

Iowa Child Passenger Safety Survey 2016

***Conducted by the
University of Iowa Injury Prevention Research Center
Under contract to Iowa Governor's Traffic Safety Bureau***

Background

Since 1985, Iowa has had a law requiring all young children riding in motor vehicles to be properly protected through the use of child seats, booster seats, and/or seat belts. In 2004 and again in 2009, the Iowa Legislature revised the requirements of our child passenger safety law. Iowa's current child passenger safety law requires that:

<i>Children must ride in an appropriate rear-facing child safety seat until one year of age and at least 20 pounds.</i>
<i>Children must ride in a child safety seat or a booster seat through the age of 5 years.</i>
<i>Children ages 6 through 17 must ride in a booster seat and/or seat belt.</i>

In order to measure compliance with the law and to direct educational efforts, observational child restraint usage surveys have been conducted annually since 1988. The surveys are funded by the Governor's Traffic Safety Bureau (GTSB) within the Iowa Department of Public Safety. The GTSB has contracted with The University of Iowa Injury Prevention Research Center (UI IPRC) to conduct these child passenger safety surveys since 1996.

Introduction

In an effort to accurately determine compliance with Iowa's child passenger safety law, in particular the requirement for use of booster seats, observers must be able to obtain a clear view into the vehicle. Starting with the 2005 survey, the basic protocol was changed from the previous "drive-by" observational methodology to a more "in-person" approach. The original survey design had not been updated since the 1980s, so the entire Iowa Child Passenger Restraint Survey protocol was also reassessed to ensure statistically valid representation of Iowa's total population mix. A workgroup consisting of UI IPRC faculty and staff and colleagues from the GTSB and Blank Children's Hospital was convened in early 2005 and charged with redesigning the survey methodology.

Researchers determined that to best represent Iowa's population the survey needed to be conducted in 36 communities across the state ranging in size from 1,408 persons in Wellman to Des Moines with 203,433 persons. Figure 1 identifies the communities on a map of Iowa. The list of communities, their size range, and the number of children needing to be observed at each location is listed in Table 1. Note that as a result of the 2010 Census, the town of Hawarden's population increased to 2,546 thus bumping them into the second tier of community size and increasing their sample size from 50 to 75 observations. The workgroup decided that the survey would best be implemented at sites such as gas stations or fast food restaurants where the surveyor could approach the motor vehicle and quickly collect the desired information. The protocol calls for a well-identified surveyor to position themselves where they can see vehicles pull up carrying passengers who appear to be up to seventeen years of age. The surveyor approaches the vehicle and politely asks the driver if they would be willing to participate in a child and youth passenger safety survey. If the driver agrees, the surveyor confirms the age of

the passenger(s) in the vehicle and quickly notes restraint use. No identifying information is collected (e.g. names or license plate numbers). The surveyor thanks the occupants and offers the adult a card describing Iowa's child passenger safety law and identifying who to contact for additional information.

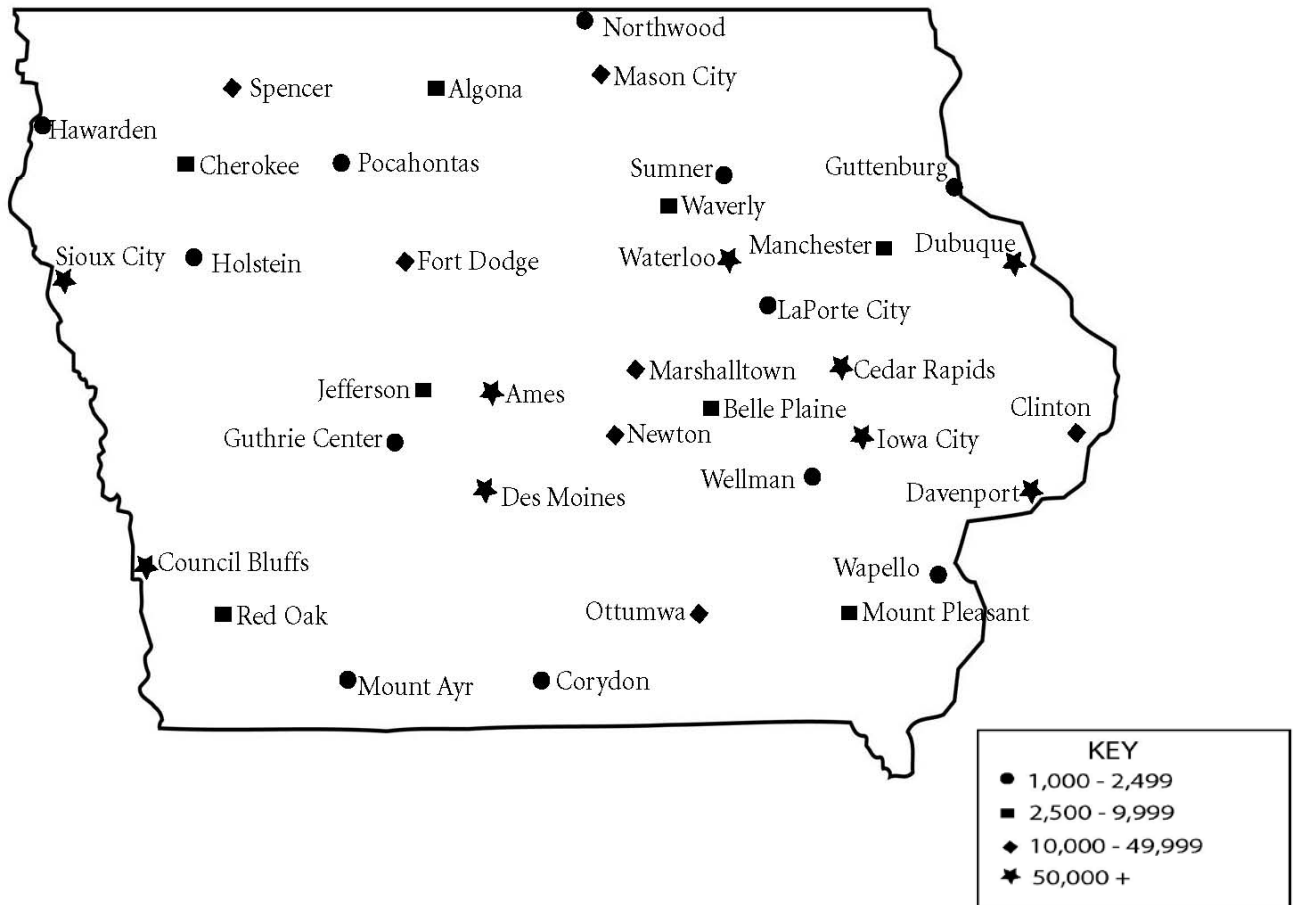


Figure 1. 2016 Iowa Child Passenger Survey Locations

Table 1. Iowa Child Passenger Restraint Survey Locations, 2016

Communities 1,000 – 2,499 Minimum of 50 kids observed at each location	1. Corydon 2. Guthrie Center 3. Guttenberg 4. Holstein 5. Laporte City 6. Mount Ayr 7. Northwood 8. Pocahontas 9. Sumner 10. Wapello 11. Wellman
Communities 2,500 – 9,999 Minimum of 75 kids observed at each location	1. Algona 2. Belle Plaine 3. Cherokee 4. Hawarden 5. Jefferson 6. Manchester 7. Mount Pleasant 8. Red Oak 9. Waverly
Communities 10,000 – 49,999 Minimum of 100 observed kids at each location	1. Clinton 2. Fort Dodge 3. Marshalltown 4. Mason City 5. Newton 6. Ottumwa 7. Spencer
Communities 50,000+ Minimum of 125 observed kids at each location	1. Ames 2. Cedar Rapids 3. Council Bluffs 4. Davenport 5. Des Moines 6. Dubuque 7. Iowa City 8. Sioux City 9. Waterloo

The IPRC hired three temporary, part-time surveyors and trained them in proper survey protocol. The survey was then carried out across the state during the months of May through August, 2016. A total of 3,051 children and youth from birth through age seventeen were observed. Table 2 lists the number of infants (< 2 yr.), toddlers (2-5 yrs.), youth (6-13 yrs.), and teens (14-17) included in the survey.

Table 2. Number of Children Observed by Age

Age	Number of Children Observed / Percent
< 2	243 / 8.0%
2-5	909 / 29.8%
6-13	1417 / 46.5%
14-17	480 / 15.7%
Total	3,049* / 100%

**2 missing*

Table 3 identifies the number of restrained vs. unrestrained passengers in each age range (regardless of whether the type of restraint use was appropriate for the child's age). From this information it is clear that lowans understand the importance of securing infants in child safety seats, with over 99% of children age one year or younger being properly restrained. (Note that "properly restrained" means observing proper use of a child safety seat secured by the vehicle's seat belt. More technical measures of correct restraint use typically checked in a child seat clinic, e.g. belt tightness, were not evaluated.) While the majority of all children are being restrained in motor vehicles, as the child's age increases they are less likely to be restrained ($p < 0.01$). Ninety-eight percent of toddlers, 93% of the youth, and 84% of teens were restrained. Overall, 93.3% of all children observed were restrained; down slightly from the 2015 survey total of 93.8%.

Table 3. Restraint Use by Child's Age

Age	Not Restrained Number / Percent	Restrained Number / Percent	Total
< 2	1 / 0.4%	242 / 99.6%	243
2-5	23 / 2.5%	886 / 97.5%	909
6-13	101 / 7.1%	1316 / 92.9%	1417
14-17	79 / 16.5%	401 / 83.5%	480
Total	204 / 6.7%	2845 / 93.3%	3049*

**2 missing*

The numbers contained in Table 3 for each age group represent children who were restrained by any means including a seatbelt alone, which for infants and toddlers is neither safe nor legal under Iowa's Child Passenger Safety law. Table 4 displays type of restraint use by age of the child. Of the 909 toddlers observed, 44 (4.8%) were restrained only by a seatbelt, which is an improvement from 2015 (5.5%) and much decreased from 2012-2013. This improvement is encouraging and reflects that lowans are understanding the importance of using booster seats. If Iowa's statewide restraint use is re-calculated without including the improperly restrained children, the statewide average drops from 93.3% to 91.9%.

Table 4. Type of Restraint Use by Child's Age

Age	Child Safety Seat with Seatbelt	Booster Seat with Seatbelt	Seatbelt only	Not Restrained	Total
< 2	242 / 98.9%	0 / 0.0%	0 / 0.0%	1 / 0.4%	243
2-5	403 / 44.3%	439 / 48.3%	44 / 4.8%	23 / 2.5%	909
6-13	3 / 0.2%	263 / 18.6%	1046 / 74.0%	101 / 7.2%	1413
14-17	0 / 0.0%	1 / 0.2%	398 / 83.3%	79 / 16.5%	478
Total	648 / 21.3%	703 / 23.1%	1488 / 48.9%	204 / 6.7%	3043*

*8 missing restraint use data

The trend in previous observational surveys of restraint use in Iowa has been that persons in the metropolitan areas restrain their children at a higher rate than those in the rural communities. As displayed in Table 5, this remained true in the 2016 survey. In the most rural communities (1,000-2,499) 91.1% of the children were restrained by some means compared to 95.5% in the urban areas. The same relationship holds true when rates of properly (i.e., legally) restrained children are compared across small towns (88.2%) and cities (93.2%).

Table 5. Restraint Use by Community Size

Community Size	Number / % Restrained (by any means)	Number / % Restrained Properly*	Number / % Not Restrained	Total
1,000-2,499	502 / 91.1%	485 / 88.2%	49 / 8.9%	551
2,500-9,999	616 / 91.5%	609 / 90.4 %	57 / 8.5%	673
10,000-49,999	652 / 93.1%	650 / 92.9 %	48 / 6.9%	700
≥ 50,000	1071 / 95.5%	1,048 / 93.2 %	50 / 4.5%	1121
Total	2841 / 93.3%	2,816 / 91.7%	204 / 6.7%	3045**

* Properly means in compliance with Iowa law.

**6 missing data

Table 6 displays type of restraint use type by size of the community.

Table 6. Type of Restraint Use by Community Size

Community Size	Child Safety Seat with Seatbelt	Booster Seat with Seatbelt	Seatbelt only	Not Restrained	Total
1,000-2,499	131 / 23.8%	119 / 21.6%	252 / 45.7%	49 / 8.9%	551
2,500-9,999	122 / 18.1%	149 / 22.1%	345 / 51.3%	57 / 8.5%	673
10,000-49,999	136 / 19.4%	165 / 23.6%	351 / 50.1%	48 / 6.9%	700
≥ 50,000	259 / 23.1%	270 / 24.1%	542 / 48.4%	50 / 4.5%	1121
Total	648 / 21.3%	703 / 23.1%	1490 / 48.9%	204 / 6.7%	3045*

*6 missing data

Information on the number of children by age and restraint use observed at each individual location can be found in Table 7 including the number of toddlers restrained by only a seatbelt. Table 8 presents the restraint use as percentages for each location. Table 8 includes the percentage of children restrained by any means and also those children who are restrained in compliance with Iowa's law for each survey location. Table 9 lists the percentage of kids properly restrained sorted by community size.

Table 7. Restraint Use by Child Age and Survey Location, 2016

	Total Kids	Age < 2				Age 2 - 5				Age 6-13				Age 14-17			
		CSS	Booster	Belt	None	CSS	Booster	Belt Only	None	CSS	Booster	Belt Only	None	CSS	Booster	Belt Only	None
Algona	75	6	0	0	0	8	7	0	0	0	9	26	3	0	0	13	13
Ames	125	11	0	0	0	14	17	3	0	0	37	14	2	0	0	25	2
Belle Plaine	75	1	0	0	0	13	4	3	2	0	7	24	11	0	0	6	4
Cedar Rapids	122	5	0	0	0	15	15	1	1	0	12	53	6	0	0	14	0
Cherokee	75	5	0	0	0	9	13	2	1	0	9	24	0	0	0	11	1
Clinton	100	9	0	0	0	17	16	1	1	0	12	24	3	0	0	15	2
Corydon	50	5	0	0	0	11	5	0	1	0	5	14	2	0	0	5	2
Council Bluffs	125	12	0	0	0	17	28	2	0	0	6	46	1	0	0	12	1
Davenport	124	7	0	0	0	13	7	4	3	1	9	55	7	0	0	13	5
Des Moines	125	12	0	0	0	13	22	0	1	0	10	41	2	0	0	20	4
Dubuque	125	13	0	0	0	26	31	0	0	0	8	42	0	0	0	5	0
Fort Dodge	100	8	0	0	0	10	15	2	0	1	8	29	4	0	0	20	3
Guthrie Center	50	6	0	0	0	1	10	0	0	0	3	22	3	0	0	5	0
Guttenberg	50	5	0	0	0	10	8	1	0	0	2	15	0	0	0	7	2
Hawarden	50	3	0	0	0	7	6	0	1	0	3	16	3	0	0	9	2
Holstein	50	3	0	0	0	7	6	0	1	0	3	16	3	0	0	9	2
Iowa City	125	18	0	0	0	26	14	1	2	0	11	39	4	0	0	6	4
Jefferson	75	5	0	0	0	6	10	2	0	0	6	34	1	0	0	11	0
LaPorte City	50	8	0	0	0	8	10	0	0	0	4	11	0	0	0	7	2
Manchester	75	3	0	0	0	11	14	0	0	0	6	27	0	0	1	10	3
Marshalltown	100	7	0	0	1	11	14	6	5	0	11	35	2	0	0	8	0
Mason City	100	11	0	0	0	9	9	0	0	0	11	40	3	0	0	16	1
Mount Ayr	50	4	0	0	0	4	7	2	0	0	2	15	5	0	0	8	3
Mount Pleasant	75	4	0	0	0	8	4	1	1	0	3	32	1	0	0	16	5
Newton	100	8	0	0	0	13	13	0	0	0	9	33	9	0	0	14	1
Northwood	50	2	0	0	0	7	9	0	0	0	12	11	2	0	0	5	2
Ottumwa	100	5	0	0	0	14	3	3	0	0	12	36	5	0	0	15	7
Pocahontas	50	4	0	0	0	6	7	0	1	0	3	24	2	0	0	2	1
Red Oak	73	6	0	0	0	8	13	1	0	0	9	22	4	0	0	7	3
Sioux City	125	11	0	0	0	12	17	4	1	1	10	39	4	0	0	26	0
Spencer	99	3	0	0	0	10	18	0	0	0	14	33	0	0	0	20	1
Sumner	50	8	0	0	0	12	8	2	1	0	2	9	0	0	0	8	0
Wapello	50	2	0	0	0	8	5	1	0	0	2	20	4	0	0	3	5
Waterloo	125	9	0	0	0	23	30	0	0	0	9	42	0	0	0	12	0
Waverly	74	6	0	0	0	14	13	1	1	0	4	24	3	0	0	7	1
Wellman	51	5	0	0	0	5	4	0	0	0	2	19	1	0	0	11	4
TOTAL	3043	242	0	0	1	403	439	44	23	3	263	1046	101	0	1	398	79

Table 8. Percent Restraint Use by Child Age and Survey Location, 2016

	% All Kids Properly Restrained	% All kids Restrained (Inc. 2-5yrs in belt only)	% < 2 Restrained	% 2-5 Properly Restrained	% 6-13 Restrained	% 14-17 Restrained
Algona	92.0	92.0	100	100	92.1	81.3
Ames	94.4	96.8	100	91.2	96.2	92.6
Belle Plaine	73.3	77.3	100	86.4	73.8	60.0
Cedar Rapids	93.4	94.4	100	93.8	91.5	100
Cherokee	94.7	97.3	100	88.0	100	91.7
Clinton	93.0	94.0	100	94.3	92.3	88.2
Corydon	90.0	90.0	100	100	90.5	71.4
Council Bluffs	96.8	98.4	100	95.7	98.1	92.3
Davenport	84.7	88.0	100	74.1	90.3	72.2
Des Moines	94.4	94.4	100	97.2	96.2	83.3
Dubuque	100.0	100.0	100	100	100	100
Fort Dodge	91.0	93.0	100	92.6	90.5	87.0
Guthrie Center	94.0	94.0	100	100	89.2	100
Guttenberg	94.0	96.0	100	94.7	100	77.8
Hawarden	86.7	88.0	100	94.4	90.2	54.5
Holstein	88.0	88.0	100	92.9	86.4	81.8
Iowa City	91.2	92.0	100	93.0	92.6	60.0
Jefferson	96.0	98.7	100	88.9	97.6	100
LaPorte City	96.0	96.0	100	100	100	77.8
Manchester	96.0	96.0	100	100	100	78.6
Marshalltown	86.0	92.0	87.5	69.4	95.8	100
Mason City	96.0	96.0	100	100	96.3	94.1
Mount Ayr	80.0	84.0	100	84.6	77.3	72.7
Mount Pleasant	89.3	90.7	100	85.7	97.2	76.2
Newton	90.0	90.0	100	100	82.4	93.3
Northwood	92.0	92.0	100	100	92.0	71.4
Ottumwa	85.0	88.0	100	85.0	90.6	68.2
Pocahontas	92.0	92.0	100	92.9	93.1	66.7
Red Oak	89.0	90.7	100	95.5	88.6	70.0
Sioux City	92.8	96.0	100	85.3	92.6	100
Spencer	99.0	99.0	100	100	100	95.2
Sumner	94.0	98.0	100	87.0	100	100
Wapello	80.0	82.0	100	92.9	84.6	37.5
Waterloo	100.0	100.0	100	100	100	100
Waverly	91.9	93.3	100	93.1	90.3	87.5
Wellman	90.2	90.2	100	100	95.5	73.3

Table 9. Proportion of Children Properly Restrained by Community Size, 2016

Communities 1,000 - 2,499	Guttenberg	94.0%
	Sumner	94.0%
	LaPorte City	96.0%
	Corydon	90.0%
	Pocahontas	92.0%
	Wapello	80.0%
	Guthrie Center	94.0%
	Wellman	90.2%
	Northwood	92.0%
	Mount Ayr	80.0%
	Holstein	88.0%
Communities 2,500 - 9,999	Waverly	91.9%
	Belle Plaine	73.3%
	Algona	90.0%
	Cherokee	94.7%
	Jefferson	96.0%
	Manchester	96.0%
	Red Oak	89.0%
	Mount Pleasant	89.3%
	Hawarden	86.7%
Communities 10,000 - 49,999	Spencer	99.0%
	Clinton	93.0%
	Newton	90.0%
	Fort Dodge	91.0%
	Mason City	96.0%
	Marshalltown	86.0%
	Ottumwa	85.0%
Communities 50,000+	Dubuque	100%
	Des Moines	94.4%
	Council Bluffs	96.8%
	Ames	94.4%
	Sioux City	92.8%
	Iowa City	91.2%
	Davenport	84.7%
	Cedar Rapids	93.4%
	Waterloo	100%

The survey also collected information on child placement within the vehicle—front seat vs. back seat. Safety experts strongly recommend placing all children in the rear seat regardless of their age. Table 10 displays the number and percentage of children in each location by type of restraint use. Overall, 75.2% of all children and youth were observed in the back seat. Almost all of the children in child safety seats (99.8%) and booster seats (99.3%) were placed in the backseat. However, of those restrained only by a seatbelt the percentages were much closer (54.0% back vs 46.0% front). The majority of unrestrained were in the back (70.1% back vs. 29.9% front). Certainly the inclusion of youth ages 11-17 in the surveys has had a significant influence on both the overall percentage riding in the front seat and on those being restrained by only a seatbelt.

Table 10. Type of Restraint Use by Location in the Vehicle, 2016

Restraint Type	Front Seat	Back Seat	Total
Child Safety Seat with Seatbelt	1 / 0.2%	638 / 99.8%	638
Booster Seat with Seatbelt	5 / 0.7%	691 / 99.3%	696
Seatbelt only	682 / 46.0%	801 / 54.0%	639
Not Restrained	61 / 29.9%	143 / 70.1%	204
Total	749/ 24.8%	2273 / 75.2%	3022*

**29 missing data*

The surveyors also noted whether or not the motor vehicle drivers were wearing their seat belts. 94.3% of the drivers observed were wearing a seat belt, a slight decrease from 2015 (95.0%). Table 11 contains driver seat belt use data by size grouping of the community. Much like the child passenger restraint use statistics, drivers in the more rural communities had lower usage rates compared to the urban areas. Table 12 lists observed seat belt use for each community.

Table 11. Driver Seat Belt Use by Community Size, 2016

Community Size	Driver Belted	Driver Not Belted	Total
1,000-2,499	495 / 89.8%	56 / 10.2%	551
2,500-9,999	619 / 91.7%	56 / 8.3%	675
10,000-49,999	694 / 94.1%	41 / 5.9%	694
≥ 50,000	1124 / 98.0 %	23 / 2.1%	1124
Total	2868 / 94.2%	176 / 5.8%	3044*

**7 missing data*

Table 12. Driver Seat Belt Use, 2016

	Total Drivers Observed	Number Drivers Belted	% Drivers Belted	Number Drivers Not Belted	% Drivers Not belted
Algona	75	68	90.7	7	9.3
Ames	125	117	93.6	8	6.4
Belle Plaine	75	73	97.3	2	2.7
Cedar Rapids	125	125	100.0	0	0
Cherokee	75	72	96.0	3	4.0
Clinton	100	96	96.0	4	4.0
Corydon	50	45	90.0	5	10.0
Council Bluffs	125	125	100.0	0	0
Davenport	125	122	97.6	3	2.4
Des Moines	125	120	96.0	5	4.0
Dubuque	125	125	100.0	0	0
Fort Dodge	100	93	93.0	7	7.0
Guthrie Center	50	45	90.0	5	10.0
Guttenberg	50	48	96.0	2	4.0
Hawarden	75	63	84.0	12	16.0
Holstein	50	44	88.0	6	12.0
Iowa City	124	124	100.0	0	0
Jefferson	75	62	82.7	13	17.3
LaPorte City	50	48	96.0	2	4.0
Manchester	75	73	97.3	2	2.7
Marshalltown	100	93	93.0	7	7.0
Mason City	100	90	90.0	10	10.0
Mount Ayr	50	36	72.0	14	28.0
Mount Pleasant	75	75	100.0	0	0
Newton	99	91	91.9	8	8.1
Northwood	50	42	84.0	8	16.0
Ottumwa	95	95	100.0	0	0
Pocahontas	50	45	90.0	5	10.0
Red Oak	75	64	85.3	11	14.7
Sioux City	125	118	94.4	7	5.6
Spencer	100	95	95.0	5	5.0
Sumner	50	50	100.0	0	0
Wapello	50	43	86.0	7	14.0
Waterloo	125	125	100.0	0	0
Waverly	75	69	92.0	6	8.0
Wellman	51	49	96.1	2	3.9
TOTAL	3044	2868	94.2	176	5.8

Conclusions

Results from the 2016 survey indicate that the vast majority of Iowans understand the importance of restraining their children. This is especially true for infants with nearly 100% being restrained in child safety seats. Of the 909 toddlers (2-5 years of age) observed, 4.8% were restrained only by a seatbelt. It remains important that Iowans must be informed on the importance of using booster seats. Overall, 91.9% of all children observed were properly restrained, down slightly compared to the 2015 survey (92.3%).

However, consistent with past years, the 2016 survey results indicated lower restraint use in the more rural communities. As the size of the community decreased, less restraint use was observed for both child passengers and drivers. Among children in the smallest communities (1000-2499) restraint use ranged from a low of 80% to 96%. Among drivers in these small communities, the range of restraint use was 72% to 100%.

The survey also collects information on child placement within the vehicle—front seat vs. back seat. Safety experts strongly recommend placing all children in the rear seat regardless of their age. Overall, 75.2% of all children and youth were observed in the back seat. Almost all of the children in child safety seats (99.8%) and booster seats (99.3%) were placed in the backseat, while 54.0% of those restrained only with a seat belt were secured in the rear location. Of the passengers riding unrestrained, the percentage riding in the front seat decreased from 42.5% in 2015 to 29.9% in 2016. The inclusion of youth ages 11-17 beginning in the 2010 survey has had a significant influence on both the overall percentage riding in the rear seat and on those being restrained by only a seatbelt. These results highlight the continued need to reach out to teens on the importance of occupant restraint use.

It should also be noted that the Iowa Legislature passed and the Governor signed into law bills that strengthened the Iowa Child Passenger Safety Law in their 2004 and 2010 sessions. In general terms, the revised law requires infants to be in child safety seats, toddlers from age 2 through 5 years to be secured using either a child safety seat or booster seat, and youth through age 17 to be secured with a seatbelt when riding in the back seat. All age groups must be restrained when in the front seat of a motor vehicle. As a result of these revisions the annual Iowa Child Passenger Restraint Survey protocol was redesigned to allow the surveyors to obtain a better view into vehicles and to include the older youth. The survey was also redesigned to result in a better statistical representation of the entire state population. Hence, this survey design has a higher level of validity. Greater accuracy also results from having the surveyor actually ask the age of the child/youth (as opposed to making a judgment call previously).

The 2016 Iowa Child Passenger Restraint Survey was successfully completed and will continue to provide valuable comparable information for years to come. As a result of the older age requirement for rear seat passengers a new survey situation is possible where the vehicle could have a teen driver with teen passengers. This is likely to lead to different restraint use compared to when an adult is the driver. Beginning with the 2010 survey, information was collected indicating when the driver was less than 18 years old. It is anticipated that a detailed analysis of teen drivers and passengers will be conducted.

Appendix B contains a five-year comparison of the 2012 through 2016 survey results.

Appendix A

Iowa's 2016 Child Passenger Safety Survey Project Personnel
Conducted by the University of Iowa Injury Prevention Research Center
Under contract to Iowa Governor's Traffic Safety Bureau

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Appendix B

Comparison of 2012 - 2016 Iowa Child Passenger Safety Survey Results

The following Tables allow for comparison between the 2012-2016 child passenger safety survey results.

Comparison Tables

1. Number of Children Observed by Age
2. Restraint Use by Child's Age
3. Type of Restraint Use by Child's Age
4. Restraint Use by Community Size
5. Type of Restraint Use by Community Size
6. Restraint Use by Child's Age by Survey Location
7. Type of Restraint Use by Location in the Vehicle
8. Driver Seat Belt Use by Community Size
9. Driver Seat Belt Use by Survey Location

Comparison Table 1
Number of Children Observed by Age

Age	2012	2013	2014	2015	2016
< 2	275 / 9.2%	222 / 7.3%	279 / 9.2%	284 / 9.3%	243 / 8.0%
2-5	817 / 27.2%	800 / 26.2%	794 / 26.0%	839 / 27.5%	909 / 29.8%
6-13	1,206 / 40.2%	1,350 / 44.2%	1,315 / 43.1%	1,341 / 44.0%	1417 / 46.5%
14-17	701 / 23.4%	680 / 22.3%	662 / 21.7%	587 / 19.2%	480 / 15.7%
Total	2,999 / 100%	3,052 / 100%	3,050 / 100%	3,051 / 100%	3,049 / 100%

Comparison Table 2
Restraint Use by Child's Age

% Not Restrained						% Restrained					
Age	2012	2013	2014	2015	2016	Age	2012	2013	2014	2015	2016
< 2	0.4%	0.0%	0.4%	1.0%	0.4%	< 2	99.6%	100.0%	99.6%	98.9%	99.6%
2-5	2.8%	3.4%	2.9%	2.4%	2.5%	2-5	97.2%	96.6%	97.1%	97.6%	97.5%
6-13	6.0%	8.1%	6.4%	5.8%	7.1%	6-13	94.0%	91.9%	93.6%	94.2%	92.9%
14-17	17.4%	13.5%	15.7%	14.8%	16.5%	14-17	82.6%	86.5%	84.3%	85.2%	83.5%
Total	7.3%	7.5%	6.9%	6.2%	6.7%	Total	92.7%	92.5%	93.1%	93.8%	93.3%

Comparison Table 3
Type of Restraint Use by Child's Age

Child Safety Seat with Seatbelt						Booster Seat with Seatbelt					
Age	2012	2013	2014	2015	2016	Age	2012	2013	2014	2015	2016
< 2	98.9%	100%	98.9%	98.6%	98.9%	< 2	0.4%	0.0%	0.0%	0.3%	0.0%
2-5	33.1%	38.9%	47.0%	47.7%	44.3%	2-5	54.5%	49.8%	44.7%	44.5%	48.3%
6-13	0.3%	0.2%	0.6%	0.0%	0.2%	6-13	15.0%	15.8%	19.2%	18.5%	18.6%
14-17	0.0%	0.0%	0.0%	0.0%	0.0%	14-17	0.3%	0.3%	0.0%	0.0%	0.2%
Total	18.2%	17.6%	21.5%	22.3%	21.3%	Total	21.0%	20.1%	19.9%	20.4%	23.1%

Seatbelt Only						Not Restrained					
Age	2012	2013	2014	2015	2016	Age	2012	2013	2014	2015	2016
< 2	0.4%	0.0%	0.7%	0.0%	0.0%	< 2	0.4%	0.0%	0.4%	1.1%	0.4%
2-5	9.6%	8.0%	5.4%	5.5%	4.8%	2-5	2.8%	3.4%	2.9%	2.4%	2.5%
6-13	78.6%	75.8%	73.8%	75.7%	74.0%	6-13	6.0%	8.1%	6.4%	5.8%	7.2%
14-17	82.3%	86.2%	84.3%	85.2%	83.3%	14-17	17.4%	13.5%	15.7%	14.8%	16.5%
Total	53.5%	54.8%	51.6%	51.2%	23.1%	Total	7.3%	7.5%	7.0%	5.8%	6.7%

Comparison Table 4
Restraint Use by Community Size

Community Size	Percent Restrained (by any means)					Percent Restrained Properly*					Percent Not Restrained				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
1,000-2,499	87.2%	90.0%	90.0%	89.5%	91.1%	85.1%	86.5%	88.2%	88.5%	88.2%	12.8%	10.0%	10.0%	10.5%	8.9%
2,500-9,999	92.6%	92.0%	92.1%	91.7%	91.5%	90.0%	90.8 %	90.2%	90.4%	90.4%	7.4%	8.0%	7.9%	8.3%	8.5%
10,000-49,999	93.6%	93.4%	93.9%	95.3%	93.1%	91.4%	91.7 %	92.9%	95.1%	92.9%	6.3%	6.6%	6.1%	4.7%	6.9%
≥ 50,000	94.9%	93.4%	94.6%	96.4%	95.5%	91.8%	91.2 %	93.1%	94.3%	93.2%	5.1%	6.6%	5.4%	3.6%	4.5%
Total	92.7%	92.5%	93.0%	93.8%	93.3%	90.1%	90.4%	91.5%	92.3%	91.7%	7.3%	7.5%	6.2%	7.0%	6.7%

*Properly means in compliance with Iowa law.

Comparison Table 5
Type of Restraint Use by Community Size

Community Size	Child Safety Seat with Seatbelt					Booster Seat with Seatbelt				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
1,000-2,499	16.7%	15.1%	19.5%	20.6%	23.8%	17.4%	15.7%	21.6%	17.6%	21.6%
2,500-9,999	17.6%	13.9%	20.6%	21.8%	18.1%	20.2%	20.6%	17.7%	19.6%	22.1%
10,000-49,999	18.7%	19.7%	22.0%	20.1%	19.4%	21.4%	20.9%	19.6%	20.4%	23.6%
≥ 50,000	19.1%	19.6%	22.8%	24.8%	23.1%	23.0%	21.5%	20.6%	22.2%	24.1%
Total	18.2%	17.6%	21.6%	22.3%	21.3%	21.0%	20.1%	19.9%	20.4%	23.1%

Community Size	Seatbelt only					Not Restrained				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
1,000-2,499	53.1%	59.2%	48.9%	51.3%	45.7%	12.8%	10.0%	10.0%	10.6%	8.9%
2,500-9,999	54.8%	57.5%	53.9%	50.4%	51.3%	7.4%	8.0%	7.9%	8.3%	8.5%
10,000-49,999	53.5%	52.9%	52.3%	54.7%	50.1%	6.3%	6.6%	6.1%	4.7%	6.9%
≥ 50,000	52.9%	52.3%	51.1%	49.3%	48.4%	5.1%	6.6%	5.4%	3.6%	4.5%
Total	53.5%	54.8%	51.6%	51.2%	48.9%	7.3%	7.5%	6.9%	6.2%	6.7%

Comparison Table 6
Restraint Use by Child Age and Survey Location

	Percent Age < 2 Properly* Restrained					Percent Age 2-5 Properly* Restrained				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
Algona	100.0%	100.0%	100.0%	100.0%	100	95.8%	96.2%	100.0%	100.0%	100
Ames	100.0%	100.0%	100.0%	100.0%	100	90.9%	92.7%	94.7%	97.4%	91.2
Belle Plaine	100.0%	100.0%	100.0%	100.0%	100	100.0%	76.5%	83.3%	82.6%	86.4
Cedar Rapids	100.0%	100.0%	100.0%	100.0%	100	83.3%	64.1%	81.5%	96.7%	93.8
Cherokee	100.0%	100.0%	100.0%	85.7%	100	90.9%	100.0%	95.5%	94.7%	88.0
Clinton	100.0%	100.0%	100.0%	100.0%	100	85.7%	88.5%	100.0%	96.3%	94.3
Corydon	100.0%	100.0%	100.0%	100.0%	100	93.3%	88.2%	95.2%	100.0%	100
Council Bluffs	93.3%	100.0%	93.8%	100.0%	100	80.0%	97.9%	94.4%	95.6%	95.7
Davenport	100.0%	100.0%	100.0%	100.0%	100	77.4%	82.1%	89.7%	85.7%	74.1
Des Moines	100.0%	100.0%	100.0%	100.0%	100	90.6%	97.0%	92.7%	97.1%	97.2
Dubuque	100.0%	100.0%	100.0%	88.9%	100	83.3%	85.2%	100.0%	96.8%	100
Fort Dodge	100.0%	100.0%	100.0%	87.5%	100	96.6%	96.4%	100.0%	100.0%	92.6
Guthrie Center	100.0%	-----	100.0%	100.0%	100	75.0%	94.1%	93.3%	90.9%	100
Guttenberg	100.0%	100.0%	100.0%	100.0%	100	91.7%	77.8%	92.9%	100.0%	94.7
Hawarden	100.0%	100.0%	100.0%	100.0%	100	86.4%	84.2%	86.4%	89.5%	94.4
Holstein	100.0%	100.0%	100.0%	100.0%	100	69.2%	76.9%	76.0%	86.7%	92.9
Iowa City	95.5%	100.0%	100.0%	100.0%	100	97.9%	97.6%	100.0%	87.5%	93.0
Jefferson	100.0%	100.0%	100.0%	100.0%	100	95.7%	88.2%	94.4%	91.7%	88.9
LaPorte City	-----	100.0%	100.0%	100.0%	100	-----	100.0%	100.0%	91.7%	100
Manchester	100.0%	100.0%	100.0%	87.5%	100	82.4%	91.7%	100.0%	72.7%	100
Marshalltown	100.0%	100.0%	100.0%	100.0%	87.5	63.6%	96.2%	96.4%	81.8%	69.4
Mason City	100.0%	100.0%	100.0%	100.0%	100	94.4%	97.4%	93.1%	91.7%	100
Mount Ayr	100.0%	100.0%	100.0%	100.0%	100	87.5%	100.0%	78.6%	100.0%	84.6
Mt. Pleasant	100.0%	100.0%	100.0%	100.0%	100	77.3%	81.3%	68.0%	94.4%	85.7
Newton	100.0%	100.0%	100.0%	100.0%	100	100.0%	96.2%	92.6%	100.0%	100
Northwood	100.0%	100.0%	66.7%	----	100	84.6%	100.0%	100.0%	71.4%	100
Ottumwa	92.9%	100.0%	100.0%	100.0%	100	90.3%	65.2%	76.0%	92.6%	85.0
Pocahontas	100.0%	100.0%	100.0%	100.0%	100	92.3%	100.0%	90.9%	100.0%	92.9
Red Oak	100.0%	100.0%	100.0%	100.0%	100	88.5%	100.0%	90.0%	90.0%	95.5
Sioux City	100.0%	100.0%	100.0%	100.0%	100	96.9%	100.0%	93.9%	97.2%	85.3
Spencer	100.0%	100.0%	100.0%	100.0%	100	100.0%	91.3%	96.0%	96.0%	100
Sumner	100.0%	-----	100.0%	100.0%	100	88.9%	68.8%	91.7%	100.0%	87.0
Wapello	100.0%	100.0%	100.0%	100.0%	100	100.0%	78.6%	87.5%	76.9%	92.9
Waterloo	100.0%	100.0%	100.0%	100.0%	100	65.8%	72.0%	100.0%	75.0%	100
Waverly	100.0%	100.0%	100.0%	100.0%	100	92.3%	100.0%	83.3%	100.0%	93.1
Wellman	100.0%	100.0%	66.7%	100.0%	100	80.0%	53.8%	93.3%	90.9%	100

*Properly refers to in compliance with Iowa law.

Comparison Table 6 (continued)
Restraint Use by Child Age and Survey Location

	Percent Age 6-13 Restrained					Percent Age 14-17 Restrained				
	2011	2012	2013	2015	2016	2011	2012	2013	2015	2016
Algona	85.3%	92.9%	90.9%	100.0%	92.1	87.5%	88.2%	100.0%	73.7%	81.3
Ames	93.6%	97.8%	98.0%	97.9%	96.2	91.3%	92.6%	100.0%	93.1%	92.6
Belle Plaine	82.9%	96.2%	97.0%	97.1%	73.8	80.0%	85.0%	73.7%	100.0%	60.0
Cedar Rapids	88.1%	94.0%	85.1%	95.6%	91.5	73.3%	86.7%	76.0%	77.5%	100
Cherokee	91.2%	100.0%	97.6%	90.0%	100	86.7%	83.3%	83.3%	100.0%	91.7
Clinton	88.7%	92.0%	100.0%	95.2%	92.3	27.3%	74.1%	90.6%	100.0%	88.2
Corydon	86.2%	68.4%	73.9%	88.0%	90.5	50.0%	61.5%	100.0%	85.7%	71.4
Council Bluffs	89.7%	95.9%	91.8%	97.8%	98.1	100.0%	88.5%	73.7%	100.0%	92.3
Davenport	88.1%	95.0%	90.4%	95.9%	90.3	76.9%	87.5%	76.0%	87.5%	72.2
Des Moines	93.2%	98.4%	94.0%	98.2%	96.2	94.4%	78.9%	100.0%	100.0%	83.3
Dubuque	86.8%	100.0%	100.0%	100.0%	100	60.7%	93.3%	96.1%	100.0%	100
Fort Dodge	91.5%	82.5%	87.2%	95.8%	90.5	93.8%	96.0%	88.0%	84.2%	87.0
Guthrie Center	77.8%	86.4%	84.6%	96.0%	89.2	91.7%	50.0%	85.7%	60.0%	100
Guttenberg	81.0%	100.0%	88.2%	100.0%	100	0.0%	100.0%	100.0%	100.0%	77.8
Hawarden	76.5%	75.0%	87.8%	82.4%	90.2	82.4%	71.4%	45.5%	73.7%	54.5
Holstein	95.5%	86.4%	79.2%	72.7%	86.4	90.0%	44.4%	80.0%	55.6%	81.8
Iowa City	93.3%	100.0%	97.9%	98.2%	92.6	75.0%	94.4%	85.0%	94.1%	60.0
Jefferson	93.5%	89.7%	94.3%	92.3%	97.6	83.3%	70.6%	88.2%	88.9%	100
LaPorte City	76.0%	75.0%	100.0%	94.4%	100	n/a	88.6%	100.0%	91.7%	77.8
Manchester	84.8%	100.0%	92.6%	90.0%	100	35.7%	87.5%	90.6%	100.0%	78.6
Marshalltown	89.8%	100.0%	90.0%	90.9%	95.8	100.0%	84.6%	100.0%	88.9%	100
Mason City	98.0%	96.2%	91.7%	97.7%	96.3	82.4%	89.5%	100.0%	87.0%	94.1
Mount Ayr	91.3%	85.2%	54.1%	69.6%	77.3	50.0%	66.7%	25.0%	69.2%	72.7
Mt. Pleasant	87.8%	96.9%	89.3%	90.0%	97.2	60.0%	57.1%	72.0%	63.6%	76.2
Newton	85.1%	93.2%	93.2%	97.6%	82.4	84.2%	76.7%	94.4%	88.9%	93.3
Northwood	92.0%	91.7%	92.0%	84.0%	92.0	83.3%	71.4%	100.0%	81.8%	71.4
Ottumwa	91.7%	96.9%	88.6%	94.9%	90.6	61.9%	81.0%	61.5%	66.7%	68.2
Pocahontas	70.0%	100.0%	96.2%	95.0%	93.1	81.8%	58.3%	90.9%	66.7%	66.7
Red Oak	80.0%	88.9%	89.1%	94.6%	88.6	85.7%	83.3%	84.6%	58.3%	70.0
Sioux City	93.5%	96.4%	98.2%	94.5%	92.6	100.0%	73.1%	92.6%	95.2%	100
Spencer	97.7%	95.7%	94.7%	100.0%	100	91.7%	87.5%	100.0%	100.0%	95.2
Sumner	87.5%	100.0%	100.0%	95.7%	100	50.0%	77.8%	100.0%	100.0%	100
Wapello	72.2%	93.8%	90.5%	100.0%	84.6	64.3%	64.3%	90.0%	77.8%	37.5
Waterloo	89.6%	93.5%	100.0%	88.5%	100	52.2%	84.6%	73.1%	81.8%	100
Waverly	82.8%	100.0%	100.0%	96.2%	90.3	60.0%	100.0%	100.0%	100.0%	87.5
Wellman	81.3%	90.0%	90.0%	95.2%	95.5	55.6%	87.5%	76.9%	73.3%	73.3

Comparison Table 7
Type of Restraint Use by Location in the Vehicle

Restraint Type	Front Seat					Back Seat				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
Child Safety Seat with Seatbelt	1.6%	1.3%	.05%	.07%	0.2%	98.4%	98.7%	99.5%	99.3%	99.8%
Booster Seat with Seatbelt	2.7%	1.5%	2.3%	0.8%	0.7%	97.3%	98.5%	97.7%	99.2%	99.3%
Seatbelt only	50.5%	46.7%	46.0%	45.8%	46.0%	49.5%	53.3%	54.0%	54.2%	54.0%
Not Restrained	47.5%	32.7%	45.3%	42.5%	29.9%	52.5%	67.3%	54.7%	57.5%	70.1%
Total	31.7%	28.6%	26.4%	27.4%	24.8%	68.3%	71.4%	72.6%	73.6%	75.2%

Comparison Table 8
Driver Seat Belt Use by Community Size

Community Size	Driver Belted					Driver Not Belted				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
1,000-2,499	87.5%	88.9%	86.4%	87.3%	89.8%	12.5%	11.1%	13.6%	12.7%	10.2%
2,500-9,999	92.4%	91.9%	92.7%	93.2%	91.7%	7.6%	8.1%	7.3%	6.8%	8.3%
10,000-49,999	93.7%	93.4%	95.4%	97.1%	94.1%	6.3%	6.6%	4.6%	2.9%	5.9%
≥ 50,000	94.6%	95.4%	96.5%	98.6%	98.0%	5.4%	4.6%	3.5%	1.4%	2.1%
Total	92.6%	93.0%	93.6%	95.0%	94.2%	7.4%	7.0%	6.4%	5.0%	5.8%

**Comparison Table 9
Driver Seat Belt Use By Survey Location**

	Percent Drivers Belted					Percent Drivers NOT Belted				
	2012	2013	2014	2015	2016	2012	2013	2014	2015	2016
Algona	94.7%	80.0%	94.7%	88.0%	90.7	5.3%	20.0%	5.3%	12.0%	9.3
Ames	96.8%	99.2%	96.8%	99.2%	93.6	3.2%	0.8%	3.2%	0.8%	6.4
Belle Plaine	94.7%	100.0%	100.0%	100.0%	97.3	5.3%	0.0%	0.0%	0.0%	2.7
Cedar Rapids	96.0%	100.0%	97.6%	100.0%	100.0	4.0%	0.0%	2.4%	0.0%	0
Cherokee	97.3%	90.7%	90.7%	90.7%	96.0	2.7%	9.3%	9.3%	9.3%	4.0
Clinton	89.0%	91.0%	96.0%	99.0%	96.0	11.0%	9.0%	4.0%	1.0%	4.0
Corydon	78.0%	78.0%	62.0%	78.0%	90.0	22.0%	22.0%	38.0%	22.0%	10.0
Council Bluffs	93.6%	92.0%	90.4%	95.2%	100.0	6.4%	8.0%	9.6%	4.8%	0
Davenport	95.2%	96.8%	100.0%	100.0%	97.6	4.8%	3.2%	0.0%	0.0%	2.4
Des Moines	96.0%	94.4%	97.6%	98.4%	96.0	4.0%	5.6%	2.4%	1.6%	4.0
Dubuque	97.6%	92.0%	99.2%	100.0%	100.0	2.4%	8.0%	0.8%	0.0%	0
Fort Dodge	92.0%	90.0%	89.0%	98.0%	93.0	8.0%	10.0%	11.0%	2.0%	7.0
Guthrie Center	80.0%	88.0%	90.0%	88.0%	90.0	20.0%	12.0%	10.0%	12.0%	10.0
Guttenberg	100.0%	100.0%	94.0%	98.0%	96.0	0.0%	0.0%	6.0%	2.0%	4.0
Hawarden	82.7%	77.3%	84.0%	81.3%	84.0	17.3%	22.7%	16.0%	18.8%	16.0
Holstein	82.0%	80.0%	80.0%	78.0%	88.0	18.0%	20.0%	20.0%	22.0%	12.0
Iowa City	99.2%	100.0%	98.4%	100.0%	100.0	0.8%	0.0%	1.6%	0.0%	0
Jefferson	88.0%	93.3%	92.0%	93.3%	82.7	12.0%	6.7%	8.0%	6.7%	17.3
LaPorte City	88.0%	92.0%	96.0%	96.0%	96.0	12.0%	8.0%	4.0%	4.0%	4.0
Manchester	94.7%	96.1%	95.0%	100.0%	97.3	5.3%	3.9%	5.0%	0.0%	2.7
Marshalltown	98.0%	96.0%	95.0%	94.0%	93.0	2.0%	4.0%	5.0%	6.0%	7.0
Mason City	96.0%	97.0%	96.0%	95.0%	90.0	4.0%	3.0%	4.0%	5.0%	10.0
Mount Ayr	82.0%	60.0%	56.0%	64.0%	72.0	18.0%	40.0%	44.0%	36.0%	28.0
Mount Pleasant	90.7%	98.7%	93.3%	98.7%	100.0	9.3%	1.3%	6.7%	1.3%	0
Newton	90.0%	91.0%	97.0%	97.0%	91.9	10.0%	9.0%	3.0%	3.0%	8.1
Northwood	90.0%	92.0%	96.0%	72.0%	84.0	10.0%	8.0%	14.0%	28.0%	16.0
Ottumwa	95.0%	95.0%	100.0%	99.0%	100.0	5.0%	5.0%	0.0%	1.0%	0
Pocahontas	90.0%	94.0%	88.0%	88.0%	90.0	10.0%	6.0%	12.0%	12.0%	10.0
Red Oak	92.0%	94.7%	85.3%	86.7%	85.3	8.0%	5.3%	14.7%	13.3%	14.7
Sioux City	92.0%	95.2%	92.0%	97.6%	94.4	8.0%	4.8%	8.0%	2.4%	5.6
Spencer	96.0%	94.0%	95.0%	98.0%	95.0	4.0%	6.0%	5.0%	2.0%	5.0
Sumner	92.0%	93.9%	100.0%	98.0%	100.0	8.0%	6.1%	0.0%	2.0%	0
Wapello	88.0%	100.0%	98.0%	100.0%	86.0	12.0%	0.0%	2.0%	0.0%	14.0
Waterloo	84.8%	88.9%	96.8%	96.8%	100.0	15.2%	11.1%	3.2%	3.2%	0
Waverly	97.3%	96.0%	96.0%	100.0%	92.0	2.7%	4.0%	4.0%	0.0%	8.0
Wellman	92.0%	100.0%	100.0%	100.0%	96.1	8.0%	0.0%	0.0%	0.0%	3.9
TOTAL	92.6%	93.0%	93.0%	93.0%	94.2	7.4%	7.0%	7.0%	7.0%	5.8