Center for CSSM Survey Statistics and Methodology

Iowa Seat Belt Use Survey
2016 Data Collection
Methodology Report

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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 annual survey that would meet the new requirements of the NHTSA. A seat belt survey plan for Iowa was developed by SBRS with statistical expertise provided by Zhengyuan Zhu, Ph.D., Associate 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.

2016 Data Collection

The Iowa GTSB has contracted with CSSM on an annual basis to conduct the seat belt use data collection using the newly approved plan beginning in 2012. The primary contact at the Iowa GTSB is Mark Nagel, Occupant Protection Coordinator. The primary contact at CSSM is Janice Larson, Survey Unit Director. The CSSM Seat Belt Survey Project Manager is Jody Fox. This report describes the data collection process for obtaining 2016 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 2016 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 75 sites sampled for annual observation, with 5 sites in each of 15 sampled counties. 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 allowed staff to examine each site for accessibility, safety, and practicality. The sites observed in 2016 were identical to those observed in 2015.

Materials Preparation.

After the 75 sites were finalized, CSSM staff reviewed observation forms from previous years and examined sites on maps and Google Earth to verify observation points that would be safe and still provide the visibility necessary to observe seat belt use. The Project Manager checked road construction schedules and, although construction existed in some places, there were no sites that would require an alternate location for that reason. CSSM staff prepared a series of 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 procured for use by the Data Collectors, including vests, hats, warning lights, signs, stop watches, and clickers. 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 people 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 four data collectors in 2016, responsible for 3-4 counties each. One new data collector was hired for 2016 while the other three were experienced, having worked as data collectors for the project in the past. Quality Control functions were filled by the Project Manager and a former Seat Belt Survey data collector.

Because most staff was experienced, training was conducted in one day rather than two days. Training was held at CSSM facilities on June 6, 2016, with field data collection beginning on June 8, 2016. 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 “use,” “nonuse,” and “use unknown” regarding belt use, 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 2016 training syllabus is shown in Figure 1.

The new data collector received some additional one-on-one training with the Project Manager to ensure that she was 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 (11% 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 new data collector's first site 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 also had a flashing yellow light to put on his/her car and a clicker-counter and stop watch to use as needed. New "Survey Crew Ahead" signs and sandbag weights were purchased for use in high speed areas and other sites as appropriate.

Figure 1.

Seat Belt Data Collectors
2016 Training Agenda

- Seat Belt Survey Overview
  - Study Design
  - NHTSA Requirements
  - Data Collection Requirements
  - Definitions of terms
- Data Collection Procedures
  - Assignments & Rescheduling
- Safety Training (David Veneziano, Safety Circuit Rider)
  - Signage and visibility
  - Roadway safety
- 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
- Sites on Google Earth
- Quality Control and QC monitoring
- Timesheets and expense reports
- Field Practice
  - Setting up road work signs
  - Highway observations
  - Practice counts
- 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 front drivers and 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 assigned one county with five observation sites per work day. A schedule of sites with observation start times was provided by the office 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 and 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 at which data collectors could safely move their vehicles from the roadway. In some cases Data Collectors observed from their vehicle while, in other cases, observing from outside of the vehicle was most effective.

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. Only one rest stop site was used in 2016.

Alternate Sites.

If 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 2016 data collection, there were no new alternate sites needed unexpectedly.

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. There was very little rain during the observation week, and no observation periods were cancelled due to weather.

Results

Data collection for 2016 occurred from Wednesday, June 8 through Tuesday, June 14, 2016. The 2016 seat belt use data collection resulted in the observation of **12,619 passenger vehicles**, with a right front seat passenger in 5,166 of those vehicles, for a total of **17,785 potential observations** of belt use. Of these 17,785 potential observations, there were 11,725 drivers and 4,706 right front passengers who were observed to be wearing seat belts (total 16,431 seat belt users). Seat belts were not worn by 572 drivers and 327 right front passengers (total 899 unbelted). Data collectors were unable to observe the seat belt use of 322 drivers and 133 passengers (total 455 unknown use). The unknown use, or **"nonresponse rate," is .02558 or 2.56%**. This is well within the range allowed by federal regulations, which require the nonresponse rate to be below 10%.

The number of observations in 2016 is very similar to previous years. The number of cars observed is slightly lower than in 2015 but with more right front passengers. The number of total observations this year (17,785) is slightly less than 2015 (18,075) but slightly more than 2014 (17,568). Federal regulations require a minimum of 7500 observations, and the 2016 total of 12,619 passenger vehicles with 17,785 observed occupants far exceeds the minimum. Three data collectors were observed by a quality control monitor at two unannounced sites and one data collector was observed at one unannounced site, to ensure compliance with project protocols. This comprises 9.3% of the sites (7 out of 75), which exceeds the minimum of 5% required by federal regulations.

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 2016 is 93.80%**, with an estimated standard error of 0.47% (± 1%). The 2016 rate is higher than in 2015 (92.96%), 2014 (92.80%), 2013 (91.86%), or 2012 (92.38%).

Tables and Appendices

Table 1 lists the 75 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. 2016 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	Black Hawk	15146	Logan Ave	Secondary	Sun	9:55 AM	72	67	37	34
2	Black Hawk	19553	Wagner Rd	Local	Sun	11:10 AM	21	19	4	4
3	Black Hawk	20423	W 4th St	Secondary	Sun	1:05 PM	119	113	45	38
4	Black Hawk	14934	US 20	Secondary	Sun	2:25 PM	399	376	174	161
5	Black Hawk	14766	I-380/Hwy 27	Primary	Sun	3:50 PM	367	353	207	187
6	Grundy	104904	IA 57/110th	Secondary	Wed	11:40 AM	52	50	10	9
7	Grundy	309294	US 20	Secondary	Wed	12:55 PM	169	161	37	34
8	Grundy	104906	Hwy 175/240th St	Secondary	Wed	2:30 PM	36	34	10	10
9	Grundy	104947	Hwy 175/260th/Grundy Ave	Secondary	Wed	3:55 PM	49	45	10	9
10	Grundy	105710	Blackhawk St	Local	Wed	4:55 PM	15	12	8	6
11	Hardin	113806	US-65	Secondary	Fri	8:40 AM	36	33	11	11
12	Hardin	115349	Washington Ave/Old US 20	Local	Fri	9:55 AM	51	45	8	7
13	Hardin	113774	US-65	Secondary	Fri	11:10 AM	119	114	25	23
14	Hardin	317413	US-20	Secondary	Fri	1:10 PM	230	223	87	84
15	Hardin	332704	E Main St	Local	Fri	2:23 PM	11	10	0	0
16	Howard	123235	US 63	Secondary	Mon	7:00 AM	69	64	17	16
17	Howard	123337	IA 9	Secondary	Mon	8:10 AM	78	73	15	14
18	Howard	123901	N Elm St	Local	Mon	9:20 AM	73	60	20	14
19	Howard	123646	Oak Ave	Local	Mon	10:55 AM	9	9	2	2
20	Howard	123218	US 63	Secondary	Mon	12:25 PM	77	73	27	24
21	Iowa	128308	IA 212/Western Ave	Secondary	Sat	8:45 AM	57	50	10	10
22	Iowa	128184	I-80	Primary	Sat	10:15 AM	362	356	225	217
23	Iowa	128271	I-80	Primary	Sat	1:30 PM	340	330	199	188
24	Iowa	128805	U Ave	Local	Sat	12:15 PM	8	8	3	3
25	Iowa	128271	I-80	Primary	Sat	2:25 PM	351	343	209	201
26	Johnson	142458	Co Rd F28/ Mehaffey Bridge Rd	Local	Mon	7:30 AM	144	136	14	13
27	Johnson	140584	I 80	Primary	Mon	9:00 AM	311	307	134	126
28	Johnson	140747	I 80	Primary	Mon	10:25 AM	335	328	164	152
29	Johnson	143552	N Dubuque St	Secondary	Mon	11:40 AM	121	117	34	30
30	Johnson	141004	US 218/IA 27	Secondary	Mon	1:45 PM	312	304	122	113
31	Linn	160569	Co Rd D62/Coggon Rd	Local	Tues	5:15 PM	38	35	9	8
32	Linn	158613	I 380/Hwy 27	Primary	Tues	3:45 PM	296	287	85	83
33	Linn	164085	Center Point Rd	Secondary	Tues	2:45 PM	173	167	51	49
34	Linn	161809	32nd St, NE, Cedar Rapids	Secondary	Tues	1:05 PM	225	210	30	28
35	Linn	166008	16th Ave SW	Secondary	Tues	11:00 AM	102	99	20	19
36	Marion	180068	IA 163	Secondary	Wed	11:37 AM	141	125	41	40
37	Marion	180790	Co Rd G28/Washington St	Local	Wed	12:58 PM	42	39	16	14
38	Marion	181891	S Clark St	Local	Wed	2:05 PM	128	115	25	23
39	Marion	179982	IA 92	Secondary	Wed	3:15 PM	114	100	29	27
40	Marion	179837	IA 5	Secondary	Wed	4:20 PM	210	191	65	59
41	Polk	215201	I 35	Primary	Sun	2:40 PM	550	522	318	282
42	Polk	215390	I 235	Primary	Sun	9:00 AM	461	404	183	163
43	Polk	216760	IA 141	Secondary	Sun	7:35 AM	155	129	48	44
44	Polk	227016	University Ave	Secondary	Sun	10:15 AM	205	187	88	78
45	Polk	226230	109th St	Local	Sun	1:05 PM	4	4	2	2
46	Pottawattamie	229603	W Broadway	Secondary	Wed	10:50 AM	208	178	50	41
47	Pottawattamie	229207	I 80	Primary	Wed	3:55 PM	261	214	106	97
48	Pottawattamie	229164	I 80	Primary	Wed	1:00 PM	421	351	149	126
49	Pottawattamie	334415	I 29	Primary	Wed	2:22 PM	287	223	101	81
50	Pottawattamie	233075	S 10th St	Local	Wed	9:43 AM	10	8	0	0
51	Scott	242971	I 80	Primary	Thurs	9:30 AM	287	284	117	114
52	Scott	243108	I 80	Primary	Thurs	11:00 AM	20	20	9	9
53	Scott	248805	Valley Dr	Local	Thurs	1:00 PM	81	76	16	14
54	Scott	247785	Eastern Ave	Secondary	Thurs	2:15 PM	232	224	64	56
55	Scott	246517	E 53rd St	Secondary	Thurs	3:20 PM	467	448	99	96
56	Shelby	249972	Co Rd F58	Local	Thurs	8:00 AM	4	3	0	0
57	Shelby	249594	US 59	Secondary	Thurs	9:00 AM	97	86	26	23
58	Shelby	250675	12th St/Linden Rd	Secondary	Thurs	11:10 AM	106	93	23	20
59	Shelby	250640	19th St	Local	Thurs	10:10 AM	51	43	7	6
60	Shelby	249736	IA-44/1000th St	Secondary	Thurs	12:55 PM	37	31	10	9
61	Story	257296	Lincoln Way	Secondary	Sun	10:30 AM	132	123	70	63
62	Story	257855	University Blvd	Secondary	Sun	12:45 PM	189	173	93	86
63	Story	255469	I-35	Primary	Sun	2:15 PM	459	418	258	237
64	Story	256910	Co Rd E29/190th St	Local	Sun	3:45 PM	32	32	9	9
65	Story	255562	I-35	Primary	Sun	4:52 PM	338	319	206	172
66	Warren	273908	I-35	Primary	Sat	11:05 AM	322	303	207	187
67	Warren	334871	I-35	Primary	Sat	12:45 PM	280	272	185	170
68	Warren	274137	US 65/69	Secondary	Sat	3:38 PM	326	307	162	136
69	Warren	275330	S 5th St	Local	Sat	2:32 PM	99	88	42	37
70	Warren	311642	IA-5	Secondary	Sat	5:00 PM	334	310	192	176
71	Webster	283076	IA 7/190th St	Secondary	Fri	2:15 PM	61	55	17	15
72	Webster	283806	Old Hwy 20/ Co D20	Secondary	Fri	1:15 PM	114	105	33	31
73	Webster	311763	2nd Ave N	Secondary	Fri	11:45 AM	39	37	14	14
74	Webster	283683	Co D20/200th St	Local	Fri	9:30 AM	71	61	17	16
75	Webster	283317	Co P70/Taylor Ave	Local	Fri	8:00 AM	17	13	6	6
	TOTALS						**12619**	**11725**	**5166**	**4706**

Table 2. 2016 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
Black Hawk	978	928	15	35	467	424	23	20	1445	1352	38	55
Grundy	321	302	9	10	75	68	4	3	396	370	13	13
Hardin	447	425	11	11	131	125	3	3	578	550	14	14
Howard	306	279	15	12	81	70	8	3	387	349	23	15
Iowa	1118	1087	19	12	646	619	19	8	1764	1706	38	20
Johnson	1223	1192	15	16	468	434	22	12	1691	1626	37	28
Linn	834	798	23	13	195	187	3	5	1029	985	26	18
Marion	635	570	43	22	176	163	12	1	811	733	55	23
Polk	1375	1246	97	32	639	569	54	16	2014	1815	151	48
Pottawattamie	1187	974	127	86	406	345	29	32	1593	1319	156	118
Scott	1087	1052	26	9	305	289	13	3	1392	1341	39	12
Shelby	295	256	37	2	66	58	8	0	361	314	45	2
Story	1150	1065	47	38	636	567	56	13	1786	1632	103	51
Warren	1361	1280	67	14	788	706	70	12	2149	1986	137	26
Webster	302	271	21	10	87	82	3	2	389	353	24	12
Total	**12619**	**11725**	**572**	**322**	**5166**	**4706**	**327**	**133**	**17785**	**16431**	**899**	**455**

Table 3. 2016 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	County	% of Total Belted	% of Known Belted
Black Hawk	94.9%	98.4%	90.8%	94.9%	93.6%	97.3%
Grundy	94.1%	97.1%	90.7%	94.4%	93.4%	96.6%
Hardin	95.1%	97.5%	95.4%	97.7%	95.2%	97.5%
Howard	91.2%	94.9%	86.4%	89.7%	90.2%	93.8%
Iowa	97.2%	98.3%	95.8%	97.0%	96.7%	97.8%
Johnson	97.5%	98.8%	92.7%	95.2%	96.2%	97.8%
Linn	95.7%	97.2%	95.9%	98.4%	95.7%	97.4%
Marion	89.8%	93.0%	92.6%	93.1%	90.4%	93.0%
Polk	90.6%	92.8%	89.0%	91.3%	90.1%	92.3%
Pottawattamie	82.1%	88.5%	85.0%	92.2%	82.8%	89.4%
Scott	96.8%	97.6%	94.8%	95.7%	96.3%	97.2%
Shelby	86.8%	87.4%	87.9%	87.9%	87.0%	87.5%
Story	92.6%	95.8%	89.2%	91.0%	91.4%	94.1%
Warren	94.0%	95.0%	89.6%	91.0%	92.4%	93.5%
Webster	89.7%	92.8%	94.3%	96.5%	90.7%	93.6%
Total	**92.9%**	**95.3%**	**91.1%**	**93.5%**	**92.4%**	**94.8%**

Table 4. 2016 Seat Belt Use by Road Type (n)

	Drivers				Right Front Passengers				Total			
Road Type	Total	Belted	Not Belted	Un-Known	Total	Belted	Not Belted	Un-Known	Total	Belted	Not Belted	Un-Known
Local	909	816	75	18	208	184	4	20	1117	1000	95	22
Primary	6048	5634	242	172	3062	2792	80	190	9110	8426	432	252
Secondary	5662	5275	255	132	1896	1730	49	117	7558	7005	372	181
TOTAL	**12619**	**11725**	**572**	**322**	**5166**	**4706**	**133**	**327**	**17785**	**16431**	**899**	**455**

Table 5. 2016 Seat Belt Use by Road Type (unweighted percentages)

	Drivers		Right Front Passengers		TOTAL	
Road Type	% of Total Belted	% of Known Belted	% of Total Belted	% of Known Belted	% of Total Belted	% of Known Belted
Local	89.8%	91.6%	88.5%	90.2%	89.5%	91.3%
Primary	93.2%	95.9%	91.2%	93.6%	92.5%	95.1%
Secondary	93.2%	95.4%	91.2%	93.7%	92.7%	95.0%
TOTAL	**92.9%**	**95.3%**	**91.1%**	**93.5%**	**92.4%**	**94.8%**

Table 6. 2016 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	3239	3503	1560	1742	92.5%	89.6%
Local	55	57	15	15	96.5%	100.0%
Primary	2016	2175	1041	1172	92.7%	88.8%
Secondary	1168	1271	504	555	91.9%	90.8%
Monday	1471	1529	504	549	96.2%	91.8%
Local	205	226	29	36	90.7%	80.6%
Primary	635	646	278	298	98.3%	93.3%
Secondary	631	657	197	215	96.0%	91.6%
Tuesday	798	834	187	195	95.7%	95.9%
Local	35	38	8	9	92.1%	88.9%
Primary	287	296	83	85	97.0%	97.6%
Secondary	476	500	96	101	95.2%	95.0%
Wednesday	1846	2143	576	657	86.1%	87.7%
Local	174	195	43	49	89.2%	87.8%
Primary	788	969	304	356	81.3%	85.4%
Secondary	884	979	229	252	90.3%	90.9%
Thursday	1308	1382	347	371	94.6%	93.5%
Local	122	136	20	23	89.7%	87.0%
Primary	304	307	123	126	99.0%	97.6%
Secondary	882	939	204	222	93.9%	91.9%
Friday	696	749	207	218	92.9%	95.0%
Local	129	150	29	31	86.0%	93.5%
Secondary	567	599	178	187	94.7%	95.2%
Saturday	2367	2479	1325	1434	95.5%	92.4%
Local	96	107	40	45	89.7%	88.9%
Primary	1604	1655	963	1025	96.9%	94.0%
Secondary	667	717	322	364	93.0%	88.5%
Total	**11725**	**12619**	**4706**	**5166**	**92.9%**	**91.1%**

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	329	368	73	79	89.4%	92.4%
Local	136	144	13	14	94.4%	92.9%
Secondary	193	224	60	65	86.2%	92.3%
8AM to 859AM	122	135	31	32	90.4%	96.9%
Local	16	21	6	6	76.2%	100.0%
Secondary	106	114	25	26	93.0%	96.2%
9AM to 959AM	1372	1490	507	552	92.1%	91.8%
Local	174	205	37	45	84.9%	82.2%
Primary	995	1059	403	434	94.0%	92.9%
Secondary	203	226	67	73	89.8%	91.8%
10AM to 1059AM	1037	1085	516	554	95.6%	93.1%
Local	43	51	6	7	84.3%	85.7%
Primary	684	697	369	389	98.1%	94.9%
Secondary	310	337	141	158	92.0%	89.2%
11AM to 1159AM	960	1048	345	381	91.6%	90.6%
Local	28	30	6	6	93.3%	100.0%
Primary	323	342	196	216	94.4%	90.7%
Secondary	609	676	143	159	90.1%	89.9%
12PM to 1259PM	285	297	80	88	96.0%	90.9%
Local	8	8	3	3	100.0%	100.0%
Secondary	277	289	77	85	95.8%	90.6%
1PM to 159PM	2088	2251	824	902	92.8%	91.4%
Local	119	127	30	34	93.7%	88.2%
Primary	953	1041	484	533	91.5%	90.8%
Secondary	1016	1083	310	335	93.8%	92.5%
2PM to 259PM	2190	2375	934	1022	92.2%	91.4%
Local	213	238	60	67	89.5%	89.6%
Primary	984	1097	519	568	89.7%	91.4%
Secondary	993	1040	355	387	95.5%	91.7%
3PM to 359PM	1237	1304	454	497	94.9%	91.3%
Primary	522	550	282	318	94.9%	88.7%
Secondary	715	754	172	179	94.8%	96.1%
4PM to 459PM	1429	1541	580	644	92.7%	90.1%
Local	32	32	9	9	100.0%	100.0%
Primary	854	924	367	398	92.4%	92.2%
Secondary	543	585	204	237	92.8%	86.1%
5PM to 559PM	676	725	362	415	93.2%	87.2%
Local	47	53	14	17	88.7%	82.4%
Primary	319	338	172	206	94.4%	83.5%
Secondary	310	334	176	192	92.8%	91.7%
Total	**11725**	**12619**	**4706**	**5166**	**92.9%**	**91.1%**

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
101	Original	6/12/2016	193.41	72	37	101	2	6
102	Original	6/12/2016	479.81	21	4	23	0	2
103	Original	6/12/2016	586.13	119	45	151	8	5
104	Original	6/12/2016	98.93	399	174	537	11	25
105	Original	6/12/2016	26.78	367	207	540	17	17
106	Original	6/8/2016	355.30	52	10	59	0	3
107	Original	6/8/2016	73.58	169	37	195	2	9
108	Original	6/8/2016	585.00	36	10	44	2	0
109	Original	6/8/2016	3433.68	49	10	54	4	1
110	Original	6/8/2016	11996.92	15	8	18	5	0
111	Original	6/10/2016	522.63	36	11	44	2	1
112	Original	6/10/2016	1191.72	51	8	52	5	2
113	Original	6/10/2016	138.30	119	25	137	5	2
114	Original	6/10/2016	112.08	230	87	307	2	8
115	Original	6/10/2016	15849.14	11	0	10	0	1
116	Original	6/13/2016	237.70	69	17	80	2	4
117	Original	6/13/2016	217.46	78	15	87	2	4
118	Original	6/13/2016	1266.66	73	20	74	17	2
119	Original	6/13/2016	3435.69	9	2	11	0	0
120	Original	6/13/2016	3026.32	77	27	97	2	5
121	Original	6/11/2016	2179.21	57	10	60	6	1
122	Original	6/11/2016	366.90	362	225	573	9	5
123	Alternate	6/11/2016	30.88	340	199	518	11	10
124	Original	6/11/2016	3065.24	8	3	11	0	0
125	Original	6/11/2016	30.88	351	209	544	12	4
126	Original	6/13/2016	394.31	144	14	149	6	3
127	Original	6/13/2016	279.68	311	134	433	7	5
128	Original	6/13/2016	37.27	335	164	480	9	10
129	Original	6/13/2016	1396.63	121	34	147	7	1
130	Original	6/13/2016	47.33	312	122	417	8	9
131	Original	6/14/2016	1798.56	38	9	43	1	3
132	Original	6/14/2016	89.02	296	85	370	7	4
133	Original	6/14/2016	207.73	173	51	216	2	6
134	Original	6/14/2016	134.79	225	30	238	14	3
135	Original	6/14/2016	2150.54	102	20	118	2	2
136	Original	6/8/2016	300.82	141	41	165	10	7
137	Original	6/8/2016	1412.11	42	16	53	5	0
138	Original	6/8/2016	948.74	128	25	138	12	3
139	Original	6/8/2016	364.32	114	29	127	11	5

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
140	Original	6/8/2016	336.06	210	65	250	17	8
141	Original	6/12/2016	48.66	550	318	804	41	23
142	Original	6/12/2016	173.04	461	183	567	66	11
143	Original	6/12/2016	645.16	155	48	173	22	8
144	Original	6/12/2016	3355.70	205	88	265	22	6
145	Original	6/12/2016	1557.63	4	2	6	0	0
146	Original	6/8/2016	184.11	208	50	219	30	9
147	Original	6/8/2016	129.26	261	106	311	46	10
148	Original	6/8/2016	109.01	421	149	477	35	58
149	Original	6/8/2016	107.62	287	101	304	43	41
150	Original	6/8/2016	1691.26	10	0	8	2	0
151	Original	6/9/2016	98.88	287	117	398	3	3
152	Original	6/9/2016	186.95	20	9	29	0	0
153	Original	6/9/2016	2137.26	81	16	90	5	2
154	Original	6/9/2016	245.46	232	64	280	13	3
155	Original	6/9/2016	121.19	467	99	544	18	4
156	Original	6/9/2016	4756.24	4	0	3	1	0
157	Original	6/9/2016	174.75	97	26	109	13	1
158	Original	6/9/2016	409.31	106	23	113	16	0
159	Original	6/9/2016	635.98	51	7	49	9	0
160	Original	6/9/2016	642.39	37	10	40	6	1
161	Original	6/12/2016	144.35	132	70	186	15	1
162	Original	6/12/2016	1611.91	189	93	259	14	9
163	Original	6/12/2016	22.80	459	258	655	32	30
164	Original	6/12/2016	652.08	32	9	41	0	0
165	Original	6/12/2016	100.89	338	206	491	42	11
166	Original	6/11/2016	44.51	322	207	490	33	6
167	Original	6/11/2016	893.61	280	185	442	19	4
168	Original	6/11/2016	101.84	326	162	443	29	16
169	Original	6/11/2016	517.62	99	42	125	16	0
170	Original	6/11/2016	762.34	334	192	486	40	0
171	Original	6/10/2016	269.05	61	17	70	4	4
172	Original	6/10/2016	387.82	114	33	136	7	4
173	Original	6/10/2016	3011.74	39	14	51	2	0
174	Original	6/10/2016	1245.25	71	17	77	7	4
175	Original	6/10/2016	1128.81	17	6	19	4	0
Totals				12619	5166	16431	899	455

Appendix A. Observation Site Form 2016

Iowa Seat Belt Survey
Observation Site Form

Data Collector ID# _____ **Date:** _____ / _____ **2016**

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 2016

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