

**Department of Transportation  
Office of the Chief Information Officer**

**SUPPORTING STATEMENT  
Crime Prevention for Truckers**

**Part B. Collections of Information Employing Statistical Methods**

**1. DESCRIBE POTENTIAL RESPONDENT UNIVERSE AND ANY SAMPLING SELECTION METHOD TO BE USED.**

The population of interest is female and minority male professional truck drivers. The respondents' universe for this study consists of all adult female and minority (Hispanic or not white) male truck drivers with recent (within the past two years) professional truck driving experience in the United States.

Considering cost, time constraints, and efficiency of getting respondents, this study will use a convenience sampling method to select respondents that are readily accessible. In this convenience sampling method, we will include personal intercepts at locations with high concentrations of truck drivers, such as truck stops and truck shows, and available mailing lists and social media.

To approximate the size of the respondent universe (i.e. target population), we start with the number of persons employed in truck transportation in the United States, shown in Table 1. The 12.5 percent in the table is females in all aspects of truck transportation, which would include drivers, dispatchers, managers, clerks, and other jobs. Secondary sources typically put the fraction of female truck drivers at about 5 percent. Table 2 applies the percentages in the demographic groups listed in Table 1 to estimate the numbers of individuals in each category. The number of females in truck transportation is estimated to be 246 thousand; the fraction of those who are drivers is part of the respondent universe. The size of the remainder of the respondent universe (male truck drivers who are not white or are Hispanic) is difficult to estimate. The Bureau of Labor Statistics reports the data in a way that make it impossible to calculate the number of truck transportation employees who are in the category of Hispanic or the category of non-white. A rough estimate of the male portion of the respondent universe would begin with the number of males in truck transportation (87.5 percent of 1,965 thousand, or 1,719 thousand). If 17.0 percent of these are Black or African American and 3.3 percent are Asian, that would be 292 thousand males and 57 thousand males, respectively. The number of Hispanic or Latino males would be 351 thousand. These numbers cannot be added because some persons whose ethnicity is identified as Hispanic or Latino are White.

Battelle, FMCSA's contractor for this study, plans to perform separate analyses of two groups—women and minority men. There are two reasons for this. First, women are expected to be subject to different kinds of harassment and assaults than are men. Second, the truck driving population includes many more minority men than women, so a single, combined pool of responses would not give adequate voice to the women. The same set of questions will be used for all respondents. Responses will be separated according to self-reported sex and minority status. It would be possible for a third analysis of combined responses of women and men by weighting the data, but there is no plan to do so.

**Table 1. Employed Persons by Detailed Industry, Sex, Race, and Hispanic or Latino Ethnicity**

Industry	Total employed (thousands)	Percent of total employed				
		Women	White	Black or African American	Asian	Hispanic or Latino
<b>Total, 16 years and over</b>	153,337	46.9	78.4	12.1	6.2	16.9
<b>Transportation and utilities</b>	8,159	24.0	73.1	18.8	4.9	17.8
Truck transportation	1,965	12.5	76.6	17.0	3.3	20.4

Source: U.S. Department of Labor, Bureau of Labor Statistics.<sup>1</sup>

Estimates for the above race groups (White, Black or African American, and Asian) do not sum to totals because data are not shown for all races. Persons whose ethnicity is identified as Hispanic or Latino may be of any race.

**Table 2. Estimate of the Respondent Universe (in 1000s)**

Industry	Women	White	Black or African American	Asian	Hispanic or Latino
Truck transportation	246	1,505	334	65	401

Because of the way that the data are reported by the Bureau of Labor Statistics, it is not possible to estimate the number of truck transportation employees who are non-white or Hispanic. Truck drivers are a subset of persons employed in truck transportation.

Personal intercepts will be conducted by female and minority truck drivers who are already experienced in speaking with drivers and will have specialized training for this project. Researchers, individually or in pairs, will seek permission to locate booths at places they expect to meet truck drivers in at least four regions of the country. Booths may be located at truck stops, truck shows, or training centers, and drivers may be approached at other places where they are out of their trucks, such as rest areas and fueling stations. Persons who appear to meet the enrollment criteria (i.e., female or minority male truck drivers) will be approached and greeted personally. Researchers will explain the purpose and nature of the survey. In some cases, the driver will take the survey immediately, either as an in-person interview, or on a kiosk nearby. Other drivers contacted in person will be directed to the online survey. They will be given a piece of paper with the web address of the survey for easy reference.

Recruiting at four widely separated locations will diversify the sample by geography. Recruiting by social media and e-mailing lists will reach drivers whose job does not take them to truck stops or are not at truck shows; the geographic locations of these drivers will not be controlled. There are no plans to stratify the sample by geography, age, or other factors, nor is there expectation of sufficient data

<sup>1</sup> Employed persons by detailed industry, sex, race, and Hispanic or Latino ethnicity. January 19, 2018. Bureau of Labor Statistics, United States Department of Labor. Labor Force Statistics from the Current Population Survey. <https://www.bls.gov/cps/cpsaat18.htm>.

for a formal analysis by subgroups. The demographic and occupational characteristics of the surveyed individuals will be tabulated for future reference as to the composition of the sample.

The survey will sample a portion of the respondent universe, and assumptions must be made to select the sample size. The characteristics of the sample (e.g., mean prevalence of incidents, percent of crimes unreported) are only estimates, subject to random variation, for the corresponding population parameters. To limit the range of uncertainty in estimates, an adequate sample size of respondents is required. If it can be assumed that survey respondents will provide answers to questions that will yield estimated outcomes of proportions (e.g., proportion of drivers experiencing a crime), and it is further assumed that prevalence rates of 50 percent are possible, the number of responses would have to be 384 to be able to present results with a margin of error of +/- five percentage points. This sample of 384 each would be required for the two separate populations of female truck drivers and male minority truck drivers, for a total of 768 responses. An adequate sample of female drivers must be obtained, and an adequate sample of minority male drivers must be obtained. To allow for the possibility that some completed surveys might be unusable, the target sample size will be 880 (440 in each group), as shown in Table 3. By comparison with previous driver research, we expect to intercept approximately three individuals to achieve one completed survey response. The number of individuals we expect to contact is in the first row Table 3 ( $3 \times 440 = 1,320$ ), and the bottom row is the number of completed surveys required for the analysis (440), which is the target sample size.

**Table 3. Anticipated Initial and Target Sample Sizes**

Sample Size	Females	Minority Males	Total
<b>Initial Sample Size</b>	1,320	1,320	2,640
<b>Target Sample Size</b>	440	440	880

The first questions in the survey will screen for eligibility. Those whose self-reported demographic or occupational status does not meet the criteria (e.g., not a woman or minority male, or not an active driver) will be thanked and dismissed before they begin the content questions of the survey, and they will not count toward the target sample to be obtained. Those who do not report that they have experienced harassment or assault will be counted toward the total target sample, even though they will not provide the full range of additional information most sought in this survey. After approximately 400 women or 400 minority men have taken the survey, and reported some form of harassment or assault, the online survey will not permit more participants in the satisfied category and more will not be actively recruited. If 400 positive responses are not attained within 440 overall eligible participants (i.e., including those that are eligible but reported no incidents), the survey of that group will terminate so as to cap the data collection burden.

**2. DESCRIBE PROCEDURES FOR COLLECTING INFORMATION, INCLUDING STATISTICAL METHODOLOGY FOR STRATIFICATION AND SAMPLE SELECTION, ESTIMATION PROCEDURES, DEGREE OF ACCURACY NEEDED, AND LESS THAN ANNUAL PERIODIC DATA CYCLES.**

**Sample Selection**

There is no complete list of minority and female truck drivers with their contact information from which a probability sampling design can be constructed. The membership of the organization Women in Trucking includes approximately one percent of the total estimated female truck drivers in the

United States. The list cannot be considered a sample frame, but it can be used to elicit responses from female truckers. Although there is no corresponding organization of minority male commercial drivers, the International Brotherhood of Teamsters has national caucuses for black, Hispanic, and female drivers. These, too, are convenient means of reaching a portion of the respondent universe.

We will start the survey with two sets of initial samples, one for female truckers and the other for minority male truckers, each anticipated to consist of 1,320 individuals. The population of female drivers is much smaller than that of minority male truck drivers, so additional recruiting measures may need to be applied for females.

### **Post-Survey Adjustments**

Because of the convenience sampling method being adopted, no post-survey weighting will be applied. Instead, the relevant demographic and occupational sample characteristics for the separate female and minority men samples will be tabulated as reference for the sample. These characteristics will include age, race, ethnicity, type of driver (i.e., over the road, short haul, pickup and delivery), and occupational status (i.e., owner-operator, employee, independent contractor).

### **Statistical Data Analysis**

The survey consists primarily of questions with fixed responses, which are amenable to quantitative analysis. Questions with free-form answers will require qualitative analysis.

Quantitative data analysis will be performed by using SAS statistical analysis software. Univariate distributions and descriptive statistics which describe and summarize information from the survey will be obtained for each of the survey questions. If necessary, cross-tabulations will be computed to understand how different survey items are related. Graphical summaries (histograms, means, and confidence intervals) for selected questions will be generated.

Three primary estimates are expected for each sample panel (women and minority men):

- 1) The proportion of those eligible to participate who indicate in the survey that they experienced at least one incident of each type of harassment or assault within the last two years. Those eligible to participate but without any experience will be included in the denominator of the proportion.  
$$\text{Prevalence Rate} = (\# \text{ eligible participants indicating at least one incident}) / (\# \text{ eligible people who took the survey}) \times 100$$
- 2) The victimization rate from above as the estimated mean rate of such incidents per person per year. Those indicating no incidents will count as zero but will be included in the denominator of the rate.  
$$\text{Victimization Rate per 1000 people per year} = 0.5 \times (\# \text{ crimes indicated by sample for 2-year period}) / (\# \text{ eligible people who took the survey}) \times 1000$$
- 3) For respondents indicating in the survey that they experienced at least one incident of harassment or assault, we will calculate the proportion of individuals who indicate not reporting a specific selected one of these incidents to police or other authorities.  
$$\text{Non-Reporting Prevalence Rate} = (\# \text{ participants indicating their detailed incident was not reported to authorities}) / (\# \text{ participants indicating a detailed incident}) \times 100$$

Many questions in the survey can be answered by selecting from a list of fixed responses or by marking “other” and filling in a response. Where possible, similar “other” responses will be grouped and included in the quantitative analysis along with the fixed responses.

Two of the questions in the survey invite the respondent to write an extended response. In Question 23, a respondent can relate an incident that is not among the nine pre-written descriptions of harassments and assault. Study staff will read these responses for patterns of similar incidents and unusual incidents that the staff had not anticipated in preparing the survey. These incidents will be

organized and summarized so that FMCSA can be aware of other situations affecting drivers that may need attention. Researchers will use content analysis to infer the most common answers. The final question on the survey, number 63, invites the respondent to write any thoughts on their mind that were not captured in the prepared questions. This could be other pertinent details of events or factors that enable harassment and assault against truckers. The question also solicits suggestions from the drivers on how to improve the situation. These ideas may be the genesis of concrete steps that can be taken to make truck driving a safer environment. Again, similar responses will be combined, eloquent phrases will be quoted, and information will be codified.

Findings will be presented in tables, figures, and text. Bar charts and pie charts will present the most salient findings in a simple way that is readily grasped. Tables will present the results of multivariate analysis to convey more subtle and nuanced effects. Some of the questions are adapted from the National Crime Victimization Study, so that response patterns for truck drivers can be compared with those of the general population. As appropriate, responses will be compared with other studies on workplace harassment and violence.

### **3. DESCRIBE METHODS TO MAXIMIZE RESPONSE RATE AND TO DEAL WITH THE ISSUES OF NON-RESPONSE.**

Potential respondents who are met in person may take the survey at that time, in person or at a kiosk. Those who are met in person but do not take the survey will be given a piece of paper with the web address and encouraged to visit the site when they return to their truck or on their next break. Promotional materials will mention the \$25 incentive for eligible respondents to complete the survey, online or in person.

Battelle has achieved success in surveys by employing several approaches including verifying participant information, creating well-written and compelling survey materials that are succinct and use well-established and tested survey administration procedures such as advanced letters from a trusted source, and employing tracking and reminder systems. A reminder letter would re-introduce the participant to the study and include the study web address.

The following measures for the initial e-mail invitation will maintain a high response rate:

- Keep the e-mail very short;
- Embed the survey link near the beginning of the e-mail;
- Include a short subject line;
- Reference their membership in Women in Trucking and the organization's support;
- Include a phone number.

Publicity materials will clearly state that the survey is for female and minority male truck drivers. This will increase the interest of the target population and minimize the number of ineligible individuals who are screened out in the first few questions. The publicity materials will advertise that the topic is harassment and assault. Doing so can be expected to selectively attract drivers who have experienced such an event. This will provide richer data on the circumstances of harassment and assaults, though the estimate of prevalence will be biased high. The informed consent statement will state the purpose of the survey but encourage all eligible drivers to continue.

Because the study uses a convenience sample, non-response is not an issue. Staff will simply continue to apply the recruiting methods until the study ends.

**4. DESCRIBE TESTS OF PROCEDURES OR METHODS TO BE UNDERTAKEN.**

Before the main survey, “pretests” or small-scale rehearsals of the data collection will be conducted to evaluate the survey instrument as well as the data collection and respondent selection procedures. Survey designers consider the data collected during pre-test for high rates of missing data, out-of-range values, or inconsistencies with other questions and suggest for revising the questionnaire. We are planning a pilot test of the questionnaire with no more than nine individuals to evaluate the questions and closed-response options, to evaluate general design of the questionnaire, to analyze the survey procedures seeking suggestions for improvement, and to evaluate the degree of, and reasons, behind any failure to respond. During the survey implementation phase, we might refine the survey questionnaire to obtain additional information about the minority and female truck drivers.

**5. PROVIDE NAME AND TELEPHONE NUMBER OF INDIVIDUALS WHO WERE CONSULTED ON STATISTICAL ASPECTS OF THE INFORMATION COLLECTION AND WHO WILL ACTUALLY COLLECT AND/OR ANALYZE THE INFORMATION.**

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