B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

If the collection of information employs statistical methods, it should be indicated in Item 17 of OMB Form 83-I, and the following information should be provided in this Supporting Statement:

1. Description of the Activity

The population of interest for the 2022 Spouse and Family Issues Survey of Active Duty Spouses (SFIS-A) consists of spouses of active duty members from the Army, Navy, Marine Corps, and Air Force who are below flag rank. In addition, for the spouse to remain eligible for the survey, they must indicate they are currently married to an active duty member at the time of the survey. Attachment A contains a table with the number of individuals in the population and sample by strata. The expected weighted response rate for this survey is 20%.

2. Procedures for the Collection of Information

a. Statistical methodologies for stratification and sample selection;

As described above, OPA uses a sampling tool developed by the Research Triangle Institute (RTI) to determine the sample size needed to achieve 95% confidence and an associated precision of 5% or less on each reporting category domain. We select a single-stage, non-proportional stratified random sample to ensure statistically adequate expected number of responses for the reporting domains. For the SFIS-A, OPA uses Service, paygrade, gender, and family status to define the initial strata. We collapse these strata when there are fewer than 200 individuals in the stratum. Once OPA determines the stratum-level sample sizes, a random number is assigned to every member of the population and the population is sorted by stratum and random number prior to sampling, which results in a randomly-ordered population within each stratum. We then select the appropriate number of spouses from each stratum.

b. Estimation procedures;

OPA weights the eligible respondents in order to make inferences about the entire population of active duty spouses. The weighting methodology utilizes standard weighting processes. First, we assign a base weight to the sampled member based on the reciprocal of the selection probability. Second, OPA uses 20-30 administrative variables in the XGBoost application of Generalized Boosted Model (GBM) to predict survey eligibility and completion. OPA's accurate and detailed administrative data on both survey respondents and non-respondents provides confidence in our survey estimates. We adjust the sampling weights and

then all prior-stage weights by the inverse of these model-predicted probabilities to adjust for nonresponse. Finally, we rake these adjusted weights to known population totals to further reduce the variance and bias of the estimates.

c. Degree of accuracy needed for the Purpose discussed in the justification;

OPA forms variance strata by collapsing sampling strata to achieve about 30 respondents within each variance stratum. OPA computes variance estimates within variance strata so precision measures can be associated with each estimate. We produce precision measures for reporting categories using 95% confidence intervals with the goal of achieving a precision of 5% or less (e.g, 80% (+/- 5%) of spouses of Army E1-E4 are satisfied with their job).

d. Unusual problems requiring specialized sampling procedures; and

OPA recognizes the response rates vary for certain domains of interest such as Service and paygrade. To account for this, we will average the response rates for the last three Active Duty Spouse Surveys (same population as the SFIS) at the stratum level and use these response rates in the sampling tool to create the SFIS sample and compute expected numbers of respondents within domains of interest.

e. Use of periodic or cyclical data collections to reduce respondent burden.

This is the first administration of the SFIS. There aren't any surveys within the DoD that assess the issues on this survey.

3. <u>Maximization of Response Rates, Non-response, and Reliability</u>

To maximize response rates, OPA offers the survey via the Web and provides paper survey option. Reminder letters and emails to non-respondents are used to maximize response rates. To reduce respondent burden, web-based surveys use "smart skip" technology to ensure respondents only answer questions that are applicable to them. To ensure the accuracy and reliability of responses, OPA conduct nonresponse adjustments as part of the weighting process. The results for the 2019 Active Duty Spouse Survey are useful in that the response expectations and survey methodology mirror the SFIS. Nonresponse adjustments contained in the 2019 ADSS Statistical Methodology Report and is available on request: *Office of People Analytics. (August 2020). 2019 Survey of Active Duty Spouses: Statistical Methodology Report. (OPA Report No. 2020-050). Alexandria, VA.*

To increase response rates, individual QR codes will be included on the postal letters, offering a quick mechanism for respondents to access and complete the survey via their mobile device.

4. <u>Tests of Procedures</u>

Not applicable

5. <u>Statistical Consultation and Information Analysis</u>

a. Provide names and telephone number of individual(s) consulted on statistical aspects of the design.

Mr. David McGrath, Branch Chief; Statistical Methods Team, Methods, Analysis, and Systems Support, Office of People Analytics (OPA); (571) 372-0983.

Ms. Wendy Barboza, Team Lead; Statistical Methods Team, Methods, Analysis, and Systems Support, Office of People Analytics (OPA); (571) 372-1099.

b. Provide name and organization of person(s) who will actually collect and analyze the collected information.

The data will be collected by Data Recognition Corporation (DRC), which is OPA's operations contractor. Ms. Valerie Waller is the Senior Managing Director at DRC.

The data will be analyzed by OPA analysts. Monica Wiedemann, Robin Myers, and contractors Jason Haynes, and Amy Campbell are the lead operations analysts.