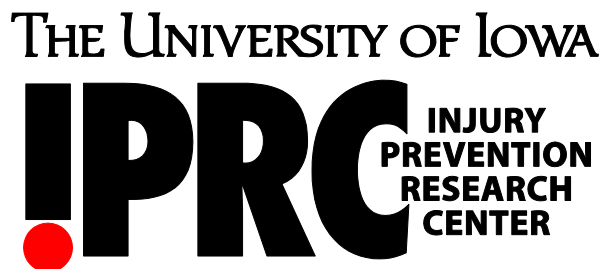


Iowa Child Passenger Safety Survey

2022

*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 the 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 or be secured by a seat belt.</i>

In order to measure compliance with these laws 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 and Methods

In an effort to accurately determine compliance with Iowa's child passenger safety law, in particular the requirement for use of child safety and 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 1,424 persons in Wellman to Des Moines with 217,521 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.

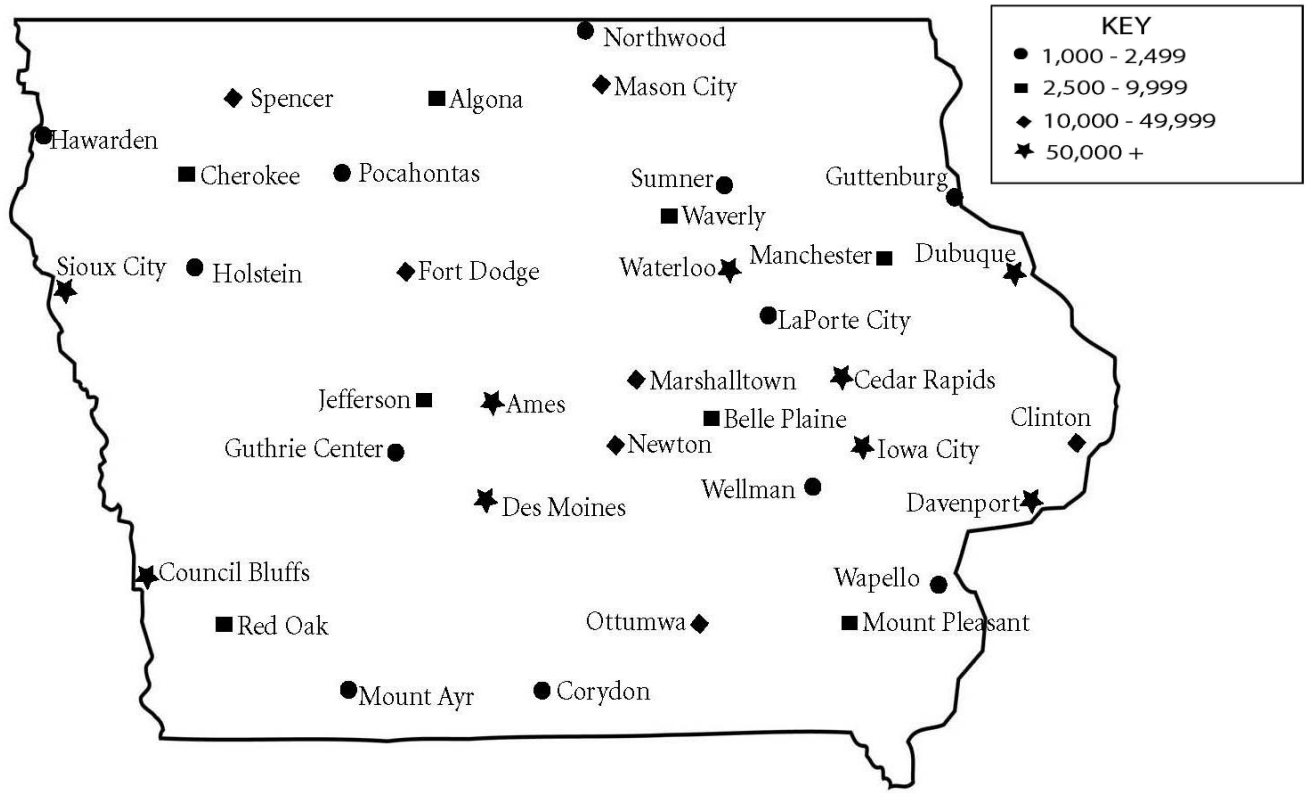


Figure 1. 2022 Iowa Child Passenger Survey Locations

Table 1. Iowa Child Passenger Restraint Survey Locations, 2022

<p>Communities 1,000 – 2,499 Minimum of 50 kids observed at each location</p>	<ol style="list-style-type: none"> 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
<p>Communities 2,500 – 9,999 Minimum of 75 kids observed at each location</p>	<ol style="list-style-type: none"> 1. Algona 2. Belle Plaine 3. Cherokee 4. Hawarden 5. Jefferson 6. Manchester 7. Mount Pleasant 8. Red Oak 9. Waverly
<p>Communities 10,000 – 49,999 Minimum of 100 observed kids at each location</p>	<ol style="list-style-type: none"> 1. Clinton 2. Fort Dodge 3. Marshalltown 4. Mason City 5. Newton 6. Ottumwa 7. Spencer
<p>Communities 50,000+ Minimum of 125 observed kids at each location</p>	<ol style="list-style-type: none"> 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 two temporary part-time surveyors and trained them in proper survey protocol. The survey was then carried out across the state during the months of July through September, 2022. All observations were of children and youth from birth through age seventeen and accompanying adult or teen (aged 16 or 17) drivers.

Results

Observations were attempted with a total of 1,640 drivers, of which 1,579 (96.3%) drivers agreed to participate. These 1,579 drivers were carrying a total of 3,048 children. The breakdown of missing and/or incomplete data (due to surveyor error or refusal) is as follows:

- 65 (2.1%) child passenger observations were missing child age
- 65 (2.1%) child passenger observations were missing Seating Position (Front or Back) values
- 69 (4.4%) driver observations were missing Driver Age values
- 65 (2.1%) child passenger observations were missing Restraint Use by Child/Passenger values
- 65 (4.1%) driver observations were missing Driver Belted values
- 66 (4.2%) driver observations were missing Vehicle Type value.

The observable values of those who refused to give their age or child’s ages were still collected (e.g., restraint use, seating position) when possible, given they have historically been more likely to have unrestrained children/passengers. The following results include these observable values in the totals otherwise the missing data or refusals are noted with each table. 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	200 / 6.6%
2-5	929 / 30.5%
6-13	1,574 / 51.6%
14-17	345 / 11.3%
Total	3,048* / 100%

**67 missing data on age not included*

Table 3 identifies the number of restrained versus unrestrained passengers in each age range (regardless of whether the type of restraint use was appropriate for the child's age). In 2022, 100% of children observed under age 6 were restrained by some means. From this information, it is clear that lowans understand the importance of securing infants in child safety seats, with 100% of children age one year or younger being properly restrained. While the majority of children are being restrained in motor vehicles, as the child's age increases, they are less likely to be restrained. All (100%) toddlers (2-5), 97.6% of youth (6-13), and 98.8% of teens (14-17) were restrained. Overall, 98.6% of all children observed were restrained (by any means); an increase of 2.1% from the 2021 survey total of 96.5%.

Table 3. Restraint Use by Child's Age

Age	Not Restrained Number / Percent	Restrained Number / Percent	Total
< 2	0 / 0.0%	200 / 100%	200
2-5	0 / 0.0%	929 / 100%	929
6-13	38 / 2.4%	1,536 / 97.6%	1,574
14-17	4 / 1.2%	341 / 98.8%	345
Total	42 / 1.4%%	3,006 / 98.6%	3048*

**67 missing data*

The numbers contained in Table 3 for each age group represent children who were restrained by any means including a seat belt 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 929 toddlers (2-5 year olds) observed, 199 (21.4%) were restrained only by a seat belt, which is a large increase from 2021 (3.0%). This increase in improper toddler restraint is troubling. **If Iowa's statewide restraint use is re-calculated without including the improperly restrained children in this age group, the statewide average drops from 98.6% to 92.1%.**

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

Age	Child Safety Seat with Seat belt	Booster Seat with Seat belt	Seat belt only	Not Restrained	Total
< 2	193 / 100%	4 / 2.0%	3 / 1.5%	0 / 0.0%	200
2-5	483 / 52.0 %	247 / 26.6 %	199 / 21.4 %	0 / 0.0 %	929
6-13	6 / 0.4%	46 / 2.9%	1,484 / 94.3%	38 / 2.4%	1,574
14-17	0 / 0.0%	0 / 0.0%	341 / 98.8%	4 / 1.2%	345
Total	682 / 22.4%	297 / 9.7%	2,027 / 66.5%	42 / 1.4%	3048*

**67 missing 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 was not the case in the 2022 survey; rather, a variety of usage rates were seen in the community groups. Table 5 displays rates of proper restraint compared with rates of restraint by any means and rates of no restraint. Note that “properly restrained” means being restrained in accordance with Iowa’s child passenger restraint law. Technical measures of correct restraint use typically checked in a child seat clinic, e.g., belt tightness, were not evaluated. In the most rural communities (1,000-2,499) 98.9% of the children were restrained by some means compared to 99.2% in the urban areas. The previously observed trend by community size did hold true for both restraint by any means and rates of proper (i.e., legal) restraint by community size. Although the 2022 disparity is not as drastic as past years, rates of properly restrained children were lower in rural communities (89.7%) than in urban areas (91.2%).

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	543 / 98.9%	493 / 89.7%	6 / 1.1%	549
2,500-9,999	661 / 97.9%	629 / 93.1%	14 / 2.1%	675
10,000-49,999	686 / 98.1%	652 / 93.1%	13 / 1.9%	699
≥ 50,000	1,116 / 99.2%	1,026 / 91.2%	9 / 0.8%	1,125
Total	3,006 / 98.6%	2,800 / 91.9%	42 / 1.4%	3048**

* Properly means in compliance with Iowa law.

**67 missing data

Table 6 displays type of restraint use type by size of the community. This table includes information of observations where age information was not available (one additional observation). In 2021, the smallest communities (1,000 – 2, 499) had the lowest proportion of unrestrained children (2.7%). Unlike 2021, communities with a population of 2,500-2,999 had the highest proportion of unrestrained children (2.1%) despite the proportion being lower than 2021.

Table 6. Type of Restraint Use by Community Size

Community Size	Child Safety Seat with Seat belt	Booster Seat with Seat belt	Seat belt only	Not Restrained	Total
1,000-2,499	114 / 20.8%	55 / 10.0%	374 / 68.1%	6 / 1.1%	549
2,500-9,999	162 / 24.0%	73 / 10.8%	426 / 63.1%	14 / 2.1%	675
10,000-49,999	159 / 22.8%	54 / 7.7%	473 / 67.7%	13 / 1.9%	699
≥ 50,000	247 / 22.0%	115 / 10.2%	754 / 67.0%	9 / 0.8%	1,125
Total	682 / 22.4%	297 / 9.7%	2,027 / 66.5%	42 / 1.4%	3,048*

*67 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 (2-5 year olds) restrained by only a seat belt. Table 8 presents the restraint use by age 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 children properly restrained sorted by community size, ranging from 76.0% to 100%.

Table 7. Restraint Use by Child Age and Survey Location, 2022

	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	3	0	0	0	12	1	2	0	0	1	41	2	0	0	13	0
Ames	125	8	0	0	0	20	4	2	0	1	2	58	1	0	0	29	0
Belle Plaine	75	6	0	0	0	16	12	4	0	1	2	34	0	0	0	0	0
Cedar Rapids	125	9	0	0	0	23	12	21	0	0	0	59	0	0	0	1	0
Cherokee	75	2	0	0	0	9	1	2	0	0	1	38	6	0	0	15	1
Clinton	100	3	0	0	0	21	12	10	0	1	1	51	0	0	0	1	0
Corydon	50	5	0	0	0	8	4	0	0	0	1	26	0	0	0	6	0
Council Bluffs	125	6	0	0	0	17	8	0	0	0	3	61	3	0	0	27	0
Davenport	125	15	1	0	0	24	17	19	0	0	1	47	0	0	0	1	0
Des Moines	125	6	0	0	0	18	7	1	0	0	2	64	0	0	0	27	0
Dubuque	125	6	1	0	0	16	16	16	0	0	2	65	0	0	0	3	0
Fort Dodge	100	4	0	0	0	15	3	6	0	0	1	52	4	0	0	15	0
Guthrie Center	50	2	0	0	0	7	3	1	0	0	2	29	2	0	0	4	0
Guttenberg	50	4	0	0	0	5	4	6	0	0	1	29	0	0	0	1	0
Hawarden	75	2	0	0	0	12	3	0	0	0	2	43	0	0	0	12	1
Holstein	50	2	0	0	0	6	1	0	0	0	2	19	0	0	0	20	0
Iowa City	125	9	0	0	0	25	19	7	0	0	2	62	0	0	0	1	0
Jefferson	75	5	0	0	0	14	4	1	0	0	1	35	2	0	0	13	0
LaPorte City	50	6	1	0	0	11	10	11	0	0	1	11	0	0	0	0	0
Manchester	75	8	0	0	0	6	7	9	0	0	0	42	0	0	0	3	0
Marshalltown	100	6	0	0	0	21	3	2	0	0	1	45	2	0	0	20	0
Mason City	100	6	0	0	0	20	3	2	0	0	3	43	0	0	0	21	2
Mount Ayr	50	3	0	0	0	8	0	4	0	0	1	26	1	0	0	7	0
Mount Pleasant	75	9	0	0	0	19	12	2	0	0	3	29	0	0	0	1	0
Newton	100	3	0	1	0	19	3	3	0	0	5	50	5	0	0	11	0
Northwood	49	2	0	0	0	5	1	0	0	1	1	30	0	0	0	9	0
Ottumwa	99	9	0	0	0	14	14	9	0	0	2	47	0	0	0	4	0
Pocahontas	50	0	0	0	0	2	2	0	0	0	0	27	3	0	0	16	0
Red Oak	75	2	0	0	0	11	3	2	0	0	0	52	2	0	0	3	0
Sioux City	125	5	0	0	0	20	2	3	0	1	1	63	5	0	0	25	0
Spencer	100	7	0	0	0	9	1	1	0	1	2	51	0	0	0	28	0
Sumner	50	6	1	0	0	11	5	11	0	0	0	16	0	0	0	0	0
Wapello	50	2	0	2	0	5	7	8	0	0	0	25	0	0	0	1	0
Waterloo	125	4	0	0	0	14	15	19	0	0	0	70	0	0	0	3	0
Waverly	75	12	0	0	0	13	20	10	0	0	0	20	0	0	0	0	0
Wellman	50	6	0	0	0	7	8	5	0	0	0	24	0	0	0	0	0
TOTAL	3048	195	4	3	0	483	247	199	0	6	47	1484	38	0	0	341	4

Table 8. Percent Restraint Use by Child Age and Survey Location, 2022

	% All Kids Properly Restrained	% All kids Restrained	% < 2 Properly Restrained	% 2-5 Properly Restrained	% 6-13 Restrained	% 14-17 Restrained
Algona	94.7%	97.3%	100%	86.7%	95.5%	100%
Ames	97.6%	99.2%	100%	92.3%	98.4%	100%
Belle Plaine	94.7%	100%	100%	87.5%	100%	n/a
Cedar Rapids	83.2%	100%	100%	62.5%	100%	100%
Cherokee	88.0%	90.7%	100%	83.3%	86.7%	93.8%
Clinton	83.0%	90.0%	100%	76.7%	100%	100%
Corydon	100%	100%	100%	100%	100%	100%
Council Bluffs	97.6%	97.6%	100%	100%	95.5%	100%
Davenport	84.0%	100%	93.8%	68.3%	100%	100%
Des Moines	99.2%	100%	100%	96.2%	100%	100%
Dubuque	86.4%	100%	85.7%	66.7%	100%	100%
Fort Dodge	90.0%	96.0%	100%	75.0%	93.0%	100%
Guthrie Center	94.0%	96.0%	100%	90.9%	93.9%	100%
Guttenberg	88.0%	100%	100%	60.0%	100%	100%
Hawarden	98.7%	98.7%	100%	100%	100%	92.3%
Holstein	100%	100%	100%	100%	100%	100%
Iowa City	94.4%	100%	100%	86.3%	100%	100%
Jefferson	96.0%	97.3%	100%	94.7%	94.7%	100%
LaPorte City	76.0%	100%	85.7%	65.6%	100%	n/a
Manchester	88.0%	100%	100%	59.1%	100%	100%
Marshalltown	96.0%	98.0%	100%	92.3%	95.8%	100%
Mason City	96.0%	98.0%	100%	92.0%	100%	91.3%
Mount Ayr	90.0%	98.0%	100%	66.7%	96.4%	100%
Mount Pleasant	97.3%	100%	100%	93.9%	100%	100%
Newton	91.0%	95.0%	75.0%	88.0%	91.7%	100%
Northwood	100%	100%	100%	100%	100%	100%
Ottumwa	90.9%	100%	100%	75.7%	100%	100%
Pocahontas	94.0%	94.0%	n/a	100%	90.0%	100%
Red Oak	94.7%	97.3%	100%	87.5%	96.3%	100%
Sioux City	97.6%	96.0%	100%	88.0%	92.9%	100%
Spencer	99.0%	100%	100%	90.9%	100%	100%
Sumner	76.0%	100%	85.7%	59.3%	100%	n/a
Wapello	80.0%	100%	50.0%	60.0%	100%	100%
Waterloo	84.8%	100%	100%	60.4%	100%	100%
Waverly	86.7%	100%	100%	76.7%	100%	n/a
Wellman	90.0%	100%	100%	75.0%	100%	n/a

Table 9. Percent of Children Properly Restrained by Community Size, 2022

Communities 1,000 - 2,499	Guttenberg	88.0%
	Sumner	76.0%
	LaPorte City	76.0%
	Corydon	100%
	Pocahontas	94.0%
	Wapello	80.0%
	Guthrie Center	94.0%
	Wellman	90.0%
	Northwood	100%
	Mount Ayr	90.0%
Communities 2,500 - 9,999	Holstein	100%
	Waverly	86.7%
	Belle Plaine	94.7%
	Algona	94.7%
	Cherokee	88.0%
	Jefferson	96.0%
	Manchester	88.0%
	Red Oak	94.7%
	Mount Pleasant	97.3%
Hawarden	98.7%	
Communities 10,000 - 49,999	Spencer	99.0%
	Clinton	83.0%
	Newton	91.0%
	Fort Dodge	90.0%
	Mason City	96.0%
	Marshalltown	96.0%
	Ottumwa	90.9%
Communities 50,000+	Dubuque	86.4%
	Des Moines	99.2%
	Council Bluffs	97.6%
	Ames	97.6%
	Sioux City	97.6%
	Iowa City	94.4%
	Davenport	84.0%
	Cedar Rapids	83.2%
Waterloo	84.8%	

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, 77.3% of all children and youth were observed in the back seat. Almost all the children in child safety seats (99.6%) and booster seats (99.2%) were placed in the backseat. However, of those restrained only by a seat belt the percentages were slightly more equally distributed between the front (33.7%) and back (66.3%). Unrestrained children were mainly in the back (92.9%), compared to the front (7.1%).

Table 10. Type of Restraint Use by Location in the Vehicle, 2022

Restraint Type	Front Seat	Back Seat	Total
Child Safety Seat with Seat belt	3 / 0.4%	679 / 99.6%	682
Booster Seat with Seat belt	4 / 1.3%	293 / 98.7%	297
Seat belt only	683 / 33.7%	1,346 / 66.3%	2,029
Not Restrained	3 / 7.1%	39 / 92.9%	42
Total	693 / 22.7%	2,357 / 77.3%	3,050*

**65 missing data*

The surveyors also noted whether the motor vehicle drivers were wearing their seat belts. 99.8% of the drivers observed were wearing a seat belt, which held steady with 2021 (99.8%). Tables 11 and 12 list observed driver seat belt use by community size and for each community, respectively.

Table 11. Driver Seat Belt Use by Community Size, 2022

Community Size	Driver Belted	Driver Not Belted	Total
1,000-2,499	269 / 99.3%	2 / 0.7%	271
2,500-9,999	342 / 100%	0 / 0%	342
10,000-49,999	394 / 100%	0 / 0%	394
≥ 50,000	569 / 100%	0 / 0%	569
Total	1,574 / 99.8%	2 / 0.2%	1,576*

**64 missing data*

Table 12. Driver Seat Belt Use, 2022

	Total Drivers Observed	Number Drivers Belted	% Drivers Belted	Number Drivers Not Belted	% Drivers Not belted
Algona	44	44	100	0	0
Ames	87	87	100	0	0
Belle Plaine	32	32	100	0	0
Cedar Rapids	67	67	100	0	0
Cherokee	38	38	100	0	0
Clinton	48	48	100	0	0
Corydon	30	30	100	0	0
Council Bluffs	80	80	100	0	0
Davenport	53	53	100	0	0
Des Moines	74	74	100	0	0
Dubuque	49	49	100	0	0
Fort Dodge	51	51	100	0	0
Guthrie Center	24	24	100	0	0
Guttenberg	20	20	100	0	0
Hawarden	43	43	100	0	0
Holstein	32	32	100	0	0
Iowa City	47	47	100	0	0
Jefferson	50	50	100	0	0
LaPorte City	22	22	100	0	0
Manchester	31	31	100	0	0
Marshalltown	68	68	100	0	0
Mason City	70	70	100	0	0
Mount Ayr	31	31	100	0	0
Mount Pleasant	35	35	100	0	0
Newton	50	50	100	0	0
Northwood	25	25	100	0	0
Ottumwa	47	47	100	0	0
Pocahontas	24	23	95.8	1	4.2
Red Oak	35	35	100	0	0
Sioux City	62	62	100	0	0
Spencer	60	60	100	0	0
Sumner	24	24	100	0	0
Wapello	14	13	92.9	1	7.1
Waterloo	50	50	100	0	0
Waverly	34	34	100	0	0
Wellman	25	25	100	0	0
TOTAL	1,576	1574	99.9	2	0.1

Conclusions

Results from the 2022 survey indicate that the majority of lowans understand the importance of restraining their children. This is especially true for infants (100%) being restrained in child safety seats. Among children aged 5 and under, 0% were observed to be not restrained by any means. This trend held constant from 2021. In addition, no drastic difference was observed from 2021 driver restraint rates (99.7%) to 2022 (99.8%).

The results also revealed there are still several areas with room for improvement. It remains pertinent that lowans be informed on the importance of using booster seats, child safety seats, and what type of restraint their child needs in accordance with Iowa law. The 2022 results showed children aged 2-5 had the highest rate of being improperly restrained. For instance, children who fall within this age group should be restrained by a safety seat or booster, however, 21.4% of children were restrained by a seat belt only. In addition, a concerning trend emerged in cities where children aged 2 and under were not properly restrained by a child safety seat per Iowa law. Instead, children in some cities were restrained by a booster (Davenport, LaPorte City, Sumner, Dubuque) or seat belt only (Newton, Wapello).

In accordance with the years 2018-2020, the 2022 survey results indicate lower rates of restraint use in smaller communities. Restraint use by any means among all children was highest (99.2%) in the largest communities ($\geq 50,000$), compared to smaller community sizes. In 2022, the lowest level of restraint use (97.9%) was observed in communities with a population between 2,500–9,999. This is comparable to the previous years, 2018-2020, in which restraint use is more frequent in larger communities.

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, 77.3% of all children and youth were observed in the back seat. Almost all the children in child safety seats (99.6%) and booster seats (98.7%) were placed in the back seat, while 66.3% of those restrained only with a seat belt were secured in the back seat. Of the passengers riding unrestrained, the percentage riding in the front seat increased from 3.8% in 2021 to 7.1% in 2022. This emphasizes a continued need to reach out to drivers on the importance of child restraint use in all seating positions within a vehicle and encouraging placement of children in the back seat whenever possible.

The 2022 Iowa Child Passenger Restraint Survey was successfully completed and will continue to provide valuable comparison information for years to come.

Appendix A

Iowa's 2022 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

Principal Investigator

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Appendix B

Comparison of 2018- 2022 Iowa Child Passenger Safety Survey Results

The following Tables allow for comparison between the 2018-2022 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	2018	2019	2020	2021	2022
< 2	204 / 6.9%	200 / 6.5%	157 / 6.7%	160 / 5.4%	200 / 6.6%
2-5	763 / 25.6%	834 / 27.0%	595 / 25.5%	1085 / 36.5%	929 / 30.5%
6-13	145 / 48.5%	1,501 / 48.6%	1,154 / 49.5%	1,618 / 54.4%	1,574 / 51.6%
14-17	568 / 19.1%	556 / 18.0%	426 / 18.3%	112 / 3.8%	345 / 11.3%
Total	2,980 / 100%	3,091 / 100%	2,404 / 100%	2,975 / 100%	3,048 / 100%

**Comparison Table 2
Restraint Use by Child's Age**

% Not Restrained						% Restrained					
Age	2018	2019	2020	2021	2022	Age	2018	2019	2020	2021	2022
< 2	0.0%	1.0%	0.0%	0.0%	0.0%	< 2	100%	99.0%	100%	100%	100%
2-5	1.3%	2.2%	1.3%	0.0%	0.0%	2-5	98.7%	97.8%	98.7%	100%	100%
6-13	3.3%	3.5%	6.2%	5.6%	2.4%	6-13	96.7%	96.5%	93.9%	94.4%	97.6%
14-17	4.9%	7.7%	14.6%	12.0%	1.2%	14-17	95.1%	92.3%	85.5%	88.0%	98.8%
Total	2.9%	3.7%	6.1%	3.5%	1.4%	Total	97.1%	96.3%	94.0%	96.5%	98.6%

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

Child Safety Seat with Seat belt						Booster Seat with Seat belt					
Age	2018	2019	2020	2021	2022	Age	2018	2019	2020	2021	2022
< 2	98.5%	99.0%	99.4%	100%	100%	< 2	1.0%	0.0%	0.0%	0.0%	2.0%
2-5	58.7%	58.0%	58.4%	53.3%	52.0%	2-5	33.8%	34.5%	36.7%	28.4%	26.6%
6-13	1.0%	1.9%	2.3%	0.3%	0.4%	6-13	20.8%	18.5%	21.4%	3.9%	2.9%
14-17	0.0%	0.0%	0.0%	0.0%	0.0%	14-17	0.2%	0.2%	0.2%	0.0%	0.0%
Total	22.3%	23.0%	22.8%	24.9%	22.4%	Total	18.8%	18.3%	20.0%	12.5%	9.7%

Seat belt Only						Not Restrained					
Age	2018	2019	2020	2021	2022	Age	2018	2019	2020	2021	2022
< 2	0.5%	0.0%	0.6%	0.0%	1.5%	< 2	0.0%	1.0%	0.0%	0.0%	0.0%
2-5	6.2%	5.3%	3.5%	18.4%	21.4%	2-5	1.3%	2.2%	1.4%	0.0%	0.0%
6-13	75.0%	76.2%	70.1%	90.3%	94.3%	6-13	3.3%	3.5%	6.2%	5.6%	2.4%
14-17	94.9%	92.1%	85.2%	88.0%	98.8%	14-17	4.9%	7.7%	14.6%	12.0%	1.2%
Total	56.1%	55.0%	51.1%	59.1%	66.5%	Total	2.9%	3.7%	6.1%	3.5%	1.4%

**Comparison Table 4
Restraint Use by Community Size**

Community Size	Percent Restrained (by any means)					Percent Restrained Properly*					Percent Not Restrained				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
1,000-2,499	93.3%	92.2%	88.8%	97.3%	98.9%	90.4%	89.7%	88.0%	89.6%	89.7%	6.7%	7.8%	11.2%	2.7%	1.1%
2,500-9,999	98.2%	95.6%	93.0%	96.6%	97.9%	97.1 %	94.7%	91.7%	90.2%	93.1%	1.8%	4.4%	7.0%	3.4%	2.1%
10,000-49,999	96.0%	95.9%	95.8%	95.2%	98.1%	94.4 %	94.4 %	94.0 %	89.5%	93.1%	4.0%	4.1%	4.2%	4.8%	1.9%
≥ 50,000	99.0%	98.9%	96.9%	96.9%	99.2%	97.5 %	97.7 %	96.5 %	89.9%	91.2%	1.0%	1.1%	3.2%	3.1%	0.8%
Total	97.1%	96.3%	93.9%	96.5%	98.6%	95.4%	94.9%	93.0%	89.8%	91.9%	2.9%	3.7%	6.1%	3.5%	1.4%

*Properly means in compliance with Iowa law.

**Comparison Table 5
Type of Restraint Use by Community Size**

Community Size	Child Safety Seat with Seat belt					Booster Seat with Seat belt				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
1,000-2,499	19.0%	18.4%	17.3%	25.9%	20.8%	16.1%	15.9%	18.2%	13.1%	10.0%
2,500-9,999	24.3%	23.4%	24.6%	20.6%	24.0%	18.8%	17.0%	18.9%	13.0%	10.8%
10,000-49,999	18.6%	23.2%	21.7%	24.7%	22.8%	19.7%	19.6%	21.9%	9.0%	7.7%
≥ 50,000	23.9%	24.4%	25.6%	27.2%	22.0%	19.4%	19.5%	20.0%	14.0%	10.2%
Total	21.9%	22.9%	22.7%	24.9%	22.4%	18.7%	18.3%	19.7%	12.5%	9.7%

Community Size	Seat belt only					Not Restrained				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
1,000-2,499	56.9%	57.9%	53.4%	58.3%	68.1%	8.0%	7.8%	11.2%	2.7%	1.1%
2,500-9,999	55.1%	54.8%	48.6%	63.0%	63.1%	1.9%	4.8%	8.0%	3.4%	2.1%
10,000-49,999	57.3%	52.3%	79.8%	61.4%	67.7%	4.4%	4.9%	6.7%	4.9%	1.9%
≥ 50,000	55.5%	54.9%	50.7%	55.8%	67.0%	1.2%	1.1%	3.7%	3.1%	0.8%
Total	56.1%	54.8%	50.7%	59.1%	66.5%	3.3%	4.0%	7.0%	3.5%	1.4%

**Comparison Table 6
Restraint Use by Child Age and Survey Location**

	Percent Age < 2 Properly* Restrained					Percent Age 2-5 Properly* Restrained				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
Algona	100%	100%	100%	100%	100%	95.0%	95.8%	95.8%	75.0%	86.7%
Ames	100%	100%	100%	100%	100%	95.1%	91.7%	100%	83.3%	92.3%
Belle Plaine	100%	100%	100%	100%	100%	93.3%	94.7%	100%	90.9%	87.5%
Cedar Rapids	100%	100%	100%	100%	100%	83.3%	90.9%	92.3%	91.8%	62.5%
Cherokee	100%	100%	100%	100%	100%	95.5%	92.0%	95.7%	100%	83.3%
Clinton	100%	100%	100%	100%	100%	85.7%	96.2%	85.7%	60.5%	76.7%
Corydon	100%	100%	100%	n/a	100%	91.7%	100%	100%	100%	100%
Council Bluffs	100%	100%	100%	100%	100%	100%	94.9%	100%	86.2%	100%
Davenport	75.0%	100%	100%	100%	93.8%	100%	69.7%	90%	75.9%	68.3%
Des Moines	100%	100%	100%	100%	100%	97.3%	100%	100%	100%	96.2%
Dubuque	100%	100%	100%	100%	85.7%	87.5%	100%	100%	68.6%	66.7%
Fort Dodge	100%	100%	100%	100%	100%	87.0%	100%	95.7%	100%	75.0%
Guthrie Center	100%	100%	100%	100%	100%	100%	100%	100%	91.7%	90.9%
Guttenberg	100%	100%	100%	100%	100%	82.4%	100%	100%	63.0%	60.0%
Hawarden	100%	100%	100%	100%	100%	100%	93.8%	88.2%	85.7%	100%
Holstein	100%	100%	100%	100%	100%	100%	100%	100%	77.8%	100%
Iowa City	100%	100%	100%	100%	100%	98.1%	96.8%	100%	87.5%	86.3%
Jefferson	100%	100%	100%	100%	100%	100%	100%	90.9%	87.5%	94.7%
LaPorte City	100%	100%	100%	100%	85.7%	75.0%	60.0%	75%	78.6%	65.6%
Manchester	100%	100%	100%	100%	100%	94.1%	87.5%	100%	60.7%	59.1%
Marshalltown	100%	66.7%	100%	100%	100%	96.8%	86.2%	83.3%	92.3%	92.3%
Mason City	100%	100%	100%	100%	100%	100%	96.2%	92.9%	92.6%	92.0%
Mount Ayr	100%	100%	100%	100%	100%	100%	72.7%	66.7%	92.3%	66.7%
Mt. Pleasant	100%	100%	100%	100%	100%	90.6%	89.5%	100%	84.4%	93.9%
Newton	88.9%	100%	100%	n/a	75.0%	87.5%	100%	93.8%	71.4%	88.0%
Northwood	100%	100%	100%	100%	100%	100%	78.6%	90.9%	100%	100%
Ottumwa	100%	100%	100%	100%	100%	77.8%	75.0%	96.2%	72.9%	75.7%
Pocahontas	100%	100%	100%	100%	n/a	100%	95.7%	100%	70.6%	100%
Red Oak	100%	100%	100%	100%	100%	94.4%	95.0%	88.9%	85.7%	87.5%
Sioux City	100%	100%	100%	100%	100%	96.4%	100%	97.2%	72.2%	88.0%
Spencer	100%	100%	100%	100%	100%	96.2%	93.3%	100%	100%	90.9%
Sumner	100%	100%	100%	100%	85.7%	87.5%	83.3%	100%	69.0%	59.3%
Wapello	100%	100%	100%	100%	50.0%	68.8%	84.6%	100%	85.7%	60.0%
Waterloo	100%	100%	100%	100%	100%	81.8%	97.4%	97.3%	77.6%	60.4%
Waverly	100%	100%	100%	100%	100%	94.7%	100%	100%	75.6%	76.7%
Wellman	100%	100%	100%	100%	100%	78.6%	66.7%	100%	85.7%	75.0%

*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				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
Algona	89.2%	93.9%	93.9%	100%	95.5%	100%	76.9%	76.9%	100%	100%
Ames	97.9%	100%	95.1%	100%	98.4%	100%	100%	94.1%	83.3%	100%
Belle Plaine	100%	97.4%	100%	100%	100%	100%	100%	75.0%	n/a	n/a
Cedar Rapids	98.2%	97.1%	96.2%	100%	100%	100%	100%	90.9%	n/a	100%
Cherokee	100%	97.0%	96.8%	91.4%	86.7%	87.5%	75.0%	90.9%	71.4%	93.8%
Clinton	98.1%	100%	88.9%	100%	100%	100%	100%	100%	100%	100%
Corydon	85.7%	84.4%	76.2%	100%	100%	58.3%	80.0%	73.3%	100%	100%
Council Bluffs	100%	96.1%	96.8%	79.8%	95.5%	95.7%	100%	100%	57.1%	100%
Davenport	100%	100%	97.8%	100%	100%	100%	100%	100%	100%	100%
Des Moines	97.9%	98.3%	96.2%	85.9%	100%	91.3%	93.8%	81.8%	71.4%	100%
Dubuque	97.4%	98.4%	98.4%	100%	100%	100%	100%	95.5%	100%	100%
Fort Dodge	97.8%	97.7%	96.0%	85.9%	93.0%	94.4%	100%	100%	100%	100%
Guthrie Center	89.5%	93.3%	92.3%	83.3%	93.9%	86.7%	81.3%	42.9%	n/a	100%
Guttenberg	100%	100%	100%	100%	100%	100%	100%	100%	n/a	100%
Hawarden	91.4%	86.5%	84.2%	92.2%	100%	100%	81.3%	43.8%	100.0%	92.3%
Holstein	100%	92.3%	100%	93.1%	100%	100%	60%	69.2%	85.7%	100%
Iowa City	100%	100%	76.9%	100%	100%	100%	100%	100%	100%	100%
Jefferson	100%	97.4%	100%	95.6%	94.7%	100%	54.6%	62.5%	100%	100%
LaPorte City	96.2%	100%	100%	100%	100%	100%	85.7%	87.5%	100%	n/a
Manchester	100%	100%	100%	100%	100%	100%	100%	90.1%	100%	100%
Marshalltown	96.7%	83.0%	100%	100%	95.8%	85.0%	83.3%	66.7%	100%	100%
Mason City	94.0%	97.7%	96.6%	93.7%	100%	92.0%	95.5%	87.5%	33.3%	91.3%
Mount Ayr	79.3%	90.0%	77.8%	100%	96.4%	80.0%	73.3%	100%	n/a	100%
Mt. Pleasant	100%	100%	100%	100%	100%	100%	100%	84.2%	100%	100%
Newton	97.5%	87.0%	92.0%	75.5%	91.7%	90.9%	94.1%	87.5%	33.3%	100%
Northwood	82.6%	82.6%	85.2%	81.3%	100%	78.6%	66.7%	80.0%	n/a	100%
Ottumwa	90.4%	100%	94.5%	100%	100%	92.3%	100%	90.9%	100%	100%
Pocahontas	100%	84.6%	73.1%	100%	90.0%	84.6%	72.7%	66.7%	n/a	100%
Red Oak	96.7%	94.3%	96.8%	81.6%	96.3%	93.3%	100%	66.7%	n/a	100%
Sioux City	93.6%	100%	97.6%	100%	92.9%	100%	95.8%	89.3%	n/a	100%
Spencer	100%	100%	100%	96.5%	100%	100%	90.9%	93.3%	100%	100%
Sumner	100%	95.2%	93.1%	100%	100%	100%	100%	85.7%	100%	n/a
Wapello	95.8%	96.6%	86.4%	100%	100%	100%	100%	92.9%	100%	100%
Waterloo	100%	100%	98.4%	100%	100%	100%	100%	88.9%	100%	100%
Waverly	100%	100%	97.7%	100%	100%	100%	100%	85.7%	n/a	n/a
Wellman	87.0%	100%	83.9%	100%	100%	100%	100%	100%	100%	n/a

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

Restraint Type	Front Seat					Back Seat				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
Child Safety Seat with Seat belt	0.6%	1.8%	1.3%	0.4%	0.4%	99.4%	98.2%	98.7%	99.6%	99.6%
Booster Seat with Seat belt	1.9%	1.2%	1.7%	0.8%	1.3%	98.1%	98.8%	98.3%	99.2%	98.7%
Seat belt only	49.5%	47.9%	45.0%	21.2%	33.7%	50.5%	52.1%	55.0%	78.6%	66.3%
Not Restrained	36.6%	47.1%	50.3%	3.8%	7.1%	63.4%	52.9%	49.7%	96.2%	92.9%
Total	29.4%	28.8%	26.9%	12.8%	22.7%	70.6%	71.2%	73.1%	87.2%	77.3%

**Comparison Table 8
Driver Seat Belt Use by Community Size**

Community Size	Driver Belted					Driver Not Belted				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
1,000-2,499	89.2%	90.4%	84.4%	100%	99.3%	10.8%	9.6%	15.6%	0.0%	0.7%
2,500-9,999	94.8%	92.2%	88.1%	100%	100%	5.2%	7.8%	11.9%	0.0%	0%
10,000-49,999	93.6%	93.9%	89.7%	98.4%	100%	6.4%	6.1%	10.3%	1.6%	0%
≥ 50,000	96.5%	97.5%	95.2%	100%	100%	3.5%	2.5%	4.8%	0.0%	0%
Total	94.0%	94.1%	90.2%	99.7%	99.8%	6.0%	5.9%	9.9%	0.3%	0.2%

Comparison Table 9

Driver Seat Belt Use by Survey Location

	Percent Drivers Belted					Percent Drivers NOT Belted				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
Algona	84.8%	84.8%	96.2%	100%	100	15.2%	15.2%	3.9%	0.0%	0
Ames	95.8%	100%	94.1%	100%	100	4.2%	0.0%	5.9%	0.0%	0
Belle Plaine	97.8%	98.0%	94.3%	100%	100	2.2%	2.0%	5.71%	0.0%	0
Cedar Rapids	93.9%	98.8%	95.7%	100%	100	6.1%	1.2%	4.3%	0.0%	0
Cherokee	91.5%	91.3%	97.7%	100%	100	8.5%	8.7%	2.3%	0.0%	0
Clinton	97.5%	100%	95.5%	100%	100	2.5%	0.0%	4.6%	0.0%	0
Corydon	77.8%	90.6%	81.3%	100%	100	22.2%	9.4%	18.8%	0.0%	0
Council Bluffs	94.8%	94.7%	97.8%	100%	100	5.2%	5.3%	2.2%	0.0%	0
Davenport	98.8%	100%	98.2%	100%	100	1.2%	0.0%	1.8%	0.0%	0
Des Moines	93.7%	97.1%	91.8%	100%	100	6.3%	2.9%	8.2%	0.0%	0
Dubuque	97.4%	98.9%	97.2%	100%	100	2.6%	1.1%	2.8%	0.0%	0
Fort Dodge	92.2%	98.3%	91.3%	92.7%	100	7.8%	1.7%	8.7%	7.3%	0
Guthrie Center	81.1%	90.3%	91.3%	100%	100	18.9%	9.7%	12.9%	0.0%	0
Guttenberg	97.3%	100%	100%	100%	100	2.7%	0.0%	0.0%	0.0%	0
Hawarden	91.1%	87.8%	80.9%	100%	100	8.9%	12.2%	19.2%	0.0%	0
Holstein	86.7%	87.5%	85.0%	100%	100	13.3%	12.5%	15.0%	0.0%	0
Iowa City	100%	98.4%	100%	100%	100	0.0%	1.6%	0.0%	0.0%	0
Jefferson	97.6%	89.1%	74.2%	100%	100	2.4%	10.9%	25.8%	0.0%	0
LaPorte City	94.9%	94.4%	100%	100%	100	5.1%	5.6%	0.0%	0.0%	0
Manchester	98.1%	100%	100%	100%	100	1.9%	0.0%	0.0%	0.0%	0
Marshalltown	89.5%	86.2%	94.3%	100%	100	10.5%	13.8%	5.7%	0.0%	0
Mason City	95.0%	98.4%	88.4%	100%	100	5.0%	1.6%	11.6%	0.0%	0
Mount Ayr	80.0%	81.8%	74.3%	100%	100	20.0%	18.2%	25.7%	0.0%	0
Mount Pleasant	98.0%	100%	92.5%	100%	100	2.0%	0.0%	7.5%	0.0%	0
Newton	88.1%	87.9%	86.1%	100%	100	11.9%	12.1%	14.0%	0.0%	0
Northwood	80.7%	81.5%	100%	100%	100	13.4%	18.5%	0.0%	0.0%	0
Ottumwa	93.1%	98.7%	97.6%	100%	100	6.9%	1.3%	2.4%	0.0%	0
Pocahontas	86.5%	85.2%	85.2%	100%	95.8	13.5%	14.8%	14.8%	0.0%	4.2
Red Oak	94.1%	94.2%	86.1%	100%	100	5.9%	5.8%	14.0%	0.0%	0
Sioux City	94.6%	100%	91.4%	100%	100	5.4%	0.0%	8.6%	0.0%	0
Spencer	98.6%	93.0%	94.7%	100%	100	1.5%	7.0%	5.3%	0.0%	0
Sumner	100%	97.1%	91.7%	100%	100	0.0%	2.9%	8.3%	0.0%	0
Wapello	97.4%	97.4%	89.7%	100%	92.9	2.6%	2.6%	10.3%	0.0%	7.1
Waterloo	100%	100%	98.3%	100%	100	0.0%	0.0%	1.7%	0.0%	0
Waverly	100%	100%	96.2%	100%	100	0.0%	0.0%	3.9%	0.0%	0
Wellman	94.7%	100%	91.2%	100%	100	5.3%	0.0%	8.8%	0.0%	0
TOTAL	94.0%	95.5%	92.2%	99.7%	99.9	6.0%	4.5%	7.9%	0.3%	0.1