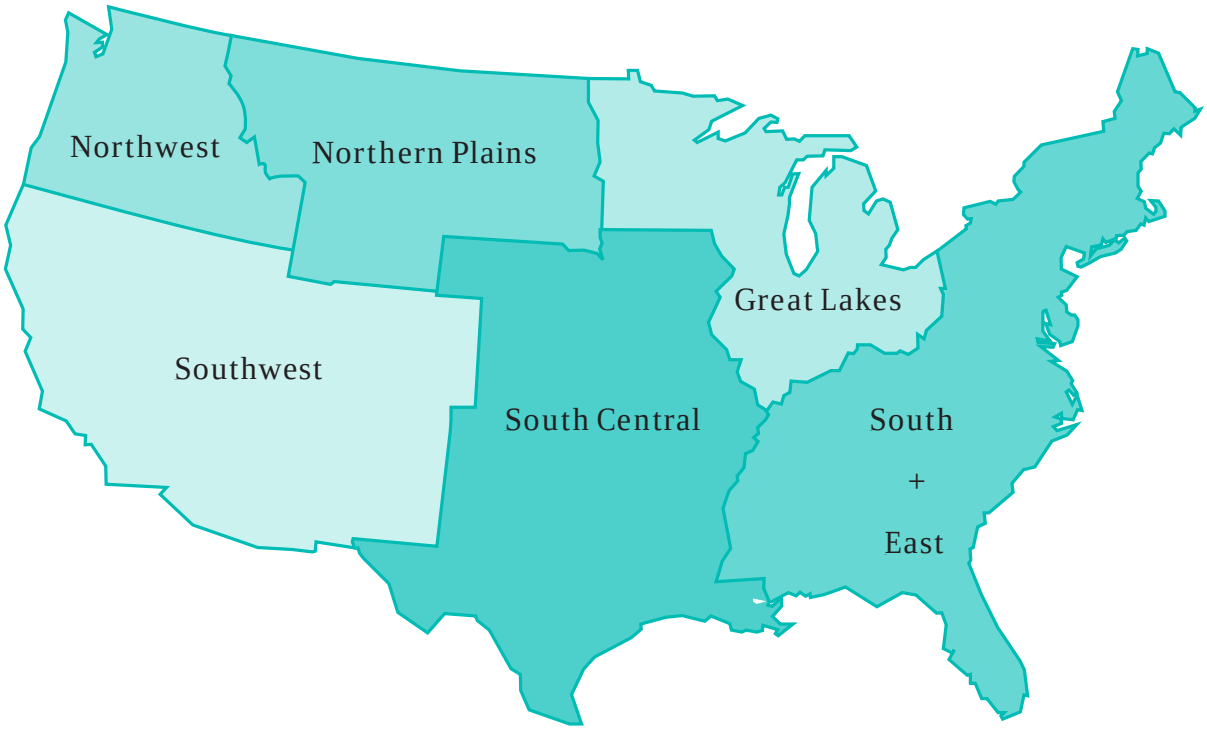
DOT HS 809 921
October 2005

Final Report

# Safety Belt Use Estimate for Native American Tribal Reservations

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16. Abstract

The National Highway Traffic Safety Administration (NHTSA) and the Bureau of Indian Affairs (BIA), Indian Highway Safety Program, sponsored a project to (a) establish the first baseline tribal reservation safety belt use rate, and (b) develop a methodology to use in the future to track trends and specific program effects. The planned sample included 18 reservations with 150 sites on these reservations. However, the Navajo reservation in the Southwest, which has 22 percent of the total Native American population, did not permit safety belt observations to be made in its territory. Ultimately, data were collected from 120 sites on 16 tribal reservations. Safety belt use was observed between September and November 2004 on 15 reservations and in February 2005 on one reservation. Overall, 44 percent of the vehicles were cars, 31 percent were pickups, 14 percent were SUVs, and 10 percent were vans. Fifty-eight percent of the drivers were male, 38 percent were female and the sex of 3 percent could not be determined. Fifty-three percent of the passengers were female, 37 percent were male, and the sex of 10 percent of the passengers could not be determined. Belt use could be coded for 90 percent of the drivers and 83 percent of the passengers. For the tribal reservations subject to tribal law and tribal traffic law enforcement, excluding the Navajo, the overall safety belt use rate was 55.4 percent. There was a very high variation in belt use across reservations, ranging from a low of 8.8 percent to a high of 84.8 percent. Nine tribal reservations had primary safety belt laws; in them, 68.6 percent of vehicle occupants were belted. By comparison, three tribal reservations had secondary belt laws; they averaged 53.2 percent belt use. For the four tribal reservations with no belt use law of any kind, only 26.4 percent of the vehicle occupants were belted. NHTSA is funding two initiatives to raise reservation belt use: a Law Enforcement Liaison to promote emphasis on belt law enforcement and a demonstration program to develop strategies for grant solicitations for occupant protection programs on Native American Tribal Reservations. The methodology developed here will be crucial in evaluating improvements due to these and other initiatives.

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DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

# TECHNICAL SUMMARY

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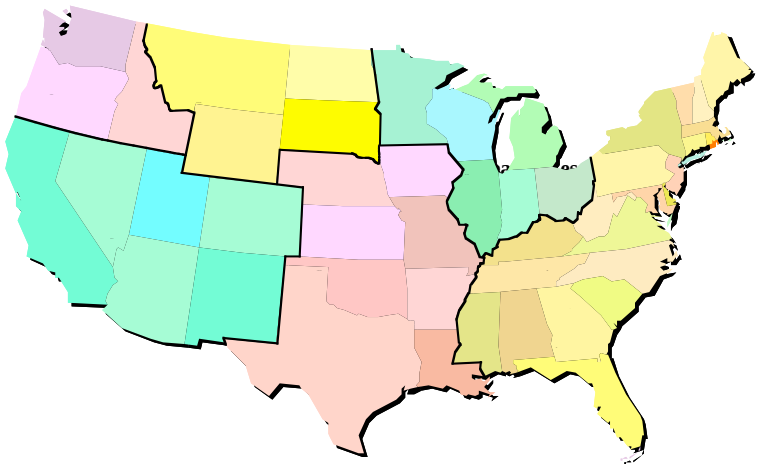
| Preusser Research Group, Inc. | DTNH22-99-D-25099<br>Task Order 7 |
| **REPORT TITLE** | **REPORT DATE** |
| Safety Belt Use Estimate for Native American Tribal Reservations | October 2005 |
| **REPORT AUTHOR(S)** | |
| W.A. Leaf and M.G. Solomon | |


The National Highway Traffic Safety Administration (NHTSA) and the Bureau of Indian Affairs (BIA), Indian Highway Safety Program sponsored a project to (a) establish the first baseline tribal reservation safety belt use rate, and (b) develop a methodology to use in the future to track trends and specific program effects. This is similar to NHTSA's National Occupant Protection Usage Survey (NOPUS), a probability-based survey that reports a single belt use rate for the nation. The goal was to gather a single belt use rate for tribal reservations that could track progress towards increasing belt use.

Although there are over 560 federally recognized tribes, approximately 180 of these reservations within the 48 contiguous States have safety belt use subject to tribal law and tribal traffic law enforcement. The populations of tribal reservations differ markedly. Socially and culturally, tribal reservations can be classified according to their geographic areas. They are Northwest (Washington State, Oregon, and Idaho), Northern Plains (Montana, Wyoming, North Dakota, and South Dakota), Southwest (California, Nevada, Utah, Colorado, Arizona, and New Mexico), Great Lakes (Minnesota, Wisconsin, Michigan, Illinois, Indiana, and Ohio), South Central (Nebraska, Kansas, Oklahoma, Texas, Iowa, Missouri, Arkansas, and Louisiana), and South and East (all remaining States excluding Hawaii and Alaska). Within these regions, 61 reservations have populations of 2,000 or more, which represents 660,000 people or 93 percent of the population on tribal reservations. Native Americans make up 61 percent of the population on all tribal reservations.

*Figure TS-1. Areas of Tribal Reservations*



Because tribal reservations set their own safety belt laws, there is much variability. Some tribal reservations have no safety belt laws, some have a primary law, in which motorists can be stopped solely for safety belt violations, and other reservations have a secondary law that allows a law enforcement officer to ticket people for a safety belt violation only if they were stopped for another infraction. In addition, reservations exist within the context of the safety belt laws governing the States within which they are located

## Methods

*Table TS-1. Tribal Reservations with Safety Belt Use Subject to Tribal Traffic Law Enforcement*

| Area | Number | Total Population* | % Native American* |
|---|---|---|---|
| Great Lakes | 13 | 39,797 | 30% |
| Northern Plains | 20 | 162,659 | 60% |
| Northwest | 29 | 101,425 | 34% |
| South Central | 11 | 52,850 | 19% |
| South & East | 33 | 33,496 | 65% |
| Southwest | 71 | 322,023 | 80% |
| Total | 177 | 712,250 | 61% |

*Source: 2000 U.S. Census

The sampling plan was designed to provide a reliable estimate of belt use across all the tribal reservations subject to tribal law and tribal traffic law enforcement. The sampling procedure weighted all tribal reservations proportional to their populations, and included the criteria that the sample of the tribal reservations:

- be limited to tribal reservations with populations of 2,000 or more;
- represent varying conditions;
- be from all areas of the country; and
- include enough sites per reservation so that the final combined safety use rate would be reliable.

The objective was a sample from each area at a rate approximately 1 in 4 reservations or 1 reservation per 30,000 population. The planned sample included 18 reservations with 150 sites on these reservations. However, the Navajo reservation in the Southwest, which has 22 percent of the total Native American population, did not permit safety belt observations to be made in its territory. Ultimately, data were collected from 120 sites on 16 tribal reservations.

## Results

Safety belt use on tribal reservations subject to tribal law and tribal traffic law enforcement was observed between September and November 2004 (15 reservations) and in February 2005 (1 reservation). Overall, 44 percent of the vehicles were cars, 31 percent were pickups, 14 percent were SUVs, and 10 percent were vans. Fifty-eight percent of the drivers were male, 38 percent were female, and the sex of 3 percent could not be determined (does not sum to 100 due to rounding). Fifty-three percent of the passengers were female, 37 percent were male, and the sex of 10 percent of the passengers could not be determined. Belt use could be coded for 90 percent of the drivers and 83 percent of the passengers.

For the tribal reservations subject to tribal law and tribal traffic law enforcement, excluding the Navajo, the overall safety belt use rate was 55.4 percent. There was a very high variation in belt use across reservations, ranging from a low of 8.8 percent to a high of 84.8 percent.

There were significant differences in belt use by vehicle type and occupant sex for drivers and passengers, consistent with patterns seen in State and national belt use results. Rates were higher for cars (58.8%), SUVs (62.1%) and vans (57.5%) and much lower for pickup trucks (48.1%).

Males were less likely to use safety belts than females, 52.3 percent versus 60.3 percent. Drivers were somewhat more likely to be belted, at 56.6 percent, than passengers at 51.3 percent were. The lowest overall belt use rate was for male passengers in pickups, at just 39.1 percent. The highest rate was for female drivers of SUVs, 67.7 percent belted.

Belt use also varied consistently with road type. Within towns on collector roads, overall belt use was 59.0 percent, while rates on more rural between-town arterials was 51.0 percent.

Three of the areas had multiple reservations. The Northern Plains area had the five lowest belt use rates and averaged just 27.6 percent belt use across all five. Great Lakes and Northwest had the highest belt use; 3 of the 4 reservations in those two areas had the highest individual belt use rates observed. Of the 5 reservations in the Southwest, 3 had moderate belt use figures, while the other 2 had rates above 75 percent, among the highest for tribal reservations.

Another indication of belt use is the kind of safety belt law. There are two kinds of belt use laws that may affect use rates: the safety belt law of the reservation itself and the safety belt law of the State in which the tribal reservation is located. Data were examined in both ways. Nine reservations had primary safety belt laws; in them, 68.6 percent of vehicle occupants were belted. By comparison, 3 tribal reservations had secondary belt laws; they averaged 53.2 percent belt use. For the 4 reservations with no belt use laws of any kind, only 26.4 percent of the vehicle occupants were belted.

*Table TS-2. Safety Belt Use by Vehicle, Occupant, Area & Road Type*

| | Drivers | | Passengers | |
|---|---|---|---|---|
| | Belt Use | Number | Belt Use | Number |
| All Cases | 56.6% | 9,064 | 51.3% | 2,883 |
| Vehicle Type | | | | |
| Auto | 60.3% | 4,122 | 53.7% | 1,431 |
| Pickup | 49.2% | 2,723 | 43.9% | 736 |
| SUV | 63.5% | 1,265 | 56.1% | 392 |
| Van | 58.5% | 954 | 54.7% | 324 |
| Occupant Sex | | | | |
| Male | 54.0% | 5,377 | 44.4% | 1,154 |
| Female | 61.3% | 3,646 | 56.7% | 1,684 |
| Area & Road Type | | | | |
| Urban/ Collector | 59.5% | 5,182 | 57.2% | 1,662 |
| Rural/ Arterial | 52.2% | 3,882 | 47.9% | 1,221 |

In addition, 9 reservations were located in States with primary belt use laws. Those 9 reservations were the nine with the best use rates; they averaged 72.8 percent belted occupants. The remaining 7 reservations, in States with secondary belt use laws, were the lowest-usage reservations. They averaged just 33.3 percent buckled occupants.

Overall, safety belt use in tribal reservations subject to tribal law and tribal traffic law enforcement varies greatly. The recorded figures ranged from less than 10 percent to almost 85 percent, a difference so large as to make it unmistakable that different reservations are fundamentally different in their approach to and success at encouraging safety belt use.

## Conclusions

This is the first time safety belt use has been systematically measured across a representative sample of Indian reservations. The procedure is well documented, and it can be replicated in the future to provide a moving picture of safety belt use in Indian Country. It will be a useful tool in measuring the results of safety belt initiatives.

Safety belt use in Indian Country varies greatly from tribal reservation to tribal reservation. Figures ranged from less than 10 percent to almost 85 percent, a difference so large as to make it unmistakable that different tribal reservations are fundamentally different in their approach to and success at encouraging safety belt use.

The tribal reservations with the highest belt use rates had rates comparable to general U.S. belt use rates, so it is clear that Native American governments can be effective in achieving high levels of belt use. Figures for other tribal reservations suggest that their governments have done little or nothing toward achieving high belt use. Reservations with primary safety belt laws had the highest use rates, followed by reservations with secondary safety belt laws; reservations with no safety belt laws had the lowest use rates. Adding any safety belt law, and changing a secondary law to primary, have been shown for States

to lead to increased safety belt use, and upgrading the belt laws in tribal reservations lacking them could "kick-start" improvements in belt use.

NHTSA is funding two initiatives to raise the belt use on tribal reservations. First, a law enforcement liaison has been hired by the BIA's Indian Highway Safety Program to promote tribal law enforcement support for occupant protection laws and increasing enforcement efforts in conjunction with NHTSA's Click It or Ticket mobilizations and on-going traffic safety enforcement efforts. Second, the BIA will conduct a demonstration project to develop, test and evaluate program strategies that can be used in grant solicitations to fund occupant protection projects in Indian Country. This model program will identify the best mix of activities that have the greatest potential to work in tribal communities to increase safety belt use.

The limitations of this study include the nonparticipation of the Navajo reservation, which represents almost a quarter of the population of the tribal reservations subject to tribal law and tribal traffic law enforcement.

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# I. Introduction

There are 562 federally recognized tribal governments in the United States. The 562 tribal nations collectively make up the "Indian State" eligible for Sec. 402 funding under Chapter 4 of the Title 23, United States Code.[1] The Bureau of Indian Affairs (BIA) administers the Indian Highway Safety Program (IHSP) and serves as the Governor's Highway Safety Representative and focal point of coordination for the Indian State. The Indian State is appropriated highway safety grant funds the same manner as all other States and eligible U.S. Territories and is subject to setting performance-based programming goals for reducing motor vehicle crashes, fatalities, and injuries and reporting progress in achieving those goals.

According to the Centers for Disease Control and Prevention (CDC), the motor vehicle death rate for American Indians/Alaska Natives is nearly twice as high as other races (27.52 per 100,000 population versus 15.30 per hundred thousand for all races in 2002). Further, motor vehicle injuries are the leading cause of death for Native Americans ages 1-34 and the third leading cause of death overall for American Indians/Alaska Natives. In December 2003, the National Highway Traffic Safety Administration (NHTSA) reported that motor vehicle traffic crashes were the leading cause of death among all Americans during 2001 for ages 4-34, and the second leading cause of death for ages 1-3.

In April 2004, NHTSA published a Technical Report, *Fatal Motor Vehicle Crashes on Indian Reservations 1975-2002* (Report No. DOT HS 809 727). This report showed that over 76 percent of the fatally injured occupants on tribal reservations were unrestrained at the time of the crash. The report states that in 2002 only 16 percent of the fatally injured occupants of passenger cars and light trucks on tribal reservations were restrained, compared with 38 percent in the Nation. In that same year, the national observed safety belt use rate determined by the National Occupant Protection Usage Survey was 75 percent. Individual State use rates ranged from 51 percent to 92.6 percent (where known). In 2004, the national use rate increased to 80 percent, and the range of individual State rates increased to 63.2 percent to 95.3 percent (where known).

This report defines the state of safety belt use for Native American Tribal reservations subject to tribal law and tribal traffic enforcement for 2004, a tool for use in problem identification and comparison with national and State safety belt use rates.

Effective for 1998, NHTSA established revised guidelines for State Safety Belt Use Survey designs to measure progress in increasing safety belt use rates in a comparative and consistent manner throughout the country. Prior to the survey reported here, there had not been a "statewide" belt use survey for the Indian State. NHTSA fully funded the costs for the development of the survey design, conduct of the survey, and analysis of the survey results. The purpose was to provide a survey design comparable to other State surveys and determine a baseline safety belt use rate for Native American Tribal reservations subject to tribal law and tribal traffic enforcement.

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[1] The Indian Nations State/BIA may or may not have direct access to other highway safety program funds allocated under Title 23, USC. For example, the Indian Nation "State" did not have direct access/eligibility to Section 157 or other funding under Chapter 1, Federal Aid Highways Program, but did have access to Section 2003(b) funding.

The first step in designing the sampling plan was to determine what tribal reservations qualified for safety belt use measurement. Although the Indian reservations are all sovereign entities, the governments of a number of the tribal reservations, and for a number of roadways within other tribal reservations, did not set or enforce safety belt use requirements. In order to focus on Indian-controlled belt use, we limited our safety belt use observations to areas subject to tribal law and tribal law enforcement. It is in those areas that tribal policy and procedures are directly responsible for current levels of safety belt use, and it is in these areas that tribal efforts can be most effective in establishing and improving safety belt usage levels.

These criteria excluded a number of tribal governments, as noted below. They also excluded, in otherwise qualified reservations, roadways that are governed by State safety belt laws and patrolled by non-Indian authorities such as the States' highway patrol (e.g., many State or Federal highways).

**For the purpose of this report, Native American Tribal reservations subject to tribal law and tribal traffic enforcement are referred to as "Indian Country". This definition of Indian Country is somewhat restrictive and applies only to this safety belt use effort.**

Tribal reservations included in Indian Country are all in the 48 contiguous States. There are no tribal reservations located in Hawaii, and Alaska is a "Public Law 280" State. Nearly all tribal reservations in Public Law 280 (PL 280) States (Alaska, California, Minnesota, Nebraska, Oregon, and Wisconsin) were excluded since, under PL 280, they are subject to State traffic authorities and would already be included in Statewide belt use estimates. Four tribal reservations in these States are exceptions; they set and enforce laws covering use of their own roads and are included in Indian Country. In addition, five tribal reservations in non-PL 280 States were excluded because they are known by the Bureau of Indian Affairs to be unable to implement or enforce unique safety belt laws (e.g., because the tribal reservation is an undifferentiated area within a city).

There remained in Indian Country approximately 180 federally recognized tribal reservations within the 48 contiguous States subject to tribal law and tribal traffic law enforcement. Total population on these tribal reservations is about 712,000 people, which represents 75 percent of the total 944,000 population for all American Indian Reservation and Off-Reservation Trust Lands in the 2000 U.S. Census. Each of the Indian Country reservations has its own road system and may set up its own safety belt use requirements and determine its own level of "compliance emphasis" through PI&E and enforcement.

Individual tribal reservations vary greatly in terms of population. The largest is the Navajo Nation, which spans parts of Arizona, New Mexico and Utah (population 155,214). The next largest is the Osage Tribe in Oklahoma (44,437). These two tribal reservations contain 28 percent of the population of Indian Country. Eleven tribal reservations have fewer than 100 residents.

For the purposes of safety belt use observations, all qualified tribal reservations with total populations of 2,000 or more were eligible for selection into the observation sample. There are 61 such tribal reservations, and they are listed in Appendix C. They have a total population of about 660,000, or 93 percent of the total Indian Country population. Native Americans make up

60 percent of the population on the 61 reservations versus 61 percent on all Indian Country reservations. The remaining reservations in Indian Country are listed in Appendix D.

It was the judgment of the BIA that, socially and culturally, tribal reservations can be classified in six separate categories that corresponded to distinct geographic "Areas": Northwest (Washington State, Oregon, and Idaho), Northern Plains (Montana, Wyoming, North Dakota, and South Dakota), Southwest (California, Nevada, Utah, Colorado, Arizona, and New Mexico), Great Lakes (Minnesota, Wisconsin, Michigan, Illinois, Indiana, and Ohio), South Central (Nebraska, Kansas, Oklahoma, Texas, Iowa, Missouri, Arkansas, and Louisiana), and South and East (all remaining States). These Areas became a stratification variable in tribal reservation selection.

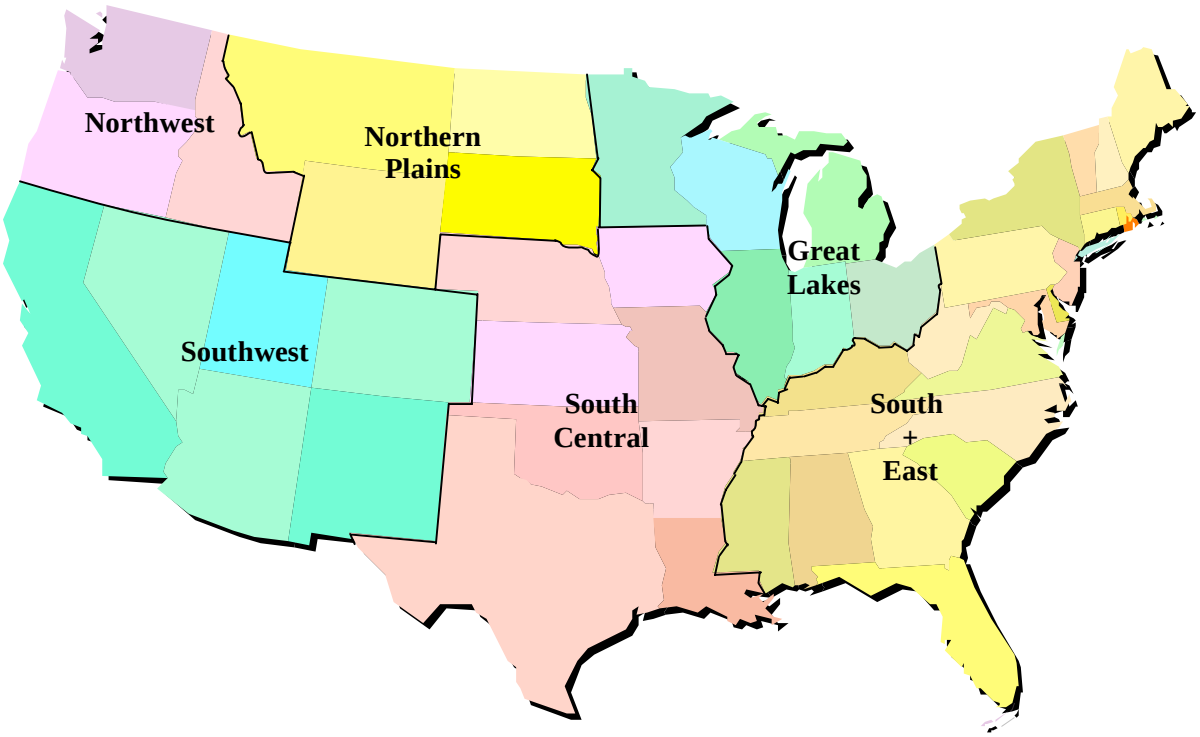


Figure 1. Native American Areas.

# II. Methods

## Tribal Reservation Selection

There were three major complicating factors in selecting tribal reservations to observe. Together they required a somewhat more structured selection scheme than is used in most State safety belt use observation plans. As noted above, tribal reservations differ markedly in population. Reservations are not contiguous, as are the counties making up a State, but are scattered throughout much of the country. Finally, the same safety belt laws do not apply to all tribal reservations. Reservations are free to set their own safety belt laws. Some tribal reservations have no safety belt laws, some have a primary law, in which motorists can be stopped solely for safety belt violations, and other reservations have a secondary law that allows a law enforcement officer to ticket people for a safety belt violation only if they are already stopped for another infraction. Also, tribal reservations, particularly smaller ones, exist within the "context" of the safety belt laws governing the States within which they are located.

The tribal reservation selection plan was a systematic selection plan based on selecting from within Areas, as defined above. General criteria for making up the sample were that it should:

> include enough tribal reservations to be representative of the varying conditions that exist;
>
> sample from all areas of the country, again to be representative; and
>
> include enough sites per tribal reservation so that the final combined safety belt use rate will meet the reliability requirements of NHTSA's Section 157 guidelines.[2]

In addition, the sample should be realistic within the scope of resources available for this effort – and, by extension, if this effort is successful, make it possible for future replications to track changes in belt use over time and with changing legal and countermeasure conditions.

The final recommendation asked for a total of about 150 sites to be sampled across 18 tribal reservations. These numbers represented our best estimate of a sampling plan meeting the criteria above while remaining within the project's practical constraints. Two of the tribal reservations did not permit safety belt observations to be made in their territory, resulting in final data collection for 120 sites in 16 reservations.

Table 1 shows, by Area, the numbers and populations of tribal reservations, totals and "available for sampling." The table also shows the recommended distribution of sampled tribal reservations across areas. The objective of the sampling procedure was to select tribal reservations according to probabilities generally proportional to their populations, based on two steps:

1. Include the Navajo reservation (Southwest Area), which has 22 percent of the total Indian Country population and 35 percent of the Native American population in Indian Country.

[2] Though this project was not conducted under Section 157, the observation plan was designed and implemented consistent with Section 157 guidelines so that the results would be readily interpretable.

2. Sample, from each Area, at a rate of approximately one in four tribal reservations or one tribal reservation per 30,000 population.

Table 1. Indian Country Area Distribution of Tribal Reservations and Population.

| Area | Total Reservations | | Reservations over 2,000 Pop | | Number to Sample [2] |
|---|---|---|---|---|---|
| | Number | Population | Number | Population | |
| Southwest [1] | 71 | 322,023 | 21 | 293,301 | 6-1 |
| South Central | 11 | 52,850 | 2 | 48,856 | 1 |
| South & East | 33 | 33,496 | 6 | 26,369 | 2-1 |
| Northwest | 29 | 101,425 | 11 | 94,513 | 3 |
| Northern Plains | 20 | 162,659 | 17 | 159,293 | 5 |
| Great Lakes | 13 | 39,797 | 4 | 37,738 | 1 |
| **TOTAL** | **177** | **712,250** | **61** | **660,070** | **18-2** |

[1] Includes Navajo Reservation in all cells.

[2] Reflects inability to collect data on Navajo (Southwest) and Seneca Nation's Cattaraugus (South & East) reservations.

Sampling procedures were repeated within each Area and involved seven steps:

1. Randomly reorder the list of tribal reservations so that every reservation had equal probability of being first, second, etc. in the list.

2. Set each tribal reservation's initial weight for being selected on a single selection equal to the proportion of the reservation's population to the total population of all eligible reservations within the Area, $w_{ij} = Pop_{ij} / \sum_j Pop_{ij}$ , where $w_{ij}$ = initial weight for selection on a single selection for reservation $j$ within Area $i$, $Pop_{ij}$ = population of reservation $j$ within Area $i$, and $\sum_j Pop_{ij}$ = sum of the population of all reservations eligible for selection within Area $i$. (Within each Area, these initial weights add to exactly 1.0.)

3. For Areas sampling a single tribal reservation, set the selection cutoff level $s_{ij} = w_{ij}$.

4. For Areas sampling more than one tribal reservation, adjust the cutoff levels to select all of the tribal reservations in a single sampling according to the formula:

$$s_{ij} = (1-(1-w_{ij})^{n_i}) \bullet n_i / \sum_j (1-(1-w_{ij})^{n_i}) \qquad (1)$$

where $s_{ij}$ = selection cutoff level for reservation $j$ in Area $i$ and $n_i$ = number of reservations to be selected within Area $i$. (Within Area $i$, the sum of the adjusted weights = $n_i$.) In all cases, the $s_{ij}$ cutoff levels correspond roughly to the probability of the reservation being included in the final sample.

5. Generate a random number (from a rectangular distribution between 0 and 1) for each tribal reservation.

6. Starting at the top of the list, select for inclusion each tribal reservation whose random number is less than (or equal to) its adjusted selection cutoff, up to the number required to be sampled.

7. If the number of tribal reservations selected is less than the number required, select additional tribal reservations from the pool, selecting first the one whose random number exceeds its cutoff level by the least amount, etc., until the number of required tribal reservations has been identified.

The resulting target sample of 18 tribal reservations, together with the proposed number of observation sites as described below, is shown in Table 2. Note that the Navajo and Seneca are shaded; they did not participate.

Table 2. Final Sample of 18 Tribal Reservations.

| **Tribe** | **Location** | **Area** | **State Primary Law?** | **Total Pop.** | **% Native Amer.** [1] | **# Sites** |
|---|---|---|---|---|---|---|
| Navajo Nation (AZ-NM-UT) | Window Rock, AZ | SW | No/Yes | 155,214 | 96% | 27 |
| Ute Indian Tribe (Uintah and Ouray Reservation) | Ft Duchesne, UT | SW | No | 19,182 | 14% | 9 |
| Gila River Pima-Maricopa | Sacaton, AZ | SW | No | 11,257 | 92% | 7 |
| Pueblo of Zuni | Zuni, NM | SW | Yes | 7,758 | 96% | 6 |
| Taos Pueblo | Taos, NM | SW | Yes | 4,484 | 30% | 5 |
| Pueblo of Acoma | Avomita, NM | SW | Yes | 2,802 | 97% | 4 |
| Osage Tribe | Pawhuska, OK | So-Cent | Yes | 44,437 | 14% | 14 |
| Eastern Band of Cherokee | Cherokee, NC | So+East | Yes | 8,092 | 82% | 6 |
| Seneca Nation of Indians [Cattaraugus Reservation] | Erie, Chautaqua, Cattaraugus Counties, NY | So+East | Yes | 2,412 | 88% | 4 |
| Yakama Nation | Toppenish, WA | NW | Yes | 31,646 | 23% | 12 |
| The Tulalip Tribes | Marysville, WA | NW | Yes | 9,246 | 22% | 7 |
| Confederated Tribes of the Colville Reservation | Nespelem, WA | NW | Yes | 7,582 | 60% | 6 |
| Eastern Shoshone & Arapaho Tribes [Wind River Reservation] | Ft Washakie, WY | NoPlns | No | 23,245 | 28% | 10 |
| Rosebud Sioux | Rosebud, SD | NoPlns | No | 9,050 | 86% | 6 |
| Cheyenne River Sioux | Eagle Butte, SD | NoPlns | No | 8,466 | 74% | 6 |
| Crow | Crow Agency, MT | NoPlns | No | 6,894 | 75% | 6 |
| Three Affiliated Tribes [Ft. Berthold] | New Town, ND | NoPlns | No | 5,915 | 67% | 5 |
| Saginaw Chippewa [Isabella Reservation] | Mt. Pleasant, MI | GrLks | Yes | 25,822 | 5% | 11 |

[1] Percent of reservation's total population that are Native American; source, 2000 U.S. Census Data.

## Site Selection

The site selection procedure was applied independently for each tribal reservation.

Roads in and immediately around the population centers were treated as one stratum ("collectors"), and the major connecting roads were treated as a second stratum ("arterials"). For each tribal reservation with an even number of sites, half of the final observation sites were from each stratum; for each tribal reservation with an odd number of sites, one stratum provided one more site than the other.

In order to avoid roads with very little traffic, a structured selection of observation sites was made based on the use of the roads and their likely volume. Roads eligible for sampling were: paved or gravel (excluded dirt and unimproved); under BIA or tribal control (excludes State and county highways patrolled by State and county police); and collectors or arterials (excluded local streets). Eligible roads were divided into segments, i.e., stretches of roads between intersections large enough for significant changes in the road's traffic volume or makeup.

For each tribal reservation, lists of possible road segments were assembled from qualified road segments that were likely to have adequate traffic volume. Lists were based on road maps and input from local authorities. Population centers were identified, and the main roads within the centers and providing access in and out of the centers were identified. Each access road was included from the center out into more rural areas for a few miles. In addition, major connecting roads with adequate traffic but not near population centers were included.

From the eligible roads, segments for safety belt observation were selected randomly, with the probability of selection proportional to the length of the segment. Specific observation points were selected on the segment by the observers in the field, based on ease of observing belt use and safety. Observation points were documented so that they could be used in future belt use studies.

Traffic counts were determined for each location at the time of belt use observations. These counts served as our estimate of traffic density. At locations where every passing vehicle could be observed, the count was equal to the number of vehicles observed. Where traffic volumes were too heavy to permit observation of every vehicle, we conducted a ten-minute traffic count before belt use observations, conducted a second ten-minute count after observations, and weighted the number of observations as a function of the number of vehicles counted (i.e., the estimate of the number of vehicles that would have been observed had we been able to observe every vehicle). At most sites, where traffic volumes permitted, observations and traffic counts included traffic in both directions.

We proposed 150 total sites. This is similar to the numbers of sites used for State belt use determinations, and thus was judged likely to provide a suitably stable overall estimate of belt use. The number of sites per tribal reservation was proportional to the square root of the population. The numbers are shown in Table 2 above. For example, if there are a total of 151 observation sites (varied from the target of 150 due to rounding), there would be 27 sites on the Navajo Nation and 4 sites on a small reservations with just over 2,000 population. No reservation had fewer than 4 sites.

We were unable to obtain permission to collect safety belt observations on the Navajo and Cattaraugus reservations. That left a total of 120 observation sites (the defections were confirmed too late to adjust the numbers of sites on other tribal reservations). Even with the smaller number of sites, and the large variability of belt use rates between sites and tribal reservations, the final overall safety belt use rate estimate met the Section 157 target for reliability.

The calculated safety belt use percentage for each tribal reservation was the combination of belt use percentages at each site weighted directly by the number of vehicles passing during the observation period and inversely by the likelihood of selection of the segment (i.e., the segment length). (For sites where vehicle volume was estimated from pre- and post-observation counts, those estimated values were used.) For each site, the belt use percentage was the number of belted persons observed divided by the total number of persons for whom belt use/nonuse was observed. The same arithmetic was used to calculate safety belt usage for subsets, e.g., males, drivers, pickup drivers, or passenger-car occupants. Weights for combining sites for subsets were the total vehicle counts, based on the assumption that distributions of subsets are balanced across sites and that the total vehicle count is the most stable estimate.

## Data Collection

### Observers

Observers were hired by Preusser Research Group. Most observers had done safety belt observations prior to this project. The other observers received extensive training over several days, first watching an expert observer, then observing in parallel, then observing with supervision.

### Scheduling

Observations were conducted Monday-Sunday during daylight hours, between 7 a.m. and 6 p.m. Scheduling was done to balance observations for time of day and day of week, with weekdays being considered roughly equivalent for the purposes of efficient use of observer field and travel time. Observations were balanced by type and time of day within Areas and, as much as practicable, within tribal reservations.

### Observations

Data collection was done according to the instructions in Appendix A. Each observation period lasted a full hour. Survey information was recorded on an observation data collection form (Appendix B). The form was designed so that pertinent site information could be documented, including tribal reservation name, city/town/area identifier, exact roadway location, date, day of week, time, weather condition, and direction(s) of traffic flow and lane(s) observed. Each one-page form included space to record information for 70 vehicles, the driver of that vehicle, and the outboard, front seat passenger, if any.

# Calculation of Overall Safety Belt Usage Rate and Variability

## Overall Rates

Safety belt usage rates were calculated in two stages. Within each reservation, usage was

$$p_{ij} = (\sum_{k}(V_{ijk} / \pi_{ijk}) * (B_{ijk} / O_{ijk})) / (\sum_{k}(V_{ijk} / \pi_{ijk})) \quad (2)$$

where $p_{ij}$ = safety belt usage for reservation $j$ in Area $i$, $k$ = site within the reservation, $V_{ijk}$ = weight for each road segment (site), $\pi_{ijk} = n_{ij} L_{ijk} / \sum_{k=1}^{n_{ij}} L_{ijk}$ = the proportion of the length $L$ that road segment $ijk$ is of the chosen road segments in reservation $j$ in Area $i$, $B_{ijk}$ = number of belted occupants (drivers and outboard, front seat passengers) observed at the site, and $O_{ijk}$ = total number of occupants observed at the site. For sites where all vehicles were observed, $V_{ijk}$ = the number of observed vehicles. For sites where the number of vehicles were estimated from 10-minute counts before and after the observation period, $V_{ijk}$ = (number counted 10 minutes before + number counted 10 minutes after) * 60/20, for a standard 60-minute observation period. Where raw counts were based on travel in both directions, they were divided in half to be comparable to counts based on travel in only one direction.

Values for $\pi_{ijk} = n_{ij} L_{ijk} / \sum_{k=1}^{n_{ij}} L_{ijk}$ were calculated separately within each stratum for each tribal reservation. The actual calculations are represented as $\pi_{ijkl} = (n_{ij} / 2) \bullet L_{ijkl} / \sum_{k=1}^{n_{ijl}} L_{ijkl}$, where $l$ is the stratum and $n_{ij1} + n_{ij2} = n_{ij}$. The result of this was that collectors and arterials contributed equally to each reservation's belt use rate estimate, regardless of differences in the total length of the selected collector segments versus the total length of the selected arterial segments.

Next, the overall rate across all tribal reservations was calculated according to the formula

$$p = (\sum_{i,j} W_{ij} p_{ij}) / (\sum_{i,j} W_{ij}) \quad (3)$$

where $W_{ij} = Pop_{ij} / s_{ij}$, i.e., the population of tribal reservation $i$ in Area $j$ times the inverse of the selection cutoff level, where the cutoff level was approximately equal to the probability of including tribal reservation $j$ of Area $i$ in the sample. This is the directly analogous to the Section 157 guidelines allowing population weighting in the absence of traffic volume data.

At an informational level, calculations of belt use could also be done for subsets of the entire sample and population. For example, BIA and PRG were interested in belt use rates for the different Areas. It was also interesting to compare tribal reservations with primary safety belt laws versus those with secondary or no safety belt laws, and tribal reservations within States with primary laws versus those in States with secondary laws.

Additionally, a large percentage of tribal reservation vehicles were pickup trucks, and in State belt use observations it is routinely found that belt use in pickup trucks is much less than that in all other passenger vehicle types. Thus it was of interest to calculate safety belt use rates for subsets of vehicle types, as well as male/female and driver/passenger subsets.

All of these "subset" calculations use formulas (2) and (3) as defined above, with adjustments in formula (2) to $B_{ijk}$ and $O_{ijk}$ (but not $V_{ijk}$) to reflect different subsets of vehicles or occupants and adjustments to the specific tribal reservations included in the formula (3) computations (but no changes to the $W_{ij}$ values) for different Area or other tribal reservation subsets.

## The Standard Error of the Overall Safety Belt Use Rate

Standard error of estimate values were estimated through a jackknife approach, based on the general formula:

$$\sigma_p = [\frac{n-1}{n}\sum_{i=1}^{n}(p_i - p)^2]^{1/2} \quad (4)$$

where $\sigma_p$ = standard deviation (standard error) of the estimated Indian Country safety belt use proportion $p$, $n$ = the number of sites, i.e., 120, and $p_i$ = the estimated Indian Country belt use proportion with site $i$ excluded from the calculation.

The relative error rate, i.e., $\sigma_p / p$, also was calculated, as was the 95 percent confidence interval, i.e., $p \pm 1.96\sigma_p$. These values are reported for the overall Indian Country safety belt use rate.

# III. Results

Observations were done between September and November 2004 except for one tribal reservation, where observations were done in February 2005. Overall sample characteristics are shown in Table 3. A total of 10,095 vehicles were observed, with 3,495 additional passengers.

Approximately 44 percent of the vehicles were cars, 31 percent were pickups, 14 percent were SUVs, and 10 percent were vans. Fifty-eight percent of drivers were male, and 38 percent were female; gender could not be coded for 3 percent of drivers. Fifty-three percent of passengers were female, just 37 percent were male, and gender could not be coded for 10 percent.

Belt use could be coded for 90 percent of drivers and 83 percent of passengers. Somewhat higher percentages of unknown belt use were associated with trucks (14 percent, drivers; 24 percent, passengers), SUVs (13 percent, drivers; 19 percent, passengers), vans (19 percent, passengers), foggy conditions (17 percent, drivers; 37 percent, passengers), and rural roads (12 percent, drivers; 22 percent, passengers). Belt use could not be coded for about 88 percent of drivers and passengers whose sex could not be coded.

Table 3. Observation Sample Overview.

| **Vehicle Type** | **Auto** | **Pickup** | **SUV** | **Van** | **Unknown** | **TOTAL** |
|---|---|---|---|---|---|---|
| | 4,455 | 3,152 | 1,438 | 1,049 | 1 | 10,095 |
| | 44.1% | 31.2% | 14.2% | 10.4% | 0.0% | |
| **Driver Sex** | **Male** | **Female** | **Unknown** | | | **TOTAL** |
| | 5,876 | 3,873 | 346 | | | 10,095 |
| | 58.2% | 38.4% | 3.4% | | | |
| **Passenger Sex** | **Male** | **Female** | **Unknown** | | | **TOTAL** |
| | 1,292 | 1,857 | 346 | | | 3,495 |
| | 37.0% | 53.1% | 9.9% | | | |

Because we were unable to make safety belt use observations on the Navajo reservation, the scope of these observations could perhaps be better described as "Indian Country Excluding Navajo."

**For Indian Country Excluding Navajo, the overall safety belt use rate was 55.4 percent.** There was very large variation in belt use across tribal reservations, ranging from a low of 8.8 percent to a high of 84.8 percent. Reflecting this variability, the standard error of measurement was 2.5 percent, and the relative standard error (standard error divided by average belt use) was 4.6 percent. The 95 percent confidence interval for overall belt use was 50.5 percent to 60.4 percent.

As shown in Table 4, there were significant differences in belt use by vehicle type and occupant gender for drivers and passengers. Rates were higher for cars (58.8 percent), SUVs (62.1 percent), and vans (57.5 percent) and much lower for pickup trucks (48.1 percent).

Males were less likely to use safety belts than females, 52.3 percent vs. 60.3 percent. Drivers were somewhat more likely to be belted, at 56.6 percent, than passengers, at 51.3 percent. The lowest overall belt use rate was for male passengers in pickups, at just 39.1 percent. The highest rate was for female drivers of SUVs, 67.7 percent belted.

Belt use also varied consistently by road type. Within towns on collector roads, overall belt use was 59.0 percent, while the rate on the more rural between-town arterials was 51.0 percent.

Table 4. Safety Belt Use, by Vehicle, Occupant, Area, and Road Type.

| | **Drivers** | | **Passengers** | | **Total** | |
|---|---|---|---|---|---|---|
| | Belt Use | N | Belt Use | N | Belt Use | N |
| **All Cases** | **56.6%** | **9,064** | **51.3%** | **2,883** | **55.4%** | **11,947** |
| **Vehicle Type** | | | | | | |
| **Auto** | 60.3% | 4,122 | 53.7% | 1,431 | 58.8% | 5,553 |
| **Pickup** | 49.2% | 2,723 | 43.9% | 736 | 48.1% | 3,459 |
| **SUV** | 63.5% | 1,265 | 56.1% | 392 | 62.1% | 1,657 |
| **Van** | 58.5% | 954 | 54.7% | 324 | 57.5% | 1,278 |
| **Occupant Sex** | | | | | | |
| **Male** | 54.0% | 5,377 | 44.4% | 1,154 | 52.3% | 6,531 |
| **Female** | 61.3% | 3,646 | 56.7% | 1,684 | 60.3% | 5,330 |
| **Area and Road Type** | | | | | | |
| **Urban/Collector** | 59.5% | 5,182 | 57.2% | 1,662 | 59.0% | 6,844 |
| **Rural/Arterial** | 52.2% | 3,882 | 47.9% | 1,221 | 51.0% | 5,103 |

## Areas

Three of the had multiple tribal reservations. The Northern Plains area had the five lowest belt use rates and averaged just 27.6 percent belt use across all five. Great Lakes and Northwest had the highest belt use; three of the four reservations in those two areas had the highest individual belt use rates observed. Of the five reservations in the Southwest, three had moderate belt use figures, while the other two had rates above 75 percent, among the highest for Indian Country.

## Belt Use Laws

Another indication of belt use is the kind of safety belt law. There are two kinds of belt use laws that may affect use rates: the safety belt law of the tribal reservation itself and the safety belt law of the State in which the tribal reservation is located. Data were examined both ways.

Nine tribal reservations had primary safety belt laws; in them, 68.6 percent of vehicle occupants were belted. By comparison, three tribal reservations had secondary belt laws; they averaged

53.2 percent belt use. For the four tribal reservations with no belt use law of any kind, only 26.4 percent of the vehicle occupants were belted.

Also, nine tribal reservations were located in States with primary belt use laws. Those nine tribal reservations were the nine with best use rates; they averaged 72.8 percent belted occupants. The remaining seven tribal reservations, in States with secondary belt use laws, were the lowest-usage tribal reservations; they averaged just 33.3 percent buckled occupants.

# IV. Discussion

This is the first time safety belt use has been systematically measured across a representative sample of Indian reservations. The procedure is well documented, and it can be replicated in the future to provide a moving picture of safety belt use in Indian Country. It will be a useful tool when combined with safety belt initiatives.

Safety belt use in Indian Country varies greatly from tribal reservation to tribal reservation. Figures from individual tribal reservations must be taken as only indications of their true rates, because the sampling plan was designed to provide a reliable estimate of belt use across all of Indian Country, not on individual tribal reservations. However, the recorded figures ranged from less than 10 percent to almost 85 percent, a difference so large as to make it unmistakable that different tribal reservations are fundamentally different in their approach to and success at encouraging safety belt use.

The tribal reservations with the highest belt use rates had rates comparable to general U.S. belt use rates (both the national rate, derived from the National Occupant Protection Use Survey and individual State rates), so it is quite possible for the Native American governments to achieve high levels of encouraging belt use. Figures for other tribal reservations suggest that their governments have done little or nothing toward achieving high belt use.

One of the indicators of high belt use is the presence of a primary safety belt law. Reservations with primary laws had higher belt use than tribal reservations with secondary laws, and their belt use was higher than tribal reservations with no belt laws. The belt laws of the States in which the tribal reservations were located were also highly correlated with reservation belt use – and with reservation belt laws. Belt use laws don't exist unless there is a will within the community, and stronger belt use laws have regularly been followed with increased belt use. Adding primary belt laws in tribal reservations lacking them could "kick-start" improvements in belt use.

There are differences in belt use by vehicle type and occupant gender, similar to findings in State belt use surveys. Occupants of pickup trucks use safety belts less often than occupants of other vehicles, and males buckle up less than females. Also, passengers tend to buckle up less than drivers. As has been noted in other reports, male pickup drivers and passengers would be the target group in need of the greatest improvement. They also seem to be the group most resistant to previous efforts, so they present the greatest challenge to new efforts – efforts that, even though primarily targeting males in pickups, may increase belt use in all groups.

NHTSA is funding two initiatives to raise the belt use on tribal reservations. First, a law enforcement liaison has been hired by the BIA's Indian Highway Safety Program to promote Tribal law enforcement support for occupant protection laws and increasing enforcement efforts in conjunction with NHTSA's Click It Or Ticket mobilizations and on-going traffic safety enforcement efforts. Second, the BIA will conduct a demonstration project to develop, test, and evaluate program strategies that can be used in grant solicitations to fund occupant protection projects in Indian Country. This model program will identify the best mix of activities that have the greatest potential to work in tribal communities to increase safety belt use.

It is unfortunate the Navajo did not grant permission to observe on the their reservation. Representing about 16 percent of the population of qualifying Indian Country reservations, and

40 percent of the intended sample population, the Navajo reservation would have been an important addition to this measurement effort. It is hoped they can be added to any subsequent Indian Country belt use measurements.

# Appendix A. Safety Belt Observation Instructions

Qualifying vehicles include passenger automobiles, pickup trucks, recreational vehicles, jeeps, or vans (private, public and commercial). Pickup trucks should be coded as "trucks." Jeeps, Broncos, Blazers, and other vehicles of that type should be coded as sport utility vehicles. Eligible vehicles should be observed regardless of the State in which they are registered.

Belt use will be observed for front seat occupants only. Observe and record data for the driver and passenger seated closest to the right side of the front seat. If there is more than one front seat passenger, observe only the "outside" passenger. The passenger observed need not be in the seat closest to the passenger door, just the passenger closest to that position. Do not record data for passengers in the back seat or for a third passenger riding in the middle of the front seat.

If a child is present in the front seat in a child restraint seat, do not record anything. However, children riding in the front seat, regardless of age, who are not in child restraint seats should be observed as any other front seat passenger. If a child is seated on the lap of the right-most seated passenger, code the gender of the lap-owner and N for belt use.

Each observation period will last for exactly 60 minutes.

**The following procedures will be used in conducting observations of safety belt use:**

1. As you observe a qualifying vehicle, record the type of vehicle (car, truck, SUV, van), the occupants' sex (male or female), and shoulder restraint use (yes or no) of the front seat occupants (driver and front seat "outside" passenger only).
2. If you notice a lap belt in use without a shoulder belt, it should be recorded as not restrained. Only shoulder belts are to be counted. Even if the vehicle likely has no shoulder belts, code the occupant(s) as not restrained.
3. If the person is using the shoulder belt improperly, e.g., has the shoulder strap under his/her arm or behind the back, this should be recorded as not restrained.
4. If traffic is light enough and you can see well, observe traffic moving in both directions (and indicate it by circling both directions on the form).
5. If you are observing a multiple-lane roadway, if traffic is light enough and you can see well, observe traffic in all lanes. If traffic is too heavy, observe traffic in one lane at a time, each lane for an equal amount of time, and in the direction specified, throughout the 60-minute observation time-period.
6. In many situations, it will be possible to observe every vehicle in the designated lane(s). However, if there is too much traffic for you to observe every vehicle, you should determine a reference point up the road in the appropriate lane. Observe the next vehicle to pass the reference point after the last vehicle has been coded.
7. If you believe there will be too many vehicles to code every one, for 10 minutes immediately before the observation period and for 10 minutes immediately after the observation period, count all passenger vehicles as they pass and write the two tallies on the first data page.
8. Do not observe if it is raining or foggy or if other inclement weather arises. If you arrive at a site and it begins to rain, do not collect data in the rain. Find a dry place and wait 15 minutes to see if the rain stops. If the rain does stop, begin observing again and extend the observation period to make up for the time missed. Otherwise, you will have to reschedule the site. (Note: observer may continue observations in light fog, drizzle, or mist).
9. If more than one data sheet are used, staple the sheets together at the end of the observation period and note the number of sheets used at the top of the first data page.
10. It may happen that the site you are assigned is seriously compromised due to construction. If this occurs, you may move one block in either direction on the same street such that you are observing the same stream of traffic that would have normally been observed had there been no obstruction. If moving one block will not solve the problem, then do not conduct the observation, but follow procedures for identifying and observing at an alternative site.

# Appendix B. Native American Safety Belt Observation Data Collection Form

The form, front and back, is shown on the next two pages, full size and without document headers/footers.

# Seat Belt Observation Data Collection Form

SITE NUMBER: _____ SITE: _____

NOTES: _____

DATE: _____ - _____ - _____ DAY OF WEEK: _____

DIRECTION OF TRAFFIC FLOW (Circle one or two): N S E W START TIME:_____ (Exactly 1 Hour Observation)

WEATHER
1 Clear / Sunny
2 Light Rain
3 Cloudy
4 Fog
5 Wet But Not Raining

| | DRIVER | | | PASSENGER | | | DRIVER | | | PASSENGER | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Veh. # | Vehicle **C = car T = truck S = suv V = van** | Sex **M = male F = female U = unsure** | Use **Y = yes N = no U = unsure** | Sex **M = male F = female U = unsure** | Use **Y = yes N = no U = unsure** | Veh. # | Vehicle **C = car T = truck S = suv V = van** | Sex **M = male F = female U = unsure** | Use **Y = yes N = no U = unsure** | Sex **M = male F = female U = unsure** | Use **Y = yes N = no U = unsure** |
| **1** | | | | | | **36** | | | | | |
| **2** | | | | | | **37** | | | | | |
| **3** | | | | | | **38** | | | | | |
| **4** | | | | | | **39** | | | | | |
| **5** | | | | | | **40** | | | | | |
| **6** | | | | | | **41** | | | | | |
| **7** | | | | | | **42** | | | | | |
| **8** | | | | | | **43** | | | | | |
| **9** | | | | | | **44** | | | | | |
| **10** | | | | | | **45** | | | | | |
| **11** | | | | | | **46** | | | | | |
| **12** | | | | | | **47** | | | | | |
| **13** | | | | | | **48** | | | | | |
| **14** | | | | | | **49** | | | | | |
| **15** | | | | | | **50** | | | | | |
| **16** | | | | | | **51** | | | | | |
| **17** | | | | | | **52** | | | | | |
| **18** | | | | | | **53** | | | | | |
| **19** | | | | | | **54** | | | | | |
| **20** | | | | | | **55** | | | | | |
| **21** | | | | | | **56** | | | | | |
| **22** | | | | | | **57** | | | | | |
| **23** | | | | | | **58** | | | | | |
| **24** | | | | | | **59** | | | | | |
| **25** | | | | | | **60** | | | | | |
| **26** | | | | | | **61** | | | | | |
| **27** | | | | | | **62** | | | | | |
| **28** | | | | | | **63** | | | | | |
| **29** | | | | | | **64** | | | | | |
| **30** | | | | | | **65** | | | | | |
| **31** | | | | | | **66** | | | | | |
| **32** | | | | | | **67** | | | | | |
| **33** | | | | | | **68** | | | | | |
| **34** | | | | | | **69** | | | | | |
| **35** | | | | | | **70** | | | | | |

NATIVE AMERICAN SEAT BELT SURVEY FORM 2004

**Supplementary vehicle counts: 10 minutes prior:** _____ **10 minutes after:** _____

NOTES:_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

GPS COORDINATES

N_____

W_____

Altitude_____ft

## Site Location Diagram

# Appendix C. “Indian Country” Reservations with 2000+ Population

| Tribe/Reservation | Related Location | Area | Population | | |
|---|---|---|---|---|---|
| | | | Total | Native American | Pct Nat. Am. |
| Saginaw Chippewa [Isabella Resvn] | Mt Pleasant, MI | GrLks | 25,822 | 1,397 | 5.4% |
| Red Lake Band of Chippewa | Red Lake, MN | GrLks | 5,162 | 5,071 | 98.2% |
| Keweenaw Bay [L'Anse] | Baraga, MI | GrLks | 3,538 | 850 | 24.0% |
| Menominee Indian Tribe of Wisconsin | Keshena, WI | GrLks | 3,216 | 3,061 | 95.2% |
| Confederated Salish and Kootenai [Flathead] | Pablo, MT | NoPlns | 26,172 | 6,999 | 26.7% |
| Eastern Shoshone & Arapaho Tribes [Wind River Rsvn] | Ft Washakie, WY | NoPlns | 23,245 | 6,542 | 28.1% |
| Oglala Sioux [Pine Ridge Rsvn] (SD, NE) | Pine Ridge, SD | NoPlns | 14,068 | 12,985 | 92.3% |
| Sisseton-Wahpeton Sioux Tribe [Lake Traverse] [(ND-SD) | Agency Village, ND | NoPlns | 10,408 | 3,453 | 33.2% |
| Fort Peck Assiniboine & Sioux | Poplar, MT | NoPlns | 10,321 | 6,391 | 61.9% |
| Blackfeet | Browning, MT | NoPlns | 10,100 | 8,507 | 84.2% |
| Rosebud Sioux | Rosebud, SD | NoPlns | 9,050 | 7,747 | 85.6% |
| Cheyenne River Sioux | Eagle Butte, SD | NoPlns | 8,466 | 6,249 | 73.8% |
| Standing Rock Sioux (ND-SD) | Fort Yates, SD | NoPlns | 8,250 | 5,964 | 72.3% |
| Crow | Crow Agency, MT | NoPlns | 6,894 | 5,165 | 74.9% |
| Yankton Sioux Tribe | Marty, SD | NoPlns | 6,500 | 2,633 | 40.5% |
| Three Affiliated Tribes [Ft. Berthold] | New Town, ND | NoPlns | 5,915 | 3,986 | 67.4% |
| Turtle Mountain Band of Chippewa | Belcourt, ND | NoPlns | 5,815 | 5,601 | 96.3% |
| Northern Cheyenne | Lame Deer, MT | NoPlns | 4,470 | 4,029 | 90.1% |
| Spirit Lake [Devils Lake Rsvn] | Fort Totten, ND | NoPlns | 4,435 | 3,317 | 74.8% |
| Fort Belknap | Harlem, MT | NoPlns | 2,959 | 2,790 | 94.3% |
| Crow Creek Sioux | Fort Thompson, SD | NoPlns | 2,225 | 1,936 | 87.0% |
| Yakama Nation | Toppenish, WA | NWst | 31,646 | 7,289 | 23.0% |
| Nez Perce | Lapwai, ID | NWst | 17,959 | 2,101 | 11.7% |
| The Tulalip Tribes | Marysville, WA | NWst | 9,246 | 2,049 | 22.2% |
| Confederated Tribes of the Colville Reservation | Nespelem, WA | NWst | 7,582 | 4,528 | 59.7% |
| Coeur D'Alene | Plummer, ID | NWst | 6,551 | 1,251 | 19.1% |
| Shoshone-Bannock | Fort Hall, ID | NWst | 5,760 | 3,648 | 63.3% |
| Lumni Indian Nations | Bellingham, WA | NWst | 4,193 | 2,114 | 50.4% |
| Muckleshoot Indian Tribe | Auburn, WA | NWst | 3,597 | 1,033 | 28.7% |
| Confederated Tribes of the Warm Springs Reservation | Warm Springs, OR | NWst | 3,311 | 3,038 | 91.8% |
| Swinomish Indian Tribe | LaConner, WA | NWst | 2,664 | 617 | 23.2% |
| Spokane Tribe of Indians | Wellpinit, WA | NWst | 2,004 | 1,533 | 76.5% |
| Osage Tribe | Pawhuska, OK | So-Cent | 44,437 | 6,410 | 14.4% |
| Kickapoo | Horton, KS | So-Cent | 4,419 | 714 | 16.2% |
| Eastern Band of Cherokee | Cherokee, NC | So-East | 8,092 | 6,665 | 82.4% |
| Seneca Nation of Indians (Allegany Resvn) | Cattaraugus County, NY | So-East | 6,804 | 1,297 | 19.1% |
| Mississippi Band of Choctaw | Philadelphia, MS | So-East | 4,311 | 4,087 | 94.8% |
| Akwesasne Mohawk Tribe (St. Regis Mohawk) | Hogansburg, NY | So-East | 2,699 | 2,629 | 97.4% |
| Seneca Nation of Indians (Cattaraugus Resvn) | Erie, Chautaqua, Cattaraugus Counties, NY | So-East | 2,412 | 2,125 | 88.1% |
| Seminole Tribe | Hollywood, FL | So-East | 2,051 | 538 | 26.2% |
| Navajo Nation (AZ-NM-UT) | Window Rock, AZ | SWst | 155,214 | 149,423 | 96.3% |
| Ute Indian Tribe (Uintah and Ouray Resvn) | Ft Duchesne, UT | SWst | 19,182 | 2,780 | 14.5% |
| White Mountain Apache [Ft. Apache] | Whiteriver, AZ | SWst | 12,429 | 11,702 | 94.2% |
| Gila River Pima-Maricopa | Sacaton, AZ | SWst | 11,257 | 10,353 | 92.0% |
| Southern Ute | Ignacio, CO | SWst | 11,159 | 1,433 | 12.8% |
| Santa Clara Pueblo | Espanola, NM | SWst | 10,658 | 1,329 | 12.5% |
| Tohono O'odham | Sells, AZ | SWst | 10,483 | 9,417 | 89.8% |
| San Carlos Apache | San Carlos, AZ | SWst | 9,385 | 8,921 | 95.1% |
| Pueblo of Zuni | Zuni, NM | SWst | 7,758 | 7,426 | 95.7% |
| Hopi | Kykotsmovi, AZ | SWst | 6,815 | 6,442 | 94.5% |
| Salt River Pima-Maricopa | Scottsdale, AZ | SWst | 6,405 | 3,366 | 52.6% |
| Taos Pueblo | Taos, NM | SWst | 4,484 | 1,331 | 29.7% |
| Pueblo of Laguna | Laguna, NM | SWst | 3,815 | 3,669 | 96.2% |
| Pascua Yaqui | Tuscon, AZ | SWst | 3,315 | 3,002 | 90.6% |
| Pueblo of San Felipe | San Felipe, NM | SWst | 3,185 | 2,465 | 77.4% |
| Pueblo of Santo Domingo | Santo Domingo Pueblo, NM | SWst | 3,166 | 3,085 | 97.4% |
| Pueblo of Isleta | Isleta, NM | SWst | 3,166 | 2,675 | 84.5% |
| Mescalero Apache | Mescalero, NM | SWst | 3,156 | 2,888 | 91.5% |
| Pueblo of Acoma | Avomita, NM | SWst | 2,802 | 2,723 | 97.2% |
| Jicarilla Apache Tribe | Dulce, NM | SWst | 2,755 | 2,475 | 89.8% |
| Pojoaque Pueblo | Santa Fe, NM | SWst | 2,712 | 264 | 9.7% |

# Appendix D. “Indian Country” Reservations with Less Than 2000 Population

| Tribe/Reservation | Related Location | Area | Population | | |
|---|---|---|---|---|---|
| | | | Total | Native American | Pct Nat. Am. |
| Jemez Pueblo | Jemez Pueblo, NM | SWst | 1,958 | 1,941 | 99.1% |
| Picuris Pueblo | Penasco, NM | SWst | 1,801 | 166 | 9.2% |
| Nambe Pueblo | Santa Fe, NM | SWst | 1,765 | 455 | 25.8% |
| Pyramid Lake Paiute | Nixon, NV | SWst | 1,734 | 1,221 | 70.4% |
| Ute Moutain | Towaoc, CO | SWst | 1,687 | 1,609 | 95.4% |
| Chippewa-Cree [Rocky Boy's] | Box Elder, MT | NoPlns | 1,605 | 1,542 | 96.1% |
| San Ildefonso Pueblo | Santa Fe, NM | SWst | 1,524 | 528 | 34.6% |
| Pueblo of Cochiti | Cochiti, NM | SWst | 1,502 | 695 | 46.3% |
| Onondaga Nation | Nedrwo, NY | So+East | 1,473 | 763 | 51.8% |
| Quinault | Taholah, WA | NWst | 1,370 | 1,051 | 76.7% |
| Makah | Neah Bay, WA | NWst | 1,356 | 1,083 | 79.9% |
| Hualapai | Peach Springs, AZ | SWst | 1,353 | 1,253 | 92.6% |
| Lower Brule Sioux Tribe | Lower Brule, SD | NoPlns | 1,353 | 1,237 | 91.4% |
| Duck Valley Resvn (NV, ID) (Shoshone and Paiute) | Owyhee, NV, NV | SWst | 1,265 | 998 | 78.9% |
| Prairie Band Potawatomie Tribe | Mayetta, KS | So-Cent | 1,238 | 518 | 41.8% |
| Tuscarora Tribe | Lewiston, NY | So+East | 1,138 | 311 | 27.3% |
| Cocopah | Somerton, AZ | SWst | 1,025 | 519 | 50.6% |
| Reno-Sparks | Reno, NV | SWst | 881 | 830 | 94.2% |
| Walker River Paiute | Schurz, NV | SWst | 853 | 667 | 78.2% |
| Fort McDowell Mohave-Apache | Fountain Hills, AZ | SWst | 824 | 755 | 91.6% |
| Fort Mojave (AZ,CA, NV) | Needles, CA | SWst | 813 | 363 | 44.6% |
| Tesque Pueblo | Santa Fe County, NM | SWst | 806 | 355 | 44.0% |
| Yavapai Apache | Prescott, AZ | SWst | 743 | 650 | 87.5% |
| Fallon Colony+Fallon Resvn | Fallon, NV | SWst | 743 | 639 | 86.0% |
| Ak-Chin Maricopa | Maricopa, AZ | SWst | 742 | 652 | 87.9% |
| Skokomish Tribe | Shelton, WA | NWst | 730 | 510 | 69.9% |
| Te-Moak Tribe of Western Shoshone Indians Nevada (Elko Colony) | Elko, NV | SWst | 729 | 627 | 86.0% |
| Port Gamble S'Klallam Tribe | Kingston, WA | NWst | 699 | 505 | 72.2% |
| Chehalis | Oakville, WA | NWst | 691 | 388 | 56.2% |
| Indian Twp Resvn | Maine | So+East | 676 | 564 | 83.4% |
| Bois Forte Band of Chippewa | Nett Lake, MN | GrLks | 657 | 464 | 70.6% |
| Pueblo of Zia | Zia Pueblo, NM | SWst | 646 | 645 | 99.8% |
| Pleasant Point Resvn | Maine | So+East | 640 | 567 | 88.6% |
| Sac & Fox | Tama, IA | So-Cent | 616 | 579 | 94.0% |
| Bay Mills | Brimley, MI | GrLks | 605 | 472 | 78.0% |
| Nisqually Indian Tribe | Oympia, WA | NWst | 588 | 357 | 60.7% |
| Seminole Tribe [Brighton] | Okeechobee, FL | So+East | 566 | 449 | 79.3% |
| Penobscot Indian Nation | Old Town, ME | So+East | 562 | 477 | 84.9% |
| Tonawanda Band of Seneca | Bason, NY | So+East | 543 | 210 | 38.7% |
| Havasupai | Supai, AZ | SWst | 503 | 453 | 90.1% |
| Catawba Tribe | Rock Hill, SC | So+East | 494 | 362 | 73.3% |
| Santa Ana Pueblo | Sandavol County, NM | SWst | 487 | 473 | 97.1% |
| Alabama and Coushatta | Livingston, TX | So-Cent | 480 | 463 | 96.5% |
| Ysleta del Sur Pueblo | El Paso, TX | So-Cent | 421 | 300 | 71.3% |
| Kickapoo Traditional Tribes of Texas | Eagle Pass, TX | So-Cent | 420 | 406 | 96.7% |
| Chitimacha | Charenton, LA | So-Cent | 409 | 285 | 69.7% |
| Flandreau Santee Sioux Tribe | Flandreau, SD | NoPlns | 408 | 326 | 79.9% |
| Quileute Nation | LaPosh, WA | NWst | 371 | 307 | 82.7% |
| Sault Ste Marie Chippewa | Sault Ste. Marie, MI | GrLks | 354 | 290 | 81.9% |
| Mashantucket Pequot | Mashantucket, CT | So+East | 325 | 227 | 69.8% |
| Dresslerville Colony (Washoe Indians) | Gardnerville, NV | SWst | 315 | 287 | 91.1% |
| Ft McDermit Paiute & Shoshone | McDermitt, NV | SWst | 309 | 301 | 97.4% |
| Hannahville | Wilson, MI | GrLks | 295 | 253 | 85.8% |
| Carson Colony | Carson City, NV | SWst | 286 | 241 | 84.3% |
| Paiute Indian Tribe of Utah | Cedar City, UT | SWst | 270 | 250 | 92.6% |
| Lower Elwha Klallam Tribe | Port Angeles, WA | NWst | 260 | 208 | 80.0% |
| Upper Skagit Indian Tribe | Sedro-Wolley, WA | NWst | 238 | 180 | 75.6% |

| Tribe/Reservation | Related Location | Area | Population | | |
|---|---|---|---|---|---|
| | | | Total | Native American | Pct Nat. Am. |
| Sac and Fox (NE, KS) | Reserve, KS | So-Cent | 217 | 49 | 22.6% |
| Moapa Band of Paiute | Moapa, NV | SWst | 206 | 165 | 80.1% |
| Kalispel | Usk, WA | NWst | 206 | 180 | 87.4% |
| Kaibab-Paiute | Fredonia, AZ | SWst | 196 | 131 | 66.8% |
| Stewart Colony | Carson City, NV | SWst | 196 | 150 | 76.5% |
| Yavapai-Prescott | Prescott, AZ | SWst | 182 | 117 | 64.3% |
| Immokalee Reservation | Collier County, FL | So+East | 175 | 142 | 81.1% |
| Iowa Tribe of KS & NE | White Cloud, KS | So-Cent | 168 | 99 | 58.9% |
| Poarch Creek Indians (AL+FL) | Altmore, AL | So+East | 156 | 98 | 62.8% |
| Duckwater Shoshone | Duckwater, NV | SWst | 149 | 116 | 77.9% |
| Seminole Tribe [Big Cypress] | Hendry County, FL | So+East | 142 | 110 | 77.5% |
| Yerington Paiute | Yerington, NV | SWst | 139 | 124 | 89.2% |
| Houlton Maliseet Band (Trust Land) | Houton, ME | So+East | 136 | 111 | 81.6% |
| Lac Vieux Desert Band of Lake Superior Chippewa | Watersmeet, MI | GrLks | 135 | 113 | 83.7% |
| Ely Indian Colony | Ely, NV | SWst | 133 | 87 | 65.4% |
| Tonto Apache | Payson, AZ | SWst | 132 | 115 | 87.1% |
| Battle Mountain Band Colony | Battle Mountain, NV | SWst | 124 | 112 | 90.3% |
| Las Vegas Paiuate Tribe | Las Vegas, NV | SWst | 108 | 100 | 92.6% |
| Confederated Tribes of the Goshute Reservation | Ibapah, UT | SWst | 105 | 97 | 92.4% |
| Lovelock Paiute | Lovelock, NV | SWst | 103 | 86 | 83.5% |
| Hoh Indian Tribe | Clallam County, WA | NWst | 102 | 81 | 79.4% |
| Stillaguamish | Arlingtn, WA | NWst | 102 | 76 | 74.5% |
| Yomba Shoshone | Austin, NV | SWst | 96 | 89 | 92.7% |
| South Fork Band | Lee, NV | SWst | 83 | 77 | 92.8% |
| Kootenai Tribe of Idaho | Bonners Ferry, ID | NWst | 75 | 71 | 94.7% |
| Chehalis, Chinook & Quinault (Shoalwater Resvn) | Pacific County, WA | NWst | 70 | 44 | 62.9% |
| Winnemucca Indian Colony | Humbolt County, NV | SWst | 62 | 44 | 71.0% |
| Narragansett Indian Tribe | Washington County, RI | So+East | 60 | 9 | 15.0% |
| Wells Band Council | Wells, NV | SWst | 54 | 39 | 72.2% |
| Sauk-Suiattle Indian Tribe | Darrington, WA | NWst | 45 | 35 | 77.8% |
| Skull Valley Band of Goshute Indians | Grantsville, UT | SWst | 31 | 30 | 96.8% |
| Oneida Indian Nation of NY | Vernon, NY | So+East | 26 | 14 | 53.8% |
| Coushatta | Elton, LA | So-Cent | 25 | 20 | 80.0% |
| Summit Lake Paiute | Winnemucca, NV | SWst | 15 | 11 | 73.3% |
| Huron Potawatomi | Fulton, MI | GrLks | 11 | 9 | 81.8% |
| Seneca Nation of Indians (Oil Springs Resvn) | Allegany & Cattaraugus Counties, NY | So+East | 11 | 0 | 0.0% |
| Jamestown S'Klallam Tribe | Sequim, WA | NWst | 9 | 0 | 0.0% |
| Mohegan Tribe | Uncasville, CT | So+East | 2 | 0 | 0.0% |
| Fort Pierce Resvn | St. Lucie Co, FL | So+East | 2 | 0 | 0.0% |
| Little River Band of Ottawa Indians | Manistee, MI | GrLks | 2 | 0 | 0.0% |
| Miccosukee | Miami, FL | So+East | * | | |
| Tampa Reservation | Hillsborough, FL | So+East | * | | |
| Coconut Creek Resvn | Broward County, FL | So+East | * | | |
| Northwestern Band of Shoshoni Nation | Pocatello, ID | NWst | * | | |
| Little Traverse Bay Band of Odawa | Petoskey, MI | GrLks | * | | |
| San Juan Southern Paiute | Tuba City, AZ | SWst | * | | |
| Seminole Tribe | Broward County, FL | So+East | * | | |
| Georgia Tribe of Eastern Cherokees | Dawsonville, GA | So+East | * | | |
| Mashpee Wampanoag Trust Land | Mashpee, MA | So+East | * | | |
| Matvh-e-be-nash-she-wish Band of Pottawatomi | Dorr, MI | GrLks | * | | |
| Canoncito Navajo Chapter | Canoncito, NM | SWst | * | | |
| Ramah Navajo | Ramah, NM | SWst | * | | |
| Goshute Pauite Tribe of Utah & Nevada | Ibapah, UT | SWst | * | | |
| Monacan Indian Tribe | Monroe, VA | So+East | * | | |
| Nansemond Indian Tribe | Chesapeake, VA | So+East | * | | |
| United Rappahannock Tribe | Indian Neck, VA | So+East | * | | |
| Snoqualmie Tribal Org | Fall City, WA | NWst | * | | |

* Reservation not listed in Census 2000.

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