



Iowa Seat Belt Use Survey 2014 Data Collection Methodology Report

September 25, 2014

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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 Survey & Behavioral Research Services (SBRS) 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 was approved by NHTSA on March 19, 2012.

2014 Data Collection

The Iowa GTSB has contracted with SBRS 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 contacts at SBRS are Shirley Huck, Assistant Director, and Janice Larson, Survey Unit Director. The SBRS Project Manager for 2014 is Jody Fox. This report describes the data collection process for obtaining 2014 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 2014 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. SBRS 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.

Some sites originally selected for the Iowa Seat Belt Survey were replaced. The sites observed in 2014 were identical to those observed in 2013 with one exception. One site had been replaced in 2013 due to road construction, and that site reverted to the original 2012 location in 2014. No new alternate sites were needed in 2014.

Materials Preparation.

After the 75 sites were finalized, SBRS staff reviewed observation forms from 2012 and 2013 and examined sites on maps and Google Earth to identify likely 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. As noted above, one site that used an alternate location in 2013 due to road construction reverted back to the original sampled site for 2014. SBRS 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. SBRS 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, responsible for 3-4 counties each. Three of the four data collectors were experienced, having worked as data collectors for the project in the past. One additional person served as a Quality Control Monitor/back up Data Collector, who had also fulfilled that role in 2013. The project manager served as a second Quality Control Monitor.

The two day Data Collector and QC Monitor training was held at SBRS facilities on June 16-17, 2014, with field data collection beginning on June 18, 2014. 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. Data collectors also received roadside safety training from Steven Struble, Interim Safety Circuit Rider at Iowa State University's Institute for Transportation. The training syllabus is shown in Figure 1.

The QC Monitor, who was experienced, received refresher training focusing on 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 Monitor 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 also had a flashing yellow light to put on his/her car and a clicker-counter and stop watch to use as needed. Large “Road Work Ahead” signs were provided for use in high speed areas as appropriate.

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. As an experiment, the 2014 Observation Tally Form also included a place to indicate whether the vehicle was a car or pick-up truck.

Figure 1.

Seat Belt Data Collectors 2014 Training Agenda	
<u>Day 1</u>	
Seat Belt Survey Overview	Study Design
	NHTSA Requirements
	Data Collection Requirements
	Definitions of terms
Data Collection Procedures	Assignments & Rescheduling
Site Locations	Low/High volume roadways
	Locating assigned sites
	Site assignment sheets & maps
Data Collection	Data Collection forms
	Recording alternate site information
	Traffic Counts
	Recording observations
Sites on Google Earth	
Safety and Security – Steve Struble, InTrans	Signage and visibility
	Roadway safety
<u>Day 2:</u>	
Quality Control and QC monitors	
Timesheets and expense reports	
Field Practice	Setting up road work signs
	Interstate overpass observations
	County Road observations
	Street observations
Debriefing	

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.

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 2014 data collection, no new alternate sites were used.

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. One observation period on Sunday, June 22 was rescheduled and conducted on Sunday, June 29 due to heavy rain. Two other observation periods experienced rain delays of about 20 minutes but were still completed on the assigned days and approximate times.

Results

Data collection for 2014 occurred primarily from Wednesday, June 18, through Tuesday, June 24, 2014, with one rescheduled observation on Sunday, June 29. The 2014 seat belt use data collection resulted in the observation of **12,692 passenger vehicles**, with a right front seat passenger in 4,876 of those vehicles, for a total of **17,568 potential observations** of belt use. Of these 17,568 potential observations, there were 11,733 drivers and 4,380 right front passengers who were observed to be wearing seat belts (total 16,113 seat belt users). Seat belts were not worn by 657 drivers and 318 right front passengers (total 975 unbelted). Data collectors were unable to observe the seat belt use of 302 drivers and 178 passengers (total 480 unknown use). The unknown use, or **“nonresponse rate,” is .0273 or 2.73%**. This is well within the range allowed by federal regulations, which require the nonresponse rate to be below 10%. Data collectors were unable to consistently record whether each observed vehicle was a car or pick-up. At sites with lower usage, the information was easily recorded; but at busier sites it was simply not possible. As a result, information regarding belt use in cars vs. pick-ups is not included in this report.

The number of observations in 2014 is very similar to 2013. The number of cars observed is slightly lower, but the number of right front passengers is higher, resulting in a slightly larger number of total

observations (17,568 compared to 17,261). Federal regulations require a minimum of 7500 observations, and the 2014 total of 12,692 passenger vehicles with 17,568 observed occupants far exceeds the minimum. Each data collector was observed by a quality control monitor at two unannounced sites to ensure compliance with project protocols. This comprises 10.7% of the sites (8 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. Based on the weighted data, **Iowa's overall seat belt use rate is 92.80%**, with an estimated standard error of 0.0061 ($\pm 1\%$). This is a very slight increase from the 2013 seat belt use rate of 91.86%. This increase is not statistically significant.

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 total does not equal the weighted Iowa seat belt use required by federal regulations. 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. 2014 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	9:56 AM	127	120	68	54
2	Black Hawk	19553	Wagner Rd	Local	Sun	11:00 AM	19	14	10	9
3	Black Hawk	20423	W 4th St	Secondary	Sun	12:15 PM	111	97	46	42
4	Black Hawk	14934	US 20	Secondary	Sun	2:09 PM	439	369	219	188
5	Black Hawk	14766	I-380/Hwy 27	Primary	Sun	4:41 PM	290	259	163	145
6	Grundy	104904	IA 57/110th	Secondary	Thurs	10:57 AM	54	45	12	10
7	Grundy	309294	US 20	Secondary	Thurs	12:30 PM	176	156	77	69
8	Grundy	104906	Hwy 175/240th St	Secondary	Thurs	2:31 PM	29	24	10	9
9	Grundy	104947	Hwy 175/260th/Grundy Ave	Secondary	Thurs	4:02 PM	66	58	12	9
10	Grundy	105710	Blackhawk St	Local	Thurs	5:12 PM	37	28	2	2
11	Hardin	113806	US-65	Secondary	Wed	8:32 AM	42	34	11	9
12	Hardin	115349	Washington Ave/Old US 20	Local	Wed	9:41 AM	146	132	42	37
13	Hardin	113774	US-65	Secondary	Wed	11:10 AM	107	95	33	24
14	Hardin	317413	US-20	Secondary	Wed	1:09 PM	140	130	55	50
15	Hardin	332704	E Main St	Local	Wed	2:24 PM	10	7	3	2
16	Howard	123235	US 63	Secondary	Mon	10:28 AM	66	59	24	21
17	Howard	123337	IA 9	Secondary	Mon	11:33 AM	70	60	23	20
18	Howard	123901	N Elm St	Local	Mon	1:16 PM	76	65	20	18
19	Howard	123646	Oak Ave	Local	Mon	3:00 PM	1	1	0	0
20	Howard	123218	US 63	Secondary	Mon	5:04 PM	73	64	34	29
21	Iowa	128308	IA 212/Western Ave	Secondary	Mon	7:45 AM	61	49	4	4
22	Iowa	128184	I-80	Primary	Mon	9:10 AM	313	308	141	131
23	Iowa	128231	I-80	Primary	Mon	10:45 AM	240	236	133	126
24	Iowa	128805	U Ave	Local	Mon	12:45 PM	5	5	1	1
25	Iowa	128271	I-80	Primary	Mon	2:00 PM	349	347	176	167
26	Johnson	142458	Co Rd F28/ Mehaffey Bridge Rd	Local	Satur	9:15 AM	113	113	45	45
27	Johnson	140584	I 80	Primary	Satur	10:30 AM	321	321	211	200
28	Johnson	140747	I 80	Primary	Satur	12:00 PM	369	367	214	208
29	Johnson	143552	N Dubuque St	Secondary	Satur	2:00 PM	109	104	50	50
30	Johnson	141004	US 218/IA 27	Secondary	Satur	3:30 PM	314	309	139	132
31	Linn	160569	Co Rd D62/Coggon Rd	Local	Fri	11:15 AM	36	35	11	9
32	Linn	158613	I 380/Hwy 27	Primary	Fri	12:45 PM	318	313	127	120
33	Linn	164085	Center Point Rd	Secondary	Fri	2:00 PM	147	143	38	34
34	Linn	161809	32nd St, NE, Cedar Rapids	Secondary	Fri	3:10 PM	312	302	61	58
35	Linn	166008	16th Ave SW	Secondary	Fri	5:00 PM	97	94	28	26
36	Marion	180068	IA 163	Secondary	Satur	11:30 AM	150	131	81	73
37	Marion	180790	Co Rd G28/Washington St	Local	Satur	1:10 PM	63	55	29	26
38	Marion	181891	S Clark St	Local	Satur	3:45 PM	57	49	16	15
39	Marion	179982	IA 92	Secondary	Satur	2:30 PM	73	68	40	34
40	Marion	179837	IA 5	Secondary	Satur	5:10 PM	235	208	118	94
41	Polk	215201	I 35	Primary	Tues	8:53 AM	350	310	119	107
42	Polk	215390	I 235	Primary	Tues	1:03 PM	753	709	191	176
43	Polk	216760	IA 141	Secondary	Tues	10:24 AM	309	285	82	74
44	Polk	227016	University Ave	Secondary	Tues	2:41 PM	283	268	77	73
45	Polk	226230	109th St	Local	Tues	3:45 PM	171	154	8	6
46	Pottawattamie	229603	W Broadway	Secondary	Wed	1:15 PM	208	183	56	41
47	Pottawattamie	229207	I 80	Primary	Wed	5:50 PM	210	195	121	108
48	Pottawattamie	229164	I 80	Primary	Wed	2:30 PM	606	546	230	212
49	Pottawattamie	334415	I 29	Primary	Wed	4:35 PM	416	381	126	116
50	Pottawattamie	233075	S 10th St	Local	Wed	11:38 AM	20	19	10	5
51	Scott	242971	I 80	Primary	Tues	8:30 AM	236	232	114	108
52	Scott	243108	I 80	Primary	Tues	10:00 AM	22	22	14	14
53	Scott	248805	Valley Dr	Local	Tues	11:15 AM	70	68	11	10
54	Scott	247785	Eastern Ave	Secondary	Tues	1:15 PM	230	218	61	55
55	Scott	246517	E 53rd St	Secondary	Tues	2:15 PM	363	348	87	82
56	Shelby	249972	Co Rd F58	Local	Thurs	7:21 AM	6	4	0	0
57	Shelby	249594	US 59	Secondary	Thurs	11:30 AM	78	65	18	15
58	Shelby	250675	12th St/Linden Rd	Secondary	Thurs	10:52 AM	121	101	23	18
59	Shelby	250640	19th St	Local	Thurs	10:00 AM	49	42	13	10
60	Shelby	249736	IA-44/1000th St	Secondary	Thurs	12:41 PM	37	29	7	7
61	Story	257296	Lincoln Way	Secondary	Thurs	9:11 AM	156	137	40	30
62	Story	257855	University Blvd	Secondary	Thurs	10:25 AM	135	109	19	11
63	Story	255469	I-35	Primary	Thurs	11:45 AM	400	357	143	119
64	Story	256910	Co Rd E29/190th St	Local	Thurs	1:50 PM	44	41	4	3
65	Story	255562	I-35	Primary	Thurs	3:00 PM	369	346	151	128
66	Warren	273908	I-35	Primary	Sun	9:17 AM	253	239	166	150
67	Warren	334871	I-35	Primary	Sun	8:03 AM	136	128	79	71
68	Warren	274137	US 65/69	Secondary	Sun	1:15 PM	226	211	119	103
69	Warren	275330	S 5th St	Local	Sun	11:54 AM	58	53	25	18
70	Warren	311642	IA-5	Secondary	Sun	2:24 PM	267	257	152	137
71	Webster	283076	IA 7/190th St	Secondary	Mon	2:00 PM	59	52	11	9
72	Webster	283806	Old Hwy 20/ Co D20	Secondary	Mon	12:45 PM	95	80	23	20
73	Webster	311763	2nd Ave N	Secondary	Mon	11:20 AM	144	123	39	34
74	Webster	283683	Co D20/200th St	Local	Mon	10:17 AM	39	35	5	5
75	Webster	283317	Co P70/Taylor Ave	Local	Mon	8:20 AM	12	12	5	5
TOTALS							12692	11733	4876	4380

Table 2. 2014 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	986	859	57	70	506	438	30	38	1492	1297	87	108
Grundy	362	311	34	17	113	99	4	10	475	410	38	27
Hardin	445	398	32	15	144	122	10	12	589	520	42	27
Howard	286	249	22	15	101	88	5	8	387	337	27	23
Iowa	968	945	15	8	455	429	23	3	1423	1374	38	11
Johnson	1226	1214	7	5	659	635	20	4	1885	1849	27	9
Linn	910	887	21	2	265	247	17	1	1175	1134	38	3
Marion	578	511	37	30	284	242	16	26	862	753	53	56
Polk	1866	1726	92	48	477	436	27	14	2343	2162	119	62
Pottawattamie	1460	1324	121	15	543	482	49	12	2003	1806	170	27
Scott	921	888	25	8	287	269	12	6	1208	1157	37	14
Shelby	291	241	39	11	61	50	9	2	352	291	48	13
Story	1104	990	83	31	357	291	37	29	1461	1281	120	60
Warren	940	888	37	15	541	479	50	12	1481	1367	87	27
Webster	349	302	35	12	83	73	9	1	432	375	44	13
Total	12692	11733	657	302	4876	4380	318	178	17568	16113	975	480

Table 3. 2014 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
Black Hawk	87.1%	93.8%	86.6%	93.6%	86.9%	93.7%
Grundy	85.9%	90.1%	87.6%	96.1%	86.3%	91.5%
Hardin	89.4%	92.6%	84.7%	92.4%	88.3%	92.5%
Howard	87.1%	91.9%	87.1%	94.6%	87.1%	92.6%
Iowa	97.6%	98.4%	94.3%	94.9%	96.6%	97.3%
Johnson	99.0%	99.4%	96.4%	96.9%	98.1%	98.6%
Linn	97.5%	97.7%	93.2%	93.6%	96.5%	96.8%
Marion	88.4%	93.2%	85.2%	93.8%	87.4%	93.4%
Polk	92.5%	94.9%	91.4%	94.2%	92.3%	94.8%
Pottawattamie	90.7%	91.6%	88.8%	90.8%	90.2%	91.4%
Scott	96.4%	97.3%	93.7%	95.7%	95.8%	96.9%
Shelby	82.8%	86.1%	82.0%	84.7%	82.7%	85.8%
Story	89.7%	92.3%	81.5%	88.7%	87.7%	91.4%
Warren	94.5%	96.0%	88.5%	90.5%	92.3%	94.0%
Webster	86.5%	89.6%	88.0%	89.0%	86.8%	89.5%
Total	92.4%	94.7%	89.8%	93.2%	91.7%	94.3%

Table 4. 2014 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	1032	932	78	22	260	226	25	9	1292	1158	103	31
Primary	5951	5616	230	105	2619	2406	153	60	8570	8022	383	165
Secondary	5709	5185	349	175	1997	1748	140	109	7706	6933	489	284
TOTAL	12692	11733	657	302	4876	4380	318	178	17568	16113	975	480

Table 5. 2014 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	90.3%	92.3%	86.9%	90.0%	89.6%	91.8%
Primary	94.4%	96.1%	91.9%	94.0%	93.6%	95.4%
Secondary	90.8%	93.7%	87.5%	92.6%	90.0%	93.4%
TOTAL	92.4%	94.7%	89.8%	93.2%	91.7%	94.3%

Table 6. 2014 Driver and Passenger Seat Belt Use by Day of Week and Road Type (n & unweighted %)

	Drivers Belted	Total Drivers	Passengers Belted	Total Passengers	% of Drivers Belted	% of Passengers Belted
Sunday	1747	1926	917	1047	90.7%	87.6%
Local	67	77	27	35	87.0%	77.1%
Primary	626	679	366	408	92.2%	89.7%
Secondary	1054	1170	524	604	90.1%	86.8%
Monday	1496	1603	590	639	93.3%	92.3%
Local	118	133	29	31	88.7%	93.5%
Primary	891	902	424	450	98.8%	94.2%
Secondary	487	568	137	158	85.7%	86.7%
Tuesday	2614	2787	705	764	93.8%	92.3%
Local	222	241	16	19	92.1%	84.2%
Primary	1273	1361	405	438	93.5%	92.5%
Secondary	1119	1185	284	307	94.4%	92.5%
Wednesday	1722	1905	604	687	90.4%	87.9%
Local	158	176	44	55	89.8%	80.0%
Primary	1122	1232	436	477	91.1%	91.4%
Secondary	442	497	124	155	88.9%	80.0%
Thursday	1542	1757	440	531	87.8%	82.9%
Local	115	136	15	19	84.6%	78.9%
Primary	703	769	247	294	91.4%	84.0%
Secondary	724	852	178	218	85.0%	81.7%
Friday	887	910	247	265	97.5%	93.2%
Local	35	36	9	11	97.2%	81.8%
Primary	313	318	120	127	98.4%	94.5%
Secondary	539	556	118	127	96.9%	92.9%
Saturday	1725	1804	877	943	95.6%	93.0%
Local	217	233	86	90	93.1%	95.6%
Primary	688	690	408	425	99.7%	96.0%
Secondary	820	881	383	428	93.1%	89.5%
Total	11733	12692	4380	4876	92.4%	89.8%

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	% of Drivers Belted	% of Passengers Belted
7AM to 759 AM	20	26	1	1	76.92%	100.00%
Local	4	6	0	0	66.67%	---
Secondary	16	20	1	1	80.00%	100.00%
8AM to 859 AM	439	467	196	212	94.00%	92.45%
Local	12	12	5	5	100.00%	100.00%
Primary	360	372	179	193	96.77%	92.75%
Secondary	67	83	12	14	80.72%	85.71%
9AM to 959AM	1107	1185	463	511	93.42%	90.61%
Local	113	113	45	45	100.00%	100.00%
Primary	857	916	388	426	93.56%	91.08%
Secondary	137	156	30	40	87.82%	75.00%
10AM to 1059AM	1125	1214	426	478	92.67%	89.12%
Local	209	234	52	60	89.32%	86.67%
Primary	343	343	214	225	100.00%	95.11%
Secondary	573	637	160	193	89.95%	82.90%
11AM to 1159AM	973	1089	348	394	89.35%	88.32%
Local	117	125	28	32	93.60%	87.50%
Primary	236	240	126	133	98.33%	94.74%
Secondary	620	724	194	229	85.64%	84.72%
12PM to 1259PM	1049	1134	461	515	92.50%	89.51%
Local	72	78	23	35	92.31%	65.71%
Primary	724	769	327	357	94.15%	91.60%
Secondary	253	287	111	123	88.15%	90.24%
1PM to 159PM	1998	2151	617	689	92.89%	89.55%
Local	125	144	45	50	86.81%	90.00%
Primary	1022	1071	296	318	95.42%	93.08%
Secondary	851	936	276	321	90.92%	85.98%
2PM to 259PM	1937	2056	739	801	94.21%	92.26%
Local	48	54	5	7	88.89%	71.43%
Primary	893	955	379	406	93.51%	93.35%
Secondary	996	1047	355	388	95.13%	91.49%
3PM to 359PM	1595	1718	579	647	92.84%	89.49%
Local	1	1	0	0	100.00%	NA
Primary	346	369	128	151	93.77%	84.77%
Secondary	1248	1348	451	496	92.58%	90.93%
4PM to 459PM	901	1000	291	325	90.10%	89.54%
Local	203	228	21	24	89.04%	87.50%
Primary	640	706	261	289	90.65%	90.31%
Secondary	58	66	9	12	87.88%	75.00%
5PM to 559PM	589	652	259	303	90.34%	85.48%
Local	28	37	2	2	75.68%	100.00%
Primary	195	210	108	121	92.86%	89.26%
Secondary	366	405	149	180	90.37%	82.78%
Grand Total	11733	12692	4380	4876	92.44%	89.83%

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	6/22/14	193.41	127	68	174	12	9
102	Original	6/22/14	479.81	19	10	23	4	2
103	Original	6/29/14	586.13	111	46	139	12	6
104	Original	6/22/14	98.93	439	219	557	40	61
105	Alternate	6/22/14	26.78	290	163	404	19	30
106	Original	6/19/14	355.30	54	12	55	6	5
107	Original	6/19/14	73.58	176	77	225	15	13
108	Original	6/19/14	585.00	29	10	33	3	3
109	Original	6/19/14	3433.68	66	12	67	7	4
110	Original	6/19/14	11996.92	37	2	30	7	2
111	Original	6/18/14	522.63	42	11	43	6	4
112	Original	6/18/14	1191.72	146	42	169	13	6
113	Original	6/18/14	138.30	107	33	119	11	10
114	Original	6/18/14	112.08	140	55	180	8	7
115	Alternate	6/18/14	15849.14	10	3	9	4	0
116	Original	6/23/14	237.70	66	24	80	5	5
117	Original	6/23/14	217.46	70	23	80	6	7
118	Original	6/23/14	1266.66	76	20	83	9	4
119	Original	6/23/14	3435.69	1	0	1	0	0
120	Original	6/23/14	3026.32	73	34	93	7	7
121	Original	6/23/14	2179.21	61	4	53	9	3
122	Original	6/23/14	366.90	313	141	439	12	3
123	Original	6/23/14	207.00	240	133	362	8	3
124	Original	6/23/14	3065.24	5	1	6	0	0
125	Original	6/23/14	30.88	349	176	514	9	2
126	Original	6/21/14	394.31	113	45	158	0	0
127	Original	6/21/14	279.68	321	211	521	11	0
128	Original	6/21/14	37.27	369	214	575	4	4
129	Original	6/21/14	1396.63	109	50	154	4	1
130	Original	6/21/14	47.33	314	139	441	8	4
131	Original	6/20/14	1798.56	36	11	44	3	0
132	Original	6/20/14	89.02	318	127	433	10	2
133	Alternate	6/20/14	207.73	147	38	177	8	0
134	Original	6/20/14	134.79	312	61	360	13	0
135	Original	6/20/14	2150.54	97	28	120	4	1
136	Original	6/21/14	300.82	150	81	204	12	15
137	Original	6/21/14	1412.11	63	29	81	3	8
138	Original	6/21/14	948.74	57	16	64	7	2
139	Original	6/21/14	364.32	73	40	102	6	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	6/21/14	336.06	235	118	302	25	26
141	Original	6/24/14	48.66	350	119	417	27	25
142	Alternate	6/24/14	173.04	753	191	885	40	19
143	Original	6/24/14	645.16	309	82	359	17	15
144	Original	6/24/14	3355.70	283	77	341	18	1
145	Original	6/24/14	1557.63	171	8	160	17	2
146	Original	6/18/14	184.11	208	56	224	34	6
147	Original	6/18/14	129.26	210	121	303	22	6
148	Alternate	6/18/14	109.01	606	230	758	67	11
149	Alternate	6/18/14	107.62	416	126	497	41	4
150	Alternate	6/18/14	1691.26	20	10	24	6	0
151	Original	6/24/14	98.88	236	114	340	7	3
152	Original	6/24/14	186.95	22	14	36	0	0
153	Original	6/24/14	2137.26	70	11	78	3	0
154	Original	6/24/14	245.46	230	61	273	14	4
155	Original	6/24/14	121.19	363	87	430	13	7
156	Original	6/19/14	4756.24	6	0	4	0	2
157	Original	6/19/14	174.75	78	18	80	8	8
158	Original	6/19/14	409.31	121	23	119	23	2
159	Alternate	6/19/14	635.98	49	13	52	10	0
160	Original	6/19/14	642.39	37	7	36	7	1
161	Original	6/19/14	144.35	156	40	167	25	4
162	Original	6/19/14	1611.91	135	19	120	25	9
163	Original	6/19/14	22.80	400	143	476	40	27
164	Original	6/19/14	652.08	44	4	44	2	2
165	Original	6/19/14	100.89	369	151	474	28	18
166	Original	6/22/14	44.51	253	166	389	24	6
167	Original	6/22/14	893.61	136	79	199	14	2
168	Original	6/22/14	101.84	226	119	314	20	11
169	Original	6/22/14	517.62	58	25	71	12	0
170	Original	6/22/14	762.34	267	152	394	17	8
171	Original	6/23/14	269.05	59	11	61	5	4
172	Original	6/23/14	387.82	95	23	100	14	4
173	Original	6/23/14	3011.74	144	39	157	22	4
174	Original	6/23/14	1245.25	39	5	40	3	1
175	Original	6/23/14	1128.81	12	5	17	0	0
TOTALS				12692	4876	16113	975	480

Appendix A. Observation Site Form

Iowa Seat Belt Survey
Observation Site Form

Data Collector ID# _____

Date: ____ / ____ / 2014

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

Iowa Seat Belt Survey – Observation Form

County _____
 County Site # _____
 Segment ID # _____

Page ___ of ___

Data Collector ID # _____

Responses: Y = yes; N = no; U = unknown; NP = no passenger; C = car, SUV, mini-van; T = pick-up

Veh #	Driver Seatbelt Use			Passenger Seatbelt Use				Car/Pick-up	
	Y	N	U	Y	N	U	NP	C	T
1	Y	N	U	Y	N	U	NP	C	T
2	Y	N	U	Y	N	U	NP	C	T
3	Y	N	U	Y	N	U	NP	C	T
4	Y	N	U	Y	N	U	NP	C	T
5	Y	N	U	Y	N	U	NP	C	T
6	Y	N	U	Y	N	U	NP	C	T
7	Y	N	U	Y	N	U	NP	C	T
8	Y	N	U	Y	N	U	NP	C	T
9	Y	N	U	Y	N	U	NP	C	T
10	Y	N	U	Y	N	U	NP	C	T
11	Y	N	U	Y	N	U	NP	C	T
12	Y	N	U	Y	N	U	NP	C	T
13	Y	N	U	Y	N	U	NP	C	T
14	Y	N	U	Y	N	U	NP	C	T
15	Y	N	U	Y	N	U	NP	C	T
16	Y	N	U	Y	N	U	NP	C	T
17	Y	N	U	Y	N	U	NP	C	T
18	Y	N	U	Y	N	U	NP	C	T
19	Y	N	U	Y	N	U	NP	C	T
20	Y	N	U	Y	N	U	NP	C	T
21	Y	N	U	Y	N	U	NP	C	T
22	Y	N	U	Y	N	U	NP	C	T
23	Y	N	U	Y	N	U	NP	C	T
24	Y	N	U	Y	N	U	NP	C	T
25	Y	N	U	Y	N	U	NP	C	T
26	Y	N	U	Y	N	U	NP	C	T
27	Y	N	U	Y	N	U	NP	C	T
28	Y	N	U	Y	N	U	NP	C	T
29	Y	N	U	Y	N	U	NP	C	T
30	Y	N	U	Y	N	U	NP	C	T
31	Y	N	U	Y	N	U	NP	C	T
32	Y	N	U	Y	N	U	NP	C	T
33	Y	N	U	Y	N	U	NP	C	T
34	Y	N	U	Y	N	U	NP	C	T
35	Y	N	U	Y	N	U	NP	C	T
36	Y	N	U	Y	N	U	NP	C	T
37	Y	N	U	Y	N	U	NP	C	T
38	Y	N	U	Y	N	U	NP	C	T
39	Y	N	U	Y	N	U	NP	C	T
40	Y	N	U	Y	N	U	NP	C	T

Veh #	Driver Seatbelt Use			Passenger Seatbelt Use				Car/Pick-up	
	Y	N	U	Y	N	U	NP	C	T
41	Y	N	U	Y	N	U	NP	C	T
42	Y	N	U	Y	N	U	NP	C	T
43	Y	N	U	Y	N	U	NP	C	T
44	Y	N	U	Y	N	U	NP	C	T
45	Y	N	U	Y	N	U	NP	C	T
46	Y	N	U	Y	N	U	NP	C	T
47	Y	N	U	Y	N	U	NP	C	T
48	Y	N	U	Y	N	U	NP	C	T
49	Y	N	U	Y	N	U	NP	C	T
50	Y	N	U	Y	N	U	NP	C	T
51	Y	N	U	Y	N	U	NP	C	T
52	Y	N	U	Y	N	U	NP	C	T
53	Y	N	U	Y	N	U	NP	C	T
54	Y	N	U	Y	N	U	NP	C	T
55	Y	N	U	Y	N	U	NP	C	T
56	Y	N	U	Y	N	U	NP	C	T
57	Y	N	U	Y	N	U	NP	C	T
58	Y	N	U	Y	N	U	NP	C	T
59	Y	N	U	Y	N	U	NP	C	T
60	Y	N	U	Y	N	U	NP	C	T
61	Y	N	U	Y	N	U	NP	C	T
62	Y	N	U	Y	N	U	NP	C	T
63	Y	N	U	Y	N	U	NP	C	T
64	Y	N	U	Y	N	U	NP	C	T
65	Y	N	U	Y	N	U	NP	C	T
66	Y	N	U	Y	N	U	NP	C	T
67	Y	N	U	Y	N	U	NP	C	T
68	Y	N	U	Y	N	U	NP	C	T
69	Y	N	U	Y	N	U	NP	C	T
70	Y	N	U	Y	N	U	NP	C	T
71	Y	N	U	Y	N	U	NP	C	T
72	Y	N	U	Y	N	U	NP	C	T
73	Y	N	U	Y	N	U	NP	C	T
74	Y	N	U	Y	N	U	NP	C	T
75	Y	N	U	Y	N	U	NP	C	T
76	Y	N	U	Y	N	U	NP	C	T
77	Y	N	U	Y	N	U	NP	C	T
78	Y	N	U	Y	N	U	NP	C	T
79	Y	N	U	Y	N	U	NP	C	T
80	Y	N	U	Y	N	U	NP	C	T