

OKLAHOMA STATEWIDE CHILD RESTRAINT SURVEY

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EXECUTIVE SUMMARY

This report compares the use of child restraints (car seats and safety belts) in passenger vehicles in Oklahoma across eight observation periods: July 2007, July 2008, July 2009, June 2010, June 2011, June 2012, June 2013, and June 2014. Visual observations were made at 100 different locations selected on the basis of geography, population, and urban versus non-urban status. Drivers and child passengers from infants to eight years old were observed to determine proper restraint usage. Twenty-five children were observed at each of the 100 sites on one specified date per site, yielding a statewide total of 2,500 observations.

Percent Restrained

	2007	2008	2009	2010	2011	2012	2013	2014
Combined	85.4	85.0	86.3	85.5	82.6	89.1	87.8	89.9
Infants (Up to 1 year)	82.5	68.8	74.6	73.1	64.0	82.2	72.0	79.3
Children (1-8 years)	85.7	87.3	87.9	87.5	85.6	90.7	90.0	91.2

Overall, the combined percentage of infants and children restrained has increased from 85.4% in 2007 to 89.9% in 2014. The 2014 rate is the highest recorded percent using the current approach. Similar trends have been seen for infants and children respectively, with 2014 showing increases for both groups. The results from 2014 suggest that the declines found in 2013 were anomalies and that usage rates are showing a slow upward trend across time.

The National Highway Traffic Safety Administration's (NHTSA) State Data System Analysis (Kindelberger and Starnes, 2003) reports that since 1995 more children have been placed in the back seat indicating positive effects of child safety campaigns. Furthermore, infants and children placed in the front seat of vehicles are left unrestrained at a greater rate than their counterparts in the back seat (Pickrell and Ye, 2009). Oklahoma observations during 2014 support the NHTSA findings. Oklahoma infants and small children are less likely to be restrained in the front seat (81.3% restrained) than in the back seat (89.3% restrained).

Substantial differences in restraint rates exist across the regions of the state. It should be noted that the Oklahoma City Metro area was significantly lower than the other regions and that it was also significantly lower than in previous years. Future studies will be needed to determine if this finding is an anomaly or part of a larger trend.

Regional Restraint Rates – 2011-2014

Region	Percent Restrained in 2011	Percent Restrained in 2012	Percent Restrained in 2013	Percent Restrained in 2014
Oklahoma City Metro	98.5	93.5	82.5	92.0
Tulsa Metro	88.9	94.8	93.7	91.4
Southwest	85.7	87.7	74.9	89.4
Tulsa	81.9	90.9	90.7	93.9
Oklahoma City	80.9	85.7	93.1	82.7
Northwest	80.6	90.7	89.1	90.3
Northeast	76.9	96.4	86.7	90.7
Southeast	72.4	93.9	95.2	92.8

The greatest variation in use of child restraints was found when considering whether or not the driver was belted. Infants and small children are more likely to be restrained when the driver is wearing a seatbelt (94.6%) than when the driver is not belted (58.8%). Infants and children are much more likely to be restrained when riding in a vehicle with a belted driver compared to those riding with an unbelted driver. Pickrell and Ye’s recent report (2009) on child restraint use notes that 92% of birth to seven year old children driven by buckled drivers were restrained; this compares to 54% for children riding with unbelted drivers. The 2014 results closely mirror the results found by Pickrell and Ye (2009).

Percent Restrained by Driver Belted or Not

	Driver Belted	Driver Not Belted
Combined	94.6	58.8
Infants (Up to 1 year)	78.9	Inadequate sample size
Children (1-8 years)	96.6	57.0

The benefits of child restraint use continue to be substantial. NHTSA notes that over the period 1975 through 2007, an estimated 8,709 lives were saved by child restraints (child restraints and adult safety belts). Among children under the age of five, an estimated 382 lives were saved in 2007 by child

restraint use. An estimated 543 lives could have been saved in 2007 if all children less than five had been restrained. Research on child safety seats has found them to reduce fatal injury by 71% for infants and by 54% for toddlers (1-4 years old) in passenger cars. These reductions are 58% and 59%, respectively, for infants and toddlers riding in pickup trucks (NHTSA, 2008).

The 2014 Oklahoma child restraint study shows a very strong connection between driver seat belt use and the use of child passenger restraints, reconfirming the conclusions of previous years: education and public awareness of child restraint protections are strongly related. Special attention to pickup truck drivers should be continued as the protection of infants and children riding in pickup trucks remains lower than any other vehicle type (cars, SUVs, Jeeps, or vans).

Overall, it appears that 2014 showed a return to the steady upward trend and that 2013 was likely an anomaly. In light of the data collected in the 2014 study, our recommendations suggest a building upon recent successes and suggest that Oklahoma does the following:

- Continue to encourage and support *vigorous* enforcement of penalties for noncompliance with the Child Passenger Restraint System Act;
- Collect county-level data on enforcement of the use of passenger belts and child restraint devices to document the relationship between enforcement and restraint use;
- Direct special attention (enforcement and education efforts) toward pickup truck drivers since the protection rate of child passengers riding in pickup trucks remains much lower than for any other kind of vehicle;
- Continue to develop and expand statewide public education and awareness programs using guidelines proposed by NHTSA, by encouraging the use of booster seats for older children, the placing of infants and small children in the back seat of all vehicles, and the elimination of exemptions; and,
- Promote the use of child restraints in identified populations where the highest percentage of young children and their parents are located. This would likely include day care centers, doctor offices, hospitals, and faith-based organizations. Proper instructions for parents, grandparents, older siblings, and other care givers of infants and small children are especially important.

OKLAHOMA CHILD RESTRAINT OBSERVATION STUDY: 2014

INTRODUCTION

This report is the 28th statewide observation study of the use of child restraints by infants (birth to one year) and small children (one to eight years of age) in Oklahoma. The study was conducted by the University of Central Oklahoma (UCO), College of Education and Professional Studies (CEPS), Department of Adult Education and Safety Sciences (AESS), Industrial Safety Program, under contract with the Oklahoma Highway Safety Office (OHSO). Observations occurred during June 2014.

The Institute for Public Affairs developed the survey instrument (Appendix A) using various sources, including but not limited to the National Highway Traffic Safety Administration's (NHTSA) 1983 *Guidelines for Conducting a Survey of the Use of Safety Belts and Child Safety Seats*, and NHTSA publications, *Are You Using It Right?* (IP0040), and *Child Transportation Safety Tips* (IP0835). The observation survey instrument includes: age of child, use or non-use of child restraint devices, position child is facing in the vehicle, location of the child in the vehicle, vehicle type, and the driver's use or non-use of a seat belt. For continuity purposes, UCO's College of Education and Professional Studies, Department of Adult Education and Safety Sciences, Industrial Safety Program used the survey instrument (Appendix A) developed by the Institute of Public Affairs at the University of Oklahoma.

BACKGROUND

In March 1983, the Oklahoma Legislature approved H.B. 1005 which required the use of "a passenger restraint system or a properly secured seat belt for children up to the ages of four or five." The law provided that if a motorist with children was observed to be in violation of the law, a law enforcement officer had the discretion to stop the motorist and give the violator a "verbal warning" on the dangers of non-restraint. The statute granted no enforcement or punitive measures for use by the law enforcement officer.

Amendments to the law in 1987 strengthened the 1983 Child Passenger Restraint System Act by providing penalties and fines for violators who failed to properly protect child passengers in their vehicles. The law was amended again in 2004 (S.B.1224) to increase the age of children who are required to be transported using a child restraint system to include those under the age of six (6). The 2004 amendments also state children at least six years of age but younger than 13 years of age shall be protected by the use of a child restraint system or a seat belt.

This study was conducted so as to replicate the previous studies. The basic design for the initial study was a variation on cluster sampling in which a random selection of observation sites was made based on population and geographic distribution. A sufficiently large number of observations were taken to assure a reasonable level of confidence in the results. The methodology

employed is included as Appendix B.

Table 1 also provides the frequency distributions for other sample characteristics from the 2008 to 2014 surveys. The percentage of infants observed (10.8%) is in line with historical averages, but down from the 12.0% observed in 2013. As in past years, the preponderance of vehicles observed were automobiles (85.4%). Of the drivers, 87.0% were belted.

TABLE 1							
Frequency Distribution of Sample Characteristics, 2008 - 2014							
CHARACTERISTIC							
<u>Age (N=2,500)</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
Infants (Birth - 1 year)	12.2	12.0	13.5	14.2	9.7	12.0	10.8
Children (1-8 years)	87.8	88.0	86.5	85.8	90.3	88.0	89.2
<u>Type of Restraint (N=2,500)</u>							
Car Seat	41.8	44.5	48.1	40.8	47.5	52.2	52.3
Seat Belt	46.5	44.6	40.5	45.9	44.1	38.8	39.7
No Restraint	11.7	10.9	11.4	13.2	8.4	9.0	8.0
<u>Type of Vehicle (N=2,500)</u>							
Automobile*	87.3	87.2	87.2	85.9	86.6	83.9	85.4
Pickup	12.7	12.8	12.8	14.1	13.4	16.1	14.6
<u>Driver (N=2,500)</u>							
Belted	83.5	83.3	88.4	81.0	86.5	86.4	87.0
Not Belted	16.5	16.7	11.6	19.0	13.5	13.6	13.0

*SUVs, Jeeps, vans, and cars are included within the automobile category for analysis.

ANALYSIS OF STATEWIDE CHILD RESTRAINT USE

The analyses in this section describe child restraint use for the state as a whole for both infants (birth to one year) and small children (from one to eight years of age), then separately for infants and small children during seven separate time periods (from 2008 to 2014). The remainder of the data is presented as combined ages to permit easier comparisons by regions within the state and to facilitate comparisons of Oklahoma data with national usage rates (see Table 2 below).

TABLE 2
Child Restraint Use, 2008 - 2014

<u>Percent Restrained</u>								
<u>N=2,500</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>Change 2013- 2014</u>
Restrained (proper and improper)	88.3	89.1	88.6	86.8	91.6	91.0	92.0	+1.0
Appropriately Restrained	85.0	86.3	85.5	82.6	89.1	87.8	89.9	+2.1
Appropriately Restrained as a Percent of Restrained (proper and improper)	96.3	96.8	96.5	95.2	97.3	96.5	97.7	+1.2
<u>Percent Restrained</u>								
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>Change 2013- 2014</u>
<u>Infants/Children</u>								
Infants	68.8	74.6	73.1	64.0	82.2	72.0	79.3	+7.3
Children	87.3	87.9	87.5	85.6	90.7	90.0	91.2	+1.2
Combined	85.0	86.3	85.5	82.6	89.1	87.8	89.9	+2.1
<u>Metropolitan Area</u>								
Metropolitan*	89.8	90.9	86.5	86.3	89.6	89.9	89.7	-0.2
Non-metropolitan	78.7	80.2	84.2	77.6*	90.3	85.1	90.2	+5.1

*Metropolitan areas include Oklahoma City, Oklahoma City Metro, Tulsa, Tulsa Metro, Enid, and Lawton.

According to the census bureau, Metropolitan Statistical Areas (MSAs) are made up of cities with 50,000 or more in population and include counties that are economically dependent on those central cities. The four Oklahoma MSAs include Oklahoma City proper combined with its outlying metropolitan areas, Tulsa proper combined with its outlying metropolitan areas, Enid along with the surrounding area of Garfield County, and Lawton including the surrounding area of Comanche County. The 2014 survey showed that the previously seen differences in usage rates between the more urban and rural areas appear to no longer be present.

Like other years, the analysis taking into account whether or not the driver was belted showed a stark contrast. The important conclusion from the analysis of these data is the fact that a very strong relationship exists between the driver’s use of a seat belt and the proper restraint of children overall. *If the driver is buckled up, children are much more likely to be protected as compared to children riding with unbelted drivers (94.6% versus 58.8%). Table 3.*

TABLE 3								
Child Restraint Use by Whether or Not the Driver is Belted, 2008-2014								
	<u>Percent Restrained</u>							
<u>Driver Belted</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>Change 2013-2014</u>
Infants	69.5	72.3	74.2	64.7	84.5	72.8	78.9	+6.1
Children	94.2	92.5	93.4	91.5	96.6	95.8	96.6	+0.8
Combined	91.0	89.9	90.7	87.7	95.4	92.8	94.6	+1.8
<u>Driver Not Belted</u>								
Infants	62.9	93.8*	55.0	61.2	65.5	61.9	NMF*	
Children	54.1	66.3*	45.4	60.7	55.8	55.7	57.0	+1.3
Combined	54.9	68.4	46.0	60.8	56.7	56.0	58.8	+2.6

*NMF = Not meaningful data due to very small sample size

As in the past, the 2014 study recorded the type of vehicle observed. Vehicles were categorized as automobiles and pickup trucks. Table 4 profiles the differences between the protection rate of infants and small children based on the type of vehicle in which they were riding. Like most previous years, the combined rate for all children properly restrained was higher for automobiles than it was for pickup trucks, although pickup truck drivers did continue to have a smaller gap compared to other recent years.

TABLE 4
Child Restraint Use by Type of Vehicle, 2008 – 2014

	<u>Percent Restrained</u>							
<u>Automobiles</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>Change</u> <u>2013-</u> <u>2014</u>
Infants	68.7	73.3	72.6	63.2	81.2	73.8	79.8	+6.0
Children	89.8	89.1	88.8	86.6	91.9	90.7	92.2	+1.5
Combined	87.4	87.1	86.4	83.0	90.9	88.6	90.8	+2.2
<u>Pickup Trucks</u>								
Infants	45.5	87.0	73.1	60.0	91.7	59.5	72.7	+13.2
Children	71.5	74.5	73.1	77.6	83.3	86.6	85.8	-0.8
Combined	69.7	75.4	73.1	76.1	83.9	84.1	85.0	+0.9
<u>Vans*</u>								
Infants	76.5	75.0	76.2	71.4				
Children	89.3	94.0	94.0	89.3				
Combined	86.8	91.7	92.0	86.8				

*Effective in 2012, the automobile category included vans, SUVs, Jeeps, and automobiles.

ANALYSIS OF CHILD RESTRAINT USE BY REGION

For the purposes of this study, the state was divided into four geographical regions, excluding the Oklahoma City and Tulsa areas. These regions include the Northwest (generally west of I-35 and north of I-40), Northeast (east of I-35 and north of I-40), Southwest (west of I-35 and south of I-40), and Southeast (east of I-35 and south of I-40). These four regions were analyzed as mutually exclusive units and compared to the state average. In addition to the four broad geographic regions, Tables 5 includes four other comparisons - Oklahoma City proper, the metropolitan area surrounding Oklahoma City, Tulsa proper, and the metropolitan area around Tulsa.

Table 5 below displays child restraint use by region from 2008 to 2014.

TABLE 5								
Child Restraint Use by Region (Combined Ages), 2008 – 2014								
<u>Region</u>	<u>Percent Restrained</u>							<u>Change 2013 - 2014</u>
	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	
Statewide, Combined Areas	85.0	86.3	85.3	82.6	89.1	87.8	89.9	+2.1
Oklahoma City	88.4	96.0	86.7	80.9	85.7	93.1	82.7	-10.4
Oklahoma City Metro	94.2	94.2	89.1	98.5	93.5	82.5	92.0	+9.5
Tulsa	88.3	85.6	86.7	81.9	90.9	90.7	93.9	+3.2
Tulsa Metro	92.6	88.6	85.7	88.9	94.8	93.7	91.4	-2.3
Northeast Region	83.8	84.4	88.7	76.9	96.4	86.7	90.7	-4.0
Northwest Region	87.4	89.1	84.0	80.6	90.7	89.1	90.3	+1.2
Southeast Region	74.4	74.0	78.0	72.4	93.9	95.2	92.8	-2.4
Southwest Region	74.3	76.9	82.0	85.7	87.7	74.9	89.4	+14.5

SUMMARY AND RECOMMENDATIONS

The results of the 2014 survey can be summarized as follows:

- The combined (infants and small children from birth to age 8) statewide rate for proper child restraint use was 89.9%. This is an increase compared to recent years and suggests a return to the gradual increase in usage rates across time.
- The percentage of infants and small children not restrained at all in 2014 was 8.0%. This was an improvement from the 2013 survey and was the lowest percentage recorded in recent years.
- Infants (birth to one year) were properly restrained at a rate of 79.3%. This rose significantly from the 2013 rate (i.e., 72%) and was the highest recent rate. The 2014 data suggests that last year's survey regarding infants may have been an anomaly.
- Small children (age 1- 8 years) were properly restrained at a rate of 91.2% (up from 90.0% in 2013).
- The difference between restraint use by infants and children observed in MSAs (89.7%) and those observed in non-MSAs (90.2%) appears to have closed compared to other recent surveys.
- Infants and small children traveling in automobiles were more likely to be properly restrained (90.8%) than those riding in pickup trucks (85.0%) although this difference continued the pattern of shrinking over time.
- Like previous surveys, the most striking distinction was in the difference between the safety of infants and small children riding in vehicles when the driver was using a seat belt (94.6% properly restrained) than when the driver was not belted (58.8% of children properly restrained) - a 35.8 percentage point difference. This data is a strong indication that these unbelted drivers now represent truly "hardcore" non-users.
- When comparing geographic regions, the large differences that had once existed are now smaller, though regional differences still exist. Usage rates varied from a low of 82.7% in Oklahoma City to a high of 93.9% in Tulsa.

The benefits of child restraint use continue to be substantial. NHTSA notes that over the period 1975 through 2007, an estimated 8,709 lives were saved by child restraints and adult safety belts. Among children under the age of five, an estimated 382 lives were saved in 2007 by child restraint use. An estimated 543 lives could have been saved in 2007 if all children less than five had been restrained. In 2007, of the 317 deaths of children under the age of 4, 28% were unrestrained,

when restraint use was known. Similarly, 44% of the 265 fatalities among children four to seven years old were unrestrained. Research on child safety seats has found them to reduce fatal injury by 71% for infants and by 54% for toddlers (1-4 years old) in passenger cars. These reductions are 58% and 59%, respectively, for infants and toddlers riding in pickup trucks (NHTSA, 2008).

The Oklahoma Highway Safety Office reports that there were 6,676 child passengers, infant to age 12, of passenger vehicles or pickup trucks in traffic crashes. Of these 6,676 child passengers, 22 were killed and 607 were seriously injured. Of the 22 fatalities, 12 were from infant to age five and ten were children age 6-12. Of the 12 child passenger fatalities infant to age five, four were not in any type of restraint system. Of the 629 child passengers killed or seriously injured, the majority (37.8%) were occupants of a 4-door passenger vehicle, followed by 27.0% who were occupants of an SUV and 16.5% were occupants of a pickup truck.

Overall, the proportion of restrained infants and small children has shown a gradual, slow increase over recent years. In light of the data collected in the 2014 study, our recommendations suggest Oklahoma build upon recent successes and do the following:

- Continue to encourage and support *vigorous* enforcement of penalties for noncompliance with the Child Passenger Restraint System Act;
- Collect county-level data on enforcement of the use of passenger belts and child restraint devices to document the relationship between enforcement and restraint use;
- Direct special attention (enforcement and education efforts) toward pickup truck drivers since the protection rate of child passengers riding in pickup trucks remains much lower than for any other kind of vehicle;
- Continue to develop and expand statewide public education and awareness programs using guidelines proposed by NHTSA, by encouraging the use of booster seats for older children, the placing infants and small children in the back seat of all vehicles, and the elimination of exemptions; and,
- Promote the use of child restraints in identified populations where the highest percentage of young children and their parents are located. This would likely include day care centers, doctor offices, hospitals, and faith-based organizations. Proper instructions for parents, grandparents, older siblings, and other care givers of infants and small children are especially important.

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APPENDIX A

Oklahoma Child Restraint Observation Form

Observer: _____

Location: _____

Observation Date: _____

Site ID#: _____

If location changed - indicate where you were when you observed - and if you moved during the observation period to another location - indicate that below, in addition to identifying the observation number in which you relocated.

Start Time: _____ End Time: _____

After 1 hour, I changed location to: _____ within 1 mile of the original site locale.

INFANT OR CHILD				DRIVER		
	Child's Age I=Infant (newborn - to 1 yr.) C=Child (+1-8 yrs old)	Location of Child F=Front B=Back	Child Protection S=Car Seat B=Belted N=No Protection	Child Facing F=Front B=Back	Vehicle C=Car P=Pickup	Belted Y=Yes N=No
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

INFANT OR CHILD						DRIVER
	Child's Age I=Infant (newborn to 1 year) C=Child (+1-8 yrs. old)	Location of Child F=Front B=Back	Child Protection S=Car seat B=Belted N=No Protection	Child Facing F=Front B=Back	Vehicle C=Car P=Pickup	Belted Y=Yes N=No
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						

Please add any comments, corrections, or additional observation dates (including start and end times) if applicable:

APPENDIX B METHODOLOGY

The methodology employed to conduct the child restraint survey was based on several considerations:

- The approach followed should conform to NHTSA recommendations described in the 1983 Guidelines for Conducting a Survey of the Use of Safety Belts and Child Safety Seats.
- Only privately-owned passenger vehicles (including vans and pickups) were observed, consistent with the requirements of the state law.
- Only children covered under 47 O.S. Supp. 2004 § 11-1112 were counted. The 2004 amendments to the law (SB 1224) require all infants and children from birth to age 6 be in an approved "child passenger restraint system" whether in the front or back seat. Given the limitations of observing children in a few seconds at roadway intersections and shopping malls, no distinction was made between the ages of 1 to 6. Thus, if a small child (other than an infant) was belted in the front or back seat, it was recorded as a properly belted observance.
- Drivers would be counted because of their culpability under the law and to permit a comparison to the statewide surveys of automobile safety belt use.
- In part because of procedures established when earlier child restraint surveys were conducted, the actual mode of observation would follow both a training manual prepared by the Institute for Public Affairs under a previous contract with OHSO and NHTSA's Guidelines.
- A modified random selection of sites was used that assured an adequate dispersion of sites geographically and by a metropolitan/non-metropolitan division.

General Site Selection

The total number of observation sites selected was first determined by a division of the state by metropolitan statistical area (MSA) and non-MSA classification. Using Census data for 2000, 60.8% of the state's population resides in an MSA.

One hundred randomly chosen sites with 25 observations per site were selected, yielding a sample size of 2,500. Of these 100 sites, 57 were in MSAs and 43 were in non-MSAs. Assignment for sites within the MSAs was based on the weighing of a particular MSA's population against the total metropolitan population in the state (less the Ft. Smith, Arkansas MSA). Using this criterion the Oklahoma City MSA was assigned the greatest number of sites (29). Enid, being the smallest MSA, had the fewest sites (2).

The non-MSA remainder of the state was divided into four quadrants using the two principal north-south and east-west arterial highways bisecting the state, Interstate Highway 35 (I-35, north-south) and Interstate Highway 40 (I-40, east-west). Each quadrant was allotted its proportionate number of the 43 remaining sites based on its share of the state's population. Certain unusual site determinations resulted from the procedure outlined above. For example: although Enid has nearly four times the population of Woodward in the northwest, because Enid is an MSA it was assigned only two sites. Woodward, a non-MSA community, was designated for three sites because it was the largest community in the northwest when Enid was deleted from consideration.

The 100 observation sites were chosen as follows:

Oklahoma City and Metro	29
Tulsa and Metro	22
Enid	2
Lawton	4
Non-MSA	<u>43</u>
	100

Specific Site Selection

The sites were chosen in the following manner:

- City maps were used to provide a geographical distribution of sites in each city. Further, U.S. Bureau of the Census population data were used to capture an adequate measure of the socioeconomic and racial mix of each city;
- Tentative locations chosen for both their suitability and accessibility by the general population were designated;
- Field checks by survey teams were then made to ascertain the suitability of each tentative site. Shopping malls, fast food restaurant chains, department store chains, and recreation facilities were selected based on the following characteristics:
 - a) accessibility by the general population to the selected site;
 - b) accessibility to vehicular traffic;
 - c) sufficient traffic volume existing to generate 25 observations of children in cars;
 - d) locations represented the regional variations in socioeconomic and racial characteristics;

The observer was advised that upon arrival at a specific observation site a determination should be made as to its suitability following the criteria enumerated above. If the pre-assigned site was not suitable, the observer was permitted to make another selection that would be more satisfactory. In most cases when a change was necessary, a site within one mile of the original site was used.

The following lists the specific communities and exact locations where child restraints were observed:

Site ID	LOCATION
1	OKC: Walmart Supercenter (NW 136 & Memorial – Memorial & Penn
2	OKC: Babies R' Us (1731 Belle Isle Blvd)
3	OKC: Academy Sports (I-240 & S Walker)
4	OKC: McDonald's (NW 23 rd at Penn)
5	OKC: McDonald's (SW 59 th at Penn)
6	OKC: Target (SW 44 th at Western)
7	OKC: Walmart Supercenter (I-240 at Santa Fe)
8	OKC: Buy For Less (NW 36 th & MacArthur)
9	OKC: Target (7012 NW Expressway)
10	OKC: Science Museum (2100 NE 50 th) NE 50 th at MLK
11	OKC: Sonic/McDonald's (5815 Martin Luther King Blvd.)
12	OKC: McDonald's (6700 N. May)
13	OKC: McDonald's (10809 N. May at Hefner Rd.)
14	OKC: McDonald's (5812 NW Expressway)
15	OKC: McDonald's (113 NW 23)
16	OKC: Braum's (I-240 at S. May)
17	OKC: Oklahoma City Zoo (2101 NE 50 th at Martin Luther King Blvd.)
18	OKC: OnCue (5920 S Western)
19	Edmond: Braum's / Walmart (15 th at I-35)
20	Edmond: Super Target (1200 E. 2 nd St.)
21	Norman: Walmart Supercenter (Main at I-35) 333 N Interstate Dr.
22	Norman: Super Target (Robinson at I-35) 1400 24 th Ave NW
23	Norman: Walmart Supercenter (Main at 601 12 th Ave NE)
24	Midwest City: McDonald's (7025 SE 15 th)
25	Midwest City: Walmart Supercenter (9001 NE 23 rd)
26	Moore: Walmart (501 S.E. 19 th at I-35)
27	Mustang: McDonald's (I-40 at Mustang Rd.)
28	Yukon: McDonald's (31 W Main)
29	Bethany: McDonald's (7061 NW 23 rd)
30	El Reno: McDonald's (2424 S Country Club Dr.)
31	Purcell: McDonald's (2211 S 9 th Ave)
32	Noble: Mr. C's Grocery (US 77/Main St)
33	Tulsa: Woodland Hills Mall (7021 S. Memorial)
34	Tulsa: Walmart (81 st at Lewis)
35	Tulsa: McDonald's (51 st at Memorial)
36	Tulsa: Quick Trip (12910 E 21 st St)
37	Tulsa Promenade Mall (41 st Street at Yale)
38	Tulsa: Quick Trip (1302 S Garnett Rd)
39	Tulsa: McDonald's (S Harvard at E 14 th St)
40	Tulsa: Big Splash Water Park/Centennial Wayne Plaza (21 st Street at Yale)
41	Tulsa: Walmart (6310 S. Elm Place)
42	Tulsa: Quick Trip (3304 W 42 nd Pl)
43	Tulsa: McDonald's (4780 S Harvard)
44	Tulsa: McDonald's (4935 S Memorial)

- 45 Tulsa: McDonald's (4249 S. Yale)
- 46 Jenks: McDonald's (605 W Main)
- 47 Tulsa: Wendy's (1905 E 21st)
- 48 Broken Arrow: Walmart (2301 Kenosha)
- 49 Broken Arrow: McDonald's (3800 S. Elm Place)
- 50 Broken Arrow: McDonald's (2525 N Aspen)
- 51 Bristow: Walmart (Main at SH16)
- 52 Owasso: McDonald's (7590 Owasso Expressway)
- 53 Sand Springs: Walmart (SH 97 at Marrow Rd)
- 54 Sapulpa: Walmart (Hwy. 117 at US 66)
- 55 Cushing: Walmart Supercenter (3100 E Main St)
- 56 Stroud: McDonald's (801 Ada Webb Dr.)
- 57 Chandler: IBC Bank (3108 E 1st St) (In front of Walmart)
- 58 Enid: McDonald's (Maine at Van Buren)
- 59 Enid: Oakwood Mall (O.K. Garriott at Oakwood)
- 60 Bartlesville: Braum's (2539 SE Washington)
- 61 Bartlesville: Walmart (4000 SE Green Country Rd)
- 62 Muskogee: Braum's (2909 Old Shawnee Road)
- 63 Muskogee: McDonald's (101 S. 32nd Street)
- 64 Muskogee: McDonald's (2415 Chandler) Arrowhead Mall – Denison Ave at Main
- 65 Stillwater: McDonald's (920 W. 6th)
- 66 Stillwater: Walmart (Virginia at Perkins Rd.)
- 67 Stillwater: YMCA (3rd at Duck)
- 68 Ponca City: Ponca Plaza (N 14th Street)
- 69 Pawnee: Sonic (521 4th Street)
- 70 Techumseh: Sonic (109 E Walnut St)
- 71 Ponca City: Walmart Supercenter (Prospect Ave.)
- 72 Ponca City: McDonald's (N. 14th)
- 73 Shawnee: McDonald's (4849 N Kickapoo St)
- 74 Cushing: Walmart Supercenter (3100 E Main St)
- 75 Tahlequah: Walmart (Musgkogee Ave)
- 76 Okmulgee: Walmart (Hwy. 75 South)
- 77 Okmulgee: McDonald's (804 S Wood Dr)
- 78 Okmulgee: YMCA Swim Center (106 West 13th St)
- 79 Pawhuska: McDonald's (1900 E Main St)
- 80 Skiatook: Walmart (778 W. Rogers Blvd.)
- 81 Wagoner: Walmart (State Highway 51)
- 82 Coweta: Country Mart (13937 S Highway 51)
- 83 Pryor: Walmart (4901 S Mill St.)
- 84 Ft. Gibson: Harp's Food Store (1010 E Poplar St)
- 85 Lawton: Central Mall (2nd at C Streets)
- 86 Lawton: McDonald's (30SW Sheridan at Gore)
- 87 Lawton: Shopping Center Strip Mall (Sheridan at Gore)
- 88 Lawton: Walmart Supercenter (Sheridan at Gore)
- 89 McAlester: Walmart (Hwy. 69 at Comanche)
- 90 McAlester: McDonald's (1758 E. Carl Albert Pkwy)
- 91 Krebs: Sonic (4295 E Highway 270)
- 92 Sallisaw: Swimming Pool/Park (Redwood at West of Hospital)

- 93 Gore: Harp's Grocery (State Hwy 100 at State Hwy 10)
- 94 Poteau: McDonald's (1801 N Broadway)
- 95 Spiro: Walmart (5375 N Broadway St)
- 96 Duncan: Braum's (1850 N Hwy 81)
- 97 Duncan: McDonald's (1845 N Hwy 81)
- 98 Duncan: Walmart (1845 N Hwy 81)
- 99 Chickasha: Braum's (2030 S 4th Street at Grand)
- 100 Chickasha: Walmart (2030 S. 4th)

Comment on Sampling Procedure

As indicated previously, the procedure followed for selecting locations does not produce a strictly random sample. The design employed for this effort does bear some similarity, however, to a multistage cluster sampling procedure, in which samples are taken of groups of elements (clusters) followed by the selection of elements within each selected cluster. In this case, the initial clusters were MSA/non-MSA. Then a further stratification was employed on the basis of geographical regions of the state. Finally, population size and observation site were incorporated into the final selection process. Strictly speaking, the decision to choose one city or town over another was not completely random; however, the procedure followed in selecting observation locations along with total number of sites and observations collected should, in combination, yield a fairly representative picture of the actual proportion of Oklahoma children covered under the law who may or may not be currently protected by either child safety seats or seat belts. The continued use of the procedure and design employed for the initial survey should permit a reasonably accurate assessment of changes in restraint use over time.

Observer Selection and Training

The observers participated in a classroom seminar session in which the nature of the project was discussed followed by a detailed briefing of data collection procedures based on the previously mentioned NHTSA Guidelines (1983). The second training phase involved a field exercise, which required the actual observation of child restraint use at a particular location simulating actual field conditions and the completion of the forms for recording those observations.

Data Collection Procedures

Observers were told to follow the procedures outlined in the Guidelines and Training Manual. The child safety seat observation form was provided for each site (Appendix A). Observers were instructed to:

- 1) Record the date, day of week, and time of observations;
- 2) Record the exact location of each site;
- 3) Record the age (infant or small child) of the child;
- 4) Record whether or not the child was restrained, the type of restraint, and the direction the

child was facing in the vehicle;

5) Record the type of vehicle (automobile or pickup); and,

6) Record whether or not the driver was belted.