitment Strategies

NASA recognizes that recruitment success is influenced by factors such as the organization's mission, goals, priorities, strategies, resources, and values. In May 2001,

the National Recruitment Initiative (NRI) was established to study Center recruitment strategies and plans and develop Agency-wide hiring strategies and tools that focus on NASA's current and future science and engineering recruitment needs. The NRI report concluded that NASA needed to develop a three-pronged approach to recruitment based on a model that:

- Focuses on the Candidate -- Research shows that organizations that are able to establish a connection with candidates are more likely to have success in hiring them. NASA has personalized the recruitment process in order to entice candidates to join the NASA team.
- Leverages Partnerships and Alliances – As pointed out by organizations such as the National Academy of Public Administration, successful recruiting programs develop year round relationships with colleges. The payoff for establishing relationships with colleges and professional associations is the opportunity to establish name recognition and market NASA as an employer of choice. To be competitive with other employers, NASA continues to broaden its presence on college and university campuses. NASA Centers are re-establishing recruitment networks and foster relationships with academia so we become better known as a partner in recruiting top talent.
- Tailors Recruitment Opportunities -- Recruitment strategies and tools are not one-size-fits-all solutions. Research has shown that workforce motivations are different. For instance, what appeals to engineers is different from what appeals to scientists. Thus, recruitment tools, and the associated marketing, must be tailored to fit the audience.

In implementing the strategies based on that model, NASA has used, and will continue to use, a variety of incentives, authorities, programs and technology-based processes. Examples of the range of incentives, hiring authorities, and hiring programs that the Agency uses are described below. NASA expects to continue to use these flexibilities, in conjunction with the new authorities provided in the NASA Flexibility Act to address the human capital challenges it faces over the coming years.

- Recruitment/Retention Bonus, Relocation Allowances -- Financial considerations play an important role when recruiting potential candidates. NASA has offered recruitment bonuses and relocation allowances to new hires (freshouts, and mid-level or senior-level hires) when necessary to attract high quality employees. The enhanced bonuses provided by the NASA Flexibility Act will enable NASA to compete more successfully in attracting and retaining top talent.
- Salary - Above Minimum Rate -- Another financial incentive that enables NASA to compete more successfully with the private sector is the ability to offer starting salaries above the minimum rate of a grade when the candidate has superior qualifications. The superior qualifications pay authority provided in the NASA

Flexibility Act is an extension of this concept, and will provide NASA with a means to make better use of its existing workforce to meet mission needs.

- Student Loan Repayments -- NASA has taken advantage of the recent authority to repay student loans as an incentive to attract and retain employees.
- Term Appointments -- The term appointment authority is another tool that NASA uses to provide greater organizational agility. Term appointments have been very beneficial, particularly in supporting programs and projects of limited duration. The enhancements to the term appointment authority provided in the NASA Flexibility Act will make the use of term appointments even more effective.
- Intergovernmental Personnel Act (IPA) -- NASA has long-recognized the value of the IPA authority as a means of strengthening the workforce by leveraging outside talent from academia and the nonprofit sector, infusing new ideas and perspectives into the Agency, developing new skills within the NASA workforce, and strengthening mission capabilities. This authority will be even more useful through the legislative change permitting assignments to be extended beyond four years.
- Student Programs -- NASA makes extensive use of student employment programs as sources of candidates critical to building a workforce of the future. Such programs include the Co-operative Education Program, the NASA Undergraduate Student Research Program, and the NASA Graduate Student Research Programs. The recognition of the importance of building the science and engineering pipeline led to our legislative proposal for a scholarship for service” program, which would allow us to support the development of a high-quality science and engineering workforce by awarding scholarships in return for a commitment to work for NASA after graduation.
- Federal Career Internship Program (FCIP) -- In December 2000, Federal agencies were given the authority to hire employees under the Federal Career Intern Program – a hiring authority that provides greater flexibility in the recruitment and examining process. NASA has made effective use of this program to meet its human capital needs, and used it extensively in its corporate recruitment efforts during the fall, 2003 recruitment campaign.
- Presidential Management Intern (PMI) -- The Agency has been a strong advocate of the Presidential Management Intern Program, and continues to use it as a recruitment source.

Using Internet Technology and Non-government Recruitment Agencies

NASA makes extensive use of internet technology to enhance its recruitment strategies and will continue to do so. Our initiatives in this area include the following:

- NASA's Automated Staffing and Recruitment System (NASA STARS) at <http://www.nasajobs.nasa.gov> -- To streamline the lengthy and cumbersome recruitment process that often causes the Agency to lose candidates to the private sector, NASA implemented its Automated Staffing and Recruitment System in FY2001 (NASA STARS). This system has simplified and expedited the hiring process by using a computer-assisted rating and referral system, allowing candidates to apply on-line, and using "push technology" to permit candidates to be automatically notified of NASA vacancies matching their interests.
- NASA's Automated Job Announcement System—NASA Jobs at <http://www.nasajobs.nasa.gov> -- NASA established a unified NASA JOBS website to provide easy access to vacancy information at all of our NASA Centers. The site is user-friendly and allows job seekers to create up to five personalized job searches using their specific job criteria. The site also provides direct links to information on NASA's mission, student opportunities and education programs.
- NASA's recruitment website at <http://www.nasajobs.nasa.gov/recruit> -- A team of Center recruitment specialists developed a unified, comprehensive recruitment website designed for NASA managers and employees. The site provides information on recruitment tools and strategies, candidate sources, and an interactive recruitment calendar that allows Centers to advertise their upcoming campus and professional association visits.

NASA has developed more expansive marketing techniques in order to compete in today's environment and appeal to the emerging workforce. Recently, the Agency developed new promotional materials, including CD ROM business cards with links to the NASA Jobs website and a short movie on the history of NASA. In addition, we developed an employment DVD that provides information on what it's like to work at NASA from those who know best—our own employees. Our recruitment materials will be updated to reflect and accommodate the new flexibilities provided in the NASA Flexibility Act.

NASA stays abreast of services available from nongovernmental recruitment and placement organizations, and engages such outside assistance when appropriate. To encourage interest in NASA career opportunities, the Agency networks extensively with minority, women and individuals with disabilities professional, scientific, research, and education organizations. In addition, NASA contracts with nongovernmental organization when appropriate – as the Agency did recently to enhance efforts to increase diversity within the workforce.

Unlike many Federal organizations whose missions are less well-known or less exciting, NASA's challenging work is its most successful marketing tool. To attract applicants, NASA uses its most effective recruitment resource: its employees. NASA's talented employees inspire enthusiasm for the work that they do. Employees, particularly

scientists and engineers and including senior Agency officials, serve as technical recruiters at on-campus job fairs, minority and professional associations and a wide variety of other outreach events. Typically, these employees present briefings on the work that they do, or provide information on NASA projects that are of interest to the audience. It is through their stories that NASA inspires students and mid-level careerists to join the NASA workforce

NASA'S Corporate Recruitment Strategy

“NASA will implement an integrated Agency-wide approach to human capital management. This approach will attract and maintain a workforce that is representative of the Nation’s diversity and includes competencies that NASA needs to deliver sustained levels of high performance that the Agency’s challenging mission requires.” (NASA’s 2003 Strategic Plan)

NASA recently implemented a significant change to its approach to recruitment in developing a *Corporate Recruitment Strategy*. In partnership with the Office of Education and Office of Equal Opportunity Programs, the Human Resources Office developed a NASA-wide recruitment strategy designed to meet short-and long-term workforce needs. The primary focus of this five-year plan is recruitment of exceptional and diverse individuals with science, engineering and business management skills and competencies. The NASA-wide recruitment strategy allows NASA Field Centers to share limited resources and identify recruitment opportunities of most benefit to NASA.

Taken together, all of the objectives and actions that are outlined in the Corporate Recruitment Strategy are designed to promote an effective and efficient corporate-wide recruitment strategy. Improved marketing, stronger retention programs including orientation and mentoring programs, and effective print and electronic advertisement campaigns will strengthen NASA’s reputation as an “employer of choice.” Stronger outreach and capacity building at colleges, universities and professional associations will increase candidate pools and promote a more diverse workforce. Continuous evaluation of the strategy to assess program success will enable the recruitment committee to continually improve the strategy. The outcome of the strategy will ensure that NASA can continue to build a world-class workforce to achieve its mission.

VII. Workforce-related Reforms – Resolving the Findings and Recommendations of the CAIB Report

The Workforce Plan shall describe - any workforce-related reforms required to resolve the findings and recommendations of the Columbia Accident Investigation Board, the extent to which those recommendations were accepted, and, if necessary, the reasons why any of those recommendations were not accepted.

With respect to workforce management practices, the CAIB Report includes findings pertaining to systemic cultural and organizational issues, including decision making, risk management, and communication.

NASA accepts the findings of the CAIB, will comply with the Board's recommendations, and embraces the report. This commitment is reiterated in *NASA's Implementation Plan for Space Shuttle Return to Flight and Beyond*, which outlines actions that the Agency will take to respond to the CAIB recommendations.

Acknowledging the fact that NASA's culture contributed as much to the Columbia accident as any technical failure, NASA is pursuing an in-depth assessment to identify and define areas of improvement and take aggressive corrective action. The Implementation Plan outlines the actions NASA will undertake, including:

- Create a culture that values effective communication and empowers and encourages employee ownership over work processes.
- Assess the existing safety organization and culture to correct practices detrimental to safety.
- Increase our focus on the human element of change management and organizational development.
- Remove barriers to effective communication and the expression of dissenting views.
- Identify and reinforce elements of the NASA culture that support safety and mission success.
- Ensure that existing procedures are complete, accurate, fully understood, and followed.
- Create a robust system that institutionalizes checks and balances to ensure the maintenance of our technical and safety standards.
- Work within the Agency to ensure that all facets of cultural and organizational change are continually communicated within the NASA team.

To strengthen engineering and safety support, NASA

- Is reassessing its entire program and project support structure, with particular focus on checks and balances, line authority, required resources, and funding sources for human space flight safety organizations.
- Is restructuring its engineering organization, with particular focus on independent oversight of technical work, enhanced technical standards, and independent technical authority for approval of flight anomalies.
- Has established a new NASA Engineering and Safety Center to provide augmented, independent technical expertise for engineering, safety, and mission assurance. The function

of this new Center and its relationship with NASA's programs will evolve over time as we progress with our implementation of the CAIB recommendations.

- Is returning to a model that provides NASA subsystem engineers with the ability to strengthen government oversight of Space Shuttle contractors.
- Will ensure that Space Shuttle flight schedules are consistent with available resources and acceptable safety risk.

To improve communication and decision making, NASA will

- Ensure that we focus first on safety and then on all other mission objectives.
- Actively encourage people to express dissenting views, even if they do not have the supporting data on hand, and create alternative organizational avenues for the expression of those views.
- Revise the Mission Management Team structure and processes to enhance its ability to assess risk and to improve communication across all levels and organizations.

To strengthen the Space Shuttle Program management organization, NASA has

- Increased the responsibility and authority of the Space Shuttle Systems Integration Office in order to ensure effective coordination among the diverse Space Shuttle elements. Staffing for the Office will also be expanded.
- Established a Deputy Space Shuttle Program Manager to provide technical and operational support to the Manager.
- Created a Flight Operations and Integration Office to integrate all customer, payload, and cargo flight requirements.

To expand technical and cultural training for Mission Managers, NASA will

- Exercise the Mission Management Team with realistic in-flight crisis simulation. These simulations will bring together the flight crew, flight control team, engineering staff, the Mission Management Team, and other appropriate personnel to improve communications and to teach better problem recognition and reaction skills.
- Engage independent internal and external consultants to assess and make recommendations that will address the management, culture, and communications issues raised in the CAIB report.
- Provide additional operational and decision-making training for mid- and senior-level program managers.

The Implementation Plan, originally released on September 8, 2003, is a living document that will be updated periodically. The first revision, released on October 15, 2003, describes progress made in response to the CAIB observations and recommendations. NASA has undertaken the following actions to address the organization and culture issues:

Specific recommendations in the report related to workforce management are described below, with a description of actions underway by NASA in response to them:

R7.5-1: Establish an independent Technical Engineering Authority that is responsible for technical requirements and all waivers to them, and will build a

disciplined, systematic approach to identifying, analyzing, and controlling hazards throughout the life cycle of the Shuttle System. The Technical Engineering Authority should be funded directly from NASA Headquarters and should have no connection to or responsibility for schedule or program cost.

R7.5-2: *NASA Headquarters Office of Safety and Mission Assurance should have direct line authority over the entire Space Shuttle Program safety organization and should be independently resourced.*

R7.5-3: *Reorganize the Space Shuttle Integrating Office to make it capable of integrating all elements of the Space Shuttle Program, including the Orbiter.*

R9.1-1: *Prepare a detailed plan for defining, establishing, transitioning, and implementing an independent Technical Engineering Authority, independent safety program, and a reorganized Space Shuttle Integration office. In addition, NASA should submit annual reports to Congress as part of the budget review process on its implementation activities.*

A team led by the Associate Administrator for Safety and Mission Assurance has been chartered to develop a detailed plan for defining, establishing, transitioning and implementing these recommendations to ensure that NASA establishes an organizational structure and culture to operate the Shuttle Program safely and with technical excellence. As part of this effort, the Space Shuttle Program is working with industry and the Department of Defense to benchmark their independent oversight processes.

As a first step, NASA established the NASA Engineering and Safety Center (NESC) to provide augmented engineering and safety assessments. It is located at the NASA Langley Research Center but the Headquarters Office of Safety and Mission Assurance will provide the NESC's budget and policy to assure independence. The core team is in place now and the Agency is well on the way to having the NESC fully staffed.

NASA also has strengthened the role of the Space Shuttle Integration Office to make it capable of integrating all of the projects and elements of the Program, including the Orbiter Project. The new office, the Shuttle Engineering and Integration Office, reports directly to the Program Manager.

NASA also has established an Agencywide Action Team, lead by the Goddard Space Flight Center Director, to develop recommendations on how the CAIB findings and recommendations can be applied beyond the Shuttle Program and across the Agency.

VIII. Safeguards to Ensure that Implementation of Authorities Does not Compromise Safety

*The Workforce Plan shall describe -
the safeguards and other measures that will be applied to ensure that this chapter is carried out in a manner that does not compromise the safety or survival of any spacecraft or crew thereof.*

The implementation of the authorities contained in the NASA Flexibility Act will not, in any way, compromise the safety or survival of any spacecraft or crew thereof.

These authorities represent new flexibilities and incentives for addressing NASA's human capital challenges. None of these flexibilities alters or diminishes any of the existing standards for assessing employee qualifications or credentials for positions, nor do they alter existing standards or processes associated with establishing job performance standards or evaluating employee performance. In addition, these authorities do not have any bearing on general management issues of organizational structure, communication channels, or the decision-making process.

Instead, the legislative provisions provide improved hiring processes, more flexible appointment authorities, and enhanced incentives that are designed to enable NASA to attract exceptional talent to the Agency and be more successful in retaining individuals with critical competencies. These authorities will be helpful to NASA in hiring and retaining individuals with competencies that are critical to NASA's mission-- including competencies in the safety and mission assurance areas. For example, the Agency has established a new NASA Engineering and Safety Center to provide independent expertise for engineering, safety, and mission assurance of all NASA programs. The new human capital flexibilities and incentives will be useful tools in attracting and retaining exceptional talent to this very important organization.

[NOTE: This Section is required under H.R. 1085. S. 610 does not contain a requirement to address the issue the safeguards that will be applied to ensure that the workforce flexibilities are implemented in a manner that does not compromise the safety or survival of any spacecraft or crew. This Section will be deleted if the final version does not require it.]

APPENDIX A

NASA WORKFORCE COMPETENCY DICTIONARY

(submitted as a separate file)

APPENDIX B

NASA's Critical Competencies

Alignment with Office of Personnel Management (OPM) Occupational Series

The following chart aligns NASA critical competencies, as defined in the NASA Workforce Competency Dictionary, with OPM occupational series. Occupational series representing administrative support positions have been deleted. Since there is not a one-for-one match between the two sets of definitions, a competency may be associated with several occupational series, and, conversely, an OPM series may be associated with several competencies.

This analysis is based on several factors: (1) comparison of competency definitions with OPM series definitions; (2) comparison of the "primary" competency of a NASA employee an employee and the OPM occupational series of that employee; (3) identification of the majors of undergraduate and graduate students who are working in specified competency areas; and (4) the concept of interdisciplinary professional positions as explained in OPM's Introduction to Position Classification Standards.

| Competency | Occupational Title and Series | |
|----------------------------------|---|---|
| Systems Engineering | General Engineer, GS-801 Computer Engineer, GS-854 | Electronics Engineer, GS-855 Aerospace Engineer, GS-861 |
| Integration Engineering | General Engineer, GS-801 Computer Engineer, GS-854 Physicist, GS-1310 | Electronics Engineer, GS-855 Aerospace Engineer, GS-861 |
| Test Engineering | General Engineer, GS-801 Electrical Engineer, GS-850 Computer Engineer, GS-854 Physical Scientist, GS-1301 | Electronics Engineer, GS-855 Aerospace Engineer, GS-861 Physicist, GS-1310 |
| Mission Assurance | Environmental Health Technician, GS-698 Aerospace Engineer, GS-861 Quality Assurance Specialist, GS-1910 | |
| Human Factors | Psychology, GS-180 Physiology, GS-413 Biology, GS-401 Materials Engineer, GS-806 | Computer Engineer, GS-854 Biomedical Engineer, GS-858 Physical Science, GS-1301 Physics, GS-1310 |
| Nuclear Engineering | Nuclear Engineer, GS-840 Mechanical Engineer, GS-830 Physicist, GS-1310 | Electrical Engineer, GS-850 Aerospace Engineer, GS-861 |
| Design & Development Engineering | General Engineer, GS-801 Computer Engineer, GS-854 Physicist, GS-1310 | Electronics Engineer, GS-855 Aerospace Engineer, GS-861 |
| Quality Engineering & Assurance | Environmental Health Technician, GS-698 Aerospace Engineer, GS-861 Quality Assurance Specialist, GS-1910 | |

| | |
|-----------------------------------|--|
| Business Management | Administration and Program, GS-301 Program Management, GS-340 Administrative Officer, GS-341 Management and Program Analyst, GS-343 Financial Administration and Program, GS-501 |
| Mission Execution | General Engineer, GS-801 Aerospace Engineer, GS-861 Physical Scientist, GS-1301 Aircraft Operation, GS-2181 Flight Engineer, GS-2185 |
| Program/Project Management | Biologist, GS-401 Medical Officer, GS-602 General Engineer, GS-801 Electronics Engineer, GS-855 Aerospace Engineer, GS-861 Physical Scientist, GS-1301 Statistician, GS-1530 |
| Business IT Systems | Human Resources Management, GS-201 Administration and Program series, GS-301 Telecommunications, GS-391 Legal and Kindred Administration Series, GS-901 Computer Engineer, GS-854 Computer Scientist, GS-1550 Information Technology Management, GS-2210 |
| Budgeting Management | Administration and Program, GS-301 Management and Program Analysis, GS-343 Financial Administration, GS-501 Budget Analyst, GS-560 Medical Officer, GS-602 General Engineer, GS-801 |
| Propulsion Systems & Testing | Mechanical Engineer, GS-830 Electronics Engineer, GS-855 Nuclear Engineer, GS-840 Aerospace Engineer, GS-861 Physicist, GS-1310 |
| Safety Engineering & Assurance | Environmental Health Technician, GS-698 Aerospace Engineer, GS-861 |
| Mission Analysis & Planning | General Engineer, GS-801 Computer Engineer, GS-854 Aerospace Engineer, GS-861 |
| Acquisition & Contract Management | Administration and Program, GS-301 Contracting, GS-1102 Purchasing, GS-1105 |
| Mathematical Modeling & Analysis | Computer Engineer, GS-854 Electronics Engineer, GS-855 Aerospace Engineer, GS-861 Physical Scientist, GS-1301 Physicist, GS-1310 Geophysicist, GS-1313 Meteorologist, GS-1340 Oceanographer, GS-1360 Mathematician, GS-1520 Statistician, GS-1530 |
| Intelligence/Adaptive Systems | Computer Engineer, GS-854 Aerospace Engineer, GS-861 |

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| Institutional Facilities Planning & Operations | Administration and Program, GS-301 Materials Engineer, GS-806 Architect, GS-808 Civil Engineer, GS-810 Environmental Engineer, GS-819 Mechanical Engineer, GS-830 Electrical Engineer, GS-850 Electronics Engineer, GS-855 General Facilities and Equipment, GS-1601 Facility Management, GS-1640 Printing Management, GS-1654 |
| Fundamental Human Factors Research | Psychology, GS-180 Physiology, GS-413 Biology, GS-401 Materials Engineer, GS-806 Computer Engineer, GS-854 Biomedical Engineer, GS-858 Physical Science, GS-1301 Physics, GS-1310 |
| Engineering & Science Support | Engineering Technician, GS-802 Electronics Technician, GS-856 Photography, GS-1060 Physical Science Technician, GS-1311 Mathematician, GS-1521 Facility Management, GS-1640 Quality Assurance, GS-1910 Aircrew Technician, GS-2185 |
| Electrical & Electronics Systems | Engineering Technician, GS-802 Electrical Engineer, GS-850 Electronics Engineer, GS-855 Electronics Technician, GS-856 |
| Communications Networks & Engineering | Telecommunications, GS-391 General Engineer, GS-801 Electronics Engineer, GS-855 |
| Airbreathing Propulsion | Aerospace Engineer, GS-861 Physicist, GS-1310 |
| Computer Systems & Engineering | General Engineer, GS-801 Computer Engineer, GS-854 Aerospace Engineer, GS-861 Computer Scientist, GS-1550 Electronics Engineer, GS-855 |
| Financial Management | Financial Administration and Program series, GS-501 Financial Management, GS-505 Accountant, GS-510 Auditor, GS-511 |
| Flight & Ground Data Systems | Electronics Engineer, GS-855 |
| Human Resources | Human Resources Specialist, GS-201 |

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| Public Communications & Outreach | Historian, GS-170 Administration and Program, GS-301 Public Affairs, GS-1035 Photographer, GS-1060 Audiovisual Production, GS-1071 Writer and Editor, GS-1082 Technical Writer and Editor, GS-1083 Visual Information, GS-1084 Library Technician, GS-1411 Technical Information Services, GS-1412 Archivist, GS-1420 |
| Legal | Attorney, GS-905 Paralegal Specialist, GS-950 Patent Advisor, GS-1221 Patent Attorney, GS-1222 |
| Advanced Mission Analysis | General Engineer, GS-801 Computer Engineer, GS-854 Aerospace Engineer, GS-861 |
| Advanced Experimentation & Test Technologies | General Engineer, GS-801 Materials Engineer, GS-806 Aerospace Engineer, GS-861 Physicist, GS-1310 Electrical Engineer, GS-850? |
| Aerodynamics | Aerospace Engineer, GS-861 |

APPENDIX C

NASA'S COMMUNICATION PLAN
for the
Workforce Plan and Legislative Authorities

As a part of the Agency's effort to implement the workforce authorities in the NASA Flexibility Act, NASA will fully consult with its employees and employee representatives as well as the appropriate Congressional Committees. NASA will provide the widest dissemination of information and establish mechanisms for feedback in a "One NASA" approach.

Top management attention, focus, and communication are critical to success of this effort. The Agency is committed to clear and consistent communication, followed by clear and consistent action. The baseline approach to the communication and education phase of the human capital legislation implementation will be characterized by the following:

- Common informational tools/materials targeted for the various stakeholders, including:
 - Human Resources Community – Briefing materials designed to assist in further dissemination of information with emphasis on obtaining buy-in from other stakeholders.
 - Employees and Representatives – Informational packages and FAQ's explaining how the changes will (or will not) impact them.
 - Line Managers – Explanations of legislative flexibilities, emphasizing how they can be used within guidelines to meet different workforce challenges.
- Agency-wide collaboration to leverage expertise to communicate and educate in a consistent manner.
- Mandatory use of **both** technology (internet websites, VITS, media, etc.) and live forums (Town Hall Meetings, Road Shows, etc.) to disseminate information and gather feedback.

NASA's Communications Plan for legislation implementation addresses three critical components essential to successful change management: (1) the tools and methods for communication; (2) the roles and responsibilities of individuals; and (3) the scope and content of the material being disseminated. A Change Management Team, with representatives from all NASA Centers as well as a representative from the International Federation of Professional and Technical Engineers (IFPTE), will ensure that the Communications Plan is executed successfully.

Tools for Communication

Internet Website – NASA will develop a readily accessible and centrally managed Human Capital Legislation website accessible to all employees. The website will contain

the draft Human Capital Legislation Workforce Plan, the Public Law authorizing the new authorities, related implementing policies, “ordinary English” information papers, FAQ’s, and other informational tools as appropriate. It also will provide a means to submit written feedback. All feedback and recommendations will receive fair consideration before the Workforce Plan is submitted to Congress.

Seminars, Informational Forums, and Other Tools – NASA Headquarters and the Centers, with the help of the Human Capital Legislation Team, will develop and disseminate a variety of informational products for employees, employee representatives, and managers. This effort will be supplemented by “live forums” and videoteleconferences sponsored by the Legislation Implementation Team in which NASA employees and their representatives can learn about the draft Workforce Plan, workforce legislation and related implementing policies, and provide verbal feedback. Examples of various forums that may be used to disseminate information and gather feedback include:

- Town Hall Meetings
- Road Shows
- Human Capital Expos
- Boarding Parties (teams of experts)
- “All Supervisors” Forums
- Staff Meeting presentations
- Executive Management Council Meetings
- Communication Advocacy Group presentations
- Change Leader Network presentations
- Media (NASA TV, Center Bulletins and Newspapers, etc.)

Roles and Responsibilities

Successful change management requires a shared understanding of the roles and responsibilities of the individuals involved in the communication effort.

NASA Executive Managers play a key role in ensuring that the draft Workforce Plan is widely communicated and that all feedback is given full consideration. Executive Managers include the NASA Administrator, the Agency Human Resources Director, and the Human Resources Officers at the Centers. :

NASA Administrator – The NASA Administrator or designee, with the assistance of Legislative Affairs, will keep the appropriate Congressional Committees apprised of the Workforce Plan and any changes to it in accordance with the provisions of the NASA Flexibility Act.

Agency Human Resources Director – The Agency Human Resources Director will provide guidance to Human Resources Officers at the Centers regarding the processes and requirements relevant to developing or modifying the Workforce Plan and implementing the legislative provisions. The Agency Human Resources Director will

coordinate with the Center Human Resources Officers in the change management activities associated with implementing the legislation.

Center Human Resources Officers – Human Resources Officers will assist in developing communication rollout plans for their respective Centers that meet the spirit of a “One NASA” approach. Because some communication forums are more effective than others at certain Centers there may be variance in the resultant communications rollout plans. As a goal, the plans will ensure that all employees and their representatives be provided with the Workforce Plan and implementing policies, have the opportunity to ask questions about them, and be able to provide feedback through both live and other communication forums.

Human Capital Legislation Implementation Team – The Human Capital Legislation Implementation Team will continue to operate throughout the communications and education phases of this activity to convey a consistent message. The Team’s continued involvement will help to ensure a that comprehensive and consistent information is conveyed to the workforce. Among the activities in which the Team may engage to achieve these objectives are:

- Providing an Agency-wide team of experts to conduct “Boarding Party” presentations at the Centers as needed;
- Conducting videoteleconferences presentations with Human Resources Offices to ensure a broad level of understanding within the human resources community so they can assist in the communication and education initiatives as “subject matter experts” for their respective Centers;
- Developing common informational materials in the form of info packets, trifolds, FAQ’s, and other materials for distribution to stakeholders;
- Facilitating the process for receiving and considering feedback on the Workforce Plan and implementing policies

Human Resources Offices staff - Human Resources personnel at the Centers are encouraged to play a major role. As subject matter experts, they will be essential in disseminating information on the draft Workforce Plan and in implementing policies and gathering feedback.

Union Engagement– Through NASA’s national representatives, AFGE and IFPTE were invited to participate on the Legislation Implementation Team in developing the Workforce Plan, implementing policies, and the communications plan. IFPTE designated a representative to participate on the Legislative Implementation Team and the individual will continue to participate in the change management activities in the coming months. Additionally, feedback from Locals at the various Centers will be considered throughout the implementation activities.

Scope and Content of Material

At a minimum, the materials that will be shared with the workforce through written communications, websites, and “live forums” will include the documents relevant to implementation and understanding of NASA’s human capital legislation: the Workforce Plan, the Public Law itself, “ordinary English” information papers on the individual workforce authorities, implementing policies and procedures, and FAQ’s.