SUPPORTING STATEMENT

FOR

P.L. 89-663, Title 1, Section 106, 108, 112. - COLLECTION OF CRASH DATA

OMB Control Number 2127-0021

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Describe the potential respondent universe and any sampling or other respondent selection methods to be used.

The NASS universe, or sample frame, is the set of all police traffic crash reports in the United States. There are about 6,000,000 such police reported crashes each year. NASS samples this basic frame through a stratified cluster scheme whose stages are as follows:

- Divide the country into geographic units called Primary Sampling Units (PSUs). There are about 1,195 PSUs total.
- Group PSUs into one of 12 strata based on the PSU's geographic location (Northwest, South, Mid-west, or West) and degree of urbanization (city, large county, or a group of counties).
- For the NASS Crashworthiness Data System (CDS), a subsample of 24 PSUs was selected (Attachment 5) from the 1,195 PSUs in the frame; two from each of the 12 PSU strata using probability proportional to size (PPS) sampling with the PSU level injury and fatality count as the measure of size (MOS). The table below shows, by stratum, the PSU population and sample counts.

CDS Frame and Sample Sizes by Strata		
Strata	**PSU Frame Size**	**PSU Sample Size**
Northeast		
Large Central City	19	2
Large Suburban	69	2
All Other	94	2
Midwest		
Large Central City	15	2
Large Suburban	79	2
All Other	280	2
South		

Large Central City	21	2
Large Suburban	87	2
All Other	368	2
West		
Large Central City	12	2
Large Suburban	42	2
All Other	109	2
Total	**1195**	**24**

- The CDS is concerned with motor vehicle traffic crashes involving at least one passenger vehicle (passenger cars, pickup trucks, vans, and sport utility vehicles) that was towed due to damage from the crash.
- Within each PSU, select a sample of the police jurisdictions (PJ) to which motor vehicle traffic crashes are reported using PPS sampling with the PJ level fatality and injury count as MOS. The average PJ sample size is seven police jurisdictions per PSU.
- Visit each selected jurisdiction on a weekly basis. The crashes over the year are stratified by weeks. List crashes recorded at that jurisdiction since the last visit.
- Pool all listed crashes from all sampled PJs together. To reduce the variation in weights and oversample crashes associated with serious/fatal injuries or those involving newer model year vehicles, a MOS proportional to PJ weight, PAR sub-listing weight and desired sample size for each type of crash is assigned to each PAR. Select an average of 1.75 crashes for each data collector in each PSU every week using PPS sampling.
- Conduct detailed investigations on the selected crashes.

NASS samples police reports at 24 sites. Each site or PSU has multiple police departments or jurisdictions. Not all police jurisdictions in a PSU are in the sample. If the police jurisdiction is not in the sample then it is considered a nonsample jurisdiction. Some individual police jurisdictions (cities) produce too many crashes and must be subsampled. There are nearly 181 police jurisdictions that are sampled and 340 that are nonsample. NHTSA uses nonsample counts to improve the accuracy of the national estimates.

The following table shows the number of police-reported crashes listed and selected at the 24 CDS PSUs for calendar year 2010. The "National Police-Reported Crashes" is an estimate of the total number of crashes that occur across the United States as reported by the General Estimates System.

National Police-Reported Crashes	5,408,612
Police-Reported Crashes in 24 NASS CDS PSUs	92,661
Police-Reported Crashes in Sampled CDS Police Jurisdictions	64,746
Crashes Selected for NASS CDS Investigation	4,878

Once a crash is selected for the NASS sample it remains in the sample. Since the crash was identified by a police report, the information on the report itself provides some of the data needed for each component of the NASS investigation. Completion rates for the additional investigation stages are scene inspection 98%; vehicle inspection 85%; occupant interview 83%; and, occupant injury 88%.

2. Describe collection of information procedures.

Once a crash has been selected for investigation, several activities are initiated by the NASS team. Researchers locate, visit, measure, and photograph the crash scene; locate, inspect, and photograph all involved vehicles; conduct a telephone or personal interview with each involved person or surrogate; and, record injury information from hospitals or emergency rooms for all injured victims. During each activity the researchers record information on the NASS crash, vehicle, and occupant forms as appropriate.

NASS-CDS overall base weights are the product of the design weights at all three phases: the PSU base weights, the PJ base weights and the PAR base weights. The overall base weights are then adjusted by a ratio type post-stratification adjustment to correct potential non-response and coverage bias.

NASS is designed to give the most accurate estimates available for key statistics within budgetary constraints. Variance estimates can be calculated using different available methods such as Taylor series method, balanced repeated replication (BRR), or Jackknife via specialized software such as SAS, SUDAAN or WESVAR. NASS CDS currently uses the Proc Survey procedures of the SAS programming language to produce the standard errors. Due to the nature of the analysis performed and the detailed data provided, the standard errors should be produced for each analysis conducted. The CDS does not provide generalized variances for any data collection year.

The NASS CDS data is used in many different contexts by many different users, but a key feature of the data is its accurate and detailed information on occupant injury. To illustrate the type of estimates that NASS CDS is capable of generating, the table below shows the distribution of Maximum Abbreviated Injury Scale (MAIS) injuries in the CDS data collected in 2010. These estimates, along with their coefficients of variation, were generated using SAS PROC SURVEYFREQ to specify the PSU and PSU stratification aspects of the sample design. The estimates can be interpreted as showing the relative frequency of each level of MAIS within the sampling universe of all tow-away crashes in the US.

MAXIMUM KNOWN AIS IN THIS CRASH (AIS98 FORMAT)						
MAIS	Frequency	Percent	Std Err of	95% Confidence		CV for
NOT INJURED	1049	57.4722	1.7455	53.6691	61.2752	0.0304
MINOR INJURY	1352	32.6233	1.9898	28.2878	36.9587	0.0610
MODERATE INJURY	376	5.5145	0.6164	4.1715	6.8576	0.1118
SERIOUS INJURY	224	1.8260	0.4426	0.8616	2.7903	0.2424
SEVERE INJURY	105	0.4568	0.0693	0.3058	0.6079	0.1518
CRITICAL INJURY	75	0.2717	0.0722	0.1144	0.4290	0.2657
MAXIMUM INJURY	30	0.0561	0.0116	0.0308	0.0814	0.2072
INJURED, UNK SEV	91	1.7794	0.4112	0.8835	2.6752	0.2311
Total	3302	100.000				
Frequency Missing =1554						

NASS has the capacity to conduct special studies of particular problem areas outside of its regular sample. If a study should require a larger sample than would be available through the normal procedures, NASS CDS will oversample crashes of interest. Oversampling was used in a study of truck underride crashes (where a passenger vehicle strikes the side or rear of a heavy truck) in 1979-1980 and in a study of crashes involving various roadside equipment such as guard rails, poles, and crash cushions. In 1989, oversampling was used to increase the number of crashes involving light passenger vehicles with automatic occupant restraint systems. In these oversamples, crashes satisfying the appropriate criteria were identified from police crash reports within the regular NASS CDS sampling procedures.

NASS CDS will use an annual data collection cycle since NASS seeks to collect continuous data.

3. Describe methods to maximize response rates and to deal with issues of non-response.

The NASS Crashworthiness Data System quality control system is designed to produce

the most accurate, reliable, and complete database possible within the limits of available resources. All data are automated and edited by a complex algorithm which checks for inconsistencies and questionable items. A sample of all crashes is given a thorough review by an experienced researcher at a NASS Zone Center. Zone Center personnel visit each PSU regularly to observe the team's investigation activities and to discuss systematic problems revealed in edit and Zone Center reviews of the team's cases.

Since the interview is vital to a complete case, NASS teams make special efforts to complete an interview when at all possible. Occupants are contacted by telephone. NASS researchers call at varying hours (often in evenings or on weekends) until they have located the person sought. When the person is unavailable, other passengers or witnesses are contacted. If the person sought cannot be located by telephone, researchers use personal visits or mail questionnaires. Each NASS researcher is given special training in interviewing. This increases the possibility that persons will cooperate once they have been located and contacted. As a result of these procedures, NASS teams have completed interviews with more than three-quarters of all occupants throughout the years.

As a final check on NASS data, approximately 5% of those interviewed are recontacted by Zone Center personnel to establish that they had in fact been interviewed and to verify some of their responses. This type of interview takes approximately 5 minutes.

4. Describe any tests of procedures or methods to be undertaken.

NHTSA tested the original NASS forms and protocol in an OMB-approved pilot test in 1978, the year before regular NASS data collection began. Between 1978 and 1987, NHTSA had made only incremental changes (additions and deletions) to both forms and protocol. In 1988, the NASS data collection effort was redirected by focusing on crashes involving towed passenger vehicles. These changes were tested as part of the continuing data collection effort, since they grew out of the experience developed in NASS crash investigations and interviews. Changes are reviewed extensively by design, analysis, and field staff for their necessity and practicality.

5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

Ms. Ruby Li, National Center for Statistics and Analysis, NHTSA, 202-366-6736 is responsible for NASS estimation. Ms. Chou-Lin Chen, National Center for Statistics and Analysis, NHTSA, 202-366-1048 is responsible for NASS data analysis and survey design.

The design for NASS was begun by the University of Michigan Transportation Research Institute (contract DOT-HS-4-00890) and was further developed by Westat, Inc. (contracts DTNH22-80-C-07561 and DTNH22-83-C-07281). The current sample was developed and selected by NHTSA staff. The 1986 NASS Annual Report was produced by COMSIS, Inc. (contract DTNH22-83-C-07247). An annual report was not produced for 1987 because it was a program transition year. Beginning with 1988 NASS CDS data, the NASS CDS annual reports were published using data from three-year averages. The last report published contained data from 1995 through 1997. Since 1995, Capital Consulting Corporation has been producing the NASS CDS reports (contract DTNH22-99-D-07009). Twenty-four (24) research teams collect crash data at the selected PSUs for NASS. Two Zone Centers quality control the data and are technically and administratively responsible for these 24 PSUs. The Zone Center contractors are Calspan Corporation (contract DTNH22-11-C-00207) and KLD Associates, Inc. (contract DTNH22-11-C-00208).