Information Collection Request Supporting Statements: Part B
Evaluation of the Model Minimum Uniform Crash Criteria
OMB Control No. 2127-XXXX

Abstract:[1]
The National Highway Traffic Safety Administration (NHTSA) is seeking OMB approval to conduct a national survey of active law enforcement officers. The purpose of the survey would be to solicit officers' opinions about the crash data variables described in the current fifth edition of the Model Minimum Uniform Crash Criteria (MMUCC) Guideline (DOT HS 812 433, July 2017) as well as to test officers' abilities to accurately report crash data using both existing MMUCC variables and proposed new or modified variables.

The MMUCC guideline identifies a minimum set of motor vehicle crash data variables and their attributes that States should consider collecting and including in their State crash data systems. MMUCC is a voluntary, minimum set of standardized data variables for describing motor vehicle traffic crashes. MMUCC promotes data uniformity within the highway safety community by creating a foundation for State crash data systems to provide the information necessary to improve highway safety. The crash data is used to identify issues, determine highway safety messages and strategic communication campaigns, optimize the location of selective law enforcement, inform decision-makers of needed highway safety legislation, and evaluate the impact of highway safety countermeasures. NHTSA developed MMUCC with the Governors Highway Safety Association (GHSA) in 1998 and have regularly updated the guidelines together, with the most recent fifth edition published in 2017.

NHTSA intends to conduct this information collection to inform a committee of State experts as they meet to provide input into the content of the next edition of MMUCC. NHTSA will collect the information using online surveys and analyze it to identify problematic crash data elements and concepts. A discussion of the aggregate results of this research will be published as an appendix to the next edition of MMUCC. This is a new data collection that will be conducted once to inform the sixth edition of MMUCC. Responding to this data collection is voluntary and each participant will be provided an honorarium.

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 goal of the Evaluation of the Model Minimum Uniform Crash Criteria (MMUCC) Program is to examine law enforcement officers (LEOs) beliefs and abilities to accurately collect crash data elements as outlined by the MMUCC. To this end, the target population of this program is the active law enforcement officers who complete crash reports as part of their regular duties.

[1] The Abstract must include the following information: (1) whether responding to the collection is mandatory, voluntary, or required to obtain or retain a benefit; (2) a description of the entities who must respond; (3) whether the collection is reporting (indicate if a survey), recordkeeping, and/or disclosure; (4) the frequency of the collection (e.g., bi-annual, annual, monthly, weekly, as needed); (5) a description of the information that would be reported, maintained in records, or disclosed; (6) a description of who would receive the information; (7) the purpose of the collection; and (8) if a revision, a description of the revision and the change in burden.

It is estimated that there are 17,985 U.S. police agencies including City Police Departments, County Sheriff's Offices, State Police/Highway Patrol, and Federal Law Enforcement Agencies, and more than 800,000 sworn law enforcement officers now serving in the United States. Selecting a standalone probability sample of police jurisdictions (PJ) and/or police officers is costly and time-consuming hence infeasible for this program. Instead, NHTSA decided to use the infrastructure of NHTSA's Crash Report Sampling System (CRSS).

CRSS is one of the major crash data collection systems in NHTSA. CRSS is a multi-stage complex survey of police crash reports. The primary sampling unit (PSU) of the CRSS is either a county or a group of counties. The secondary sampling unit (SSU) of the CRSS is either a PJ or a group of PJs. Since its redesign in 2016, CRSS's annual estimates indicate that both the CRSS PSU sample and the CRSS PJ sample perform well.

NHTSA decided to use the CRSS PSU and PJ sample for this program. NHTSA has established cooperation with the CRSS sampled PJs and both the CRSS PSU weights and PJ weights were created and well-adjusted. From each sampled CRSS PJ, we plan to select a few police crash investigators for this program. In other words, this program is a three-stage complex survey of the police crash investigators.

In the following, we describe how the CRSS PSU and PJ samples were selected followed by a description of how we plan to select the police crash investigator sample.

CRSS is a major record-based crash data collection system in NHTSA. CRSS is a multi-stage complex survey of police crash reports. The CRSS sample is comprised of PSU, PJ, and police accident report (PAR) samples.

The purpose of CRSS is to provide annual, nationally representative estimates of police-reported motor vehicle crashes as well as characteristics of these motor vehicle crashes. The police accident report (PAR) is the sole source of data for the CRSS. The CRSS population is the set of police-reported motor vehicle crashes on a traffic-way (strata 2 – 10 of Table 1).

Table 1. CRSS PAR Strata, Target Sample Allocation, and Population Sizes

CRSS PAR Stratum	Description	Target Percent of Sample Allocation	Estimated Population (GES 2011)****	Population Percent
1	An in-scope Not-in-Traffic Surveillance (NTS) crash (take all)*			
2	Crashes not in Stratum 1 in which: Involves a killed or injured (includes injury severity unknown) non-motorist	9%	119,579	2.2%
3	Crashes not in Stratum 1-2 in which: Involves a killed or injured (includes injury severity unknown) motorcycle or moped rider	6%	76,513	1.4%

CRSS PAR Stratum	Description	Target Percent of Sample Allocation	Estimated Population (GES 2011)****	Population Percent
4	Crashes not in Stratum 1-3 in which: At least one occupant of a late model year passenger vehicle** is killed or incapacitated	4%	22,272	0.42%
5	Crashes not in Stratum 1-4 in which: At least one occupant of an older passenger vehicle*** is killed or incapacitated	7%	84,659	1.6%
6	Crashes not in Stratum 1-5 in which: At least one occupant of a late model year passenger vehicle** is injured (including injury severity unknown)	14%	330,619	6.2%
7	Crashes not in Stratum 1-6 in which: Involved at least one medium or heavy truck or bus (includes school bus, transit bus, and motor coach) with GVWR 10,000 lbs. or more	6%	302,781	5.7%
8	Crashes not in Stratum 1-7 in which: At least one occupant of an older passenger vehicle*** is injured (including injury severity unknown)	12%	800,390	15.0%
9.	Crashes not in Stratum 1-8 in which: Involved at least one late model year passenger vehicle** and no person in the crash is killed or injured	22%	1,511,371	28.4%
10	Crashes not in Stratum 1-9: This includes mostly PDO crashes involving a non-motorist, motorcycle, moped, and passenger vehicles that are not late model year** and any crashes not classified in strata 1-9.	20%	2,078,263	39.0%

* NTS cases are not in the scope of CRSS. They are set aside for NTS analysis.
** Late model year passenger vehicle: passenger vehicle that are 4 years old or newer.
*** Older passenger vehicle: passenger vehicle that are 5 years old or older.
**** 2011 GES estimates were the most recent estimates at the time of the CRSS sample redesign in 2016.

The estimated CRSS population size (strata 2–10 of Table 1) was about 6.7 million in 2019. CRSS selects a sample from the population through a stratified multi-stage cluster scheme as follows:

First Stage (PSU Sampling)

The country is divided into geographic units called Primary Sampling Units (PSUs). A PSU is a county or group of counties and serves as a cluster. PSUs were formed as groups of adjacent counties subject to a minimum measure of size (MOS) condition to ensure enough cases will be sampled from each PSU and weights are approximately equal within each PAR stratum defined in Table 1. The CRSS PSU MOS was defined as:

$$MOS_i = \sum_{s=2}^{10} \frac{n_{++s}}{n} \frac{N_{i+s}}{N_{++s}}$$

where

s = the PAR stratum defined in Table 1.
n = the desired total sample size of crashes
n_{++s} = the desired sample size of crashes in the PAR stratum s
N_{++s} = the estimated population count of crashes in the PAR stratum s
N_{i+s} = the estimated population count of crashes in the PAR stratum s and PSU i.

In the formula, n_{++s}/n is the desired PAR strata sample allocation (the "Target Percent of Sample Allocation" column in Table 1) and N_{i+s}/N_{++s} is the relative estimated population counts of PSU i for PAR stratum s. In this way, a PSU with a larger high interest (as defined by the oversampled PAR strata defined in Table 1) combination of estimated population counts of all PAR strata has a larger MOS.

PSU formation respects U.S. Census region and urbanicity boundaries. While 23 outlying counties in Alaska and three counties in Hawaii were excluded, the rest of the country is included in the PSU frame. There are 707 CRSS PSUs in the PSU frame.

The PSU frame was then stratified into eight primary PSU strata by two variables – Census region (Northeast, West, South, and Midwest) and urbanicity (urban and rural). Within each primary stratum, PSUs were further stratified by secondary stratification variables such as vehicle miles traveled, crash rate, truck miles traveled, and crash rate by road type. PSUs with similar characteristics were grouped into secondary strata with approximately equal MOS sizes. Secondary strata groupings were also based on minimizing the between-PSU variance within a stratum. As the result, 50 PSU strata were formed as indicated in Table 2.

Table 2. CRSS PSU Strata, PSU Population Counts, and Sample Size

PRIMARY STRATA	STRAT ID*	VMT_RATE_IMP**		TOT_CRASH_RATE**		TRK_MI_RATE**		ROAD_TYPE_RATE**		Number of PSUs	PSU Sample Size
		Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower		
1	101	1801	0					359	0	5	2
1	102	4064	1801					359	0	5	2
1	103	7159	4064					359	0	8	2
1	104	5791	0	0.028	0	153756	0	2175	359	6	2
1	105	8040	5791	0.028	0	153756	0	2175	359	7	2
1	106			0.028	0	249918	153756	2175	359	7	2
1	107			0.028	0	591241	249918	2175	359	7	2
1	108			0.039	0.028			2175	359	11	2
2	201					236701	0			22	2
2	202					1027526	236701			22	2
3	301	4135	0			45709	0			3	2
3	302	7465	4135			45709	0			8	2
3	303	9898	7465			45709	0			10	2
3	304					102554	45709			11	2

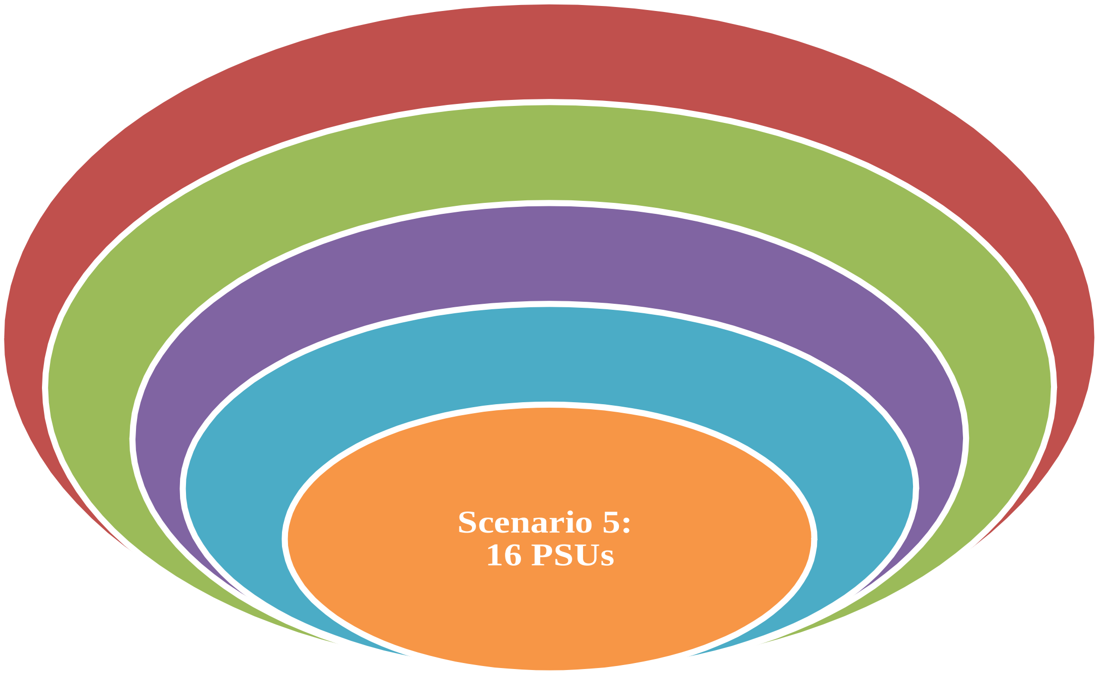
3	305	4444	0			339758	102554			13	2
3	306	6003	4444			339758	102554			11	2
3	307	11618	6003			339758	102554			10	2
4	401					66171	0	4345	0	28	2
4	402	6045	0			565025	66171	4345	0	27	2
4	403	11623	6045			565025	66171	4345	0	25	2
4	404							17641	4345	30	2
5	501	3620	0	0.048	0	125590	0			5	2
5	502	4530	3620	0.048	0	125590	0			8	2
5	03	4951	4530	0.048	0	125590	0			6	2
5	504	5016	4951	0.048	0	125590	0			3	2
5	505	5277	5016	0.048	0	125590	0			5	2
5	506	5746	5277	0.048	0	125590	0			6	2
5	507	6399	5746	0.048	0	125590	0			5	2
5	508	12826	6399	0.048	0	125590	0			8	2
5	509	5641	0	0.048	0	210430	125590			6	2
5	510	8348	5641	0.048	0	210430	125590			7	2
5	511	13892	8348	0.048	0	210430	125590			10	2
5	512			0.048	0	358684	210430			8	2
5	513			0.048	0	877546	358684			13	2
5	514			0.085	0.048					17	2
6	601					49854	0			35	2
6	602	6353	0			162415	49854			34	2
6	603	14415	6353			162415	49854			35	2
6	604					250190	162415			33	2
6	605	5693	0			1156242	250190			35	2
6	606	16271	5693			1156242	250190			35	2
7	700									1	1
7	701	6477	0	0.027	0	104522	0			7	2
7	702	6921	6477	0.027	0	104522	0			4	2
7	703	7861	6921	0.027	0	104522	0			5	2
7	704	5137	0	0.027	0	249358	104522			3	2
7	705	8070	5137	0.027	0	249358	104522			10	2
7	706			0.048	0.027	92716	0			9	2
7	707			0.048	0.027	186409	92716			7	2
8	801							3938	0	30	2
8	802							18292	3938	41	2

* STRATID: Secondary PSU ID.

** VMT_RATE_IMP = imputed vehicle miles traveled / (PSU MOS×1,000,000).
TOT_CRASH_RATE = (imputed 2008 injury crashes + imputed 2008 PDO crashes + 2007-2011 average fatal crashes) / (PSU MOS×1,000,000).
TRK_MI_RATE = Total truck miles / (PSU MOS×1,000,000).
ROAD_TYPE_RATE = (primary road miles + secondary road miles) / (PSU MOS×1,000,000).

A major challenge of the CRSS sample design is the uncertainty of the future operational budget. Due to unknown future funding levels and the need for a stable PSU sample, NHTSA implemented a scalable PSU sample, which allows for the PSU sample size to be decreased or increased with minimum impact to the existing PSU sample and for the selection probabilities to be tracked. To this end, a multi-phase sampling method was used to select the CRSS PSU sample by selecting a sequence of nested PSU samples. In this method, a PSU sample larger than what is needed is selected during the first phase of the PSU sample. From the first phase of the PSU sample, a smaller subset of the PSU sample is selected as the second phase of the PSU sample. From the second phase of the PSU sample, another smaller third phase of the PSU sample is selected. This process is continued until the PSU sample size reaches unacceptable levels. In this way, a sequence of nested PSU samples is obtained. Each of these PSU samples is a probability sample and can be used for data collection (see Figure 2). According to the prevailing budget level, a sample with the appropriate sample size is picked from the nested sequence. This allows us to easily track the selection probabilities and minimizes changes to the existing PSU sample.

Figure 2. Nested PSU Samples for CRSS



For the CRSS, five PSU samples were selected under the five scenarios. Table 3 summarizes the number of PSU strata and sampled PSUs for the CRSS PSU sample scenarios.

Table 3. CRSS PSU Sample Scenarios: Number of Strata and Sample Size

Scenario	Number of PSU Strata	Number of Sampled Non-certainty PSUs	Number of Sampled Certainty PSUs	Total Number of Sampled PSUs
1	50	97	4	101
2	37	74	1	75
3	25	50	1	51
4	12	24	0	24
5	8	16	0	16

For scenario 1, with a sample size of 100 and without stratification, one PSU was identified as a certainty PSU by the condition:

$$\pi_i = \frac{100 * MOS_i}{\sum_{i=1}^{N} MOS_i} \geq 1$$

Let N be the total number of PSUs in the PSU frame and i be an index for a PSU. The certainty

PSU was selected with certainty[2] and set aside. Then two PSUs were selected using proportional to size (PPS) sampling from each of the 50 scenario-1 strata. With a sample size of two for each PSU stratum, three PSUs were identified as certainty PSUs from three of the 50 scenario-1 strata by the condition:

$$\pi_{hi} = \frac{2 * MOS_{hi}}{\sum_{i=1}^{N_h} MOS_{hi}} \geq 1$$

Let N_h be the total number of PSUs in stratum h. The certainty PSUs were selected with certainty and set aside. The corresponding stratum PSU sample size was reduced by one. Then a PPS sample of non-certainty PSUs was selected using the revised PSU stratum sample size.

Scenario-1 sample has 101 PSUs. For a non-certainty PSU, the selection probability is:

$$\pi_{hi} = \frac{n_{hi} MOS_{hi}}{\sum_{i=1}^{N_h} MOS_{hi}}$$

Let n_h be the non-certainty PSU sample size for PSU stratum h.

For scenario 2, with a sample size of 74 and without stratification, one PSU was identified as a certainty PSU and was set aside. Then 13 of the scenario-1 strata were collapsed with other strata to form the 37 scenario-2 PSU strata. The collapsing of strata follows the following rules:

- Only the secondary strata in the same primary stratum can be collapsed.
- Only the contiguous secondary strata can be collapsed.
- The resulting strata has a similar stratum total MOS within each primary stratum.

In each of the scenario-2 stratum, the sampled scenario-1 PSUs were treated as the sampling frame. Each PSU was assigned a new MOS equal to its scenario-1 stratum total MOS. Then two PSUs were selected from each scenario-2 stratum using PPS sampling based on the new MOS. In this way, the resulting selection probability of the scenario-2 PSU is still PPS selection probability. Other scenario samples were selected in a similar way.

The current CRSS PSU sample size is 61 (between scenarios 2 and 3) with 60 responding PSUs and one non-responding PSU.

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[2] In the probability proportional to size (PPS) sampling, a certainty PSU is identified when the selection probability is equal to or greater than one. If a PSU is identified as certainty, it must be in the sample and its selection probability is set to one. A non-certainty PSU is selected with its selection probability that is greater than 0 and less than 1. If a PSU has a selection probability closer to one, it has more chance to be in the sample. On the other hand, if a PSU has a selection probability closer to zero, it has less chance to be in the sample. For more details, please see Pages 13-28 in the published Technical Report https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812706

Second Stage (PJ Sampling)

The secondary sampling units (SSU) of CRSS are police jurisdictions. Within each PSU, PARs are stratified by the police jurisdictions (PJ) where PARs are available and PJs become the second stage sampling units. A composite MOS is assigned to each PJ in the selected PSUs. Similar to the PSU MOS definition, it is sensible to assign larger selection probabilities to PJs with more high interest crashes as defined by the oversampled strata in Table 1. For each PJ in the selected PSUs, crash counts from the 9 PAR strata in Table 1 (Stratum 2-10) were estimated from the information collected from the PJs in the selected PSUs. For PJ j in the PJ frame within the sampled PSU i, the composite SSU MOS is defined as the following:

$$MOS_{j \vee i} = \sum_{k=2}^{10} \frac{n_{++s}}{n} \frac{N_{ijs}}{N_{++s}}$$

where

s = the PAR stratum defined in Table 1
n = the desired total sample size of crashes
n_{++s} = the desired sample size of crashes in the PAR stratum s
N_{++s} = the estimated population count of crashes in PAR stratum s
N_{ijk} = the estimated population count of crashes in PAR stratum s, PJ j and PSU i

PJs are then stratified into two PJ strata by their MOS (large MOS stratum [largest 50%] and small MOS stratum [the rest]) in addition to certainty PJs. A PJ sample is then selected from each PJ stratum using Pareto sampling. The Pareto sampling method produces an approximate PPS sample, handles the frame changes, and minimizes the changes to the existing sample at the same time. Pareto sampling method was applied to the PJ sample selection for each of the non-certainty PJ strata (large MOS and small MOS stratum) within the sampled PSUi, as the following:

Step 1: Generate a permanent uniform random number $r_{ihj} \; U(0,1)$ for each PJ j in the PJ stratum h of PSU i.

Step 2: Identify certainty PJs by the condition:

$$\frac{m_{ih} * MOS_{ihj}}{\sum_{j=1}^{M_{ih}} MOS_{ihj}} \geq 1$$

Let m_{ih} be the PJ sample size and M_{ih} be the PJ frame size for PJ stratum h within PSU i. MOS_{ihj} is the PJ MOS.

Step 3: The identified certainty PJs are set aside. This process is repeated for the remaining PJs based on the reduced PJ sample size until there are no more certainty PJs. Let the total number of certainty PJs be m_{ch}. For the remaining $M_{ih} - m_{ch}$ non-certainty PJs in the frame, calculate the PPS inclusion probability with the non-certainty PJ sample size ($m_{ih} - m_{ch}$¿:

$$p_{ihj}=\frac{(m_{ih}-m_{ch})\,MOS_{ihj}}{\sum_{j=1}^{M_{ih}-m_{ch}} MOS_{ihj}}$$

Step 4: Calculate the transformed random numbers and sort the transformed random numbers from the smallest to the largest as following:

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Step 5: The m_{ch} certainty PJs plus the first $m_{ih}-m_{ch}$ non-certainty PJs from the above list are the PJ sample for PJ stratum h within PSU i.

Pareto sampling is approximately PPS, and the PJ selection probability is:

$$\pi_{j\vee ih}\approx p_{ihj}$$

The 2017 CRSS PJ sample will be used for this program. The 2017 CRSS PJ sample size is 397.

Some PJs issues a few PARs every year. If these small PJs are treated as independent PJs, they receive very small MOS. If they are sampled, they receive very large weights. To avoid PJ weight variation, these very small PJs are combined with other PJs as “combined PJs”. In 2017 CRSS, total 193 small PJs were combined with other PJs. Among the 397 sampled PJs in 2017 CRSS, 72 of them are “combined PJs”.

For each combined PJ, we contact one PJ, normally the largest PJ, from the PJs within the combined PJ. To compensate the other small PJs, we use the following adjustment factor to adjust the combined PJ’s weight:

$$adj_j=\frac{\sum_{all\,PJs\in combined\,PJ\,j} c_{j,k}}{c_{j,contacted}}$$

Here adj_j is the adjustment factor for the combined PJ j, $c_{j,k}$ is the number of annual PARs of PJ k in the combined PJ j, $c_{j,contacted}$ is the number of annual PARs of the contacted PJ in the combined PJ j.

For non-combined PJs, this factor equals to one.

Third Stage (Police Crash Investigator Sampling)

The tertiary sampling units (TSU) of this program is the police crash investigators or the police officers who issue the police crash reports (PAR).

For each of the 397 CRSS sampled PJs, an email invitation for data collection and questionnaire will be sent to the chief police officer. The questionnaire will ask for the PJ information and the number of police officers in the PJ who investigate crashes and ask the chief to nominate four law enforcement officers in the PJ who write crash reports to take a survey.

In some of the PJs such as the state highway patrol, officers may investigate crashes in multiple PSUs. Although this is rare, it may result in officers selected from multiple PSUs. If these TSUs are identified in the sample, the weights will be adjusted accordingly and only distinct sampled officers will be kept (the same police officer is kept once in the sample). The TSU weight is the ratio of total number of police crash investigators in the PJ to the number of police officers responded to the survey.

Sample Allocation

For a three-stage sample design as this program, the PSU, SSU and TSU sample sizes can be estimated using optimization by minimizing the variance subject to cost assuming a three-stage simple random sampling without replacement.

The optimization model consists of the objective function, cost constraint, and variance constrains as the following:

$$Minimize: \sum_{g=1}^{G} V(\overline{\overline{\overline{y}}}_g) = \sum_{g=1}^{G} \left\{ \frac{S_{1,g}^2}{n}\left(1-\frac{n}{N}\right) + \frac{S_{2,g}^2}{nm}\left(1-\frac{m}{M}\right) + \frac{S_{3,g}^2}{nmk}\left(1-\frac{k}{K}\right) \right\}$$

$$Subject ¿: C = C_0 + nC_1 + nmC_2 + nmkC_3,$$

$$V_{CRSS}(\overline{\overline{\overline{y}}}_g) = \frac{S_{1,g}^2}{n}\left(1-\frac{n}{N}\right) + \frac{S_{2,g}^2}{nm}\left(1-\frac{m}{M}\right) + \frac{S_{3,g}^2}{nmk}\left(1-\frac{k}{K}\right) \le V_{GES}(\overline{\overline{\overline{y}}}_g),$$

$$for\, g = 1, \cdots, G.$$

where

- g: Subscript of the identified key estimate, $g=1,\cdots G$.
- $\overline{\overline{\overline{y}}}_g$: Identified key proportion estimate.
- n, m, k: Optimal sample sizes of PSUs, SSUs per PSU, and TSUs per SSU to be determined.
- N: Population size of PSUs
- M: Average population size of SSUs.
- K: Average population size of TSUs.
- V_{CRSS}: Variance of the identified key estimate $\overline{\overline{\overline{y}}}_g$.
- $S_{1,g}^2, S_{2,g}^2, S_{3,g}^2$: Variance component at PSU-, SSU-, and TSU-level.
- C, C_0, C_1, C_2, C_3: Total, fixed, PSU-, SSU-, and TSU-level cost coefficients.
- $V_{GES}(\overline{\overline{\overline{y}}}_g)$: Variance of the identified key estimate $\overline{\overline{\overline{y}}}_g$ in General Estimates System (GES)[3].

Notice because this program utilizes the CRSS infrastructure and collecting data through mails and emails, the cost for establishing PSU and SSU is negligible. Therefore, it becomes obvious the optimum sample size allocation is to first maximize the PSU sample size then maximize the

[3] https://www.nhtsa.gov/national-automotive-sampling-system/nass-general-estimates-system

SSU size. For this reason, NHTSA decided to use all 60 responding CRSS PSUs and all 397 CRSS SSUs for this program. From each sampled SSU, four law enforcement officers are sampled.

Weighting and Adjustments

The design weights for this program include PSU, SSU, TSU weights, and combined PJ adjustment factor. The PSU and SSU weights were adjusted for non-response. At PSU and SSU stage, the non-response adjustment factor was the ratio of the total MOS (responding and non-responding units) to the summation of MOS of the responded units.

The TSU weights is the number of crash investigators of the SSU divided by the number of sampled persons in the SSU. The combined PJ adjustment factor can be found above.

Variance Estimation Methods

The average PSU sampling rate of this program is 60/707 = 8.5%. We can treat the PSU sample as selected with-replacement and use either Jackknife variance estimation method or the Taylor series variance estimation method to estimate the variances.

1. Describe collection of information procedures.

For each of the 397 sampled SSUs (PJs), the NHTSA's contractor, the NHTSA regional staff, and Law Enforcement Liaisons (LELs) will contact the chief officers to inform them about the MMUCC Survey and solicit their participation. Specifically, NHTSA's contractor will email the sampled PJ's chief police officer with a link to a brief questionnaire about the PJ including (1) the number of police crash investigators in the PJ, (2) the name and contact information of four crash investigator police officers in the PJ who will respond to the questionnaire.

After receiving the contact email from the police chief, the NHTSA contractor will email the four police crash investigators in each PJ with a unique link to the MMUCC survey instrument. To reduce the respondent's burden, fatigue, and risk of uncompleted surveys, NHTSA is using two surveys, one of which has questions on a set of 30 data elements (Survey A) and a second with questions on a separate set of 32 data elements (Survey B). Each survey will take approximately 60 minutes. The NHTSA Contractor will randomly assign two Survey As and two Survey Bs to the four respondents in each of the 397 police jurisdictions in our sample.

Information about respondents within the survey instrument will be limited to (1) the State where they work as a law enforcement officer (LEO) and (2) the number of years the respondents have completed crash reports as a LEO. This special study will use surveys to collect information about respondents' beliefs and abilities to accurately collect crash data per the MMUCC guidelines using fictitious crash scenarios. The Survey will also include a set of questions with a Likert scale for respondents to rate the difficulty of accurately collecting specific MMUCC data elements. The information collected will allow NHTSA to identify problematic data elements in MMUCC that officers interpret differently. The survey should take no longer than one hour to complete.

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

In this data collection process, a non-responding TSU is a sampled officer who refuses to respond to the survey. A non-responding SSU is a PJ where the chief officer or all sampled police crash investigators refuse to respond to the survey. A non-responding PSU is a PSU where all chief officers or all sampled police crash investigators in all sampled SSUs in the PSU refuse to respond to the survey. In this program, at least four officers are sampled from each SSU (PJ) and average 6 SSUs (PJs) were sampled from each PSU. About 98% of the 397 PJs in 2016 CRSS are cooperating with NHTSA's CRSS data collection. They already know NHTSA well. Therefore, it is unlikely to have any non-responding PSU in this program.

For each sampled SSU (PJ), NHTSA plans to pay each chief police officer and each law enforcement officer $100 for the time they spend answering the questionnaire. Although NHTSA anticipates that this honorarium will provide an incentive for law enforcement officers to respond, we have cannot predict what the response rate will be. These police officers' name and contact information will be collected solely for logistic and payment purposes.

NHTSA's regional office, contractor, and Law Enforcement Liaisons will contact the chief police officer first about the MMUCC survey. One month after the contractor emails the chief police officer, NHTSA will contact the chief police officers who haven't responded to see if they need any help or have any questions about the questionnaire and ask them to respond to the survey. Likewise, one month after the NHTSA contractor emails four police crash investigators in each PJ, NHTSA will contact the crash investigator police officers who haven't responded to see if they need any help or have any questions about the questionnaire and ask them to respond to the survey. This effort will be repeated one more time two months after emailing the police crash investigators.

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

NHTSA piloted the survey with six former law enforcement officers who work at NHTSA. The National Center for Statistics and Analysis (NCSA), an office of NHTSA, sent an email to NHTSA managers explaining the purpose of the study and asking them to nominate their staff who were former law enforcement officers and had experience completing crash forms. Qualified staff were asked to email the survey administrator, who followed up by emailing each respondent with instructions and a link to an online survey. Each respondent completed the survey in under sixty minutes. Overall, the participants indicated that the instructions and survey were clear. However, the participants provided feedback on a few questions which were used to refine the survey prior to field use. Examples of feedback included spelling out all acronyms routinely used in crash reports, providing additional details for the crash scenarios, and adding the disclaimer for each scenario that all vehicles and persons are at the scene.

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.

Dr. Chou-Lin Chen, National Center for Statistics and Analysis, NHTSA, 202-366-1048 is responsible for CRSS survey design.

Pending approval, NHTSA will post an RFP for bid on a competitive IDIQ contract that includes Econometrica 693JJ920D000019A, TTW Solutions, Inc 693JJ920D000020A, and VHB 693JJ920D000021A for the data collection, coding, and quality control for this effort.