

**SURVEY METHODS REVIEW OF THE FEDERAL VOTING ASSISTANCE
PROGRAM'S 2004 POST-ELECTION SURVEYS AND
RECOMMENDATIONS FOR THE 2008 SURVEYS**

FINAL REPORT

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SUMMARY OF RECOMMENDATIONS FOR 2008 POST-ELECTION SURVEYS

Sample, Sampling Frame, Weighting, and Mode

Uniformed Service Members

Sample type: Probability

Sample size: 15,000

Sampling frame: DMDC's Active Duty and Reserve Master Edit Files; excludes noncitizens and service members with less than 4 months of service

Weighted sample: Yes

Survey mode: Mixed – paper-and-pencil with web option

Federal Civilian Employees Overseas

Sample type: Probability

Sample size: 3,000

Sampling frame: OPM's Central Personnel Data File (contact the Director of the office responsible for the Central Personnel Data File)

Weighted sample: Yes

Survey mode: Web only (possible paper-and-pencil option/followup)

Overseas Citizens

Sample type: Nonprobability (purposive)

Sample size: 3,500

Sampling frame, first stage: DoS list of embassies/consulates; stratified sample (geographic region/size - number of registered overseas citizens) is drawn by DoS (contact the Chief Voting Action Officer, Office of the Assistant Secretary for Consular Affairs, Department of State)

Sampling frame, second stage: None - for privacy/security reasons, current DoS policy is not to use registered citizens' email or postal addresses except for emergencies

Weighted sample: No

Survey mode: Web only, without email addresses for sample members (only survey possibility unless DoS changes its policy on using available address information for registered citizens)

Local Election Officials

Sample type: Probability

Sample size: 3,000

Sampling frame: Election Data Services' (EDS) dataset (contact President of EDS); approximate current cost of basic dataset of local election officials: \$12,250 plus additional marginal cost for historical data

Weighted sample: Yes

Survey mode: Mixed – paper-and-pencil with web option

Unit Voting Assistance Officers

Sample type: Probability

Sample size: 9,000

Sampling frame: List of UIC codes (previous frames excluded installations with fewer than 25 service members)

Weighted sample: Yes

Survey mode: Mixed – paper-and-pencil with web option

Department of State Voting Assistance Officers

Sample type: Probability

Sample size: Census (~240 currently; in 2004, 234 survey invitations were sent)

Sampling frame: Department of State list of Voting Assistance Officers and email addresses; request list from Chief Voting Action Officer, Office of the Assistant Secretary for Consular Affairs, Department of State. The list can be delivered within a day of the request.

Weighted sample: Yes

Survey mode: Web only

Priority General Data Collection Changes

- Single administrator of both web and paper-and-pencil surveys
- Assignment of standard disposition codes to all sample cases
- Robust receipt control/data management system for all surveys
- Increased effort to identify, check, and use current addresses
- Flagging to distinguish completed web surveys from paper-and-pencil surveys
- More email communications during data collection
- Avoidance of commercial domain names for web surveys
- Application of Tailored Design Method to data collection for each survey
- Review of all questionnaires for revisions and deletions

Priority Survey-Group-Specific Data Collection Changes

- Use of OPM's CPDF file for survey of Federal Civilian Employees Overseas
- More Command support for surveys of unit voting assistance officers, Coast Guard members, and Marine Corp members
- Communication plan to advertise and promote the web survey for U.S. citizens overseas

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SURVEY METHODS REVIEW OF THE FEDERAL VOTING ASSISTANCE PROGRAM'S 2004 POST-ELECTION SURVEYS AND RECOMMENDATIONS FOR THE 2008 SURVEYS

INTRODUCTION

Westat's purpose in this study was to review the statistical methods and data collection procedures used in the Federal Voting Assistance Program's (FVAP's) 2004 Post-Election Surveys, investigate and discuss the implications of using web surveys as the single mode of data collection for the various survey target populations, and provide suggestions to facilitate the planning and design of the 2008 post-election surveys. The overall goal is to improve the efficiency of the six FVAP surveys and the quality of their results so that the surveys better fulfill their evaluative purpose.

In this report, we first describe the 2004 statistical methods used for the six FVAP populations—uniformed service members, Federal civilian employees overseas, other citizens overseas, local election officials, unit voting assistance officers, and Department of State voting assistance officers. The descriptions address, for each group, the survey population, the sampling frame, sample size and selection procedures, data weighting, and survey estimation. We then present recommendations for changes in the statistical methods for the 2008 surveys. Next, we discuss the data collection procedures for each group, provide suggested general improvements for data collection in 2008, and provide population-specific mode recommendations and procedures in the 2008 surveys. We summarize our comments on data collection and close with overall conclusions.

STATISTICAL METHODS

We define the statistical characteristics that we discuss in this section of the report as follows.

Target population: The group of individuals who are the focus of the study is called the target population.

Sampling frame: The sampling frame is the list of individuals (or other entities) from which the sample is drawn. Considerations in evaluating the sample frame are how well it represents the target population and whether it excludes any groups of the target population. Decisions about the sampling frame influence the amount of total error resulting from the sampling design. The consistency of fit between the sampling frame and the target population lessens nonsampling bias and in turn lessens total error.

Sample: Samples of individuals (or other entities) are drawn from the sampling frame to represent all members of the target population. Samples are referred to as *probability* or *nonprobability* samples. In probability sampling, the sample is selected in such a way that each unit within the population has a known, nonzero probability of being selected. It is this concept of “known probability” that allows for the statistical projection of characteristics based on the sample to the population. It enables one to have confidence that the sample is not a biased one and to estimate how precise the data are likely to be, that is, how far away from the true value the sample might have fallen. In nonprobability sampling, samples can be chosen for convenience or on the basis of systematically chosen criteria. Subjective judgment plays a role in the selection of the sample. In such samples, the probability of selection is not known and statistical inferences, such as confidence intervals, to the target population cannot legitimately be made.

Westat expects that five of the populations of interest for the 2008 post-election surveys (uniformed service members, Federal civilian employees overseas, local election officials, unit voting assistance officers, and State Department voting assistance officers) can be surveyed using a probability sample. Depending on the information available on the frames for these populations, surveys of these populations may also be weighted to represent their respective populations. Westat currently does not consider it possible to conduct a probability survey of the overseas civilian target population given privacy restrictions preventing access to Department of State lists of registered overseas citizens and their email and postal addresses, as well as the fact that registrations are voluntary and the lists do not cover all overseas citizens.

Statistical Methods Used in the 2004 Post-Election Surveys for Each Population Group

Uniformed Service Members

The characteristics of the uniformed service member population group for the 2004 survey, according to the information provided by the Federal Voting Assistance Program (FVAP), were:

FVAP target population. Active duty members and full-time active reservists who are U.S. citizens with more than 4 months of service. Spouses and adult children of military members are not a population of interest.

2004 sampling frame. Defense Manpower Data Center's (DMDC's) June 2004 Active Duty and Reserve Master Edit Files. See Appendix A for a list of the frame variables. The quality of these files is considered good.

2004 sample. DMDC drew the sample. The sampling frame was segmented to exclude military members with less than 4 months of service and military members who were not U.S. citizens. If a member's citizenship was not known, the member was excluded from the population.

The survey design was a 15,000 member random sample with 3,000 service members for each of five Services (Army, Navy, Air Force, Marine Corps, and Coast Guard). Within each Service the cells were evenly divided between Officers and Enlisted and CONUS and OCONUS, resulting in 20 cells containing 750 members. The design results in a census of Coast Guard officers working overseas and includes a small portion of Army enlisted members stationed in the United States. The OCONUS definition included members in Alaska and Hawaii. Officers included commission and warrants.

The file was sorted by random number before sample selection. However, the sample was 230 short of 15,000 after the first sample pull. The shortage occurred with Coast Guard Officers stationed overseas. Sixteen service members were added to each cell to increase the sample draw. The resulting cell sizes were 766 except for the Coast Guard, which had 472 in its cells. After the final sample pull, the total sample size was 15,025.

For survey administration, the 2004 Defense Enrollment Eligibility Reporting System (DEERS) file was used to get the home addresses. There was a DEERS address for 97.4% of the sample members. When a home address was not available on that file, sample members were matched to the June 2004 Unit Identification Code (UIC) address file for unit or work address. DMDC had a UIC (unit) address for 93.4% of the sample members.

Federal Civilian Employees Overseas

The characteristics of the Federal civilian employees overseas population in the 2004 survey were:

FVAP target population. Individuals who work for DoD and other Federal government agencies outside the fifty states and five territories. Spouses and adult children of Federal civilian employees overseas are not a population of interest.

2004 sampling frame. For the 2004 survey, the sampling frame included only DoD civilian employees overseas (we did not ascertain why the 2004 sampling frame did not include other Federal civilian employees overseas). The sampling frame was the June 2004 Defense Manpower Data Center Civilian Master File, which is a direct edit from the Office of Personnel

Management's (OPM's) Civilian Central Personnel Data File (CDPF). DMDC receives this file monthly from OPM.

In our 2002 review of statistical methods for FVAP's post-election surveys, we reported that OPM used the status file of the CPDF to draw the 2000 sample. The list at that time included about 62,000 records. Employees who were in U.S. territories (American Samoa, Guam, Puerto Rico, and the Virgin Islands), unpaid employees, and employees under age 18 were removed. The remaining records were sorted by the full SSN. Every 18th record was selected in 2000 for a total sample selection of 3,100. Selected records were matched to an OPM employee name file. Nonmatching records were purged. Of the remaining records, the first 2,500 were selected for the sample.

2004 sample. DMDC (West coast) drew the sample of 3,000 DoD civilian employees overseas with PROC SURVEY SELECT METHOD. The two sets of addresses in the frame were the UIC (Unit Identification Code) address, which was a match of the UIC from the Civilian Master File and the UIC Address file, and the Residence Mailing Address from DEERS. Problems probably occurred because not every UIC has a corresponding UIC Address for matching. (The DMDC employee who drew the sample no longer works there. Her last program was dated 9-16-2004.) The layout of the variables is included in Appendix A.

Overseas Citizens

The characteristics of the overseas population group are:

FVAP target population. American citizens residing overseas, including students, but not tourists or those included in the Federal civilian employees overseas population.

2004 sampling frame - second stage. The list of U.S. citizens who voluntarily register at any embassy or consulate in the world. Registration is affected by factors such as the ease of registering and the relative desire for contact with the U.S. government. Any citizens who choose not to register with the embassy/consulate are not on the sampling frame. For example, many U.S. citizens residing in Canada and the United Kingdom may not register. Ineligible sample members were likely on the list, such as registered children; citizens who have returned to the United States; and some citizens, such as dual nationals, who have not recently lived in the United States, identify with their residential country, and are not planning to vote in U.S. elections. In a Department of State comment under the signature of the Assistant Secretary for Consular Affairs that was included in the 2006 Government Accountability Report (GAO) report on absentee voting, the population of overseas U.S. citizens of voting age was estimated to be about 2 million in early 2006. In comparison, the total population of overseas citizens was estimated to be 3.7 million (GAO, 2006).

In our 2002 evaluation of the statistical methods used in the FVAP post-election surveys, we estimated that possibly 25% to 50% of lists contain ineligible citizens or citizens who do not plan to vote in U.S. elections, but the estimated percentage varies by embassy/consulate. Embassy/consulate files are also likely to be differentially out of date. However, more overseas citizens may be registering because of their increased awareness of the Department of State's

Internet-Based Registration System (IBRS), which was implemented on July 15, 2004. Since 2004, embassies and consulates have increased their outreach activities (including television, radio, and other news media, email networks and the Internet, and town meetings in remote locations) to promote more awareness of their services for overseas citizens, including information about the IBRS (GAO, 2006).

2004 sample - first stage. The Department of State officer in charge of American Citizens Overseas drew a purposive sample of embassies/consulates. The embassies/consulates were grouped by geographic area and size (large, medium, small - in terms of number of registered citizens overseas). He excluded any embassies/consulates in areas where significant events were occurring, such as coups or earthquakes.

As indicated in Table 1, the 20 selected embassies were distributed among five geographic regions and were grouped according to three sizes (large, medium, and small with respect to number of registered voters).

Table 1.
Selected Embassies/Consulates by Region

Region	Number
Americas	4
Brazil - São Paulo - Consulate	
Dominican Republic - Santo Domingo	
Guatemala - Guatemala City	
Peru - Lima	
Europe	5
Czech Republic - Prague	
France - Paris	
Germany - Frankfurt - Consulate	
Macedonia - Skopje	
Poland - Warsaw	
Africa - Sub Sahara	3
Kenya - Nairobi	
Mali - Bamako	
Senegal - Dakar	
Near East, South Asia	4
Egypt - Cairo	
Israel - Jerusalem (Consulate)	
Oman - Muscat	
Sri Lanka - Colombo	
East Asia/Pacific	4
Burma - Rangoon	
China - Shenyang (Consulate)	
New Zealand - Auckland (Consulate)	
Taiwan (China) - Taipei American Institute in Taiwan	
Total	20

2004 sample - second stage. We are not absolutely certain what happened for second-stage sampling at the embassy/consulate level. The process for a paper survey was described as

follows by a State Department official: The embassy/consulate sends the list of registered overseas citizens to the State Department daily for security purposes. The lists are compiled into a confidential State Department database. Systems personnel at the State Department use the database to retrieve the names of registered citizens in the selected embassies/consulates and their addresses; that information is then provided to State Department voting assistance officers at the selected embassies/consulates. However, in a followup call from the same State Department official, he said that with implementation of the IBRS in July 2004, the State Department adopted a policy of agreeing to use reported addresses of registered overseas citizens *only* for emergency purposes. The Department also extended that policy to citizens registering in person at embassies/consulates. Thus, the official said the surveys could not be mailed to registered citizens in the areas of the selected embassies/consulates in 2008. He then said that in 2004 the post-election survey packets were not mailed out from embassies/consulates either. (He did comment that they were mailed in 2000.) However, the contractor for the 2004 survey provided us with statistics indicating that 36% of completed surveys for this population group were web surveys, suggesting that some paper surveys were distributed by some method in 2004. We have been unable to find out how many embassies did distribute the paper survey packets, what address source, if any, was used, and whether methods other than mailing were used to distribute the paper surveys.

According to documentation received from FVAP (see Appendix B), boxes of survey materials were mailed to the 20 selected embassies/consulates in 2004 along with the following guidelines for drawing the samples of overseas citizens:

- A. Locate the file - Identify the most recent list or file of all U.S. citizens registered at that post.
- B. Sort the file - Sort the file by any prescribed order—whatever is easiest for you—for example, alphabetically by last name, chronologically by date of registration, numerically by passport number, and so forth.
- C. Identify the sample size.
- D. Create the sampling fraction - Divide the number of registered U.S. citizens in your post list or file by the number required for the sample at your post to obtain your post's "Sampling Fraction."

Example: Your post has 60,000 registrants and a sample of 300 is required. Thus, the sampling fraction is $60,000/300 = 200$.

- E. Select survey participant names - Beginning with the 12th name in your registration list or file, select names at intervals that correspond to your post's sampling fraction.

Example: Your sampling fraction is 200. Therefore, select every 200th name beginning with the number 12 (i.e., 12, 212, 412, 612, etc.) The number of sampled registrants should equal the number of prenotification letters sent in your shipment of survey materials.

- F. Select adults only - If a minor’s name (younger than 18 years old) is identified, select as a replacement the next adult name following the minor’s name, but do not alter your sampling fraction interval.

Example: The 412th name is a minor, and the replacement adult name is Number 415. The next name chosen will be 612, **not** 615.

Local Election Officials

The characteristics of the population of local election officials are:

FVAP target population. Election administrators working in local election offices in all jurisdictions, including the District of Columbia (DC) and U.S. territories, who are responsible for approving voter registration, assigning and sending ballots to the voter, and accepting voted ballots.

2004 sampling frame. The sampling frame was Election Data Services’ (EDS) list of voting jurisdictions in each state, the U.S. territories, and the District of Columbia. Jurisdictions are organized differently across states. In some states, an election jurisdiction is a county; in other states (e.g., the New England states, Michigan, Minnesota, and Wisconsin), they are townships, which are smaller geographical entities than counties. In some large metropolitan areas, a city is an election jurisdiction (e.g., Chicago, New York City, St. Louis). The sampling frame includes all jurisdictions, whether they are counties (3,132), townships, or cities – currently, the total number of jurisdictions is about 8,000. The sizes of the jurisdiction vary greatly: currently, about 1,700 jurisdictions have fewer than 1,000 registered voters; about 320 jurisdictions have more than 100,000; only 18 jurisdictions have more than 1 million registered voters.

We do not have information on how the sample of 1,013 jurisdictions was selected for the 2004 LEO survey, but FVAP provided the information shown in Table 2—these data are the LEO 2004 survey responses for questions about active and inactive registered voters in their jurisdictions. The number of jurisdictions did not add to 1,013, so we included an “other” or “missing” category.

Table 2.
2004 LEO Survey Responses Regarding No. of Active and Inactive Registered Voters in Jurisdictions

Total Number of Active and Inactive Registered Voters	No. of Jurisdictions in 2004 Sample
10 to 5,000	15
5,001 to 10,000	9
10,001 to 40,000	18
40,001 to 75,000	15
75,001 to 100,000	10
100,000 to 200,000	16
200,001 and more	16
Other (missing?)	14
Total	1,013

Staff size for election services can range from 1 person (possibly part-time) to more than 200 in large offices, such as the Los Angeles office. The Election Assistance Commission, a Federal agency, just documented that response rates to surveys are lower in smaller jurisdictions (telephone communication with the President of EDS).

Unit Voting Assistance Officers

The characteristics of the unit voting assistance officers population group are:

FVAP target population. Unit Voting Assistance Officers (UVAOs) in all branches of the Uniformed Service CONUS/OCUNUS.

2004 sampling frame. Unit identification code (UIC) file: OCONUS and CONUS.

2004 sample. DMDC (West Coast) drew a random sample of UICs OCONUS and CONUS to arrive at a UVAO list of 5,000 organizations with 25 or more people. The sample selected for each Service was in proportion to the percentage of organizations 25 and over compared with the overall total. Surveys were sent to the voting assistance officers (VAOs) at the selected UICs. From documentation we received from FVAP, it appears that most survey packets were mailed to the unit to the attention of the UVAO.

Department of State Voting Assistance Officers

FVAP target population. All Department of State voting assistance officers (DoS VAOs).

2004 sampling frame. The list of all DoS VAOs by embassy/consulate. The VAO is usually located in the Office of American Citizen Services. The list is subject to change because of mobility among the VAOs.

2004 sample. A census of the VAOs (It may not have been a census: FVAP data books indicate that 234 VAOs received survey invitations in 2004; however, there may actually be 240 DoS UVAOs, or at least 240 positions).

Table 3 summarizes the relationships among populations, sampling frames, and samples for the six population groups in the 2004 surveys.

Table 3.**Summary of Populations, Sampling Frames, and Samples by Target Population – 2004 Surveys**

Target population	Population total	Sampling frame total	Sampl frame excludes from population	2004 sample total	Sample excludes from sample frame
1. Uniformed service members who are U.S. citizens with more than 4 months of service	1,403,377	1,403,377	Nothing excluded	15,026 in 2004	Military members with less than 4 months of service and military members who are not U.S. citizens
2. Federal (DoD) civilian employees overseas	In 2004, only DoD civilians were sampled xxxxx March 2007: 36,286 in foreign countries, 14,001 in U.S. territories		Employees in U.S. territories of American Samoa, Guam, U.S. Virgin Islands, and Puerto Rico; summer hires; nonpaid employees; employees under age 18; non-U.S. citizens employees	3,000	
3. Overseas citizens	All embassies/consulates; ***** 3.7 million citizens in 2006 (about 2 million of voting age)	Embassies/consulates; ***** Confidential list	Unregistered citizens: official citizens living overseas (i.e., U.S. government employees and their family members)	20 embassies/consulates ***** 5,000 overseas citizens	Note: During second-stage sample selection, instructions said minors should be replaced by voting age citizens.
4. Local election officials	~8,000 voting jurisdictions		Counties in CT, MA, ME, NH, RI, VT and Alaska; cities and towns of New England; 4 regions of Alaska; 8 independent election commissions in Illinois; Detroit City, Kansas City, NYC; 509 jurisdictions with population > 100,000; 12 special jurisdictions; 1 in Wyoming.	4. Local election officials	

(continues on next page)

Table 3. (continued)

Summary of Populations, Sampling Frames, and Samples by Target Population – 2004 Surveys

Target population	Population total	Sampling frame total	Sample frame excludes from population	2004 sample total	Sample excludes from sample frame
5. Unit voting assistance officers	List of UICs OCONUS and CONUS	List of UICs OCONUS and CONUS (>82,000)		5,000 UVAOs Army-26% Navy-27% Air Force-2% Marine Corps 8%; CG - 7%	Organizations with fewer than 25 people
6. DoS voting assistance officers	234 (possibly 240)	234	Not sure	Data book: 234 were sent surveys	Not sure

Comments on the 2004 Post-Election Survey Sample Frames

Uniformed Service Members

The sampling frame maintained by DMDC is the best source for the military member sample. The frame is of good quality, is updated frequently, and provides coverage of the population. The age of the frame lags about 3 months in representing the population, which is acceptable with the understanding that it is updated with the DoD list of deceased members shortly before the field period begins.

We recommend that DMDC continue to use a stratified sampling method that allocates the sample to the various sampling strata: stratify by Service (5), officer and enlisted status (2) and CONUS and OCONUS (2). This yields 20 cells. Sort file by rank and location to ensure a distribution representative of the overall population. After a random start, select every “nth” record to produce the sample. This method is efficient when sampling many strata.

Federal Civilian Employees Overseas

We recommend broadening the 2004 sample of DoD civilian employees overseas to the FVAP target population of all civilian employees overseas from the Federal agencies included in the sampling frame maintained by OPM - the Central Personnel Data File. It is the best source for this Federal employee sample and is of good quality. The director of the OPM office with responsibility for the CPDF reported that with an official request from DMDC, OPM could draw the survey for this population. DoD can draw its own sample but if CPDF is used, OPM prefers to pull the sample. OPM would need a month’s lead time to prepare the file (but see comments below about getting addresses from agencies). OPM reported that, as of March 2007, there were 36,286 Federal civilian employees in foreign countries and 14,001 in U.S. Territories as of March 2007.

The CPDF represents quarterly data. The Status File that was used in the 2000 survey is available more quickly. The Status File includes SSN, name, agency, agency organization, duty station (country, city, personnel office indicator [POI], address, zip code), grade, and tenure. The

file does not contain any employee residence addresses. In the 2000 survey, the survey packets were sent to the POI address and then distributed from that office to employees' overseas addresses, or possibly to the employees' worksites. An alternative approach that has been used with other surveys of all Federal employees has been for the sponsoring Federal agency to take the OPM-drawn sample and ask the individual agencies to supply email addresses for selected sample members. We are not sure, however, how long this matching process would take (we recommend allowing up to 2 months, partly because collected email addresses would need to be reviewed for obvious problems and efforts undertaken to resolve those addresses). It may also be possible to obtain employees' residence addresses with this same approach, but that possibility may vary across agencies.

Overseas Citizens

The State Department can draw a sample of embassies/consulates from the list of all embassies/consulates not currently subject to coups, natural disasters, and so forth. The list can be stratified by geographic regions and size category in terms of registered overseas citizens (in the past, 3 size categories have been used). We do not have a current list of embassies by geographic region and size, but DMDC could give specifications to the State Department when they draw the sample. The State Department no longer makes mailing addresses (or email addresses) available for registered citizens in selected embassies. Thus, there would be no frame for use in second-stage sampling of registered overseas citizens. Embassy/consulate staff can use various media to advertise and promote a web-based version of the survey. They could possibly also give paper survey packets to persons who walk into to the embassy/consulate for information about the upcoming election. However, the State Department voting assistance staff would need a budget from DoD to draw from for postage for overseas citizens to return the survey to the embassy.

Local Election Officials

The sampling frame of jurisdictions maintained by EDS appears to be a good source for the sample of local election officials. According to the information provided, the file is of good quality and is updated continuously. The president of EDS said EDS can be retained as a consultant to do the sampling, but he believes it would be more logical for DMDC to do the sampling itself. We recommend that DMDC purchase the data set and conduct sample selection.

Currently, the EDS provides a data set containing records for each jurisdiction at a base cost of \$250 plus \$1.50 per record, or about a total of \$12,250.00 for 8,000 jurisdictions (the approximate number of current jurisdictions). Variables included in the data set include number of 2006 voter registrants, name of local election official (LEO), postal mailing address, fax number, email address for 2/3 of jurisdictions (the 1/3 without email addresses tend to be smaller, rural offices where the LEO works part time on election services), types of voting equipment, and number of precincts (telephone communication with president of EDS).

At an additional marginal cost, EDS will provide supplemental historical data that include registration numbers in presidential election years—this can be important because the number of registrants is generally lower in off-year elections such as in 2006 than in presidential

election years. For example, there was an overall decrease in the number of registered voters in the 50 states, the District of Columbia, and two of the four territories—from 176.2 million in 2004 to 172.8 million in 2006. Among states, 32 experienced decreases in the number of registered voters; 17 states reported increases (U.S. Election Assistance Commission, 2007). Also, EDS, as a consulting service, has extrapolated registrant data to estimates of voting age population, but does not do that below state level because of the unreliability of estimates below that level.

Unit Voting Assistance Officers

For 2004, FVAP reported using the UIC OCONUS and CONUS files to sample and select units. Then, surveys were mailed directly to the voting assistance officer in each selected unit. We support using the UIC OCUNUS and CONUS files for the frame; however, if the cost and burden are not too great, we recommend using UVAO residential addresses whenever possible for sending all survey materials, with a copy of the prenotification letter sent to the UIC address as well.

State Department Voting Assistance Officers

The sampling frame is provided by the State Department (contact the Chief Voting Action Officer, Office of the Assistant Secretary for Consular Affairs, Department of State). It can be made available within a day of requesting it. The frame is expected to be of high quality and reasonably up to date.

Survey Estimates for Each Population Group

The larger the sample size (all else equal), the greater the sample precision for estimated results (i.e., the smaller the margin or error or confidence interval). If only total sample estimates are reported, only the total sample size must be considered. If subgroups of the sample, such as military Service, are important for reporting purposes, then the sample sizes of the subgroups should be considered. The greater the number of subgroups reported, the greater the total sample size should be for a constant level of precision. The survey estimates reported in 2004 are summarized in Table 4.

Table 4.
Summary of Survey Estimates by Target Population in 2004

Target Population	Subpopulation Identified in Analyses	2004 Statistics Reported by Subgroups
1. Uniformed service members		Percentages only
	Service (5 categories)	Army, Navy, Marine Corps, Air Force, Coast Guard
	Paygrade group (6 categories)	E1-E3, E4-E6, E7-E9, W1-W5, O1-O3, O4-Above
	Age group (5 categories)	18-24, 25-29, 30-34, 35-44, 45+ (in 2000, the latter groups were 45-54, 55-64)
	Location (3 categories)	United States, CONUS, OCONUS
2. Federal civilian employees overseas		Percentages only
	Age group (5 categories)	18-24, 25-29, 30-34, 35-44, 45+ (in 2000, the latter groups were 45-54, 55-64, 65+)
	Length of residence overseas	< 6 months, 0-1 yr, 1-3 yr, 2-3 yr, 3-6 yr, 6-10 yr, 10+ yr
	Voting age dependents	Not reported in 2004; in 2000: None, 1, 2, 3, 4, 5+
3. Overseas citizens		Percentages only
	Age group (7 categories)	18-24, 25-29, 30-34, 35-44, 45+ (in 2000, the latter groups were 45-54, 55-64, 65+)
	Length of residence overseas	< 6 months, 0-1 yr, 1-2 yr, 1-3 yr, 2-3 yr, 3-6 yr, 6-10 yr, 10+ yr
4. Local election officials		Percentages and some frequencies
	Type of group (3 categories)	Uniformed Services in the United States, uniformed Services overseas, all overseas civilians
		Examples of reported frequencies: Federal; Post Card Applications (FPCAs) received to process, FPCAs not able to process, problems in processing FPCAs, regular absentee ballots mailed, special State write-in ballots mailed, voted absentee ballots.
5. Military voting assistance officers		Percentages only
	Service (5 categories)	Army, Navy, Marine Corps, Air Force, Coast Guard
6. State Dept. voting assistance officers		Percentages only

Suggested Changes to the Sampling Methods for Each Population Group

We next suggest possible changes in sampling methods to improve the quality and efficiency of the study design for the 2008 post-election surveys. The changes will make the study method more scientifically sound and defensible.

Our comments about sample design and precision for the six target populations begin with consideration of the 2004 FVAP administration sample sizes, reporting requirements, response rates, and numbers of undeliverables. The recommended sample sizes have been adjusted to allow estimation of subgroup differences. We assume that future surveys will be probability based, when practical, to allow statistically valid projections to population totals. The study samples must also be weighted to allow projections to whatever population totals are in question.

Table 5 summarizes the reporting requirements that we understand are required for each target population.

Table 5.
Reporting Requirement by Target Population

Target Population	Reporting Subgroups	Notes
1. Uniformed service members	Military Service (5)	Probability sample
2. Federal civilian employees overseas	None – total population only	Probability sample
3. Overseas citizens	None- total population only	Nonprobability sample
4. Local election officials	(3) Military OCONUS/ CONUS / overseas civilians	Probability sample
5. Unit voting assistance officers	Military Service (5)	Probability sample
6. State Department voting assistance officers	None - total population only	Probability sample – a census

Both the military personnel and military voting assistance officer samples must yield accurate estimates for each of the five military Services. The only reporting level required for the Federal civilian employees overseas sample, the overseas citizens sample (the only recommended nonprobability sample), and the State Department voting assistance officer sample is for the total sample. The sample of local election officials has three significant subgroups for reporting: military within the United States, military overseas, and overseas citizens.

Our recommended sample sizes also take into consideration prior response rates in 2000 and 2004 and the number of undeliverable surveys in 2004. Those data are presented in Tables 6 and 7.

Table 6.
Response Rates in 2000 and 2004 by Target Population

Target Population	2000 Response Rate	2004 Response Rate ^a
1. Uniformed service members	27%	27%
2. Federal civilian employees overseas	13%	28% ^b
3. Overseas citizens	21%	16%
4. Local election officials	52%	52%
5. Unit voting assistance officers	35%	32%
6. State Dept. voting assistance officers	Not surveyed in 2000	87% ^c

^aThe response rate formula in 2004:

Completed and returned surveys / (number mailed– undeliverables)

^bIn 2004, only DoD civilian employees overseas were sampled.

^cWeb survey only.

The response rate formula that has been used, at least for the 2004 surveys, varies from the standard formula recommended by the American Association of Public Opinion Research (AAPOR) for mail and web surveys (response rate formula #4), which is widely used (AAPOR, 2006). AAPOR's response formula #4 is:

Number of eligible employees returning completed surveys / (Number of known eligible employees + proportion of estimated eligible employees among cases of unknown eligibility).

According to the AAPOR formula, undeliverables would be considered sample cases of unknown eligibility and some proportion would remain in the denominator. If samples cases are tracked during survey administration and assigned disposition codes (such as complete, partial complete, refused, ineligible, etc.), it may be possible to calculate the proportion of estimated eligible employees among cases of unknown eligibility and use that proportion instead of total number of unknown eligibility.

If this response rate formula had been used in the 2004 surveys, the calculated response rates for uniformed service members and Federal (DoD) civilian employees overseas would have been appreciably lower, given the number of undeliverables reported in Table 7. For postal mail surveys, it will be possible to track most undeliverable mail. For web surveys, emails that are bounced back are treated as undeliverables. Recent new changes, however, may make it impossible to track web survey undeliverables (or bounce backs) for some population or subpopulation groups. The Army, for instance, as a security measure, has recently changed its policy on undeliverable email. Senders will no longer receive bounce-back notices when emails are not successfully delivered. Thus, most email nonresponse in Army web surveys will be classified as cases of unknown eligibility. Response rates for any groups with no counts of undeliverables may no longer be comparable with previous post-election survey response rates for those groups.

Table 7.
Number of Mailed/Emailed Surveys and Number and Percentage of Undeliverables in 2004 by Target Population

Target population	No. of mailed/mailed surveys	Undeliverables ^a	
		Number	Percentage
1. Uniformed service members	15,026	5,241	34.9
Army	3,064	1,227	
Air Force	3,064	1,118	
Marine Corps	3,064	1,090	
Navy	3,063	1,081	
Coast Guard	2,770	725	
2. Federal (DoD) civilian employees overseas	3,000	1,190	39.7
3. Overseas citizens	5,000	176	3.5
4. Local election officials	1,013	4	0.4
5. Unit voting assistance officers	5,000	379	7.6
6. DoS voting assistance officers	234 (no. of email invitations)	0	0.0

^aUndeliverables for military members were defined as follows: (1) nonrespondent in first mailing and undeliverable in wave 2 at same address, (2) undeliverable in wave 1 and norespondent in wave 2 at same address, (3) undeliverable in wave 1 and undeliverable at new address in wave 2, and (4) undeliverable in both wave 1 and wave 2 at wave 1 address.

Recommended Sample Size Determination

The recommended sample sizes for five of the six target populations were arrived at using fairly straightforward calculations.¹ First, we determined how many completed surveys were required to provide survey estimates with a confidence interval of ± 5 percentage points at the 95% confidence level.² The following formula was used to determine the required number of completed surveys.

$$c.i. = 1.96 * \sqrt{\left\{ \frac{p * q}{N} \right\} * DEFF}$$

In this equation, *c.i.* is set to 5.0%, the survey proportion (*p*) estimated is set to 0.5 (this is the most conservative value possible), and *DEFF*, the survey's design effect, is set to 1.3.³

¹ The sixth group, DoS voting assistance officers, is so small that we continue to recommend that a census be taken.

² Setting the precision level where we did is, ultimately, arbitrary. These, as well as the other parameters used in the calculations, can be changed if expectations point to more appropriate values.

³ A survey's design effect is the increase in a survey estimate's variance over what would be expected from simple random sample (SRS). This effect can be due to a complex (i.e., nonSRS) sample design, survey nonresponse, or other factors. For our calculations we have assumed a moderate increase in variance of 30%.

Solving for N , the number of completed surveys required to achieve the desired precision, we see that a total of 500 surveys are required (if the proportion estimated in the calculation were less conservative, say 0.3, the required number of completed survey to reach required precision would drop to 420). Factoring in survey yields from the 2004 surveys (Table 6 and Table 7) and number of population subgroups, we obtain required sample sizes of 14,219, 2,960, 3,239, 2,895, and 8,455 for military members, Federal civilian employees overseas, overseas citizens, local election officials, and unit voting assistance officers, respectively. In Table 8 these values were rounded up to be conservative.

Table 8.
Recommended Sample Sizes by Target Population

Target Population	2004 Sample Size	Recommended 2008 Sample Size
1. Uniformed service members	15,026	15,000
2. Federal civilian employees overseas	3,000	3,000
3. Overseas citizens ^a	5,000	3,500
4. Local election officials	1,013	3,000
5. Unit voting assistance officers	5,000	9,000
6. State Dept. voting assistance officers	234	234 (census)
Total sample	29,278	33,734

^aBecause we do not have access to a list of all embassies stratified by region and size, we have not made recommendations about the number of embassies/consulates to select.

Next, we discuss possible modifications in sample size. Because one of the major recommendations in this report is to implement strategies to improve response rates, we prepared Table 9 to demonstrate the effects of response rates on sample size. If DMDC expects that procedures in the 2008 post-election surveys will increase response rates for a particular population, sample sizes should be taken from Table 9 rather than Table 8.

Table 9.
Recommended Sample Sizes by Target Population

		Recommended Sample Size If Response Rate Increased By:		
Target population	Recommended 2008 sample size	0.02	0.05	0.10
1. Military members	15,000	13,500	12,000	10,500
2. Federal civilian employees overseas	3,000	2,800	2,500	2,200
3. Overseas citizens	3,500	3,000	2,500	2,000
4. Local election officials	3,000	2,800	2,700	2,500
5. Unit voting assistance officers	9,000	8,000	7,500	6,500
6. State Dept. voting assistance officers	Census (234 sent in 2004)	Census (234 sent in 2004)	Census (234 sent in 2004)	Census (234 sent in 2004)
Total sample	33,734	30,334	27,434	23,934

Survey Weighting Adjustment

In 2004, only the responses for the survey of uniformed service members were weighted. The weighting process used was a form of poststratification that is often referred to as sample balancing. The weights were developed by weighting the proportional distribution of completes to equal the distribution of the frame along the following sampling dimensions: the five Service branches, officers versus enlisted personnel, and CONUS versus OCONUS personnel.

Westat's recommendation to draw probability samples for five of the six target populations in 2008 provides DMDC with the ability to generate sample estimates that are representative of the target populations. To properly represent the populations using sample estimates, DMDC will need to weight the data. Weighting will adjust for differential selection probabilities and nonresponse among sampled members and can take advantage of auxiliary information to improve the precision of survey estimates, assuming that appropriate frame variables are available for these weighting processes.

We recommend for the 2008 surveys that the industry standard three-stage weighting process be used. This form of weighting produces survey estimates of population totals, proportions, and means (as well as other statistics) that are representative of their respective populations. Unweighted survey data, in contrast, are likely to produce biased estimates of population statistics. Ideally, the weighting of samples will consist of the following three steps: (1) adjustment for selection probability, (2) adjustment for nonresponse, and (3) adjustment to known population values. The following discussion of the three steps provides a simple example of the standard weighting steps.

Adjustment for selection probability. All of the post-election survey probability samples are selected from lists, and each member of the list has known nonzero probability of selection except for the population of overseas citizens. If, for example, a list contained 10,000 members and the desired sample size was 1,000, one in every 10th member of the list would be selected.

During weighting, this selection probability (1/10) is taken into account. The base, or first weight, used to adjust the sample is the inverse of the selection probability. In this example, the adjustment for selection probability (base weight) is 10.

Adjustment for nonresponse. Some sampled members will not respond to the survey. Continuing the previous example, suppose only half of sample members, 500, completed and returned a survey. In this case, the base-weighted respondents would sum to only 5,000 weighted respondents. To adjust for nonresponse, statisticians multiply the base weights by the reciprocal of the nonresponse rate. The new weight is base weight times nonresponse weight, or 10×2 equals 20. Now the weighted sample sums to the population total of 1,000.

Adjustment to known population values. Often, auxiliary information is used to increase the precision of survey estimates. In the case of military personnel, for example, it is precisely known how many members are in the Army, Navy, Air Forces, Marine Corps, and Coast Guard. The two previous weighting adjustments may not exactly reproduce population counts by Service. If adjustment to Service totals (or any other known population distribution) is required, then a final weighting adjustment is computed that reproduces population totals within a specified level of precision.

This simple example shows how weighting is accomplished in the three-stage process and what is compensated for in the process. In the examples presented above, where a sample was drawn from a population of 10,000, the weighted population total is 10,000. The unweighted sample estimate of population size would be 500. Since the sample size is only 500, weights are needed to project the sample up to the population total.

Table 10 summarizes the approach to weighting recommended for each target population.

Table 10.
Weighting Approach by Target Population

Target Population	Type of Sample	Approach to Weighting
1. Uniformed service members	Probability sample	Base weight; nonresponse adjustment, final adjustment
2. Federal civilian employees overseas	Probability sample	Base weight; nonresponse adjustment, final adjustment
3. Overseas citizens	Nonprobability sample	No weighting
4. Local election officials	Probability sample	Base weight; nonresponse adjustment, final adjustment
5. Military voting assistance officers	Probability sample	Base weight; nonresponse adjustment, final adjustment
6. State Department voting assistance officers	Probability sample – a census	Nonresponse adjustment; final adjustment

DATA COLLECTION

In this section, we review the 2004 data collection procedures and outcomes and suggest general changes in procedures that may improve response rates. We also discuss more specific procedures by target population, including recommended method(s) of survey administration.

2004 Data Collection Procedures and Selected Outcomes

Mode of data collection. Table 11 shows the mode of data collection for the six FVAP surveys and the percentage of completed web surveys among total completed surveys.

Table 11.
Mode of Data Collection and Percentage of Completed Surveys That Were Web Surveys, by Target Population

Target Population	Mode	% of Completes That Were Web Completes
1. Uniformed service members	Mail with web option	36.9%
2. Federal (DoD) civilian employees overseas	Mail with web option	39.7%
3. Overseas citizens	Mail with web option	35.7%
4. Local election officials	Mail with web option	38.6%
5. Unit voting assistance officers	Mail with web option	28.9%
6. State Dept. voting assistance officers	Web only	100.0%

Response rates. In general, response rates stayed about the same or declined from 2000 to 2004 (assuming responses rates were calculated with the same formula in both sets of surveys). We show again in Table 12 the information that was presented earlier in Table 6.

Table 12.
Response Rates in 2000 and 2004 by Target Population

Target Population	2000 Response Rate	2004 Response Rate ^a
1. Uniformed service members	27%	27%
2. Federal civilian employees overseas	13%	28% ^b
3. Overseas citizens	21%	16%
4. Local election officials	52%	52%
5. Unit voting assistance officers	35%	32%
6. State Dept. voting assistance officers	Not surveyed in 2004	87% ^c

^aThe response rate formula in 2004:

Completed and returned surveys / (number mailed– undeliverables)

^bIn 2004, only DoD civilian employees overseas were sampled.

^cWeb survey only.

Data collection. In 2004, data collection consisted of the following steps and schedule.

- Prenotification letters - were mailed October 11th to military members and DoD civilian employees overseas.

- Wave 1 mail surveys:

Uniformed service members, DoD civilian employees overseas, and DoD unit voting assistance officers - Wave 1 survey packets were mailed on **November 3**. The packets contained a cover letter from the DoD, the survey questionnaire, a voting sticker, and a postage-paid return envelope.

Overseas citizens - A box containing all survey materials was mailed to each of the 20 embassies/consulates during **October 15–25**. The box contained survey instructions (including sampling instructions); survey packets with a cover letter from the State Department, the questionnaires, voting stickers, and postage-paid return envelopes; and reminder letters signed by FVAP. (We received mixed information about distribution of the paper surveys - one source we talked with said they were not distributed because of new State Department security policies restricting use of registrants' addresses to emergencies only. However, we received information from the 2004 contractor indicating that about only 36% of completed surveys for this group were web completes, suggesting that the completes were paper completes.)

Local election officials – Survey packets were mailed directly to the local election officials on **November 3**. Packets included the questionnaire, a voting sticker, and postage-paid return envelope.

- Web questionnaires: The web questionnaires were made available to all groups except State Department voting assistance officers on **November 3**.

State Department voting assistance officers (web-only survey) – An email invitation with a link to the web survey was sent on **November 18**.

- First reminder letters/emails:

Unit voting assistance officers with domestic addresses – A reminder letter from FVAP was sent on November 10.

Military overseas (including unit voting assistance officers overseas) – A reminder letter from FVAP was sent on November 23.

Military in United States and local election officials - A reminder letter from FVAP was sent on November 30.

Overseas citizens – (As noted earlier, because of restrictions on use of registrants' addresses, the reminder letters may not have been distributed.)

State Department voting assistance officers – FVAP sent a reminder email on December 9.

- Second wave survey packets:

Military members in the United States and overseas – A second survey packet was mailed to all nonrespondents on November 30. However, names and addresses were misaligned. A postcard was sent the first week in January explaining the error and advising the nonrespondent to complete the survey even though the mailing name was incorrect.

DoD civilian employees overseas – Survey materials were sent again to nonrespondents on December 27.

- Second reminders:

Military members with overseas and domestic addresses – A second reminder letter from FVAP was sent on January 7, 2005.

DoD civilian employees overseas - A second reminder letter from FVAP was sent on January 17, 2005.

DoS voting assistance officers – A second reminder email from FVAP was sent on January 19.

- End of data collection – March 31, 2005, for all survey populations.

For the military population, survey materials were sent to the sample member's home address when it was available. The UIC address was used when a home address was not available. It appears that new addresses received during data collection or available second addresses were used in subsequent mailings.

As noted earlier in Table 7, the percentage of undeliverables was relatively high for the military member population (34.9%) and for the DoD civilian employees overseas population (39.7%). It was 7.6% for unit military voting assistance officers (most survey packets were sent to the UIC address to the attention of the unit voting assistance officer).

The data collection procedures in 2004 showed some improvement over the procedures used in 2000 in terms of the following recommendations in Don Dillman's (2007) tailored design method for self-administered mail surveys. Military members received prenotification letters and second survey packets. Second reminders were sent to military with domestic and overseas addresses, DoD civilian employees overseas, and DoS voting assistance officers. However, the procedures, as far as we have been able to document them, are not as robust as those in DMDC SOFS surveys.

General Recommendations for Changes in Data Collection Procedures for the 2008 Surveys

We suggest the following general changes:

- **Survey administration:** Plan to have the same organization conduct both the web and mail surveys to ensure that documentation for each population group is complete and accurate.
- **Data flags:** For any mixed-mode surveys, flag whether the data are from a web survey or a mail survey. This will allow assessment of possible mode effects (see comments below in the section for uniformed service members).
- **Undeliverables:** In mixed-mode surveys, undeliverables should be classified and reported as email undeliverables (assuming bounce-backs occur) and postal mail undeliverables. That information would help in assessing possible changes for future surveys.
- **Prenotifications:** Send prenotification letters to all sample members (except for the citizens overseas survey). You may want to conduct an experiment with one or more population groups to assess the contribution of prenotification letters to response rates. Unless the prenotification letters have served as an important indicator of an out-of-date or bad address that is followed up on (such as for a mobile military population), send the letters a few days to a week before sending the survey packets. If they are sent 2 to 3 weeks in advance of receipt of the questionnaire (as some were in 2004), they are likely to be, in Don Dillman's words, "a distant, if not forgotten, memory" (Dillman, 2007).
- **Reminder/thank you notices:** The purpose of these notices is to jog the sample member's memory. For surveys originally sent by postal mail, use a format that contrasts with that used for prenotification and cover letters so that it is perceived as a new stimuli (Dillman, 2007). When email addresses are available for sample members, consider sending reminder emails as well as, or in place of, mailed letters to nonrespondents. For mailed reminder notices, consider sending postcards or a letter that uses bold heads to indicate the important points in the letter. The content of the reminder notice can be shorter than the content of the cover letter, but it needs to contain salient points in case the sample member never saw the cover letter for some reason.
- **Email addresses:** In mixed-mode surveys, whenever email addresses are available for selected sample members, consider using email notices to announce that the web site for the survey is live and to send followup reminders. Always include a direct link to the web version of the survey in the notices. This approach would lower data collection costs, and direct web survey links are associated with higher successful use of web surveys than when respondents must type in the web site URL. See our specific suggestions for each target group.

- **Second survey mailings:** Send Wave 2 survey packets to all nonrespondents receiving mail surveys; use new addresses whenever they are available—see next suggestion.
- **Use of case disposition codes:** We highly recommend that standard disposition codes, similar to those recommended by AAPOR for mail and web surveys (AAPOR, 2006), be used with all six surveys to collect the information needed to track response, ineligibles, and other counts needed for calculating response rates and for weighting.
- **Receipt control system:** For the 2008 surveys, we recommend that DMDC develop a simple electronic receipt control system for use by any organization or intermediary party with data collection responsibilities (e.g., the State Department voting assistance officers administering the surveys of overseas citizens) with instructions to assist these intermediaries in using the receipt control system. Various users would record information on distribution of surveys and/or case outcomes, including completed surveys, partially completed surveys, refusals, undeliverable mail, address corrections and changes, ineligibles, and so forth. The systems would help to improve data collection, response rate calculations, and weighting and would provide useful information for planning future post-election surveys.
- **Web survey domain names:** To lessen the chance that sample members will ignore survey emails or that they will be caught by spam filters, avoid using a commercial domain name for the web surveys. Instead, use appropriate domains for each population (e.g., .mil for surveys of military members and .gov for nonmilitary Federal civilians; perhaps .org or .gov for the survey of overseas citizens).
- **New item in questionnaires.** Consider including a question in each survey asking if the respondent prefers to answer by paper and pencil or by web. Responses to the item may indicate whether or not mixed-mode surveys will remain appropriate in future post-election surveys because they are *preferred* by a significant proportion of the survey population.

Suggestions for 2008 Data Collection Procedures for Each Target Population

Uniformed Service Members

Mode Recommendation

Given the overall relatively low response rate to the Uniformed Services survey, we recommend continuing with a multiwave, mixed-mode data collection protocol in lieu of a web-only approach. While conducting a web-only survey would certainly be less expensive than a survey that includes both a mail-based and a web option, not all uniformed service sample members will have access to the Internet or a current and active mailing address. A mixed-mode approach maximizes the opportunity for participation.

Results from the 2004 post-election voting survey of the uniformed services showed that about 37% of those submitting completed surveys responded via the web. Given that nearly two-thirds of respondents completed and returned a mail survey suggests that moving to a web-only survey protocol would jeopardize already low participation rates. It is not known, however, whether those who responded by mail are sample members who also had access to the Internet and simply chose one mode over the other. Similarly, we do not know the number or proportion of those responding via the web who did not receive the mail survey or whose address was undeliverable or invalid.

In cases where mail delivery is not possible, only those with Internet access would be able to respond to the survey. Knowing this information would be extremely useful for managing the data collection effort. If, for example, it is known that a mailing address is invalid, follow-up activities designed to encourage participation could be directed toward the web alternative (e.g., sending information about how to participate via email). We are encouraged by the preliminary results from the 2006 Status of Forces Survey (SOFS) of Active Duty Members showing that about 70% to 80% of sample members had a valid email address. Despite the high rate of valid email addresses for SOFS sample members, the weighted response rate was only about 32%. Assuming a similar proportion of uniformed service sample members for the FVAP survey had valid email addresses and Internet access, it appears that there is a response preference for the mail survey. We do not understand the extent to which there is a response preference (mail versus web) that may affect the results or participation rates (see suggested additional survey question on previous page).

There is also an unknown amount of risk associated in using a single-mode approach, and we have not examined the survey data for any mode or response bias that may be present (i.e., mail survey responses differ from web responses). Considerable literature suggests that different modes of survey data collection can result in significantly different results for the same survey (de Leeuw, 2005; Dillman, 2007; Dillman & Christian, 2003; Link, 2005; McCabe et al., 2005). For example, a comparison of data obtained in a Hospital CAHPS experiment where paper-only, paper with phone follow up, phone-only, and active interactive voice recognition (IVR) modes were randomly assigned to sample members indicated that the paper-only mode obtained fewer favorable hospital ratings than all the other data collection methods. A limited number of experiments indicate that such mode effects are less prevalent when comparing web and paper-and-pencil surveys, especially when care is taken to make the formats of the questions similar (Hancock & Flowers, 2001; Kiernan, Kiernan, Oyler, & Gilles, 2005; Voogt & Saries, 2005; Kerwin, Brick, Levin, Cantor, O'Brien, Wang, Campbell, & Shipp, 2004; Smyth, Dillman, Christian, & Stern, 2006). However, we recommend embedding a mode experiment within the survey sample design of at least the post-election survey of uniformed service members. Such an experiment could answer two important questions: (a) Is there a significant mode effect, and (2) if one exists, what adjustment should be made for mode effect?

Factors Affecting Response Rates

The reported response rate for this group was 27%, the same rate reported for the 2000 survey. Table 13 shows the 2004 response rate by Service branch. The rates clearly vary.

Table 13.
2004 Response Rates by Service Branch

Branch of Service (from sample)	Number Sampled	Number of Undeliverables	Net Sample	Number of Completes	Response Rate
Army	3,064	1,227	1,837	903	49.2%
Coast Guard	2,770	725	2,045	75	4.0%
Air Force	3,064	1,118	1,946	689	35.4%
Marine Corps	3,064	1,090	1,974	302	15.3%
Navy	3,063	1,081	1,982	692	34.9%
Total	15,025	5,241	9,784	2,661	27.2%

Locatability. Low response rates in this survey are partly attributable to problems in locating uniformed service members—the percentage of undeliverable surveys was high for this population group (34.9%). If this survey continues to be a mixed-mode survey, we recommend continued use of the Defense Enrollment Eligibility Reporting System (DEERS) to develop the address list for mail surveys for sampled military members, with a check before mailing between the sample list and the current DoD list of deceased members. However, we strongly recommend that the DEERS address list should be developed as closely as possible to the beginning of the field period to capture recent address changes. In addition, because undeliverables may be due to incomplete or incorrect addresses, DMDC should also consider expending additional resources to carefully inspect home addresses for completeness and correct format and to request address correction services through the U.S. Postal Service.

Also, we strongly suggest that DMDC consider updating the address list with the DEERS addresses at the second survey mailing to capture recorded changes in address in the DEERS file since development of the original address list. In 2003, we conducted a limited nonresponse study of the *TRICARE Healthcare Survey of DoD Beneficiaries*. For that study, we assessed the accuracy of alternative sources of current addresses for our sample. The comparison excluded address corrections received from the U.S. Postal Service as part of its address service requested procedures. We found that updated DEERS addresses (received just before start of data collection) were most likely to be correct (72% were current addresses), followed by the original DEERS address (this address source was 6 months old at start of data collection) (65% were current addresses). The NCOA vendor was a distant third (only 9% of the addresses received from that source were current addresses). We sent only 50 records to a credit bureau and did not receive any accurate current address or telephone numbers from that source (Westat, 2003). If it has not already been done, we suggest for the next FVAP survey of uniformed services (or another survey of uniformed service members by DMDC), that a similar study be conducted to assess productivity of alternative sources of current addresses.

Data collection procedures. We recommend that this population group receive a prenotification letter, the first survey packet, a reminder letter, a second survey packet, and a

second reminder letter, which is basically in line with Dillman's Tailored Design Method (Dillman, 2007). In addition to sending those communications, we suggest that DMDC make use of any available email addresses (such as those self-reported as part of the SOFS surveys) for additional low-cost reminder communications with nonrespondents. As in the SOFS, DMDC may wish to ask sample members to self-report current email addresses on the web site. (We did not see any documentation about how productive this approach was.) Any email communications should always contain a direct link to the web version of the survey and any necessary pass code for logging on to the survey. Respondents are more apt to respond by web when they have a direct link than when they have to type in a URL for the survey. The first communication by email should be the announcement that the web site is live. There could be additional weekly email reminders to nonrespondents. The web survey should have a .mil domain name. The survey administrator should have a receipt control system covering both web and mail surveys for documenting all data collection activities, recording case disposition, storing all address (postal and email) information, and reporting on response status. If the survey is mixed mode, there will need to be a process in place for checking for and resolving duplicate survey submissions.

Communication content/signatures. To emphasize the importance of the survey, DMDC should continue to make sure that the prenotification and survey cover letters are signed by a top DoD official or by a senior official in the member's Service branch. The prenotification letter should be visually different and shorter than the cover letter. Subsequent reminders (sent by postal mail or by email) should also have prominent signatures or endorsements. Special efforts may be needed to improve the response rates for Coast Guard and Marine Corps sample members. It may be that senior officials in those organizations need to provide more support to the survey.

Perceived questionnaire burden. This survey is long (49 questions), and the format of the paper survey is quite dense with little white space in the survey. In addition, some of the questions may present cognitive problems for sample members. All of those features may increase the perceived burden of the survey and may lead to nonresponse, breakoffs, and the submission of partially completed surveys. According to the 2004 data books, missing item responses in completed surveys were not a problem. We recommend that FVAP and DMDC review Westat's 2007 cognitive appraisal report to determine if revisions are needed. Also, FVAP and DMDC should review the items to verify which are definitely needed to meet reporting requirements and to identify possible questions to delete. They might consider adding a couple of the FVAP questions included in the 2006 SOFS about access to email and government web sites.

Federal Civilian Employees Overseas

Mode Recommendation

We suggest that DMDC may be able to effectively survey this target population solely with a web survey. The DoD Federal civilian employees in the 2004 survey had the highest percentage of web surveys among completed surveys (39.7%), and we presume that Federal civilian employees in other agencies who are stationed overseas have access to email at their

worksites. Our suggestion, however, is based on two other important assumptions: (a) It is possible to go to the Federal agencies with employee names from the selected sample and request email addresses (and possibly also current residence addresses) for them, and (b) there is time during the frame-development schedule to carry out this address-matching task. As noted earlier, Gary Lukowski of OPM acknowledged that this process has been used with web-based surveys sponsored by OPM, and we know of another web survey where the process of obtaining matching email addresses for a representative sample of Federal agency employees is currently underway.

If there is concern about low response rates with a web-only survey, DMDC could alert the employees in the invitation email that they can request a paper survey packet through a reply to the email invitation or on the survey web site. The paper survey could be a printed version of the web survey (unless there are skips in the questionnaire) with the appropriate ID on it. We do not advise asking participants to print their own survey (may not have the ID on it), supply their own mailing envelope, and pay the cost of returning the survey. That is why we suggest they ask for a full survey packet. Alternatively, assuming DMDC has access to mailing addresses, DMDC could mail paper surveys with cover letters and postage-paid envelopes to nonrespondents a week after a second email reminder notice has been sent. DMDC would need to have a system in place to ensure that any paper surveys contained the appropriate ID and to verify that sampled employees did not send in duplicate surveys by the two different methods of data collection.

Factors Affecting Response Rates

The 2004 response rate reported for this group of DoD Federal civilians was 28%, up from 13% in 2000 when the sample population included (we believe) Federal civilian employees from other agencies as well.

Locatability. The DoD sample in the 2004 survey had the highest rate of undeliverables (about 40%). We do not know if the same situation would occur when sample members from all Federal agencies in OPM's CPDF Status file are being contacted by email. For a 2006 OPM web survey of employees in most Federal agencies, the undeliverable rate was about 6%. It may be worthwhile in early to mid-2008 for DMDC officials to speak with database managers at a few Federal agencies to ask about the accuracy of their email addresses for overseas citizens.

Data collection procedures. We recommend that the data collection procedures include the following: prenotification (by email or mail), email invitation with a direct link to the web survey and a pass code for logging on, an option to request by return email or on the survey web site a paper survey packet, the option on the web site to report a current email address, a weekly email reminder to nonrespondents, and, as noted earlier, a possible paper survey mailing to nonrespondents, assuming mailing addresses are available (there is the alternative used in the 2000 survey of mailing paper surveys to the POC address and distributing the paper surveys from that overseas POC location to selected sample members).

We suggest the web survey have a .gov domain name. The survey administrator should have a receipt control system covering web and possible mail surveys for documenting all data collection activities, recording case disposition, storing all address (email/possible postal)

information, and reporting on response status. If a paper survey option is included, there will need to be a process in place for checking for and resolving duplicate survey submissions.

Communication content/signatures. To emphasize the importance of the survey, DMDC should continue to make sure that the prenotification and survey cover letters are signed by a top government official or by a senior official in the employee's agency. Subsequent reminders (sent by postal mail or by email) should also have prominent signatures or endorsements. As noted above, email messages should include direct links to the web site.

Perceived questionnaire burden. This survey is also long (49 questions) and dense in format. In addition, some of the questions may present cognitive problems for sample members. If this is a web-only survey, some of the items with "if" components could be reorganized—that is, an item could first ask respondents if they have done or used something and skip those answering *no* to the next appropriate question. However, if you want to use a printed version of this questionnaire as an optional paper-and-pencil survey, it would be more appropriate to avoid skips in the web questionnaire. As with the questionnaire for uniformed service members, long length, tight format, and problems with understanding and answering the questions correctly may increase the perceived burden of the survey and may lead to nonresponse or the submission of partially completed surveys. We suggest again that FVAP and DMDC review Westat's 2007 cognitive appraisal report and also determine if any of the existing questions could be deleted without jeopardizing reporting requirements. Missing responses in completed surveys were not a problem for this group.

Overseas Citizens

Mode Recommendation

Unless the State Department is willing to change its current restrictions on use of address information for registered overseas citizens, a web survey is the only viable option. Possibly, paper survey packets could be provided to persons visiting the embassies/consulates around the time of the election, but as noted earlier, working out a system for providing postage for returning completed surveys could be problematic. To gain some information about respondents, DMDC could vary user names and pass codes by embassy/consulate. DMDC could also add questions to the survey, such as which country the person resides in or which embassy/consulate they are registered with (some citizens, of course, would refuse to answer those questions and may even break off when they see those questions).

There are basic problems with this approach of setting up a web site and advertising it. Ineligible persons could possibly complete the survey. Some persons may submit more than one survey (DMDC could check for duplicate ISPs - however, it is possible that more than one eligible person could use the same computer to complete the survey). Persons who start the survey but cannot complete it in one sitting cannot come back and complete it unless they have a unique pass code and ID. This approach also would make it impossible to assign standard case disposition codes and calculate response rates.

Factors Affecting Response Rates

This group continues to have very low response rates (16% in 2004, lower than in 2000). There are a number of possible factors contributing to the low rates, some occurring at the first point of data collection—embassy/consulate voting assistance officers—and others occurring more directly with the sampled overseas citizens.

For many State Department officials serving as voting assistance officers, voting assistance is only one of their many duties. This survey can be considered a voting-assistance-related task, but it will have to compete with many other demands on their time. In past post-election surveys, when the mailing boxes with the survey materials arrive at the embassy/consulate, they (or their voting assistants in some instances) may not have been able to carry out their survey tasks (sampling and distributing the surveys) as quickly, accurately, or completely as planned by FVAP.

The most serious problem in the 2004 survey and in future surveys is the State Department's current policy that restricts use of registrants' address information for emergencies only. Another factor that likely contributes to low response is overseas citizens' motivation to respond (some may be disinterested in the United States or distrustful of the U.S. government).

Locatability. Under current State Department policy, DMDC will not be able to obtain either postal or email addresses for registered overseas citizens. In addition, embassy/consulate voting assistance staff will not be able to use any addresses they may have available for registered overseas citizens.

Data collection procedures. In the 2004 survey methods documentation provided to us by FVAP, it was stated that reminder letters signed by FVAP were included in the boxes of survey materials sent to the embassy. There was no information in the documentation about the distribution of those letters, and information received from the State Department indicates that all, or most, of the survey materials were not distributed because of security restrictions on use of registrants' addresses.

For the 2008 survey, assuming that web surveys will be the sole, or primary, survey mode, we recommend that DMDC develop a communication plan involving the Department of State and the selected embassies and consulates for advertising and promoting the survey. For example, press releases and flyers could be prepared to announce the surveys to overseas citizens. In the 2006 Government Accountability Office (GAO) report on absentee voting, mention was made that the embassies/consulates have many media outlets for communicating with overseas citizens and have used them increasingly to promote absentee voting. We suggest that a similar effort be made to use these media to promote cooperation with the post-election survey. In addition, in sampled areas where wardens are used to communicate with overseas citizens, they could be asked to promote survey participation.

The survey administrator should have a receipt control system for recording submission of completed web surveys, but it will not be possible to record any other information or to assign disposition codes for use in calculating survey outcomes.

Communication content/signatures. For this population, it will be particularly important to emphasize the salience of the survey in all communications given that none of these sample members are employed directly by the military or a government entity. Announcements should include endorsements from a prominent Department of State official.

Perceived questionnaire burden. Our comments about this questionnaire and our recommendations for reducing perceived questionnaire burden are similar to those mentioned for the two previous populations.

Local Election Officials

Mode Recommendation

At this time, we do not recommend a web-only survey for this target population. For this establishment questionnaire, many answers are not readily available at the respondent's computer—answers to the questions have to be collected, and perhaps compiled, from various sources and possibly multiple respondents. Some jurisdictions may choose to print a copy of the survey (if that is possible), collect the data from both electronic and hard-copy sources, and then choose to report the data in a web survey. However, other local election officials will not have that option because they do not have Internet access in their offices. As noted earlier, the EDS data set includes email addresses for only two-thirds of the records in the data set. Some local election officials, particularly those in rural areas, have no email addresses because they do not have access to the Internet.

We do highly recommend, though, that DMDC make use of available email addresses to promote use of the web survey for recording and submitting collected data. For example, DMDC could send notices by email as soon as the web site survey is available and include direct links to it in that message and in subsequent email reminder notices.

Factors Affecting Response Rates

The response rate for local election officials was just over 50%. The survey for this target population is an establishment-type survey that may have more than one respondent within an election office. Also, the questions ask about data that may not be readily available, or in some instances, may not be collected at all. Under those circumstances, response rates can suffer. Some of the offices are quite small, staffed only by a part-time election official who has other job responsibilities. Thus, questionnaire length can be crucial in whether the sample member responds. As noted earlier in this report, the president of EDS said that the U.S. Election Assistance Commission recently documented lower responses to surveys in smaller election official offices.

Locatability. Locating correct addresses for this group was not a problem. The EDS data set was up to date.

Data collection procedures. We recommend that the data collection procedures include the following: sending a prenotification by letter (or email if that is deemed the best contact method and an email address is available), distributing the survey packet by mail, sending an email invitation as soon as the web site is live, sending a followup reminder (again by letter or email) to nonrespondents, and sending a second survey packet to nonrespondents. Additional email reminders could be sent to those with known email addresses. The web site could also provide a way for sample members to self-report an email address (this could be useful in large offices where the person delegated responsibility for completing the survey may not be the local election official in the EDS data set).

We suggest the web survey have a .gov or .mil domain name. The survey administrator should have a receipt control system covering web and mail surveys for documenting all data collection activities, recording case disposition, storing all address (email/possible postal) information, and reporting on response status. There will need to be a process in place for checking for and resolving duplicate survey submissions.

Communication content/signatures. To emphasize the importance of the survey, DMDC should continue to make sure that the prenotification and survey cover letters are signed by an appropriate government official (perhaps an FVAP official). Subsequent reminders (sent by postal mail or by email) should also have signatures or endorsements by prominent officials. As noted above, email messages should include direct links to the web site and pass codes for logging on.

Perceived questionnaire burden. We suggest that efforts to increase response rates for this survey should focus strongly on identifying and reconsidering questions that are problematic to answer and shortening the survey as much as possible. In our analysis of missing data for the questionnaire appraisal, percentages of missing data were high for items 4 through 9. Overlooked instructions (e.g., “If none, write in 0”) and the absence of response options such as “This office does not collect these data” and “Don’t know” or “Not applicable,” are possible contributors to the missing responses. We suggest again that FVAP and DMDC review Westat’s 2007 final cognitive appraisal report and also determine if any of the existing questions could be deleted without jeopardizing reporting requirements.

In addition, DMDC may wish to follow up with the Research Director of the U.S. Election Assistance Commission (EAC). The EAC sponsors surveys that contain items similar to some of those collected in the LEO post-election survey. For its 2004 Election Day Survey, the EAC conducted focus groups with election officials and other experts to review existing questions in three different questionnaires that were being combined for that survey and to identify confusing and difficult questions. If the EAC has documented the findings from those focus groups, the information may be useful in revising the LEO survey (a copy of the survey can be retrieved from http://www.eac.gov/election_survey_2004/toc.htm). In addition, in its 2006 Election Administration and Voting Survey, the EAC included the response options “Don’t know” and “Check if your office does not collect this data” in several questions similar to those in the LEO survey. The EAC will be releasing the 2006 Election Day Survey findings related to UOCAVA voters from late August to mid-September 2007. The Research Director of

EAC is willing to discuss results on similar questions after DMDC has reviewed the reports (a copy of the 2006 EAC survey can be retrieved from http://eac.gov/eac_eavs.htm).

Election Data Services administered the EAC's 2004 Election Day Survey and analyzed the data. For the first time, this survey was administered by web. In the opinion of the EDS president, the length of the resulting survey proved burdensome (three different surveys were combined to create one longer survey with 58 items). The surveys were administered to state officials, but they were required to report data at the local jurisdiction level. In some cases, the states gave access to the web site to the LEOs to complete the questions. In a telephone conversation with the president of EDS, he indicated there were many types of problems with the survey, including the web design, nonresponse, and data quality. When asked about the feasibility of a web-only survey for the DoD post-election survey, he said that depends—on the length and design of the survey, but agreed it would be problematic for election officials in smaller jurisdictions who do not have Internet access in their offices.

For this questionnaire in particular, since it is burdensome, we recommend giving serious consideration to making the questionnaire more appealing by increasing the amount of white space and perhaps increasing the point size of the text. We understand the cost implications of this suggestion, but we think it may contribute to higher response and to better data quality, particularly if some of the recommendations in our questionnaire appraisal report about redesigning response tables are adopted.

Unit Voting Assistance Officers

Mode Recommendation

For reasons similar to those given for the survey of uniformed service members, we recommend a mixed-mode survey for this population.

Factors Affecting Response Rates

The reported response rate for this group was 32% in 2004, compared with 35% in 2000. The key to improving the response rate for this target population may be to send second survey packets (in a paper-and-pencil survey with web option) and to have FVAP and the Service Voting Action Officer emphasize the importance of the survey when the unit voting assistance officers are receiving training for their voting assistance duties.

Locatability. The reported percentage of undeliverables was low—7.6%. However, it appears from the documentation we received from FVAP that the survey packets were mailed not to the personal address of the voting assistance officer in each selected unit but to the unit address with the package addressed to the “Voting Assistance Officer.” If that is true, we do not know if the survey packet actually reached the sample member. It may be worth the effort and cost to try to identify the name and address of those persons before data collection begins and mail the prenotification letter and survey packet directly to them but to also send a version of the

prenotification letter to the UIC address. That letter should not contain pass code information for the web survey.

Data collection procedures. We recommend the same data collection procedures we recommended for the survey of uniformed service members.

Communication content/signatures. Again, see our comments for the survey of uniformed service members. However, the signature on letters/endorsements in emails might be that of each Service's Voting Action Officer.

Perceived questionnaire burden. Our comments about this questionnaire and our recommendations for reducing perceived questionnaire burden are similar to those mentioned for the survey of uniformed service members.

Department of State Voting Assistance Officers

Mode Recommendation

This group had a high response rate for its web-only survey, and we recommend the same mode for the 2008 survey.

Factors Affecting Response Rates

The response rate for this group was 87%. We suggest that DMDC continue with the same data collection procedures in 2008 that were used in 2004. The Department of State official we spoke with said he did not do anything special to motivate response other than instructing the voting assistance officers to complete the survey.

Summary of Data Collection Issues

A principal consideration in this section of the report was recommendations regarding method of data collection, in particular, web only or a mixed-mode survey in which sample members have a choice between a paper-and-pencil survey and a web survey. We suggest that a web-only survey is appropriate in 2008 without qualifications for the Department of State voting assistance officers and, by default, for the survey of overseas citizens. We give qualified support to a web-only survey of Federal civilian employees overseas. We have set out several assumptions for a web survey to be appropriate—for example, timely availability of email addresses for this sample group. Also, we think that data collection for that survey will need to be closely monitored to judge whether an optional or followup paper survey may be appropriate to boost response rates. For the remaining population groups, we recommend the more conservative approach of a mail survey with a web option.

We suggest that DMDC give high priority in data collection to the following efforts for all six surveys: identify and use the best source of current addresses (mail and email), assign standard disposition codes to each survey record outcome, establish a robust receipt control/data management system, follow the Tailored Design Method for communications with sample

members in all FVAP survey populations other than the survey of overseas citizens, use email addresses whenever possible for web site survey announcements and followup reminders, and reduce perceived burden of the questionnaire. In addition, we recommend giving special attention to improving response rates for uniformed service members in the Coast Guard and the Marine Corps and to developing a communication plan for promoting the web survey of overseas citizens.

CONCLUSIONS

From our review of the sample design, administration, and size of the 2004 FVAP post-election surveys, we think that data quality could be improved by selecting probability samples for five of the six populations, weighting them appropriately, and expending more resources to obtain and check current mailing and/or email addresses for sample members.

We recommend without qualifications that a web-only survey be conducted for Department of State voting assistance officers (DoS VAOs); that a web survey, by default, be conducted for citizens overseas; and that, with some qualifications, the survey of Federal civilian employees overseas, be web only, or primarily web. We recommend a mixed-mode approach of paper-and-pencil with web option for the other populations. We strongly suggest making more use of available email addresses for communicating with sample members.

For the nonprobability survey of overseas citizens, we suggest that survey promotion activities at the embassy/consulate level be monitored closely. We also recommend the development of a tailored communication plan for each selected embassy/consulate that is designed to advertise and promote the survey.

In addition, we think survey administration and documentation could be improved by having DMDC or a single contractor administer both the web and paper-and-pencil surveys. The contractor should assign standard disposition codes to all sample cases and maintain robust receipt control/data management systems for each survey. Survey administration documentation and data should reflect web survey results separately from paper-and-pencil survey results so that better decisions can be made about how to improve response rates in future post-election surveys. Data collection procedures should basically follow Dillman's Tailored Design Method, which emphasizes a series of customized communications and "mailings" for each survey group. All questionnaires should be reviewed carefully for possible improvements and item deletions. Finally, we recommend that all aspects of sampling and data collection for each of the 2008 surveys be fully documented to facilitate decisions about future post-election surveys.

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Appendix A.

**Frame Variables: Survey of Uniformed Services, June
2004 Active Duty and Reserve Master Edit Files**

**Frame Variables: Survey of DoD Federal Civilian
Employees Overseas, June 2004 DMDC
Civilian Master File**

VARIABLES FOR THE 2004 VOTING SURVEY OF UNIFORMED SERVICE MEMBERS

ACTIVE SAMPLE

September 10, 2004

File Name: VOTSAMA.XLS

Number Of Records: 15,026

<u>Variable</u>	<u>Length</u>	<u>Values</u>
DMDC ID	4	1 - 15026
First Name	20	
Middle Name	20	
Last Name	26	
Cadency	4	II, III, IV, JR
Salutation	21	
Abbreviated Rank	7	
UIC	8	
UIC Address - Line 1	30	
UIC Address – Line 2	30	
UIC Address – Line 3	30	
UIC City	26	
UIC State	2	
UIC Zip Code	9	
UIC Country Code	2	
UIC Address Flag	1	N = No Address Y = Address
Home Address – Line 1	40	
Home Address – Line 2	40	

Home Address – City	20	
Home Address – State	2	
Home Address – Country	2	
Home Address – Zip Code	9	
Home Address Flag	1	N = No Address Y = Address
Active or Reserve File Flag	1	A = Active V = Reserve
DEERS File Flag	1	N= No Match Y = Match
Service	1	A = Army C = Coast Guard F = Air Force M = Marine Corps N= Navy
Pay Grade	3	E01 – E09 W01 – W05 O01 – O10
Officer or Enlisted Flag	1	1 = Commissioned, Warrants 2 = Enlisted
Location Flag	1	1 = Conus 2 = Oconus
Citizenship	1	C = US Citizen Z = Unknown
US Citizenship Origin	1	A = Born within US, GU, PR, VI B = US citizen, parent became citizen by naturalization C = Born outside US, GU, PR, Or VI to at least one citizen parent D = US citizen by naturalization Z = NA or Unknown
Sex	1	F = Female M = Male Z = Unknown

Age	3	17 – 65, 999 = Unknown
Death Flag	1	N = Not dead Y = Dead

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Survey of DoD Federal Civilian Employees Overseas:

Layout of variables sent:

PUT	@1	SVC	1.	- Service
	@2	NAME2	\$CHAR23.	
	@25	GENDER	1.	- M or F
	@26	UIC	\$CHAR6.	
	@32	POI	4.	
	@36	TITLE	\$CHAR30.	- Unit address
	@66	ADDRESS2	\$CHAR30.	
	@96	ADDRESS3	\$CHAR30.	
	@126	ADDRESS4	\$CHAR30.	
	@156	CITY	\$CHAR30.	
	@186	ZIP	\$CHAR5.	
	@191	COUNTRY	\$CHAR2.	
	@193	CONUS	\$CHAR2.	
	@195	STATE	\$CHAR2.	- DEERS address
	@197	SSN	9.	
	@216	CITY_CD	\$20.	
	@236	CNTRY_CD	\$2.	
	@238	MA1	\$40.	
	@278	MA2	\$40.	
	@318	ZIP	5.	
	@323	ZIP_EXT	4.;	

Last program dated 9-16-2004
Molley Wehrel
Information provided by Scott Seggerman