This bulletin establishes guidelines for implementing and operating telework and other alternative workplace arrangement programs through the efficient and effective use of information technology and telecommunications. These policies are designed to assist agencies in the implementation and expansion of Federal alternative workplace arrangement programs.

**EFFECTIVE DATE:** March 2, 2007.

**FOR FURTHER INFORMATION CONTACT:** For further clarification of content, contact Stanley C. Langfeld, Director, Regulations Management Division (MPR), General Services Administration, Washington, DC 20405; or stanley.langfeld@gsa.gov.

**Dated:** February 21, 2007.

**Kevin Messner,**

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**General Services Administration**

**[FMR Bulletin 2007–B1]**

**Real Property**

TO: Heads of Federal Agencies

SUBJECT: Information Technology and Telecommunications Guidelines for Federal Telework and Other Alternative Workplace Arrangement Programs

1. **Purpose:** This bulletin establishes guidelines for implementing and operating telework and other alternative workplace arrangement (AWA) programs through the efficient and effective use of information technology and telecommunications.

2. **Expiration Date:** This bulletin will remain in effect indefinitely until specifically cancelled.

3. **Definitions:** Following are terms and definitions used in and for the purpose of this bulletin:

   a. **Agency Worksite**—An agency worksite is the post of duty to which an employee would report if not teleworking.

   b. **Alternative Worksite**—An alternative work location used by teleworkers while teleworking.

   c. **Broadband**—Broadband is a term that commonly and loosely refers to high speed data transmission service. When such service is used for connections to the internet, the Federal Communications Commission (FCC) defines two types of connections:

      1. **High-speed lines** that deliver services at speeds exceeding 200 kilobits per second (kbps) in at least one direction, and 2. **advanced services lines** that deliver services at speeds exceeding 200 kbps in both directions (see FCC News Release entitled “Federal Communications Commission Releases Data On High-Speed Services for Internet Access, High-Speed Connections to the Internet Increased by 33% in 2005,” datelined July 26, 2006, http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-266593A1.doc%3E).

   d. **Dial-up**—Dial-up refers to the use of an analog telephone line for accessing the internet and remotely connecting to and from an alternative worksite to an agency Information Technology (IT) system. Dial-up access uses normal telephone lines for data transmission and generally has a lower data transfer rate as compared to other internet services.

   e. **Docking Station**—A docking station is a piece of equipment that is used with a laptop computer to allow for the convenient and quick connection of peripheral and/or telecommunications (internet access, for example) equipment by providing the laptop with additional ports, expansion slots, and bays for various types of peripherals and other connections. Typically, the docking station is continuously located in a given workstation and continuously connected to peripherals and telecommunications access; the laptop is slipped in and out of the docking station, as needed. A docking station also enables use of the laptop to resemble the use and convenience of a desktop computer by enabling the user to operate the laptop with a full size external keyboard, monitor, and/or mouse. Thus, a docking station maintains the flexibility of a laptop while giving it the functionality of a desktop computer.

   f. **External Information Systems**—Information systems or components of information systems that are outside of the accreditation boundary established by the organization and for which the organization typically has no direct control over the application of required security controls or the assessment of security control effectiveness. External information systems include, but are not limited to, personally owned information systems (e.g., computers, cellular telephones, or personal digital assistants); privately-owned computing and communications devices resident in commercial or public facilities (e.g., hotels, convention centers or airports); information systems owned or controlled by non-federal governmental organizations; and federal information systems that are not owned by, operated by, or under the direct control of the organization.

   g. **One Computer Model**—Teleworker use of a single computer, usually a laptop, that is transported to all worksites (typically back and forth between an alternative worksite and the agency worksite). The One Computer Model contrasts with multi-computer situations in which the teleworker has a separate computer for use at each worksite and, typically, each of these computers remains at the worksite and is not transported around.

   h. **Remote Access Servers (RAS)**—Remote access servers provide internet and dialup access to the office local area network (LAN). The RAS authenticates the user through a password or stronger mechanism; it then allows the user to access files, printers, or other resources on the LAN. The chief benefit of a RAS is in providing a conveniently packaged comprehensive solution to offsite access needs. Typically, the servers include support for internet-based voice communications, virtual private networks (defined below), and authentication in a package designed to make it easier for administrators to establish and maintain user privileges.

   i. **Telework**—Telework is work performed by an employee at an alternative worksite, which reduces or eliminates the employee’s commute or travel to the agency worksite. Alternative worksites may include the employee’s home, telework center, satellite office, field installation, or other location.

   j. **Virtual Private Network (VPN)**—The National Institute of Standards and Technology (NIST) defines a virtual private network (VPN) as “a logical network that is established, at the application layer of the Open Systems Interconnection (OSI) model, over an existing physical network and typically does not include every node present on the physical network.” Further, NIST describes how VPN technology uses the internet as the transport medium...
and employs security measures to ensure that the communications are private. Although VPN traffic crosses the internet, VPN protection prevents most unauthorized users from reading and/or modifying the traffic (see NIST Special Publication 800–46, Security for Telecommuting and Broadband Communications, http://csrc.nist.gov/publications/nistpubs/800-46/SP800-46.pdf).

4. Background:

a. 40 U.S.C. § 587c(f) (Public Law 104–208, div. A, title I, § 101(f) [title IV, § 407(a) (September 30, 1996)], as revised, restated and recodified without substantive change by Public Law 107–217 (August 21, 2002)) authorizes GSA to provide guidance, assistance, and oversight, as needed, regarding planning, establishment and operation of AWA programs.

b. In accordance with Section 359 of Public Law 106–346, effective October 23, 2000, each Executive agency must establish a policy under which eligible employees of the agency may participate in telecommuting to the maximum extent possible without diminished employee performance.


“Notwithstanding any provisions of this Act or any other Act, during the fiscal year ending September 30, 1996, and hereafter, any department, division, bureau, or office may provide as follows:

I. Basic Equipment Recommendations

a. An agency may provide employees with computer equipment and peripheral equipment (e.g., printer, copier, scanner, facsimile), telecommunications, and associated technical support for the implementation and expansion of telework in the Federal Government. The agency may provide the equipment for the agency’s purposes, on the condition that the equipment will be returned to the agency if the employed is separated from a position of employment. This equipment may be utilized for official business at alternative worksites.

b. As described above, agencies are authorized to provide and/or pay for installation and operation of a dedicated voice line for teleworker use at an alternative worksite. Regardless of whether or not, or the extent to which, an agency provides resources for such a line, a dedicated voice line is recommended to (1) minimize delays caused by co-workers, clients, and/or other work-related personnel not prevented from reaching a teleworker due to the tying up of a dedicated line, (2) provide a personal voice line with business activity.

Guidelines for IT and Telecommunications for Federal Telework and Other AWA Programs

5. Further Information: For further information, contact Stanley C. Langfeld, Director, Regulations Management Division, Office of Real Property Management (MP), at (202) 501–1737; or stanley.langfeld@gsa.gov.
largely of writing and document preparation, may never need to log in to agency systems from an alternative worksite. Provided that they are not sensitive or do not contain personally identifiable information, documents can be e-mailed back and forth between the agency system and the user’s e-mail account. In this scenario, e-mailing a document from an alternative worksite to the agency system does not require the teleworker to interact with the system. In general, there may be firewall implementation that prevents the use of an electronic mail proxy to allow access to the files on a protected system without having to directly access that system. Alternatively, the teleworker may physically transport the documents on portable storage media.

When teleworkers need to access the agency’s centralized IT systems, it is necessary, at a minimum, to allow for remote logins from the alternative worksite computer. In this case, strong authentication (at least “two factor authentication”) is required. That system is to ensure the vulnerabilities in providing external access. This solution is sufficient for teleworkers requiring minimal access to internal resources, such as some types of intranet access. NIST provides detailed guidance on this issue in Special Publication 800-63, its document on electronic authentication, and agencies are advised to review and comply with this guidance (see http://csrc.nist.gov/publications/nistpubs/800-63/SP800-63V1_0_2.pdf).

Some teleworkers, however, may require more access to internal resources. In this case, a more secure solution, such as a VPN, should be used. A VPN can provide a high level of security and convenience for the teleworker. Encryption protects all interaction between the offsite computer and the main office, so that in many ways the user’s offsite computer is as secure as one on the main office local network. This approach makes it possible to allow offsite users to operate applications such as scheduling, budget analysis, or other complex systems from their alternative worksite. The tradeoff for a VPN is in cost and complexity of administration. Note also that operating a VPN does not guarantee protection from viruses and e-mail worms. The agency Chief Information Officer (CIO), in conjunction with other agency officials (such as telework and/or human resources management policy providers), should examine job requirements and provide policy, guidance, and appropriate secure system access.

Agencies should be aware and take advantage of the potential utility and other benefits of audio teleconference and web conference capabilities for their respective telework programs. These capabilities can be excellent tools to facilitate productivity, agency cost savings (from reduced travel expenses, for example), and other benefits for all employees, and for teleworkers, in particular. Agency telework program planners and implementers should be aware of and utilize the relevant telecommunications products, tools, information, and services that are available in their existing contracts and/or from service providers, such as the GSA Global Account Manager (http://www.gsa.gov/networkscvs), or equivalent sources and providers.

III. Security

a. According to an Office of Management and Budget (OMB) memorandum entitled “Protecting Federal Information,” dated June 23, 2006, which addresses the lack of physical security controls when information is removed from or accessed from outside the agency location, agencies should implement the NIST checklist for securing remote information (see http://www.whitehouse.gov/omb/memoranda/fy2006/m06-16.pdf), and:
   (1) Encrypt all data on mobile computers and devices that carry agency data, unless the agency determines that the data are non-sensitive;
   (2) Allow remote access only with two-factor authentication where one of the factors is provided by a device separate from the computer gaining access;
   (3) Use a “time-out” function requiring user re-authentication after thirty (30) minutes of inactivity for remote access and mobile devices; and
   (4) Log all computer-readable data extractions from databases holding sensitive information and verify that each such extract has been erased within ninety (90) days or that its use is still required.

b. FISMA delegates to NIST the responsibility to develop detailed information security standards and guidance for federal information systems, with the exception of national security systems. Agency personnel involved in planning, implementing, and/or operating telework programs should consult the Web site of NIST’s Computer Security Resource Center (see http://csrc.nist.gov/) for up-to-date information and guidance on secure computing. Listed below are key documents that can assist in the implementation of secure telework operations.

(1) Security forTelecommuting and Broadband Communications (NIST Special Publication 800–46 (2002)), assists organizations in addressing telework security issues by providing recommendations on securing a variety of applications, protocols, and network architectures (see http://csrc.nist.gov/publications/nistpubs/800-46/sp800-46.pdf).


(4) Security Management and guidance (see http://csrc.nist.gov/focus_areas.htm#smag).

a. Agencies should review and comply with applicable controls and guidance, especially sections on portable devices, remote access, and external IT systems set forth in NIST Special Publication 800–53, Rev. 1, when developing telework program implementation guidelines. Listed below are selected controls and guidance from NIST Special Publication 800–53, Rev. 1:

(1) Access Control for Portable and Mobile Devices (e.g., notebook computers, personal digital assistants, cellular telephones, and other computing and communications devices with network connectivity and the capability of periodically operating in different physical locations)

   i. Establish usage restrictions and implementation guidance for organization-controlled portable and mobile devices;
   ii. Authorize, monitor, and control device access to organizational information systems;
   iii. Require that portable and mobile device access to organizational information systems be in accordance with organizational security policies and procedures. Security policies and procedures include device identification and authentication, implementation of mandatory protective software (e.g., malicious code detection, firewall), configuration management, scanning devices for malicious code, updating virus protection software, scanning for critical software updates and patches, conducting primary operating system (and possibly other resident software) integrity checks, and disabling unnecessary hardware (e.g., wireless, infrared).

(2) Remote Access:
   i. Authorize, monitor, and control all methods of remote access to the information system. Remote access controls should be applied to all information systems other than public web servers or systems specifically designed for public access.
   ii. Restrict access achieved through dial-up connections (e.g., limit dial-up access based upon source of request) or protect against unauthorized connections or subversion of authorized connections (e.g., using VPN technology). NIST Special Publication 800–63 provides guidance on remote electronic authentication.
   iii. Employ automated mechanisms to facilitate the monitoring and control of remote access methods;
   iv. Use cryptography to protect the confidentiality and integrity of remote access sessions;
   v. Control all remote accesses through a limited number of managed access control points; and
   vi. Permit remote access for privileged functions only for compelling operational needs and document the rationale for such access in the security plan for the information system.

(3) Use of External Information Systems Control:

   i. Establish terms and conditions for authorized individuals to: (A) access the information system from an external information system; (B) process, store, and/or transmit organization-controlled information using an external information system. Authorized individuals include organizational personnel, contractors, or any other individuals with authorized access to the organizational information system. This control does not apply to the use of external security and information control
information systems to access organizational information systems and information that are intended for public access (e.g., individuals accessing federal information through public interfaces to organizational information systems).

ii. Establish terms and conditions for the use of external information systems in accordance with organizational security policies and procedures. The terms and conditions should address, at a minimum: (A) the types of applications that can be accessed on the information system from the external information system; and (B) the maximum Federal Information Processing Standard 199 security category of information that can be processed, stored, and transmitted on the external information system.

iii. Prohibit authorized individuals from using an external information system to access the information system or to process, store, or transmit organization-controlled information except in situations where the organization: (A) Can verify the employment of required security controls on the external system as specified in the organization’s information security policy and system security plan; or (B) has approved information system connection or processing agreements with the organizational entity hosting the external information system.

IV. Privacy

Agencies should review the OMB memorandum entitled “Safeguarding Personally Identifiable Information,” dated May 22, 2006, and ensure that their respective telework technology infrastructures, practices and procedures are in compliance with that memorandum and the Privacy Act. The OMB memorandum reemphasizes the many responsibilities under law and policy to safeguard sensitive personally identifiable information appropriately. Among other things, the Privacy Act requires each agency to establish:

“Rules of conduct for persons involved in the design, development, operation, or maintenance of any system of records, or in maintaining, and instruct each such person with respect to such rules and the requirements of [the Privacy Act], including any other rules and procedures adopted pursuant to [the Privacy Act] and the penalties for noncompliance;” (and)

“appropriate administrative, technical, and physical safeguards to insure the security and confidentiality of records and to protect against any anticipated threats or hazards to their security or integrity which could result in substantial harm, embarrassment, inconvenience, or unfairness to any individual or record information is maintained.” (5 U.S.C. 552a(o)(9)–(10))

V. Training

Teleworkers should receive adequate training on the use of IT systems and applications needed for effective job performance. This should include any specialized training associated with (1) effective use of remote access and other resources needed for working remotely, and (2) security awareness and responsibility. In addition, agencies are encouraged to provide opportunities for teleworkers to practice in a telework situation.

VI. Technical Support

a. Agencies should (1) provide adequate and effective Help Desk support for teleworkers and (2) require Help Desk personnel to possess the skills, procedures, and resources needed for resolving teleworker issues, such as remote access hardware and software issues.

b. Where feasible and applicable, agencies should provide the routine systems maintenance via remote transmission procedures such as transmitting (“pushing”) software and system upgrades out to the teleworker’s alternative worksite as opposed to requiring the teleworker to bring a computer to the agency worksite for maintenance.

VII. Additional References and Resources


VIII. Commonly Asked Questions

a. May an employee use his or her own personal computer equipment to conduct official business from an alternative worksite? If so, who is responsible for maintaining an employee’s personally-owned equipment that is used for official business?

Yes, provided certain conditions are met, agencies may permit employees to use personally-owned equipment to conduct official business. If an agency permits the use of personally owned equipment, the employee must agree to allow the agency to (1) configure that equipment with the proper hardware and software necessary for secure and effective job performance, and (2) access the equipment, as needed, to verify compliance with agency policy and procedures. Additional conditions that must be met are set forth in NIST Special Publication 800–53, Rev. 1, on page 64, as follows:

“Pursuant to Public Law 92–463, notice is hereby given of the twelfth meeting of the Secretary’s Advisory Committee on Genetics, Health, and Society

Pursuant to Public Law 92–463, notice is hereby given of the twelfth meeting of the Secretary’s Advisory Committee on Genetics, Health, and Society (SACGHS), U.S. Public Health Service. The meeting will be held from 8 a.m. to approximately 5 p.m. on Monday, March 26, 2007 and 8 a.m. to approximately 5 p.m. on Tuesday, March 27, 2007, at the Marriott Inn and Conference Center, University of Maryland—College Park, 3501 University Boulevard East, Adelphi, MD 20783. The meeting will be open to the public with attendance limited to space available. The meeting also will be Web cast.