New Mexico DEPARTMENT OF
**TRANSPORTATION**
MOBILITY FOR EVERYONE

# 2020 NEW MEXICO
## OCCUPANT SEAT BELT OBSERVATION

# BKL UP

**PRE-SURVEY**

**STATE OF NEW MEXICO**
THE HONORABLE GOVERNOR MICHELLE LUJAN GRISHAM

**NEW MEXICO DEPARTMENT OF TRANSPORTATION**
CABINET SECRETARY MICHAEL R. SANDOVAL
EXECUTIVE MANAGER MODAL DIVISIONS FRANKLIN GARCIA
TRAFFIC SAFETY DIRECTOR JEFF BARELA

# 2020 NEW MEXICO
## OCCUPANT SEAT BELT OBSERVATION

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### PRE-SURVEY

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New Mexico DEPARTMENT OF
TRANSPORTATION

# REPORT
## Organization

This report summarizes the results of a 2020 New Mexico Occupant Protection Seat Belt Observation Pre-Survey. In 2020 the data collection efforts were altered to give the state additional information about passenger vehicle occupants and their behavior related to seat belt use. The survey report has six subsections:

# PRE-SURVEY

## 2020
### NEW MEXICO SEAT BELT OBSERVATION PRE-SURVEY

### Study Purpose

Due to the impacts of COVID-19, NHTSA waived the requirement for states to conduct an annual seat belt survey in calendar year 2020. New Mexico determined it was in the best interest of the State to utilize the results of their 2019 Survey to determine designation of high or low seat belt use rate for purposes of applications for a grant under Section 405(b). In addition to the Part 1340 compliant statewide survey New Mexico normally conducts a pre-survey to support State problem ID processes. This survey is not Part 1340 compliant and is used to

1) gauge the effectiveness of the typical May enforcement wave (by comparing raw data for sites that are in both surveys) and

2) for problem identification (the design of this survey allows more data collection with more variables than does the statewide compliant survey).

Due to COVID-19 the Pre-Survey was delayed and because of the decision to use 2019's rate as the official statewide rate there was no comparison to the compliant survey (rendering this survey effective as a problem ID survey only). The purpose of this study is to use the Pre-Survey consisting of a subset of sites from the NHTSA-approved sampling design that was used in prior years to produce a statewide estimate of seat belt use for the State of New Mexico, to be used for problem identification purposes.

Observers from the local organization Safer New Mexico Now provided Preusser Research Group, Inc. (PRG) with local personnel who observed and recorded seat belt use for adults in front seat outboard positions at 84 sites throughout the State.

## Study Design and Sampling Overview

Several research designs for seat belt use rates have been implemented since law implementation in 1982. The National Highway Traffic Safety Administration (NHTSA) issued new Uniform Criteria for State Observational Surveys of Seat Belt Use in 2011, which resulted in new approved designs being implemented for each statewide seat belt survey since 2013. The initial base from which sites for this study were selected came from a resample of sites used in both the 2018 and 2019 NHTSA-mandated statewide seat belt surveys. For these surveys, road segments from 19 of New Mexico's 33 counties (accounting for 85.4% of passenger vehicle crash-related fatalities) were sampled for inclusion in the survey. The road segments were divided into Primary, Secondary, or Local Road classifications for stratification and sampling selection.



This pre-survey differs from a Part 1340 compliant survey in many ways. First, fewer sites are used in this survey—many lower volume sites are not observed because their usefulness from a problem ID perspective are limited. The goal of the pre-survey is also different from a statewide survey. The pre-survey is not designed to estimate a statewide value, but instead to learn more about who is not "buckling up" where, in order to help the State to best focus occupant protection efforts in the future. The length of each observation is also longer in the pre-survey in order to increase the number of vehicles observed. The Part 1340 compliant survey's approval was for 20 minute observations versus the 30 minute observations used in the pre-survey. Also, the sex of observed vehicle occupant is conducted for the pre-survey but is not part of the statewide survey. Lastly, assignment of sites to time of day, and day of week were not random as they would be during a statewide survey, but instead based on maximizing the number of sites an observer could observe in a given day (i.e. geographic proximity or an efficient observation path from one site to the next was the main priority). Additionally, unlike the NHTSA-compliant statewide survey, we did not deploy quality control observers for the pre-survey.

The target population included all drivers and right front seat passengers (excluding middle passengers and children harnessed in child safety seats) of vehicles traveling on public roads between the hours of 7 AM and 6 PM. All passenger vehicles (cars, pickup trucks, vans, and SUVs) with a gross vehicle weight up to 10,000 pounds were observed in the survey. Observations also included small commercial vehicles which fall into the four passenger vehicle categories listed above and could double as a personal use vehicle. The observation period for each selected road segment was 30 minutes. The road segments vary in length, permitting the observer to adjust for a better vantage point in case of unsafe conditions at the planned observation location. Data collection was conducted by trained observers, many who participated in previous New Mexico seat belt surveys. Data were entered and analyzed by PRG.

## Observer Selection, Training, and On-site Procedures

Qualified individuals meeting New Mexico-established criteria conducted the observations. A three-hour refresher training was held prior to data collection. Maps showing the location of all observation sites in addition to Site Assignment Sheets were provided to the observers. These sheets indicated the observed road name, the crossroad included within the road segment (or nearest crossroad), assigned date, assigned time, and assigned direction of travel. Sites within relatively close geographic proximity are assigned as data collection clusters to minimize travel costs.

During the site survey, all observers:

- Observed as many lanes of traffic as could be comfortably monitored;
- Observed only one predetermined direction of traffic (the opposite direction could be used and noted if sunshine in the eyes or other factors hampered observation);
- Observed all passenger vehicles, including smaller commercial vehicles weighing less than 10,000 pounds;
- Recorded seat belt use by both drivers and right front seat occupants, including children riding in booster seats utilizing the adult seat belt strap (the only right front seat occupants excluded from the study were child passengers traveling in child safety seats with harness straps).

All observers used audio recorders to record observations when observing in high traffic volume segments and then transcribed them to the 2020 New Mexico Pre-Seat Belt Observation Data Collection Form. Observers marked the forms directly during observation periods in low volume areas. Observers recorded belt use by marking the form appropriately for each person in each vehicle, with no marks made for absent passengers. A seat belt observation form was provided for entry (Appendix I). Occupants were recorded as:

- Belted if the shoulder belt was in front of the person's shoulder;
- Unbelted if the shoulder belt was not in front of the person's shoulder;
- Unknown if it could not reasonably be determined whether the driver or right front passenger was belted.

## Data Collection and Analysis

Data collection efforts for the 2020 New Mexico Occupant Seat Belt Observation Survey was conducted between May 29 and June 11, 2020. Four observers collected observation data. Completed observation forms were sent to PRG for data entry using Excel and/or SPSS. Data cleaning procedures were performed, including a 10% check to assess entry accuracy across all data entry forms. Variable frequency counts were also conducted to identify ineligible entry values or outliers.

## Results

Shoulder belt use was observed and recorded on 7,735 front seat occupants including 6,187 drivers and 1,548 passengers. Drivers accounted for 80.0% of persons observed with passengers accounting for 20.0%.

A total of 122 observations (less than 2%) of the entire observation sample had "unknown" seat belt use. One goal of the Pre-survey was to have a higher number of observed occupants that would be typically found in a compliant survey. Table 1 shows that even with 10 fewer sites the number of vehicles observed increased by 15% (10% for occupants).

**1**

**Table 1**  VEHICLES AND OCCUPANTS OBSERVED IN OFFICIAL SEAT BELT SURVEYS, NEW MEXICO, 2018-2020

|  | 2018* | 2019* | 2020 |
|---|---|---|---|
| Number of Observers | 4 | 5 | 4 |
| Total Vehicles Observed | 4,060 | 5,378 | 6,187 |
| Total Occupants Observed | 5,158 | 6,990 | 7,613 |

*-Part 1340 Compliant Survey

**91.4%**

Overall, seat belt use was 91.4%. Results from the survey indicate that drivers of passenger cars, sport utility vehicles and vans were far more likely to wear a seat belt than were drivers of pickup trucks (92.3% in car/van/SUV and 90.3% in pickup trucks, respectively). Front seat passengers also showed higher belt use in passenger cars, sports utility vehicles and vans, whereas those in pickup trucks had the lowest belt use (91.0% in car/van/SUV and 88.6% in pickup trucks, respectively). Drivers were buckled up more frequently than passengers in both observed vehicle categories (see Table 2).

**2**

**Table 2**  SEAT BELT USE BY VEHICLE TYPE 2020

| Type of Vehicle | Observed Occupants (N) | Seat Belt Use (%) |
|---|---|---|
| **Car/Van/SUVs (all)** | **5,264** | **92.0%** |
| Driver | 4,202 | 92.3% |
| Passenger | 1,062 | 91.0% |
| **Pickup Trucks (all)** | **2,349** | **90.0%** |
| Driver | 1,919 | 90.3% |
| Passenger | 430 | 88.6% |
| **All Vehicles (all)** | **7,613** | **91.4%** |
| Driver | **6,121** | 91.7% |
| Passenger | 1,492 | 90.3% |

Table 3 shows belt use rate differences by roadway type and person type (driver or passenger). Two vehicle categories were created, one which included pickup trucks only and one with cars, SUVs and vans combined. The isolation of pickup trucks as its own category was due to the existence of previous analyses demonstrating that pickup trucks lag behind the other three vehicle types in relation to seat belt use. Local roads have the lowest use rate in both categories (89.4% in Car/Van/SUV and 87% in Pickup Trucks, respectively). Similarly, Primary roads has highest use rate among Car/SUV/Van (93.7%) and Pickup trucks (91.8%). Weighted use rate by road type shows similar use rate, with primary roads having highest use rate (93%) and local roads having lowest use rate (86%). Figure 1 graphically show belt use rate by road classification type for 2020.

**3**

**Table 3** SURVEY BY ROAD CLASSIFICATION AND VEHICLE TYPE, NEW MEXICO, 2020

| Road Classification | Car/Van/SUVs | | Pickup Trucks | | All Vehicles | |
|---|---|---|---|---|---|---|
| | # People Observed | Belt Use | # People Observed | Belt Use | # People Observed | Belt Use |
| Primary Roads | 2,832 | 93.7% | 1,093 | 91.8% | 3,725 | 93.1% |
| Secondary Roads | 1,585 | 91.0% | 819 | 89.3% | 2,404 | 90.4% |
| Local Roads | 1,047 | 89.4% | 437 | 87.0% | 1,484 | 88.7% |
| Statewide Total | 5,464 | 92.0% | 2,349 | 90.0% | 7,613 | 91.4% |

**1**

**Figure 1** SEAT BELT USE COMPARISON BY ROAD CLASSIFICATION, NEW MEXICO, 2020
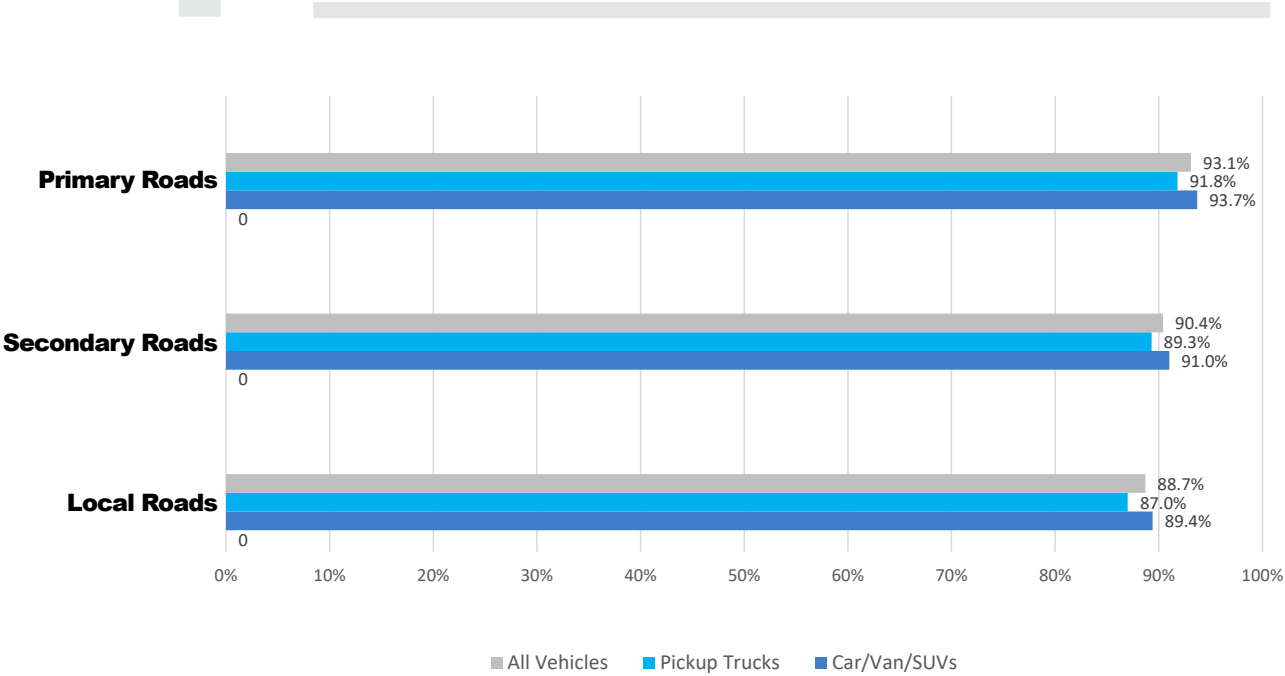


Two counties had 100% belt use rate both for drivers and passengers. Lowest belt use was observed in Rio Arriba and Taos counties (81.8% and 83.6%, respectively). See Table 4 for details. The driver use rate is lowest in Rio Arriba County (80.8%) while the passenger use rate is lowest in Taos County (77.8%).

**4**
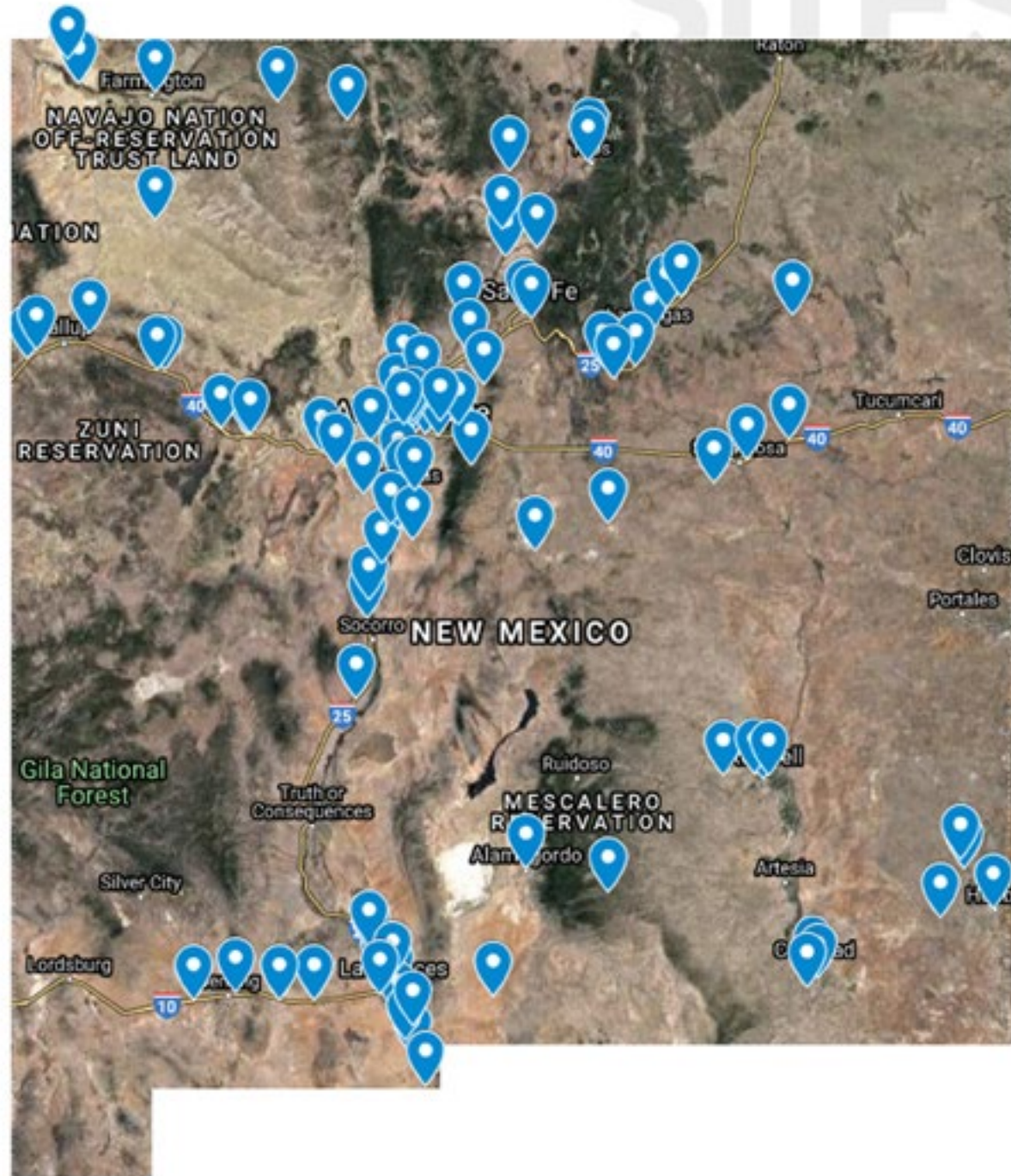
| Table 4 | SURVEYS BY COUNTY AND OCCUPANT TYPE, NEW MEXICO, 2020 |

| COUNTY | Driver Use (%) | Passenger Use (%) | All Occupant Use (%) |
|---|---|---|---|
| Bernalillo | 90.4% | 91.2% | 90.4% |
| Chaves | 94.0% | 89.5% | 93.0% |
| Cibola | 89.0% | 95.0% | 90.2% |
| Doña Ana | 94.4% | 80.7% | 91.2% |
| Eddy | 100.0% | 100.0% | 100.0% |
| Guadalupe | 98.6% | 100.0% | 98.8% |
| Lea | 97.9% | 96.4% | 97.7% |
| Luna | 95.9% | 88.4% | 94.0% |
| Mckinley | 91.1% | 90.0% | 90.8% |
| Otero | 98.0% | 98.7% | 98.1% |
| Rio Arriba | 80.8% | 90.0% | 81.8% |
| Sandoval | 91.2% | 90.9% | 91.2% |
| San Juan | 86.6% | 86.7% | 86.6% |
| San Miguel | 97.1% | 96.3% | 96.9% |
| Santa Fe | 89.2% | 92.7% | 89.9% |
| Socorro | 93.4% | 92.9% | 93.2% |
| Taos | 85.5% | 77.8% | 83.6% |
| Torrance | 100.0% | 100.0% | 100.0% |
| Valencia | 88.4% | 78.3% | 86.8% |

## Discussion/Recommendations

The results, using raw data, show similar overall belt use to what has been reported in New Mexico recently for their weighted statewide use rates. Pickup truck occupants have relatively lower belt use than occupants of other vehicles. This effect tends to be present in observational studies across the country. Whereas once it was thought that this was a rural effect (more pickup trucks in rural areas) the effect persists in more urbanized areas. It may be possible that pickup truck occupants feel safer because of the size (or height) of their vehicles or it may be that occupants with an attitude resistant to belt use are also more likely to be occupants of pickup trucks. Either way, educational or enforcement campaigns geared toward occupants of pickup trucks may be useful in reducing unrestrained occupant injury and death.

The data also point to male occupants being unrestrained more frequently than female occupants. It is likely that media buys for the state are already geared toward the population of young men. Changing behavior in this group has been a challenge nationally and they tend to be the last stragglers for seat belt law non-compliance. Of some interest is the slightly lower use observed among passengers (versus drivers). Media or publicized enforcement aimed at passengers may encourage an increase in use among this group. Enforcement of passenger belt laws may be more difficult for officers (laws may make it difficult to fine such individuals and there is a lower frequency of vehicles containing front seat passengers) but combined with a media campaign, at least reminding occupants that use is required and enforced for passengers, may create the belief of all front seat enforcement.
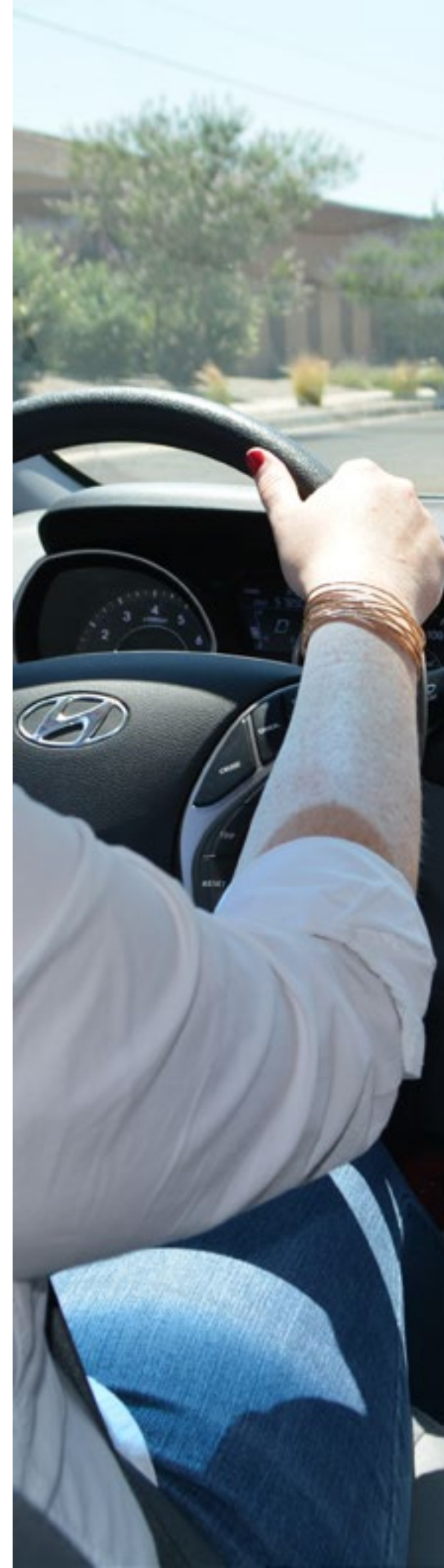
One area of very low seat belt use is by occupants on local (or lower volume) roadways. Traditionally, one excuse for non-compliance has been "short trips." This may coincide with local roadway driving. Media campaigns or actual enforcement on local roadways may also encourage use among the very low use driving population. There are data suggesting that some large percentage of crashes occur within two miles of home. This effect is likely driven, at least in part, by that fact that a large percentage of actual driving occurs in that zone (as motorists start or end their journeys from home very often) but the message may remind motorists that seat belt use is important even for short trips. Enforcement on local roads may present a problem primarily because of volume of vehicles traversing these roadways but also from the perspective of civil complaints to local agencies. There may be some utility in discussing this option with law enforcement while considering the costs and benefits.

Finally, five counties stand out as having below 90% seat belt use. Unbelted use among seriously and fatally injured occupants can be explored to confirm whether the rates (perhaps per population) warrant additional focus on these counties. Rio Arriba, Taos and Valencia have relatively low populations and additional focus may be helpful but the impact on a per population basis needs to be considered. San Juan and Santa Fe have populations sufficient enough where the added focus may produce a bigger reduction in unbelted injuries and fatalities.

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NMDOT

## References

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PRE-SURVEY

# REPORT
## Prepared by:

Preusser Research Group, Inc. for the
New Mexico Department of Transportation
Content design and edited by Safer New Mexico Now

Electronic version available at
www.preussergroup.com and www.safernm.org

# APPENDIX I
# Pre-Seat Belt Survey Instrument

### New Mexico Pre-Seat Belt Observation Data Collection Form
**MAY/JUNE 2020**

**Date of Observation:** ____ / ____ / 2020        **Day of Week:** _____

**Time: Start** _____   **End** _____        **Observer Name:** _____

**Site Number:** _____   **City & County:** _____

**Roadway/Street Name** _____   **Speed Limit:** _____

Indicate the number of traffic lanes for each direction of travel by placing an (**X**) or check mark (✔) in the corresponding lane(s).
Draw an arrow in each <u>observed lane</u> to show direction of vehicle travel. Write <u>N, S, E, or W</u> to indicate approximate compass heading.
Example: 4-lane roadway, 2 lanes each direction.
Both westbound lanes, 1 and 2, were observed.                    **Mark Diagram Accordingly**

EXAMPLE

LANE 4
LANE 3
✔ LANE 2
✔ LANE 1
✔ LANE 1  W  →
✔ LANE 2  W  →
LANE 3
LANE 4

LANE 4
LANE 3
LANE 3
LANE 1
CENTER DIVIDE
LANE 1
LANE 2
LANE 3
LANE 4

Observer's Comments:

**DRAW OR INSERT AERIAL VIEW OF OBSERVATION SITE BELOW:**

**Sheet No.** _____ **of** _____   **for Observation Site Number:** _____

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**INSTRUCTIONS:** For each observed vehicle, start a new row. Place an **X** or ✔ in the appropriate column for driver and outboard front passenger (if applicable). <u>Passenger children are to be counted under "YES" if restrained with seat belt, or "NO" if unrestrained.</u>  For EXEMPT VEHICLES (Vehicles over 10,000 lbs. and prior to 1968) seatbelt information is not required.

**Observation Site Number:** _____

| # | Vehicle Type C | T | Driver Gender M | F | U | Driver Seatbelted Y | N | U | Passenger Gender M | F | U | Passenger Seatbelted Y | N | U |
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| TOTAL | | | | | | | | | | | | | | |

**Sheet No.** _____ **of** _____

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