

Iowa Seat Belt Use Survey 2020 Data Collection Methodology Report

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Prepared by
MB Allen, JR Fox, E Berg
Iowa State University
Center for Survey Statistics & Methodology

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY
AMES, IOWA

Introduction

In an effort to achieve greater consistency and comparability in state-wide seat belt use reporting, the National Highway Traffic Safety Administration (NHTSA) issued new requirements in 2011 for observing and reporting future seat belt use. The requirements included the involvement of a qualified statistician in the sampling and weighting portions of the process as well as a variety of operational details.

The Iowa Governor's Traffic Safety Bureau contracted with Iowa State University's Center for Survey Statistics and Methodology (CSSM) (then Survey & Behavioral Research Services) in 2011 to develop the study design and data collection plan for the State of Iowa's annual survey that would meet the new requirements of the NHTSA. A seat belt survey plan for Iowa was developed by CSSM with statistical expertise provided by Zhengyuan Zhu, Ph.D., Professor of Statistics at Iowa State University and Director of the Center for Survey Statistics and Methodology. The plan was approved by NHTSA on March 19, 2012 and implemented for five years, in the summers of 2012-2016.

As required by NHTSA, the Iowa plan was revised in the fall of 2016. Dr. Emily Berg, Assistant Professor of Statistics at Iowa State University, followed the protocol of the original approved plan and redrew the counties and road segments to be used for future data collection. After examining current county data relating to fatalities, vehicle miles traveled, and other relevant factors, she sampled 15 counties (as in 2012) but increased the number of sampled road segments from 75 to 84. Six of the 15 counties used in 2012-2016 were also selected for the new plan; nine counties were different. As in Iowa's 2012 plan, five road segments were sampled from each county; however, the new plan increased the number of sampled road segments from Polk County to 14 because of its significantly higher traffic levels. The revised plan was submitted in December of 2016 and approved in March of 2017. This plan was implemented by CSSM in 2017, 2018, 2019, and again in 2020.

2020 Data Collection

The Iowa GTSB has contracted with CSSM on an annual basis to conduct the seat belt use data collection since 2012. The primary contact at the Iowa GTSB in 2020 is Cinnamon Weigel, Occupant Protection Coordinator. The primary contact at CSSM is Mallary Allen, PhD, Survey Unit Director. The CSSM Seat Belt Survey Project Manager is Jody Fox. The CSSM statistician for the 2019 Seat Belt Survey is Emily Berg, PhD, Assistant Professor of Statistics at Iowa State University. This report describes the data collection process for obtaining 2020 seat belt use data as stipulated by the approved study design. It also includes tables with overall results showing seat belt use in Iowa.

Preparation

Preparation for the 2020 seat belt use data collection involved several components, including: verification of the usability of the sampled sites, revision of materials for Data Collectors, and notification of appropriate local personnel prior to data collection.

Site Verification.

The Iowa Seat Belt Survey Plan includes 84 road segments or sites sampled for annual observation, with 5 sites in each of 14 sampled counties and 14 sites in Polk County. The sites are identified by MSLINK numbers. CSSM has worked with staff from *InTrans*, the Iowa State University Institute of Transportation, to obtain data and photographic resources that allow staff to examine each site remotely for accessibility, safety, and practicality. The CSSM Project Manager re-examined the 84 sites for any changes since 2019 and checked with the Department of Transportation and other online sources for scheduled construction that could impact traffic patterns. Two sites in Allamakee County were under construction during our data collection time frame and were replaced by sampled alternates. Otherwise no other issues were found and the remaining 82 sites were verified as safe and useable for 2020.

Materials Preparation.

After the 84 sites were finalized, CSSM staff used online maps and Google Earth as well as notes from 2017, 2018, and 2019 observers to identify and recommend observation points that would be safe and still provide the visibility necessary to observe seat belt use. CSSM staff updated existing maps for Data Collectors to use as references when traveling to sites. Department of Transportation maps, Google maps, and city maps all served as effective resources.

Equipment was prepared for use by Data Collectors, including vests, hats, warning lights, signs, stop watches, and clickers. Data collection forms were printed. Data Collection schedules were prepared for each Data Collector and administrative procedures were documented.

Notification.

Prior to the data collection process, the GTSB representative notified law enforcement personnel in each of the site areas. CSSM staff notified other appropriate city/county and Department of Transportation personnel. The purpose was to ensure that the appropriate officials in each site area would be aware of the project and the days and times that Data Collectors would be at work in their area.

Data Collection Staff Training

Iowa utilized five primary data collectors in 2020, responsible for 10 to 20 sites each. All data collectors were experienced, having worked as data collectors for the project in the past. Quality Control functions were filled by three individuals: the Project Manager, one experienced data collector, and one staff member new to the project.

Training for 2020 was held at CSSM on one day, June 8, 2020, with field data collection beginning on June 9, 2020. The training occurred in a large room with physical distancing at all times. Trainers and Data Collectors were required to wear masks/face coverings at all times. The training included a combination of lecture,

classroom and field exercises. Training sessions covered data collection protocols, including how to find the observation sites, choosing an observation location, how to properly collect data, practice in what counts as seat belt “use,” “nonuse,” and “use unknown,” what to do if data cannot be collected at a site due to road construction, weather, or other circumstances, and the appropriate management and submission of collected data. Roadside safety training was provided by the Project Manager, using information from David Veneziano, Safety Circuit Rider at Iowa State University’s Institute for Transportation (*InTrans*). The 2020 training agenda is shown in Figure 1.

Another safety feature added for 2020 was the provision of a laminated statement printed on CSSM letterhead that data collectors could present to law enforcement and community members if approached with inquiries about their presence at assigned sites. Data collection started just after some major protests and riots in the area, so training included suggestions and expectations regarding potential encounters with police and protestors. Data collectors were advised to carry the laminated statement on their clipboards along with several paper copies for distribution if needed. (Appendix C)

The new quality control monitor received some additional one-on-one training with the Project Manager to ensure that they were comfortable with project procedures and observation site identification.

The QC Monitors reviewed the specific duties of the position. Quality Control duties included conducting unannounced site visits to a minimum of two sites for each Data Collector (12% of the total sites) and reviewing the Data Collector’s field protocol. The QC Monitors met with the Data Collectors in the field to answer questions and offer assistance as needed.

Data Collectors were provided with bright yellow vests and hats to wear for safety and protection from sun and light rain. Each Data Collector had a flashing amber light to put on his/her car and a clicker-counter and stop watch to use as needed. Each Data Collector was also provided with two “Survey Crew Ahead” signs and sandbag weights for use in high speed areas and other sites as appropriate.

In 2020 the data collectors were also supplied with hand sanitizer, one face mask each, disposable gloves (10 pairs), and extra Ziploc baggies to dispose of any trash, gloves, etc., in a safe way. Training included group discussion of safety measures and comfort level regarding avoiding exposure to COVID-19 when getting food from restaurants, pumping gas, and using public restrooms. The Data Collectors guided the discussion with some input from the Project Manager.

Figure 1.

Seat Belt Data Collectors 2020 Training Agenda	
<u>Monday, June 8, 2020</u>	
Seat Belt Survey Overview	
Study Design	
NHTSA Requirements	
Data Collection Requirements	
Definitions of terms	
Safety Training (Jody Fox, Project Manager)	
Signage and visibility	
Roadway safety	
Data Collection Procedures	
Assignments & Rescheduling	
Site Locations	
Low/High volume roadways	
Locating assigned sites	
Site assignment sheets & maps	
Data Collection	
Data Collection & Observation forms	
Recording alternate site information	
Traffic Counts	
Recording observations	
Quality Control and QC monitoring	
Field Practice	
Setting up road work signs	
Highway observations	
Practice counts	
Special Considerations for 2020	
Pandemic Training/Expectations	
Appropriate response to community or Law Enforcement questions regarding protests/riots	
Essential Worker statement/hand-out	
Timesheets and expense reports	
Debriefing	

Observation Protocols and Procedures

All passenger vehicles, including commercial vehicles weighing less than 10,000 pounds, were eligible for observation. Data Collectors completed two forms in the field, the Observation Site Form and the Observation Tally Form, which are shown in Appendixes A and B. The Observation Site Form documented descriptive information about each site. Data Collectors recorded information including observation date, site location and number, alternative site data, traffic directions and lanes available and observed, start and end times for observations, and weather conditions.

The Observation Tally Form was used to mark belt use/non-use/unknown use for drivers and right front passengers. Using the Observation Tally Form, seat belt use observations were made of all passenger vehicle drivers and right front seat occupants in the selected lane. The only passenger vehicle right front seat occupants excluded from the study were child passengers traveling in child seats with harness straps. If there was no passenger in the right front seat of an observed vehicle, that information was also noted on the Observation Tally Form.

Seat Belt use categories - Data Collectors recorded belt use for the driver and right front seat passenger using the definitions shown in Figure 2 below, which were provided in the federal regulations.

Figure 2.

Code	Meaning	Definition
Y	Yes, belted	The shoulder belt is in front of the person's shoulder.
N	No, unbelted	The shoulder belt is not in front of the person's shoulder.
U	Unknown	It cannot reasonably be determined whether the driver or right front passenger is belted.
NP	No passenger	There is no right front passenger present.

Scheduling.

Data collectors were generally assigned one county with five observation sites per work day. The 14 Polk County sites were divided among three Data Collectors. A schedule of sites with observation start times was provided by CSSM in order to ensure a representative sampling of times of day for the data collection and to allow for proper notification of county/city and law enforcement personnel. Observations were to start at the assigned times, as much as possible, and to continue for exactly one hour. Previous years' counts were 45 minutes per site but the team decided this year to count for 60 minutes per site due to the possibility of fewer vehicles being on the roads due to the pandemic.

Observations.

Data Collectors observed one lane and one direction of travel per observation site. The direction of travel was randomly assigned by the office; however, Data Collectors were allowed to observe the other direction if safety or windshield glare dictated. Deviations from the randomly assigned direction were noted on the

Observation Site Form. If an assigned road segment included an intersection, Data Collectors were instructed to observe traffic traveling on the assigned road segment, not the cross-street.

Lower volume roadways such as county roads and streets were observed from a field drive or other location where data collectors could safely move their vehicles from the roadway. In some cases Data Collectors observed from their vehicle while, in most cases, observing from outside of the vehicle was more effective. At times Data Collectors found that sitting in the back of their pick-up truck, van, or SUV provided the safest observation point with the best view.

Whenever possible, observations for high-volume, limited access roadways were made from an overpass. Observing from an overpass allowed for comparatively easy viewing of seatbelt use for both the driver and the passenger. Gravel road overpasses were preferred because of the low traffic volume, reducing safety hazards to the Data Collector. In some instances observing from an overpass required moving the observation point from the specific road segment by a few miles; however, because of the limited exit and entrance ramps to these roadways, there were no significant changes to the observed vehicles between the assigned road segment and the observation point.

If a low volume overpass was not available, Data Collectors were allowed to observe traffic at an exit ramp or rest stop. Because the exit ramp/rest stop only sampled a portion of the traffic passing on the main highway, an additional traffic volume count was required in order to adjust for the reduced numbers. Data collectors completed a traffic count of the assigned highway segment immediately following the observations at the ramp/rest stop. From a safe observation point from which to view passing cars (but not necessarily belt usage), the data collector counted passing cars in one direction and in one lane of the assigned road segment, timing the number of minutes to reach a count of 100 cars. If the traffic volume was low, the count continued for 15 minutes, at which point the data collector recorded the number of cars observed in a 15 minute time frame. This traffic count information was recorded on the Observation Site Form and was used to adjust the seat belt usage observation data when observations were made away from the selected road segment at a rest stop or exit ramp. Five rest stop sites were used in 2020.

Alternate Sites.

If unexpected construction or difficulty in locating a useable and safe place to observe required the Data collector to deviate farther than 2 miles (or more than one block in city situations) from the selected road segment, he/she was instructed to call the office before proceeding and to note the location as an alternate site on the Observation Site form. For the 2020 data collection, two new alternate sites were needed unexpectedly. In both cases, the sampled road was closed for construction.

Rescheduling.

If an assigned road segment was temporarily unavailable due to a traffic accident or inclement weather, data collection was to be rescheduled another week for the same time and day of the week. In 2020, data collection was canceled on June 10 due to rain and storms, and those sites were rescheduled as close to the same day of the week as possible.

Results

Data collection for 2020 occurred from Tuesday, June 9 through Sunday, June 21, 2020. The 2020 seat belt use data collection resulted in the observation of **15,688 passenger vehicles**, with a right front seat passenger in

5,467 of those vehicles, for a total of **21,155 potential observations** of belt use. Of these 21,155 potential observations, there were 14,925 drivers and 5,070 right front passengers who were observed to be wearing seat belts (total 19,995 seat belt users). Seat belts were not worn by 763 drivers and 397 right front passengers (total 847 unbelted). Data collectors were unable to observe the seat belt use of 240 drivers and 73 passengers (total 313 unknown use). The **unknown use, or “nonresponse rate,” is .0148 or 1.48%**. This is well within the range allowed by federal regulations, which require the nonresponse rate to be below 10%.

The number of observations in 2020 is 2,670 more than in 2019; the number of vehicles observed increased by 2,129 and the number of passengers increased by 631. The number of observations varies from year to year in part because sites are intentionally observed on different days of the week and times of day as much as is practical. As well, the 2020 observations were bumped to 60 minutes rather than 45 minutes. Federal regulations require a minimum of 7500 observations, and the 2020 total of 15,688 passenger vehicles with 21,155 observed occupants far exceeds the minimum requirement.

Ten quality control checks were completed in 2020. Each of the five primary data collectors was observed by a quality control monitor at two unannounced sites to ensure compliance with project protocols. This comprises 12% of the sites (10 out of 84), which exceeds the minimum of 5% required by federal regulations. No problems were identified through these quality control checks

Federal regulations require the calculation of seat belt use to be conducted with weighted data as described in the approved survey plan. Data weighting was completed by Dr. Emily Berg, Assistant Professor of Statistics at Iowa State University. Based on the weighted data, **Iowa’s overall seat belt use rate for 2020 is 95.2%**, with an **estimated standard error of .97% ($\pm 1\%$)**. Weighted seat belt use rates since 2012 are shown in Figure 3.

Figure 3. Iowa’s Annual Weighted Seat Belt Use Rate, 2012-2020.

Year	Weighted Belt Use
2020	95.2%
2019	94.6%
2018	93.9%
2017	91.4%
2016	93.8%
2015	93.0%
2014	92.8%
2013	91.9%
2012	92.4%

Tables and Appendices

Table 1 lists the 84 observation sites with selected characteristics and the number of belted drivers and right front passengers.

Tables 2 and 3 show the seat belt use of drivers and passengers by county. Table 2 contains the number or count of each category of belt use by drivers, passengers, and total for each sampled county. Table 3 contains two types of unweighted percentages of belt use for drivers, passengers, and combined total for each county. The “% of Total Belted” is the percent of the total number of persons (both drivers and passengers) who were belted. The “% of Known Belted” removes the persons with unknown belt use from the base number, so it becomes the percent of persons with known seat belt status who were belted. Note that these percentages are unweighted and the state-wide seat belt use percentage is slightly different than the weighted seat belt use percentage required by federal regulations for reporting. Nevertheless the unweighted percentages in Table 3 enable legitimate comparisons between seat belt users/nonusers and between counties.

Tables 4 and 5 show the seat belt use of drivers and passengers by road type. Table 4 contains the number in each category and Table 5 contains unweighted percentages. Federal regulations required the new survey plan to classify road types as primary (including interstates), secondary, and local.

Table 6 contains seat belt use of drivers and passengers by day of the week and road type. The percentages included in the table are unweighted.

Table 7 contains seat belt use of drivers and passengers by time of day and road type. The percentages included in the table are unweighted.

Table 8 contains sample weights for each observation site as well as seat belt use for drivers and passengers (number or count). This information is used for Part B reporting purposes.

Appendix A. Observation Site Form

Appendix B. Observation Tally Form

Appendix C. Essential Worker Statement

Table 1. Seat Belt Usage

No	County	MSLINK	Road Name	Road Type	Day	Start Time	Vehicle Count	Drivers Belted	Right Front Passenger Count	Right Front Passengers Belted
1	Allamakee	4235	Iowa 76	Secondary	Sun	8:50 AM	23	20	14	14
2	Allamakee	4790	Great River Rd	Secondary	Sun	10:38 AM	77	73	44	42
3	Allamakee	336184	Great River Rd	Secondary	Sun	12:56 PM	47	46	29	28
4	Allamakee	4521	Forest Mills Rd	Secondary	Sun	2:39 PM	17	15	8	8
5	Allamakee	4246	Hwy 364/X52	Secondary	Sun	4:18 PM	61	60	28	28
6	Black Hawk	19383	W Airline Hwy	Local	Wed	10:00 AM	87	75	13	11
7	Black Hawk	20322	Lafayette St	Local	Wed	11:20 AM	36	30	9	7
8	Black Hawk	14933	US 20	Secondary	Wed	1:30 PM	511	499	142	125
9	Black Hawk	14762	I 380	Primary	Wed	3:20 PM	267	260	75	71
10	Black Hawk	15023	Hudson Rd	Secondary	Wed	5:00 PM	182	174	39	37
11	Cerro Gordo	46024	190Th St	Secondary	Thurs	7:50 AM	11	10	2	1
12	Cerro Gordo	45722	S Federal Ave	Secondary	Thurs	9:32 AM	147	124	26	22
13	Cerro Gordo	47140	1st St NW	Local	Thurs	10:55 AM	108	93	23	21
14	Cerro Gordo	45427	I 35	Primary	Thurs	12:45 PM	249	231	86	70
15	Cerro Gordo	45409	I 35	Primary	Thurs	2:20 PM	234	220	88	73
16	Clayton	57598	US 18	Secondary	Mon	7:09 AM	127	117	14	13
17	Clayton	57848	Iowa 13	Secondary	Mon	8:43 AM	87	79	34	33
18	Clayton	57842	Iowa 13	Secondary	Mon	10:01 AM	77	77	25	25
19	Clayton	332445	Great River Rd	Secondary	Mon	12:02 PM	15	14	4	4
20	Clayton	57789	Iowa 13/Elkader St	Secondary	Mon	1:40 PM	66	63	19	19
21	Franklin	97664	I 35	Primary	Sun	8:20 AM	202	189	126	114
22	Franklin	97666	I 35	Primary	Sun	10:00 AM	344	339	199	173
23	Franklin	97686	I 35	Primary	Sun	11:35 AM	318	307	195	173
24	Franklin	97753	US 65	Secondary	Sun	1:10 PM	42	40	24	21
25	Franklin	97955	Vine Ave	Secondary	Sun	2:45 PM	10	8	4	4
26	Harrison	331806	I 29	Primary	Mon	9:01 AM	8	7	4	3
27	Harrison	116865	I 29	Primary	Mon	10:51 AM	287	275	130	119
28	Harrison	116946	I 29	Primary	Mon	12:53 PM	208	198	88	72
29	Harrison	118343	Locust St	Secondary	Mon	2:25 PM	26	23	4	3
30	Harrison	117168	Iowa 44	Secondary	Mon	4:00 PM	23	22	4	4
31	Jefferson	138811	Packwood Rd	Secondary	Thurs	10:15 AM	24	23	5	4
32	Jefferson	138218	Iowa 1	Secondary	Thurs	11:40 AM	50	49	14	13
33	Jefferson	139125	W Stone Ave	Local	Thurs	1:55 PM	22	21	2	2
34	Jefferson	138095	W Burlington Ave	Secondary	Thurs	3:06 PM	411	368	100	88
35	Jefferson	323114	US 34	Secondary	Thurs	4:40 PM	204	193	51	49
36	Johnson	140987	US 218	Secondary	Fri	9:35 AM	336	319	157	148
37	Johnson	141286	Oak Crest Hill Rd Ne	Secondary	Fri	11:05 AM	128	123	43	40
38	Johnson	333258	I 380	Primary	Fri	1:25 PM	586	560	189	172
39	Johnson	140631	I 80	Primary	Fri	3:00 PM	527	504	160	152
40	Johnson	143520	S Madison St	Local	Fri	4:40 PM	90	88	25	25
41	Linn	159181	Iowa 13	Secondary	Sat	8:55 AM	240	230	110	103
42	Linn	159157	Iowa 13	Secondary	Sat	10:15 AM	268	259	136	133
43	Linn	163355	Normandy Dr Ne	Local	Sat	10:34 AM	8	7	2	2
44	Linn	341551	I 380	Primary	Sat	1:45 PM	435	423	221	209
45	Linn	160653	Wright Brothers Blvd SW	Local	Sat	3:25 PM	159	155	82	78
46	Marshall	183837	Zeller Ave	Secondary	Wed	9:35 AM	35	33	4	4
47	Marshall	185108	E State St	Local	Wed	11:10 AM	42	38	9	9
48	Marshall	183738	S Center St	Secondary	Wed	1:10 PM	238	233	92	88
49	Marshall	183538	240Th St	Secondary	Wed	2:50 PM	319	308	135	130
50	Marshall	336356	240Th St	Secondary	Wed	4:25 PM	188	181	68	65
51	Polk	218613	NE 126TH AVE	Secondary	Sat	8:35 AM	14	13	2	2

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52	Polk	215189	I 35	Primary	Thurs	9:10 AM	13	12	2	2
53	Polk	319250	I 35	Primary	Sat	10:10 AM	545	529	145	139
No	County	MSLINK	Road Name	Road Type	Day	Start Time	Vehicle Count	Drivers Belted	Right Front Passenger Count	Right Front Passengers Belted
54	Polk	216270	Ne 14Th St	Secondary	Fri	11:25 AM	284	262	71	62
55	Polk	223763	6Th Ave	Local	Thurs	7:31 AM	269	243	29	24
56	Polk	220551	E Hartford Ave	Local	Fri	9:56 AM	113	99	21	20
57	Polk	216087	NE 14TH ST	Secondary	Tues	8:06 AM	303	279	53	45
58	Polk	216414	E Army Post Rd	Local	Tues	9:25 AM	274	244	51	41
59	Polk	220874	Greenwood Dr	Local	Tues	11:00 AM	3	2	0	0
60	Polk	222431	58Th St	Local	Tues	1:20 PM	6	6	2	2
61	Polk	318107	I 35	Primary	Tues	2:45 PM	594	572	180	179
62	Polk	214995	I 35	Primary	Sat	9:40 AM	673	653	294	284
63	Polk	215450	I 35	Primary	Sat	1:45 PM	406	392	141	136
64	Polk	317252	Iowa 141	Secondary	Sat	3:00 PM	333	327	156	149
65	Pottawattamie	229510	Hwy 680	Primary	Tues	7:29 AM	2	2	1	1
66	Pottawattamie	229263	I 80	Primary	Tues	9:30 AM	225	219	75	70
67	Pottawattamie	229243	I 80	Primary	Tues	11:00 AM	28	26	12	12
68	Pottawattamie	230312	Railroad Hwy	Secondary	Tues	1:28 PM	107	102	24	23
69	Pottawattamie	233270	S 1St St	Local	Tues	2:50 PM	321	292	75	63
70	Scott	242997	I 80	Primary	Tues	8:30 AM	282	271	79	76
71	Scott	243110	I 80	Primary	Tues	10:10 AM	35	34	21	21
72	Scott	245937	W Locust St	Local	Tues	11:40 AM	280	256	91	76
73	Scott	246372	E 42Nd St	Local	Tues	2:08 PM	58	56	17	14
74	Scott	243558	Us 61	Secondary	Tues	3:47 PM	374	359	122	118
75	Woodbury	294873	Florence Ave	Local	Mon	10:45 AM	37	30	5	5
76	Woodbury	296162	Fairmount St	Local	Mon	12:20 PM	210	202	50	48
77	Woodbury	292360	Gordon Dr	Secondary	Mon	2:20 PM	414	403	122	119
78	Woodbury	292173	Singing Hills Blvd	Secondary	Mon	3:50 PM	319	308	96	91
79	Woodbury	317734	I 29	Primary	Mon	5:05 PM	292	287	107	102
80	Worth	298621	Thrush Ave	Secondary	Sun	7:20 AM	21	17	0	0
81	Worth	298440	I 35	Primary	Sun	9:05 AM	210	204	94	85
82	Worth	298465	I 35	Primary	Sun	10:40 AM	209	199	101	93
83	Worth	298467	I 35	Primary	Sun	12:00 PM	215	212	118	112
84	Worth	299696	Mallard Ave	Secondary	Sun	1:30 PM	12	10	5	4
TOTALS							15688	14925	5467	5070

Table 2. Driver and Passenger Seat Belt Use by County (n)

County	Drivers				Right Front Passengers				TOTAL			
	Total	Belted	Not Belted	Unknown	Total	Belted	Not Belted	Unknown	Total	Belted	Not Belted	Unknown
Allamakee	225	214	6	5	123	120	2	1	348	334	8	6
Black Hawk	1083	1038	45	0	278	251	27	0	1361	1289	72	0
Cerro Gordo	749	678	42	29	225	187	28	10	974	865	70	39
Clayton	372	350	14	8	96	94	1	1	468	444	15	9
Franklin	916	883	20	13	548	485	46	17	1464	1368	66	30
Harrison	552	525	27	0	230	201	29	0	782	726	56	0
Jefferson	711	654	40	17	172	156	16	0	883	810	56	17
Johnson	1667	1594	32	41	574	537	22	15	2241	2131	54	56
Linn	1110	1074	17	19	551	525	20	6	1661	1599	37	25
Marshall	822	793	17	12	308	296	12	0	1130	1089	29	12
Polk	3830	3633	137	60	1147	1085	45	17	4977	4718	182	77
Pottawattamie	683	641	42	0	187	169	18	0	870	810	60	0
Scott	1029	976	37	16	330	305	23	2	1359	1281	60	18
Woodbury	1272	1230	25	17	380	365	15	0	1652	1595	40	17
Worth	667	642	22	3	318	294	20	4	985	936	42	7
Total	15688	14925	523	240	5467	5070	324	73	21155	19995	847	313

Table 3. 2020 Driver and Passenger Seat Belt Use by County (unweighted percentages)

County	Drivers		Right Front Passengers		TOTAL	
	% of Total Belted	% of Known Belted	% of Total Belted	% of Known Belted	% of Total Belted	% of Known Belted
Allamakee	95.1%	97.3%	97.6%	98.4%	96.0%	97.7%
Black Hawk	95.8%	95.8%	90.3%	90.3%	94.7%	94.7%
Cerro Gordo	90.5%	94.2%	83.1%	87.0%	88.8%	92.5%
Clayton	94.1%	96.2%	97.9%	98.9%	94.9%	96.7%
Franklin	96.4%	97.8%	88.5%	91.3%	93.4%	95.4%
Harrison	95.1%	95.1%	87.4%	87.4%	92.8%	92.8%
Jefferson	92.0%	94.2%	90.7%	90.7%	91.7%	93.5%
Johnson	95.6%	98.0%	93.6%	96.1%	95.1%	97.5%
Linn	96.8%	98.4%	95.3%	96.3%	96.3%	97.7%
Marshall	96.5%	97.9%	96.1%	96.1%	96.4%	97.4%

2020

Polk	94.9%	96.4%	94.6%	96.0%	94.8%	96.3%
Pottawattamie	93.9%	93.9%	90.4%	90.4%	93.1%	93.1%
Scott	94.8%	96.3%	92.4%	93.0%	94.3%	95.5%
Woodbury	96.7%	98.0%	96.1%	96.1%	96.5%	97.6%
Worth	96.3%	96.7%	92.5%	93.6%	95.0%	95.7%
Total	95.1%	96.6%	92.7%	94.0%	94.5%	95.9%

2020

Table 4. Seat Belt Use by Road Type (n)

Road Type	Drivers				Right Front Passengers				Total			
	Total	Belted	Not Belted	Unknown	Total	Belted	Not Belted	Un-known	Total	Belted	Not Belted	Unknown
Local	2123	1937	151	35	506	448	51	7	2629	2385	202	42
Primary	7394	7125	159	110	2931	2713	167	51	10325	9838	326	161
Secondary	6171	5863	213	95	2030	1909	106	15	8201	7772	319	110
TOTAL	15688	14925	523	240	5467	5070	324	73	21155	19995	847	313

Table 5. 2020 Seat Belt Use by Road Type (unweighted percentages)

Road Type	Drivers		Right Front Passengers		Total	
	% of Total Belted	% of Known Belted	% of Total Belted	% of Known Belted	% of Total Belted	% of Known Belted
Local	91.2%	92.8%	88.5%	89.8%	90.7%	92.2%
Primary	96.4%	97.8%	92.6%	94.2%	95.3%	96.8%
Secondary	95.0%	96.5%	94.0%	94.7%	94.8%	96.1%
TOTAL	95.1%	96.6%	92.7%	94.0%	94.5%	95.9%

Table 6. Driver and Passenger Seat Belt Use by Day of Week and Road Type (n & unweighted %)

	Drivers Belted	Total Drivers	Passengers Belted	Total Passengers	% Drivers Belted	% Passengers Belted
Sunday	1097	1141	605	671	96.1%	90.2%
Local	0	0	0	0	0.0%	0.0%
Primary	835	864	460	520	96.6%	88.5%
Secondary	262	277	145	151	94.6%	96.0%
Monday	2105	2196	660	706	95.9%	93.5%
Local	232	247	53	55	93.93%	96.36%
Primary	767	795	296	329	96.48%	89.97%
Secondary	1106	1154	311	322	95.84%	96.58%
Tuesday	2720	2892	741	803	94.1%	92.3%
Local	856	942	196	236	90.9%	83.1%
Primary	1124	1166	359	368	96.4%	97.6%
Secondary	740	784	186	199	94.4%	93.5%
Wednesday	2473	2572	841	904	96.2%	93.0%
Local	143	165	27	31	86.7%	87.1%
Primary	875	901	361	388	97.1%	93.0%
Secondary	1455	1506	453	485	96.6%	93.4%
Thursday	1587	1742	369	428	91.1%	86.2%
Local	357	399	47	54	89.5%	87.0%
Primary	463	496	145	176	93.4%	82.4%
Secondary	767	847	177	198	90.6%	89.4%
Friday	1955	2064	619	666	94.7%	93.0%
Local	187	203	45	46	92.1%	97.8%
Primary	1064	1113	324	349	95.6%	92.8%
Secondary	704	748	250	271	94.1%	92.3%
Saturday	2988	3081	1235	1289	97.0%	95.8%
Local	162	167	80	84	97.0%	95.2%
Primary	1997	2059	768	801	97.0%	95.9%
Secondary	829	855	387	404	97.0%	95.8%

Total	14925	15688	5070	5467	95.1%	92.7%
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Table 8. Sample Weights and Seat Belt Use by Observation Site: Part B Reporting Data (n)

Site ID	Site Type	Date Observed	Sample Weight	Number of Drivers	Number of Front Passengers	Number of Occupants Belted	Number of Occupants Unbelted	Number of Occupants Unknown Belt Use
201	Original	6/14/2020	2330.68	23	14	34	2	1
202	Alternate	6/14/2020	38225.51	77	44	115	4	2
203	Alternate	6/14/2020	248089.83	47	29	74	0	2
204	Original	6/14/2020	3423.12	17	8	23	1	1
205	Original	6/14/2020	8343.15	61	28	88	1	0
206	Original	6/17/2020	307.13	87	13	86	14	0
207	Original	6/17/2020	4732.97	36	9	37	8	0
208	Original	6/17/2020	33.41	511	142	624	29	0
209	Original	6/17/2020	34.02	267	75	331	11	0
210	Original	6/17/2020	547.53	182	39	211	10	0
211	Original	6/11/2020	2990.25	11	2	11	2	0
212	Original	6/11/2020	263.27	147	26	146	22	5
213	Original	6/11/2020	8379.34	108	23	114	10	7
214	Original	6/11/2020	45.81	249	86	301	17	17
215	Original	6/11/2020	46.15	234	88	293	19	10
216	Original	6/15/2020	1650.21	127	14	130	7	4
217	Original	6/15/2020	1007.35	87	34	112	6	3
218	Original	6/15/2020	697.67	77	25	102	0	0
219	Original	6/15/2020	3822.40	15	4	18	1	0
220	Original	6/15/2020	715.92	66	19	82	1	2
221	Original	6/14/2020	77.27	202	126	303	19	6
222	Original	6/14/2020	57.98	344	199	512	19	12
223	Original	6/14/2020	60.93	318	195	480	21	12
224	Original	6/14/2020	394.09	42	24	61	5	0
225	Original	6/14/2020	6893.71	10	4	12	2	0
226	Original	6/15/2020	275.10	8	4	10	2	0
227	Original	6/15/2020	510.90	287	130	394	23	0
228	Original	6/15/2020	46.89	208	88	270	26	0
229	Original	6/15/2020	19412.44	26	4	26	4	0
230	Original	6/15/2020	2050.40	23	4	26	1	0
231	Original	6/18/2020	768.51	24	5	27	1	1
232	Original	6/18/2020	781.49	50	14	62	1	1

2020

233	Original	6/18/2020	1946.22	22	2	23	1	0
234	Original	6/18/2020	1014.59	411	100	456	47	8
235	Original	6/18/2020	144.92	204	51	242	6	7
236	Original	6/12/2020	47.35	336	157	467	12	14
237	Original	6/12/2020	2339.39	128	43	163	5	3
238	Original	6/12/2020	62.27	586	189	732	21	22
239	Original	6/12/2020	217.27	527	160	656	15	16
240	Original	6/12/2020	1473.39	90	25	113	1	1
241	Original	6/13/2020	352.56	240	110	333	9	8
242	Original	6/13/2020	292.44	268	136	392	5	7

Site ID	Site Type	Date Observed	Sample Weight	Number of Drivers	Number of Front Passengers	Number of Occupants Belted	Number of Occupants Unbelted	Number of Occupants Unknown Belt Use
243	Original	6/13/2020	3411.28	8	2	9	1	0
244	Original	6/13/2020	185.60	435	221	632	16	8
245	Original	6/13/2020	391.09	159	82	233	6	2
246	Original	6/17/2020	1223.51	35	4	37	2	0
247	Original	6/17/2020	2265.63	42	9	47	3	1
248	Original	6/17/2020	1101.32	238	92	321	8	1
249	Original	6/17/2020	395.13	319	135	438	10	6
250	Original	6/17/2020	166.31	188	68	246	6	4
251	Original	6/13/2020	4252.12	14	2	15	1	0
252	Original	6/11/2020	23.19	13	2	14	1	0
253	Original	6/13/2020	94.06	545	145	668	13	9
254	Original	6/12/2020	2014.13	284	71	324	30	1
255	Original	6/11/2020	118.61	269	29	267	23	8
256	Original	6/12/2020	309.42	113	21	119	10	5
257	Original	6/9/2020	965.18	303	53	324	25	7
258	Original	6/9/2020	1121.58	274	51	285	31	9
259	Original	6/9/2020	3940.02	3	0	2	1	0
260	Original	6/9/2020	3037.10	6	2	8	0	0
261	Original	6/9/2020	164.94	594	180	751	10	13
262	Original	6/13/2020	97.69	673	294	937	12	18
263	Original	6/13/2020	148.24	406	141	528	15	4
264	Original	6/13/2020	533.84	333	156	476	10	3
265	Original	6/16/2020	437.53	2	1	3	0	0
266	Original	6/16/2020	141.92	225	75	289	11	0
267	Original	6/16/2020	485.35	28	12	38	2	0
268	Original	6/16/2020	1212.31	107	24	125	6	0
269	Original	6/16/2020	200.35	321	75	355	41	0
270	Original	6/16/2020	28.17	282	79	347	7	7
271	Original	6/16/2020	241.30	35	21	55	1	0
272	Original	6/16/2020	149.50	280	91	332	35	4
273	Original	6/16/2020	4563.27	58	17	70	4	1
274	Original	6/16/2020	79.69	374	122	477	13	6
275	Original	6/15/2020	3041.10	37	5	35	6	1
276	Original	6/15/2020	1403.80	210	50	250	7	3
277	Original	6/15/2020	1305.55	414	122	522	7	7
278	Original	6/15/2020	439.23	319	96	399	11	5

279	Original	6/15/2020	311.79	292	107	389	9	1
280	Original	6/21/2020	996.36	21	0	17	3	1
281	Original	6/21/2020	235.00	210	94	289	13	2
282	Original	6/21/2020	103.50	209	101	292	15	3
283	Original	6/21/2020	114.38	215	118	324	8	1
284	Original	6/21/2020	3718.53	12	5	14	3	0
TOTALS				15688	5467	19995	847	313

Appendix A. Observation Site Form 2020

Iowa Seat Belt Survey
Observation Site Form

Data Collector ID# _____

Date: ____ / ____ / 2015

Site Identification:

ID: _____

County : _____

Road Name: _____

Co Site #: _____

Site Start and End Time:

Start time for observations: _____ am/pm

End time for observations: _____ am/pm

(Total observation period MUST last exactly 45 minutes)

Site Description:

Selected traffic flow direction: North South East West

Total number of lanes in selected direction: _____

Weather Conditions: Clear Cloudy/PC Light Fog Light Rain

Alternate Site Information:

Is this an alternate site (not including a recommended observation point)?

No

Yes

If yes, why was an alternate site needed?

Traffic Count:

Is a traffic count required
(exit ramp or rest stop)?

No

Yes

If yes,

Number of Cars: _____

Duration: _____

Appendix B. Observation Tally Form 2020

Iowa Seat Belt Survey – Observation Form

County: _____

Page ____ of ____

County site #: _____

ID #: _____

Data Collector ID# _____

Responses: Y = Yes, N = No, U = Unknown, NP = No Passenger

VEHICLE NUMBER	DRIVER SEATBELT USE			PASSENGER SEATBELT USE			
1	Y	N	U	Y	N	U	NP
2	Y	N	U	Y	N	U	NP
3	Y	N	U	Y	N	U	NP
4	Y	N	U	Y	N	U	NP
5	Y	N	U	Y	N	U	NP
6	Y	N	U	Y	N	U	NP
7	Y	N	U	Y	N	U	NP
8	Y	N	U	Y	N	U	NP
9	Y	N	U	Y	N	U	NP
10	Y	N	U	Y	N	U	NP
11	Y	N	U	Y	N	U	NP
12	Y	N	U	Y	N	U	NP
13	Y	N	U	Y	N	U	NP
14	Y	N	U	Y	N	U	NP
15	Y	N	U	Y	N	U	NP
16	Y	N	U	Y	N	U	NP
17	Y	N	U	Y	N	U	NP
18	Y	N	U	Y	N	U	NP
19	Y	N	U	Y	N	U	NP
20	Y	N	U	Y	N	U	NP
21	Y	N	U	Y	N	U	NP
22	Y	N	U	Y	N	U	NP
23	Y	N	U	Y	N	U	NP
24	Y	N	U	Y	N	U	NP
25	Y	N	U	Y	N	U	NP
26	Y	N	U	Y	N	U	NP
27	Y	N	U	Y	N	U	NP
28	Y	N	U	Y	N	U	NP
29	Y	N	U	Y	N	U	NP
30	Y	N	U	Y	N	U	NP
31	Y	N	U	Y	N	U	NP
32	Y	N	U	Y	N	U	NP
33	Y	N	U	Y	N	U	NP
34	Y	N	U	Y	N	U	NP
35	Y	N	U	Y	N	U	NP
36	Y	N	U	Y	N	U	NP
37	Y	N	U	Y	N	U	NP
38	Y	N	U	Y	N	U	NP
39	Y	N	U	Y	N	U	NP
40	Y	N	U	Y	N	U	NP

VEHICLE NUMBER	DRIVER SEATBELT USE			PASSENGER SEATBELT USE			
41	Y	N	U	Y	N	U	NP
42	Y	N	U	Y	N	U	NP
43	Y	N	U	Y	N	U	NP
44	Y	N	U	Y	N	U	NP
45	Y	N	U	Y	N	U	NP
46	Y	N	U	Y	N	U	NP
47	Y	N	U	Y	N	U	NP
48	Y	N	U	Y	N	U	NP
49	Y	N	U	Y	N	U	NP
50	Y	N	U	Y	N	U	NP
51	Y	N	U	Y	N	U	NP
52	Y	N	U	Y	N	U	NP
53	Y	N	U	Y	N	U	NP
54	Y	N	U	Y	N	U	NP
55	Y	N	U	Y	N	U	NP
56	Y	N	U	Y	N	U	NP
57	Y	N	U	Y	N	U	NP
58	Y	N	U	Y	N	U	NP
59	Y	N	U	Y	N	U	NP
60	Y	N	U	Y	N	U	NP
61	Y	N	U	Y	N	U	NP
62	Y	N	U	Y	N	U	NP
63	Y	N	U	Y	N	U	NP
64	Y	N	U	Y	N	U	NP
65	Y	N	U	Y	N	U	NP
66	Y	N	U	Y	N	U	NP
67	Y	N	U	Y	N	U	NP
68	Y	N	U	Y	N	U	NP
69	Y	N	U	Y	N	U	NP
70	Y	N	U	Y	N	U	NP
71	Y	N	U	Y	N	U	NP
72	Y	N	U	Y	N	U	NP
73	Y	N	U	Y	N	U	NP
74	Y	N	U	Y	N	U	NP
75	Y	N	U	Y	N	U	NP
76	Y	N	U	Y	N	U	NP
77	Y	N	U	Y	N	U	NP
78	Y	N	U	Y	N	U	NP
79	Y	N	U	Y	N	U	NP
80	Y	N	U	Y	N	U	NP

Appendix C. Essential Worker Statement 2020

6/5/2020

To: Law Enforcement, City Personnel, DOT Personnel, other local interested parties

Re: 2020 Iowa Observational Survey of Seat Belt Use – essential project workers

Iowa State University has been contracted by the Governor's Traffic Safety Bureau to perform the annual Observational Survey of Seat Belt Use for the state of Iowa. ISU has performed this task since 2012.

The team of observers are uniquely and extensively trained using GTSB guidelines as well as DOT safety measures. The project manager at ISU has alerted DOT, county level, and city managers about where and when our enumerators will be in their areas, and specifically which streets or roads they'll be observing. ISU's contact at the GTSB - Cinnamon Weigel - has shared our schedule of observations with pertinent law enforcement agencies.

Our team members will observe for one hour at each site. They wear Ansi II level vests and usually hats. They will carry a clipboard but may also have on their person bug spray, sunscreen, water, car keys. Some will drive ISU vehicles and some will drive their own, depending on where their home base is. They will park at businesses where available, parks, field drives, and overpasses, being sure to be well out of the right of way. Again, the team is trained extensively on this process. Some sites will require the use of road signs that say "Survey Crew", and they are placed according to DOT safety guidelines as pertaining to a construction site (these guidelines are the closest to what we are doing).

The Seat Belt Survey will be in the field from June 10, 2020 to June 18, 2020. These dates would be extended in cases where we we'd be unable to observe on scheduled days due to weather issues or road construction that we hadn't been able to account for ahead of time.

For any further questions or concerns please contact me using the information below. Thank you for keeping us safe and taking the time to follow up on your questions.

Jody Fox
Iowa State University
Center for Survey Statistics and Methodology
2401 Osborn Drive/112 Office & Laboratory
Ames, IA 50011 **515-290-
2779 (cell) jfox@iastate.edu**