Iowa Seat Belt Use Survey
2019 Data Collection
Methodology Report

September 19, 2019

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IOWA STATE UNIVERSITY
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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, and again in 2019.

2019 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 2019 is Cinnamon Weigel, Occupant Protection Coordinator. The primary contact at CSSM is Janice Larson, 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 2019 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 2019 seat belt use data collection involved several components: verifying the usability of the sampled sites, revising materials for Data Collectors, and notifying 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 2018 and checked with the Department of Transportation and other online sources for scheduled construction that could impact traffic patterns. No significant issues were discovered and the same 84 sites were verified as useable for 2019 data collection.

Materials Preparation.

After the 84 sites were finalized, CSSM staff used online maps and Google Earth as well as notes from 2017 and 2018 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 2019, responsible for 10 to 20 sites each. In addition, the Project Manager collected data at 2 of the sites. One new data collector was hired for 2019 while the others 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 new staff member.

A two-day training was held at CSSM facilities on June 11 & 12, 2019, with field data collection beginning on June 13, 2019. 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 David Veneziano, Iowa LTAP Safety Circuit Rider at Iowa State University's Institute for Transportation (*InTrans*). The 2019 training agenda is shown in Figure 1.

The new data collector and 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. The Project Manager visited the first site observed by the new data collector as part of the QC monitoring process.

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 yellow 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.

Figure 1.

Seat Belt Data Collectors
2019 Training Agenda

Tuesday, June 11, 2019

Seat Belt Survey Overview
- Study Design
- NHTSA Requirements
- Data Collection Requirements
- Definitions of terms

Safety Training (David Veneziano, Safety Circuit Rider)
- 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

Site Review on Google Earth

Wednesday, June 12, 2019

Quality Control and QC monitoring

Field Practice
- Setting up road work signs
- Highway observations
- Practice counts

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 Appendix 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 45 minutes.

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 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 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 2019.

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 2019 data collection, two new alternate sites were needed unexpectedly. In one case, the sampled road was closed for construction. In the other case, the pedestrian overpass was closed for construction and that was the only reasonable observation site for the segment.

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 2019 there were a few days with light rain, but no rescheduling was needed due to either weather or accidents.

Results

Data collection for 2019 occurred from Thursday, June 13 through Tuesday, June 25, 2019. The 2019 seat belt use data collection resulted in the observation of **13,559 passenger vehicles**, with a right front seat passenger in 4,926 of those vehicles, for a total of **18,485 potential observations** of belt use. Of these 18,485 potential observations, there were 12,692 drivers and 4,537 right front passengers who were observed to be wearing seat belts (total 17,229 seat belt users). Seat belts were not worn by 603 drivers and 299 right front passengers (total 902 unbelted). Data collectors were unable to observe the seat belt use of 264 drivers and 90 passengers (total 354 unknown use). The **unknown use, or "nonresponse rate," is .0192 or 1.92%**. This is well within the range allowed by federal regulations, which require the nonresponse rate to be below 10%.

The number of observations in 2019 is 29 more than in 2018; the number of vehicles observed increased by 315 but the number of passengers decreased by 286. 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. Federal regulations require a minimum of 7500 observations, and the 2019 total of 13,559 passenger vehicles with 18,485 observed occupants far exceeds the minimum requirement.

Ten quality control checks were completed in 2019. 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 2019 is 94.6%**, with an **estimated standard error of .72% (± 1%)**. Weighted seat belt use rates since 2012 are shown in Figure 3.

Figure 3. Iowa's Annual Weighted Seat Belt Use Rate, 2012-2019.

Year	Weighted Belt Use
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

Table 1. 2019 Seat Belt Usage

No	County	MSLINK	Location	Road Type	Day	Start Time	Vehicle Count	Drivers Belted	Right Front Passenger Count	Right Front Passenger Belted
1	Allamakee	4235	IOWA 76	Secondary	Mon	7:26 AM	23	22	5	5
2	Allamakee	3960	IOWA 9	Secondary	Mon	8:43 AM	34	32	7	7
3	Allamakee	3913	Iowa 9/Rossville Rd	Secondary	Mon	9:56 AM	111	101	30	29
4	Allamakee	4521	Forest Mills Rd	Secondary	Mon	10:54 AM	17	16	4	4
5	Allamakee	4246	HWY 364/X52	Secondary	Mon	12:09 PM	26	24	8	8
6	Black Hawk	19383	W Airline Hwy	Local	Mon	9:18 AM	54	49	10	9
7	Black Hawk	20322	Lafayette St.	Local	Mon	10:25 AM	29	27	10	8
8	Black Hawk	14933	US 20	Secondary	Mon	11:47 AM	327	296	101	90
9	Black Hawk	14762	I 380	Primary	Mon	2:09 PM	221	204	84	76
10	Black Hawk	15023	Hudson Rd.	Secondary	Mon	3:50 PM	98	88	24	23
11	Cerro Gordo	46024	190TH ST	Secondary	Wed	7:57 AM	10	6	2	1
12	Cerro Gordo	45722	S Federal Ave.	Secondary	Wed	9:01 AM	103	91	20	18
13	Cerro Gordo	47140	1ST ST NW	Local	Wed	10:10 AM	105	93	32	31
14	Cerro Gordo	45427	I 35	Primary	Wed	12:30 PM	209	194	94	84
15	Cerro Gordo	45409	I 35	Primary	Wed	1:55 PM	178	170	75	66
16	Clayton	57598	US 18	Secondary	Sun	10:50 AM	173	165	103	95
17	Clayton	57848	IOWA 13	Secondary	Sun	12:10 PM	104	94	60	58
18	Clayton	57842	IOWA 13	Secondary	Sun	2:10 PM	85	80	44	43
19	Clayton	332445	Great River Rd	Secondary	Mon	2:02 PM	49	46	16	16
20	Clayton	57789	IOWA 13/Elkader St	Secondary	Sun	4:15 PM	158	145	91	88
21	Franklin	97664	I 35	Primary	Wed	10:30 AM	144	135	55	52
22	Franklin	97666	I 35	Primary	Wed	12:30 PM	183	167	69	62
23	Franklin	97686	I 35	Primary	Wed	1:45 PM	206	190	90	85
24	Franklin	97753	US 65	Secondary	Wed	3:05 PM	74	68	19	17
25	Franklin	97955	Vine Ave	Secondary	Wed	4:30 PM	18	16	4	4
26	Harrison	331806	I 29	Primary	Sun	7:27 AM	3	3	1	1
27	Harrison	116865	I 29	Primary	Sun	9:04 AM	194	189	141	132
28	Harrison	116946	I 29	Primary	Sun	10:30 AM	288	286	218	196
29	Harrison	118343	Locust St	Secondary	Sun	11:52 AM	9	9	6	6
30	Harrison	117168	IOWA 44	Secondary	Sun	1:45 PM	10	10	3	3
31	Jefferson	138811	Packwood Rd	Secondary	Tues	11:05 AM	22	19	6	6
32	Jefferson	138218	IOWA 1	Secondary	Tues	12:10 PM	24	23	4	4
33	Jefferson	138095	W Burlington Ave.	Secondary	Tues	2:13 PM	32	30	4	3
34	Jefferson	139125	W STONE AVE	Local	Tues	3:25 PM	287	259	65	55
35	Jefferson	323114	US 34	Secondary	Tues	4:45 PM	159	155	58	51
36	Johnson	140987	US 218	Secondary	Mon	9:50 AM	346	332	127	116
37	Johnson	141286	Oak Crest Hill Rd NE	Secondary	Mon	11:05 AM	80	76	34	30
38	Johnson	333258	I 380	Primary	Mon	12:23 PM	439	422	144	140
39	Johnson	140631	I 80	Primary	Mon	2:35 PM	426	408	126	120
40	Johnson	143520	S Madison St.	Local	Mon	3:50 PM	79	77	13	11
41	Linn	159181	IOWA 13	Secondary	Tues	8:45 AM	93	92	16	14
42	Linn	159157	IOWA 13	Secondary	Tues	9:42 AM	127	123	28	26
43	Linn	163355	Normandy Dr NE	Local	Tues	10:42 AM	5	5	1	1
44	Linn	341551	I 380	Primary	Tues	12:37 PM	281	264	102	98
45	Linn	160653	Wright Brothers SW	Local	Tues	2:15 PM	182	174	47	42
46	Marshall	183837	Zeller Ave	Secondary	Fri	11:03 AM	8	8	0	0
47	Marshall	185108	E State St.	Local	Fri	12:20 PM	59	53	26	23
48	Marshall	183738	S Center St.	Secondary	Fri	2:20 PM	463	432	155	141
49	Marshall	183538	240TH ST	Secondary	Fri	3:40 PM	315	296	123	112
50	Marshall	336356	240TH ST	Secondary	Fri	5:00 PM	175	165	59	55
51	Polk	218613	NE 12th Ave	Secondary	Fri	8:15 AM	29	25	2	1
52	Polk	215189	I 35	Primary	Fri	10:50 AM	39	38	17	16
53	Polk	319250	I 35	Primary	Fri	9:40 AM	400	371	109	98
54	Polk	216270	NE 14TH ST	Secondary	Sat	11:15 AM	228	216	94	83
55	Polk	223763	6TH AVE	Local	Fri	9:26 AM	266	248	56	51
56	Polk	220551	E Hartford Ave	Local	Sat	12:25 PM	181	169	84	83
57	Polk	216087	NE 14TH ST	Secondary	Thurs	11:25 AM	353	320	95	82
58	Polk	216414	E Army Post Rd	Local	Thurs	1:22 PM	258	239	65	59
59	Polk	220874	Greenwood Dr	Local	Thurs	2:40 PM	9	9	2	2
60	Polk	222431	58TH ST	Local	Thurs	3:45 PM	7	6	1	1
61	Polk	318107	I 35	Primary	Thurs	5:05 PM	709	683	168	160
62	Polk	214995	I 35	Primary	Fri	11:00 AM	400	369	137	129
63	Polk	215450	I 35	Primary	Thurs	2:53 PM	507	474	109	98
64	Polk	317252	IOWA 141	Secondary	Fri	1:24 PM	211	198	90	86

No	County	MSLINK	Location	Road Type	Day	Start Time	Vehicle Count	Drivers Belted	Right Front Passenger Count	Right Front Passenger Belted
65	Pottawattamie	229510	HWY 680	Primary	Sat	10:13 AM	19	18	16	16
66	Pottawattamie	229263	I 80	Primary	Sat	11:57 AM	299	292	196	181
67	Pottawattamie	229243	I 80	Primary	Sat	1:30 PM	35	33	22	18
68	Pottawattamie	230312	Railroad Hwy	Secondary	Sat	3:10 PM	109	96	43	40
69	Pottawattamie	233270	S 1ST ST	Local	Sat	4:20 PM	237	204	82	76
70	Scott	242997	I 80	Primary	Thurs	7:45 AM	236	225	92	85
71	Scott	243110	I 80	Primary	Thurs	9:20 AM	21	21	6	6
72	Scott	245937	W Locust St	Local	Thurs	10:50 AM	206	190	63	56
73	Scott	246372	E 42ND ST	Local	Thurs	12:40 PM	104	98	34	32
74	Scott	243558	US 61	Secondary	Thurs	2:20 PM	263	248	74	71
75	Woodbury	294873	Florence Ave	Local	Sat	10:25 AM	32	21	6	5
76	Woodbury	296162	Fairmount St	Local	Sat	11:50 AM	207	190	92	85
77	Woodbury	292360	Gordon Dr.	Secondary	Sat	1:50 PM	262	241	120	104
78	Woodbury	292173	Singing Hills Blvd	Secondary	Sat	3:05 PM	164	149	72	65
79	Woodbury	317734	I 29	Primary	Sat	4:05 PM	306	287	151	144
80	Worth	298621	Thrush Ave	Secondary	Tues	9:18 AM	49	44	10	9
81	Worth	298440	I 35	Primary	Tues	11:10 AM	214	206	98	88
82	Worth	298465	I 35	Primary	Tues	1:05 PM	148	140	64	58
83	Worth	298467	I 35	Primary	Tues	2:20 PM	182	173	88	80
84	Worth	299696	Mallard Ave	Secondary	Tues	3:35 PM	24	22	4	4
	TOTALS						**13559**	**12692**	**4926**	**4537**

Table 2. 2019 Driver and Passenger Seat Belt Use by County (n)

County	Drivers				Right Front Passengers				TOTAL			
	Total	Belted	Not Belted	Un-known	Total	Belted	Not Belted	Un-known	Total	Belted	Not Belted	Un-known
Allamakee	211	195	12	4	54	53	0	1	265	248	12	5
Black Hawk	729	664	37	28	229	206	16	7	958	870	53	35
Cerro Gordo	605	554	41	10	223	200	17	6	828	754	58	16
Clayton	569	530	18	21	314	300	8	6	883	830	26	27
Franklin	625	576	20	29	237	220	10	7	862	796	30	36
Harrison	504	497	5	2	369	338	30	1	873	835	35	3
Jefferson	524	486	34	4	137	119	16	2	661	605	50	6
Johnson	1370	1315	37	18	444	417	21	6	1814	1732	58	24
Linn	688	658	20	10	194	181	11	2	882	839	31	12
Marshall	1020	954	62	4	363	331	32	0	1383	1285	94	4
Polk	3597	3365	158	74	1029	949	58	22	4626	4314	216	96
Pottawattamie	699	643	43	13	359	331	20	8	1058	974	63	21
Scott	830	782	37	11	269	250	12	7	1099	1032	49	18
Woodbury	971	888	59	24	441	403	31	7	1412	1291	90	31
Worth	617	585	20	12	264	239	17	8	881	824	37	20
Total	**13559**	**12692**	**603**	**264**	**4926**	**4537**	**299**	**90**	**18485**	**17229**	**902**	**354**

Table 3. 2019 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	92.4%	94.2%	98.1%	100.0%	93.6%	95.4%
Black Hawk	91.1%	94.7%	90.0%	92.8%	90.8%	94.3%
Cerro Gordo	91.6%	93.1%	89.7%	92.2%	91.1%	92.9%
Clayton	93.1%	96.7%	95.5%	97.4%	94.0%	97.0%
Franklin	92.2%	96.6%	92.8%	95.7%	92.3%	96.4%
Harrison	98.6%	99.0%	91.6%	91.8%	95.6%	96.0%
Jefferson	92.7%	93.5%	86.9%	88.1%	91.5%	92.4%
Johnson	96.0%	97.3%	93.9%	95.2%	95.5%	96.8%
Linn	95.6%	97.1%	93.3%	94.3%	95.1%	96.4%
Marshall	93.5%	93.9%	91.2%	91.2%	92.9%	93.2%
Polk	93.6%	95.5%	92.2%	94.2%	93.3%	95.2%
Pottawattamie	92.0%	93.7%	92.2%	94.3%	92.1%	93.9%
Scott	94.2%	95.5%	92.9%	95.4%	93.9%	95.5%
Woodbury	91.5%	93.8%	91.4%	92.9%	91.4%	93.5%
Worth	94.8%	96.7%	90.5%	93.4%	93.5%	95.7%
Total	**93.6%**	**95.5%**	**92.1%**	**93.8%**	**93.2%**	**95.0%**

Table 4. 2019 Seat Belt Use by Road Type (n)

Road Type	Drivers				Right Front Passengers				Total			
	Total	Belted	Not Belted	Un-Known	Total	Belted	Not Belted	Un-Known	Total	Belted	Not Belted	Un-Known
Local	2052	1882	137	33	628	578	37	13	2680	2460	174	46
Primary	6287	5962	186	139	2472	2289	137	46	8759	8251	323	185
Secondary	5220	4848	280	92	1826	1670	125	31	7046	6518	405	123
TOTAL	**13559**	**12692**	**603**	**264**	**4926**	**4537**	**299**	**90**	**18485**	**17229**	**902**	**354**

Table 5. 2019 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	91.7%	93.2%	92.0%	94.0%	91.8%	93.4%
Primary	94.8%	97.0%	92.6%	94.4%	94.2%	96.2%
Secondary	92.9%	94.5%	91.5%	93.0%	92.5%	94.1%
TOTAL	**93.6%**	**95.5%**	**92.1%**	**93.8%**	**93.2%**	**95.0%**

Table 6. 2019 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	**981**	**1024**	**622**	**667**	**95.80%**	**93.25%**
Local	0	0	0	0	0.00%	0.00%
Primary	478	485	329	360	98.56%	91.39%
Secondary	503	539	293	307	93.32%	95.44%
Monday	**2220**	**2359**	**692**	**743**	**94.11%**	**93.14%**
Local	153	162	28	33	94.44%	84.85%
Primary	1034	1086	336	354	95.21%	94.92%
Secondary	1033	1111	328	356	92.98%	92.13%
Tuesday	**1729**	**1829**	**539**	**595**	**94.53%**	**90.59%**
Local	209	219	46	52	95.43%	88.46%
Primary	783	825	324	352	94.91%	92.05%
Secondary	737	785	169	191	93.89%	88.48%
Wednesday	**1130**	**1230**	**420**	**460**	**91.87%**	**91.30%**
Local	93	105	31	32	88.57%	96.88%
Primary	856	920	349	383	93.04%	91.12%
Secondary	181	205	40	45	88.29%	88.89%
Thursday	**1542**	**1642**	**415**	**451**	**93.91%**	**92.02%**
Local	536	576	139	153	93.06%	90.85%
Primary	758	803	205	224	94.40%	91.52%
Secondary	248	263	71	74	94.30%	95.95%
Friday	**3174**	**3396**	**949**	**1032**	**93.46%**	**91.96%**
Local	307	333	85	94	92.19%	90.43%
Primary	1423	1509	387	414	94.30%	93.48%
Secondary	1444	1554	477	524	92.92%	91.03%
Saturday	**1916**	**2079**	**900**	**978**	**92.16%**	**92.02%**
Local	584	657	249	264	88.89%	94.32%
Primary	630	659	359	385	95.60%	93.25%
Secondary	702	763	292	329	92.01%	88.75%
Total	**12692**	**13559**	**4537**	**4926**	**93.61%**	**92.10%**

Table 7. Driver and Passenger Seat Belt Use by Time of Day and Road Type (n & unweighted %)

	Drivers Belted	Total Drivers	Passengers Belted	Total Passengers	% Drivers Belted	% Passengers Belted
7AM to 759AM	**94**	**99**	**33**	**35**	**95.3%**	**93.2%**
Local	0	0	0	0	0.0%	0.0%
Primary	77	81	29	31	95.5%	92.6%
Secondary	17	18	4	4	94.3%	98.3%
8AM to 859AM	**230**	**246**	**67**	**75**	**93.3%**	**90.3%**
Local	0	0	0	0	0.0%	0.0%
Primary	151	158	57	62	95.4%	92.4%
Secondary	79	88	10	13	89.7%	80.1%
9AM to 959AM	**951**	**1011**	**307**	**333**	**94.0%**	**92.1%**
Local	233	251	47	52	92.7%	90.9%
Primary	373	390	181	195	95.4%	92.9%
Secondary	345	369	79	86	93.5%	91.2%
10AM to 1059AM	**1220**	**1299**	**462**	**503**	**93.9%**	**91.7%**
Local	238	269	67	73	88.7%	91.6%
Primary	516	540	240	263	95.4%	91.3%
Secondary	466	490	154	167	95.0%	92.5%
11AM to 1159AM	**1765**	**1889**	**677**	**748**	**93.4%**	**90.6%**
Local	204	223	66	74	91.4%	89.6%
Primary	764	808	324	352	94.6%	92.0%
Secondary	797	858	287	322	92.9%	89.3%
12PM to 1259PM	**1795**	**1918**	**754**	**807**	**93.6%**	**93.4%**
Local	370	400	165	175	92.4%	94.4%
Primary	995	1045	431	462	95.2%	93.4%
Secondary	430	472	157	170	91.0%	92.5%
1PM to 159PM	**1084**	**1159**	**409**	**442**	**93.5%**	**92.5%**
Local	300	322	89	95	93.0%	92.9%
Primary	569	606	227	247	93.9%	92.0%
Secondary	215	230	93	100	93.5%	93.2%
2PM to 259PM	**2174**	**2315**	**758**	**828**	**93.9%**	**91.6%**
Local	245	258	55	62	95.0%	88.8%
Primary	965	1024	356	389	94.2%	91.5%
Secondary	964	1032	348	377	93.4%	92.2%
3PM to 359PM	**1360**	**1470**	**389**	**429**	**92.5%**	**90.7%**
Local	24	25	4	4	96.9%	89.7%
Primary	583	619	140	152	94.2%	91.7%
Secondary	753	826	245	272	91.2%	90.2%
4PM to 459PM	**1040**	**1131**	**423**	**451**	**91.9%**	**93.7%**
Local	245	277	77	84	88.6%	91.8%
Primary	287	306	144	151	93.8%	95.4%
Secondary	508	549	202	216	92.5%	93.3%
5PM to 559PM	**979**	**1022**	**259**	**276**	**95.8%**	**93.7%**
Local	23	26	8	9	86.1%	0.0%
Primary	683	709	160	168	96.3%	95.2%
Secondary	274	287	90	99	95.4%	91.2%
Total	**12692**	**13559**	**4537**	**4926**	**93.6%**	**92.1%**

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	6/17/2019	2330.68	23	5	27	0	1
202	Original	6/17/2019	1719.89	34	7	39	1	1
203	Original	6/17/2019	282.03	111	30	130	9	2
204	Original	6/17/2019	3423.12	17	4	20	1	0
205	Original	6/17/2019	8343.15	26	8	32	1	1
206	Original	6/24/2019	307.13	54	10	58	4	2
207	Original	6/24/2019	4732.97	29	10	35	3	1
208	Original	6/24/2019	33.41	327	101	386	28	14
209	Original	6/24/2019	34.02	221	84	280	11	14
210	Original	6/24/2019	547.53	98	24	111	7	4
211	Original	6/19/2019	2990.25	10	2	7	5	0
212	Original	6/19/2019	263.27	103	20	109	14	0
213	Original	6/19/2019	8379.34	105	32	124	12	1
214	Original	6/19/2019	45.81	209	94	278	14	11
215	Original	6/19/2019	46.15	178	75	236	13	4
216	Original	6/16/2019	1650.21	173	103	260	7	9
217	Original	6/16/2019	1007.35	104	60	152	6	6
218	Original	6/16/2019	697.67	85	44	123	3	3
219	Alternate	6/17/2019	3822.40	49	16	62	0	3
220	Original	6/16/2019	715.92	158	91	233	10	6
221	Original	6/19/2019	77.27	144	55	187	3	9
222	Original	6/19/2019	57.98	183	69	229	10	13
223	Original	6/19/2019	60.93	206	90	275	7	14
224	Original	6/19/2019	394.09	74	19	85	8	0
225	Original	6/19/2019	6893.71	18	4	20	2	0
226	Original	6/16/2019	275.10	3	1	4	0	0
227	Original	6/16/2019	510.90	194	141	321	13	1
228	Original	6/16/2019	46.89	288	218	482	22	2
229	Original	6/16/2019	19412.44	9	6	15	0	0
230	Original	6/16/2019	2050.40	10	3	13	0	0
231	Original	6/25/2019	768.51	22	6	25	2	1
232	Original	6/25/2019	781.49	24	4	27	1	0
233	Original	6/25/2019	1946.22	32	4	33	3	0
234	Original	6/25/2019	1014.59	287	65	314	36	2
235	Original	6/25/2019	144.92	159	58	206	8	3
236	Original	6/17/2019	47.35	346	127	448	18	7
237	Original	6/17/2019	2339.39	80	34	106	5	3
238	Original	6/17/2019	62.27	439	144	562	14	7
239	Original	6/17/2019	217.27	426	126	528	17	7
240	Original	6/17/2019	1473.39	79	13	88	4	0
241	Original	6/18/2019	352.56	93	16	106	1	2
242	Original	6/18/2019	292.44	127	28	149	4	2

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	6/18/2019	3411.28	5	1	6	0	0
244	Original	6/18/2019	185.60	281	102	362	16	5
245	Original	6/18/2019	391.09	182	47	216	10	3
246	Original	6/21/2019	1223.51	8	0	8	0	0
247	Original	6/21/2019	2265.63	59	26	76	8	1
248	Original	6/21/2019	1101.32	463	155	573	43	2
249	Original	6/21/2019	395.13	315	123	408	30	0
250	Original	6/21/2019	166.31	175	59	220	13	1
251	Original	6/14/2019	4252.12	29	2	26	3	2
252	Original	6/21/2019	23.19	39	17	54	2	0
253	Original	6/14/2019	94.06	400	109	469	33	7
254	Original	6/22/2019	2014.13	228	94	299	23	0
255	Original	6/21/2019	118.61	266	56	299	14	9
256	Original	6/22/2019	309.42	181	84	252	13	0
257	Original	6/13/2019	965.18	353	95	402	32	14
258	Original	6/13/2019	1121.58	258	65	298	15	10
259	Original	6/13/2019	3940.02	9	2	11	0	0
260	Original	6/13/2019	3037.10	7	1	7	1	0
261	Original	6/13/2019	164.94	709	168	843	11	23
262	Original	6/14/2019	97.69	400	137	498	31	8
263	Alternate	6/20/2019	148.24	507	109	572	28	16
264	Original	6/14/2019	533.84	211	90	284	10	7
265	Original	6/15/2019	437.53	19	16	34	1	0
266	Original	6/15/2019	141.92	299	196	473	16	6
267	Original	6/15/2019	485.35	35	22	51	1	5
268	Original	6/15/2019	1212.31	109	43	136	12	4
269	Original	6/15/2019	200.35	237	82	280	33	6
270	Original	6/20/2019	28.17	236	92	310	11	7
271	Original	6/20/2019	241.30	21	6	27	0	0
272	Original	6/20/2019	149.50	206	63	246	19	4
273	Original	6/20/2019	4563.27	104	34	130	8	0
274	Original	6/20/2019	79.69	263	74	319	11	7
275	Original	6/15/2019	3041.10	32	6	26	11	1
276	Original	6/15/2019	1403.80	207	92	275	16	8
277	Original	6/15/2019	1305.55	262	120	345	27	10
278	Original	6/15/2019	439.23	164	72	214	18	4
279	Original	6/15/2019	311.79	306	151	431	18	8
280	Original	6/18/2019	996.36	49	10	53	4	2
281	Original	6/18/2019	235.00	214	98	294	9	9
282	Original	6/18/2019	103.50	148	64	198	10	4
283	Original	6/18/2019	114.38	182	88	253	12	5
284	Original	6/18/2019	3718.53	24	4	26	2	0
			TOTALS	**13559**	**4926**	**17229**	**902**	**354**

Appendix A. Observation Site Form 2019

Iowa Seat Belt Survey
Observation Site Form

Data Collector ID# _____ **Date:** _____ / _____ **2019**

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 2019

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