

Puerto Rico Observational Survey of Seat Belt Use, 2018

Final Report

Submitted to: Traffic Safety Commission of Puerto Rico



September 28, 2018

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INTRODUCTION

The Traffic Safety Commission of Puerto Rico (CST by its Spanish acronym), with the collaboration of Estudios Técnicos, Inc., conducted the Seat Belt Use Survey for 2018. The purpose of the study is to estimate seat belt use in Puerto Rico at a specific point in time.

The sample design is similar to the one approved by the National Highway Traffic Safety Administration (NHTSA) on November 9, 2011. For this year we used the same road selection from 2017 following the Uniform Criteria for State Observational Surveys of Seat Belt Use, approved by NHTSA on May 30, 2017.

The fieldwork team was composed of eleven (12) members. All team members participated in a one day training session on August 28, 2018 that included all the different aspects for the observations and quality control. The training was organized in two sections. The first section addressed the objectives of the survey, operational definitions concerning field observations, and data gathering protocols. The second section consisted of examples and the recreation of the different situations and possible scenarios in the field. This second part also included role playing exercises for observers, counters and quality control monitors.

Observations were conducted from September 5 to September 22, 2018. Seventeen (17) counties were visited, for a total of 6,800 vehicle observations.

METHODOLOGY

The methodology used for the Seat Belt Survey is similar to the one implemented in 2011 and approved by NHTS. For 2017 a new road selection was made following the Uniform Criteria for State Observational Surveys of Seat Belt Use, approved by NHTSA on May 30, 2017. As mention in the introduction, for 2018 the same 68 road segments from 2017 were visited.

Two main units were considered in the sample design. The primary sample unit (PSU) is by counties, the second sample unit (SSU) by road segments, followed by: time segment, road direction, lane and vehicle selection. The PSU was stratified following a geographic distribution of the Island, composed of five regions. A sample of 17 counties was selected from a sample frame of 45 counties, after considering an exclusion of 15 percent of passenger vehicle occupant fatalities in the 78 counties that compose Puerto Rico. Counties were stratified by region. The selection was established according to the number of active driver's licenses by county.

The road sample was stratified in each county by three road types: (1) Primary, (2) Secondary and (3) Local. A total of four road segments were selected in each county,

including at least one road for every road type in each county. The selection was made using segment length as the measure of size (MOS). The four road segments by county represented one work day of data collection. Observations were scheduled ensuring that they were made during the seven days of the week. A universal period of observation of 45 minutes was used, with an estimation of 45 minutes of traveling time between segments. The starting time for each day was randomly chosen between 7:00 AM and 1:00 PM to warrant the observation probability between 7:00 AM and 6:00 PM.

Site locations for observations were selected deterministically by the first intersection or ramp encountered. Observations were conducted by three team members: two data collectors and one vehicle counter. The team recorded roadway directions of the selected segments and chose randomly roadway directions to be observed when there were more than two directions. Seven percent of the segments were visited without advance notice by an independent monitor for quality control purposes.

An observation protocol was used to guide field observations. The protocol established the roles for each team member, how to choose roadway directions, place to collect the information, how to identify the right vehicles to be observed, people to be observed inside the vehicles, and how to record the observations. A total of four protocols were developed to guide their actions in special situations. These included the following: (1) temporarily unavailable locations, (2) permanently unavailable locations, (3) nonresponse rates that exceed 10% and (4) process for non-usable data. The protocols warrant that sample units were represented and that standard error does not exceed 2.5 percentage points.

For data entry and processing, the following software programs were used: SPSS, Excel and SUDAAN. The belt use rate estimation was calculated through a ratio estimator and the standard error with SUDAAN software. Both procedures were included in the Sample Design submitted and approved by NHTSA.

FINDINGS

General Findings

The five (5) regions of Puerto Rico were covered with the visits of the 17 counties (four road segments in each one selected for the sample). The number of observations per segment was 100 vehicles, for a total of 6,800 observed vehicles and 8,532 occupants (6,800 drivers and 1,732 front passengers).

The 68 segments visited were the same ones as 2017 (following NHTSA procedure) within the same time period and days of the week. There was no need to change road

segments do to the fact that all 100 observations were completed in each of the 68 road segments used in 2017.

Quality control was conducted in seven percent of the observed segments. These segments, which are included in table one, were randomly selected.

TABLE 1: QUALITY CONTROL BY ROAD SEGMENTS

County	Type	Road Segment	Longitude	Longitude	Date	Hour
Isabela	Secondary	Pr- 2	18.468321	-67.031808	September 5,2018	11:30
Salinas	Local	Cll Miguel Ten	17.976603	-66.297964	September 6,2019	15:00
Toa Baja	Local	Pr- 866	18.416051	-66.200846	September 8,2018	13:00
Canóvanas	Local	Cll 1	18.339961	-65.894689	September 11,2018	9:00

Observers recorded belt use information of 6,606 drivers and 1,672 front seat passengers. The number of occupants with unknown belt use was 254 (194 drivers and 60 front passengers) for a nonresponse rate of 3.0% (nonresponse rate = 254/8,532). Table two includes the number of observations of drivers and passengers per county and region.

TABLE 2: NUMBERS OF VALID OBSERVATIONS OF FRONT SEAT OCCUPANTS PER COUNTY/REGION

	Drivers	Passengers	Total
North Region	1,166	335	1,501
Arecibo	389	106	495
Hatillo	396	102	498
Toa Baja	381	127	508
West Region	1,172	275	1,447
Aguada	393	76	469
Isabela	385	104	489
Mayagüez	394	95	489
South Region	1,556	389	1,945
Ponce	388	98	486
Cayey	392	98	490
Juana Díaz	385	88	473
Salinas	391	105	496
East Region	1,941	499	2,440
Caguas	385	100	485
Canóvanas	390	115	505
Fajardo	389	90	479
Juncos	391	107	498
Naguabo	386	87	473
Metropolitan Región	771	174	945
Carolina	383	109	492
San Juan	388	65	453
Total	6,606	1,672	8,278

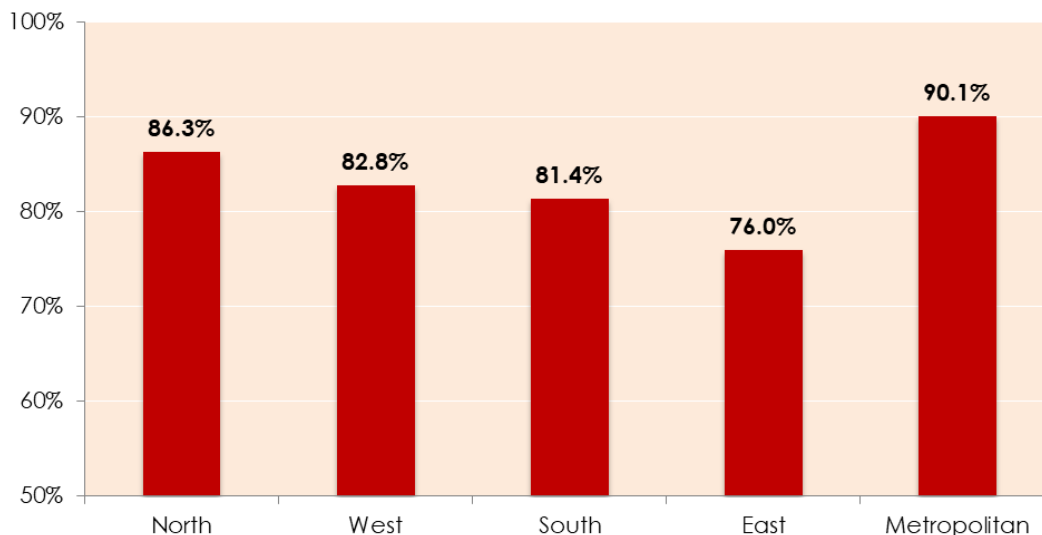
The overall belt use measured combining drivers and passengers (once weights were applied as indicated in the sample design) was 85.0 percent, with a standard error of 2.35%.

TABLE 3: WEIGHTED SEAT BELT USE RATE FOR PUERTO RICO 2018

Rate of belt use	Standard Error	95 Percent Confidence Interval	
85.0%	2.35%	80.4%	89.6%
n = 8,278			

Significant¹ difference was found in belt use by region. In the Metropolitan Area (90.1%) and North (86.3%) regions belt use is more intense than the other regions, especially the East (76%) and South (81.4%).

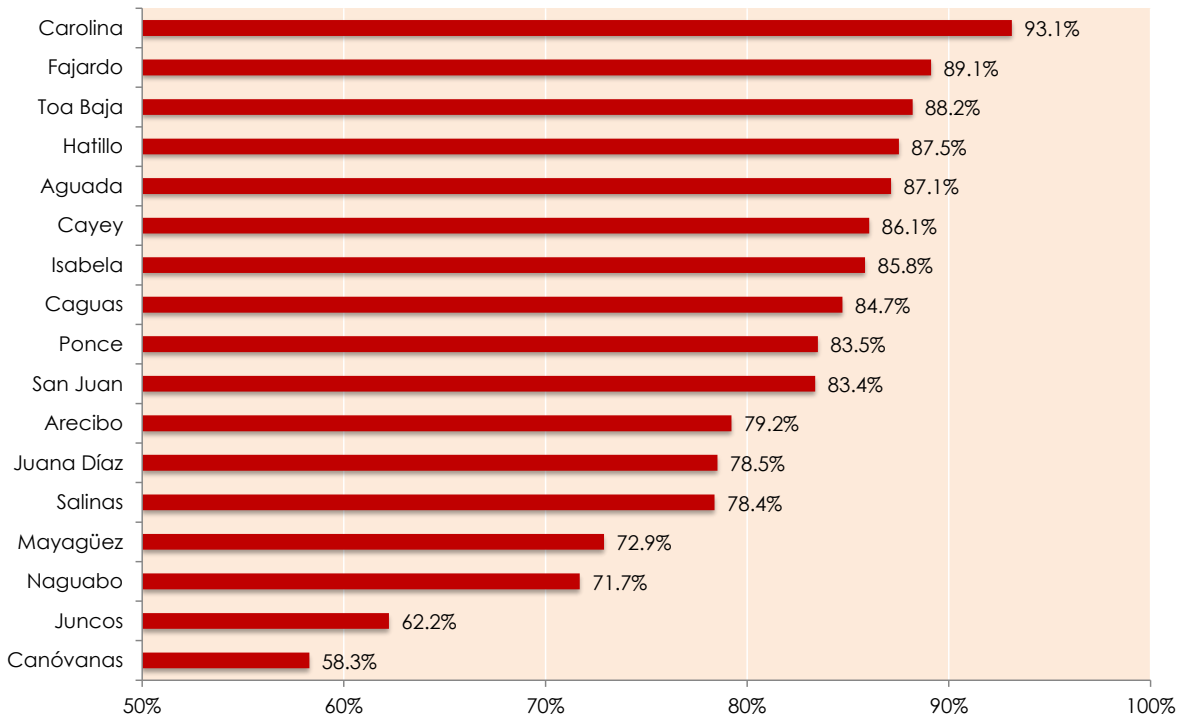
GRAPH 1: OBSERVED BELT USE BY REGION



The belt use measurements by county showed that Carolina was the county with the highest belt use with 93.1%. Other counties that reached belt usage close to 90 percent were: Fajardo and Toa Baja. In contrast, the lowest level of belt use was recorded in: Canóvanas (58.3%) and Juncos (62.6%).

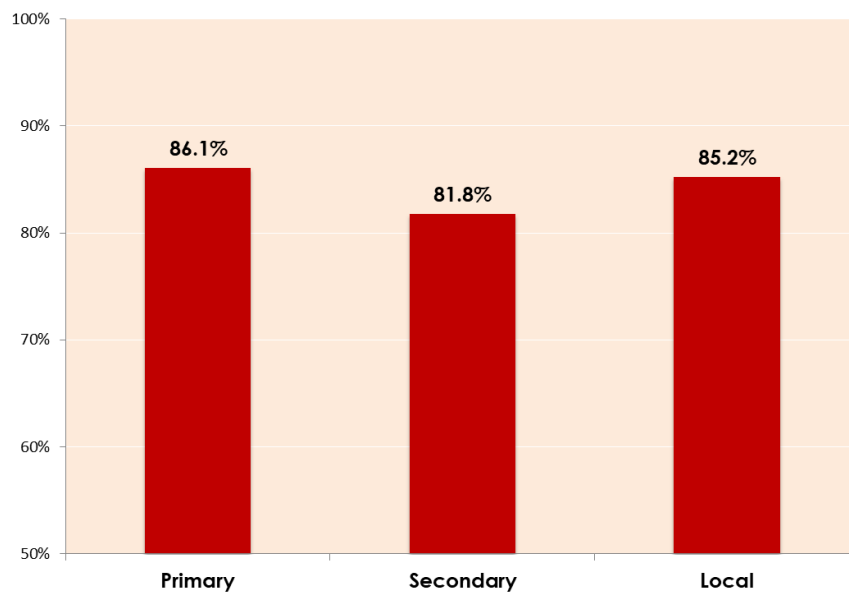
¹ A Chi Square Test of Independence was calculated to identify relations between belt use and the rest of the observed variables.

GRAPH 2: OBSERVED BELT USE BY COUNTY



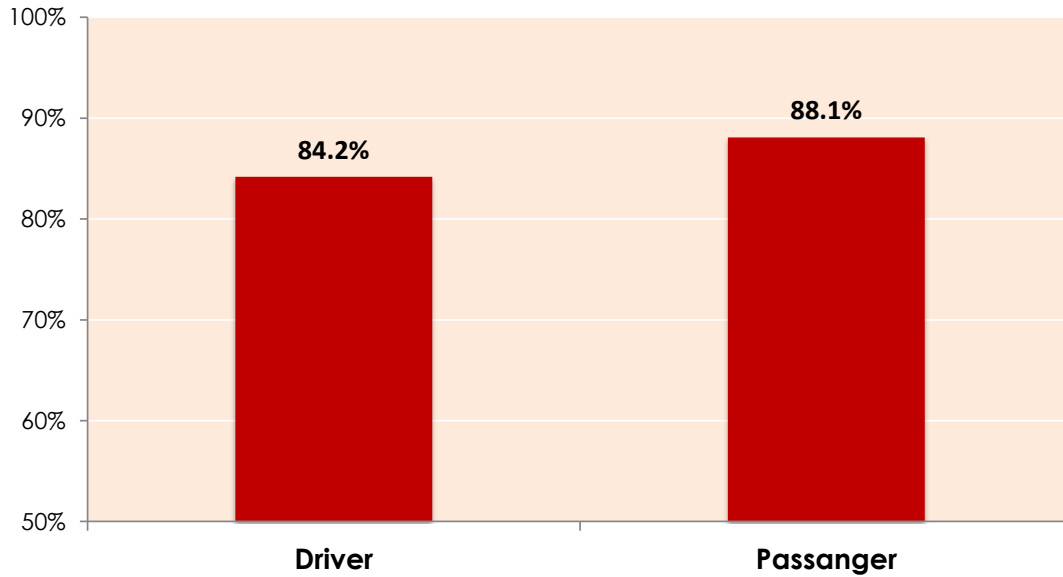
Differences were observed by road type. The lowest percentage of seat belt use (81.8%) was found on Secondary road types.

GRAPH 3: OBSERVED BELT USE BY ROAD TYPE



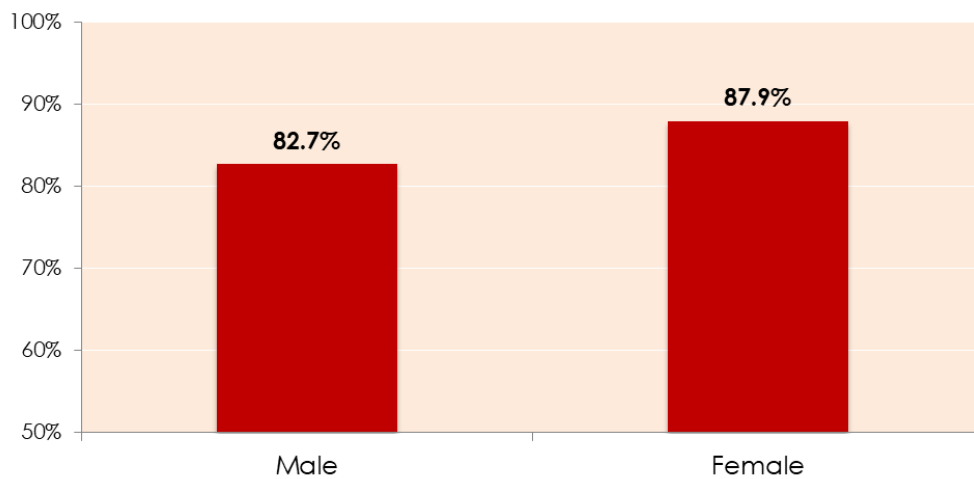
A difference was observed between drivers and passengers. Belt use is higher by drivers (88.1%) than passengers (84.2%).

GRAPH 4: OBSERVED BELT USE BY SEATING POSITION



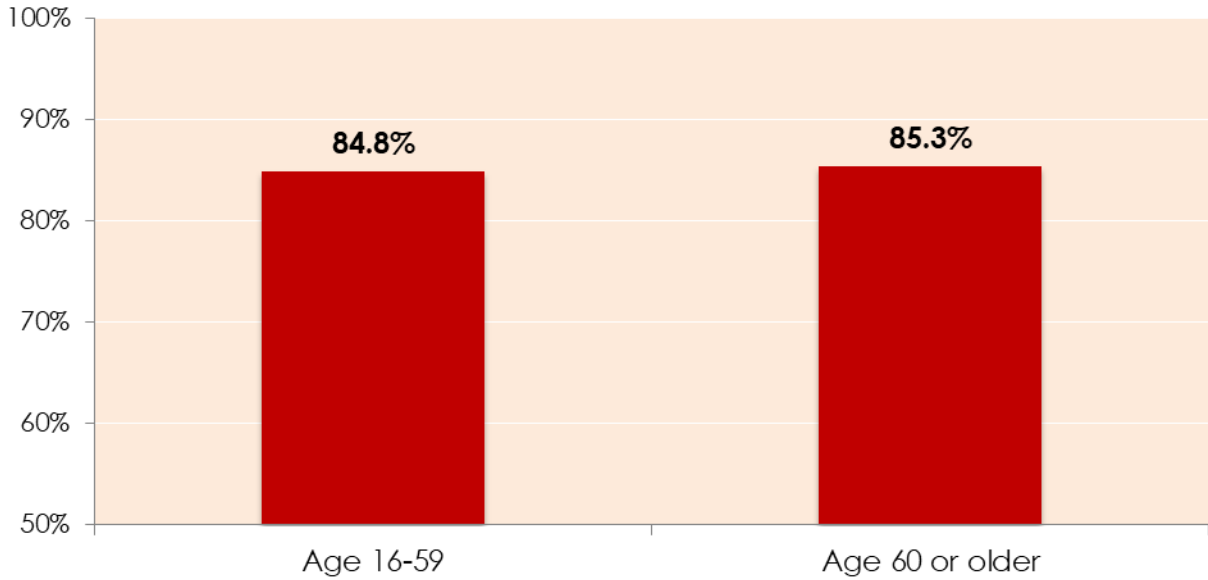
The survey results showed that female's belt use has a higher percentage compared to males (87.9 percent and 82.7 percent, respectively). This difference is statistically significant using a Chi Square Test of Independence.

GRAPH 5: OBSERVED BELT USE BY GENDER



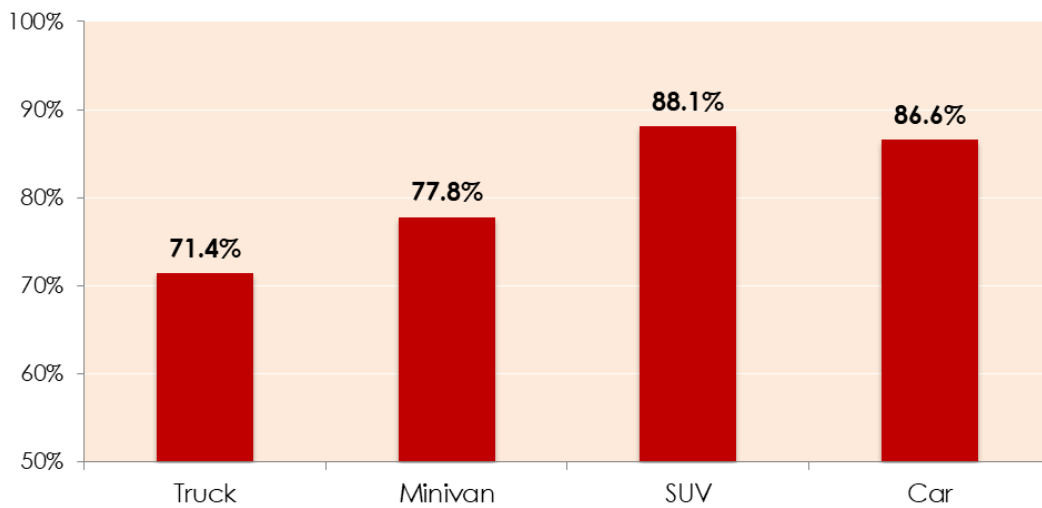
No statistical difference was found related to the use of seat belt and age group. Age group 16 to 59 (84.8%) and 60 years or older (85.3%)

GRAPH 6: OBSERVED BELT USE BY AGE



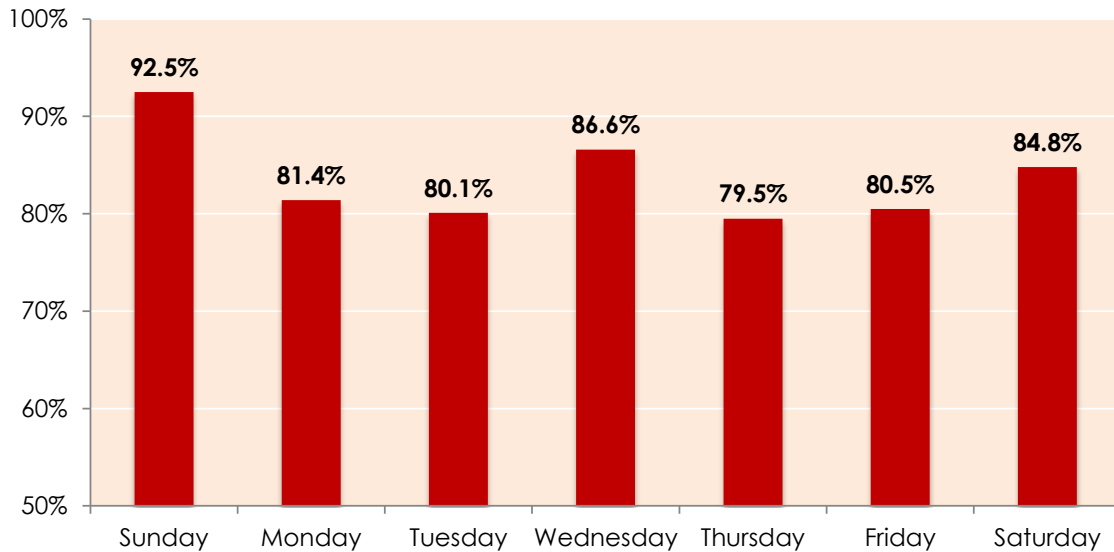
A significant difference of belt use was observed by vehicle type. As Graph 7 shows, 71.4 percent of belt use was registered on trucks, while 88.1 percent on SUVs. Minivans scored a belt use of 77.8 percent and cars 86.6%.

GRAPH 7: OBSERVED BELT USE BY VEHICLE TYPE



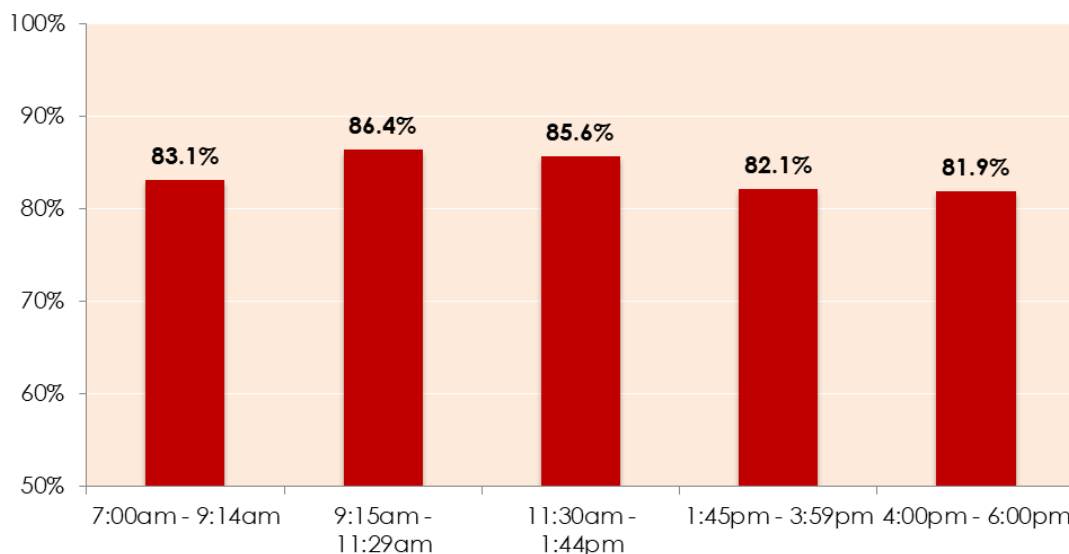
The days of the week that measured a higher belt use were Sunday and Wednesday with 92.5%, and 86.6 percent, respectively. The days of the week that measured the lowest belt use were Thursday and Tuesday, with 79.5% and 80.1 percent respectively. Those results are associated with the municipalities that were visited in those days.

GRAPH 8: OBSERVED BELT USE BY DAY OF THE WEEK



A lower belt use percentage was found after 1:45 PM. The time intervals corresponding from 1:45 PM to 3:59 PM (82.1%) and from 4:00 PM to 6:00 PM (81.9%) reflected lower belt use.

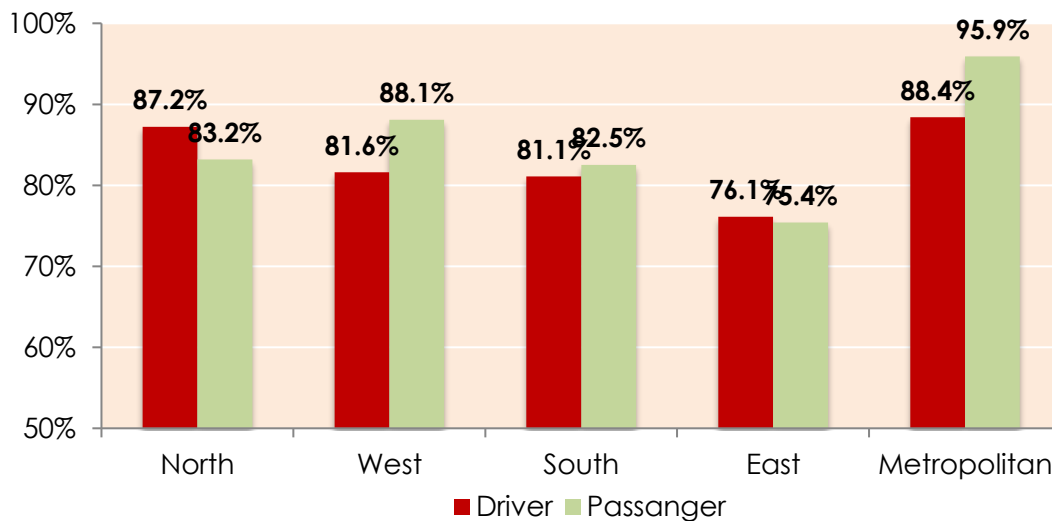
GRAPH 9: OBSERVED BELT USE BY TIME INTERVALS



Information by Seating Position

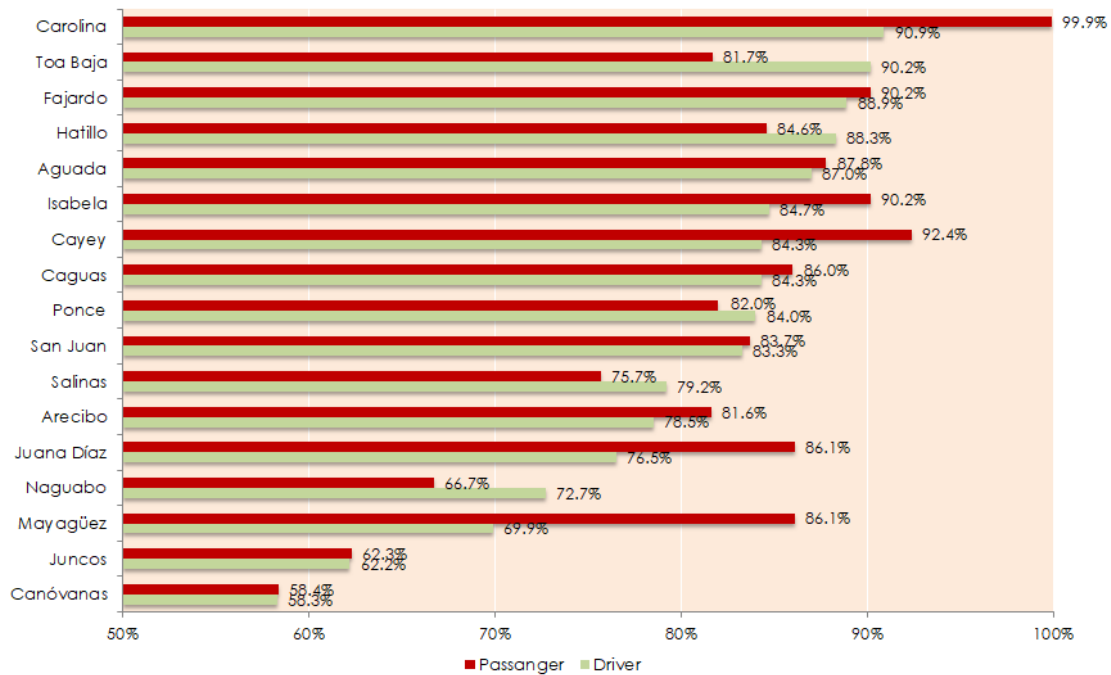
The measurements of belt use by seating position by region were similar to the ones by region in general. That is, the Metropolitan Region recorded the highest belt use, with significant differences between drivers (88.4 percent) and passengers (95.9 percent), followed by the North Region. The East Region and South Regions recorded the lowest belt use.

GRAPH 10: OBSERVED BELT USE BY REGION PER SEATING POSITION



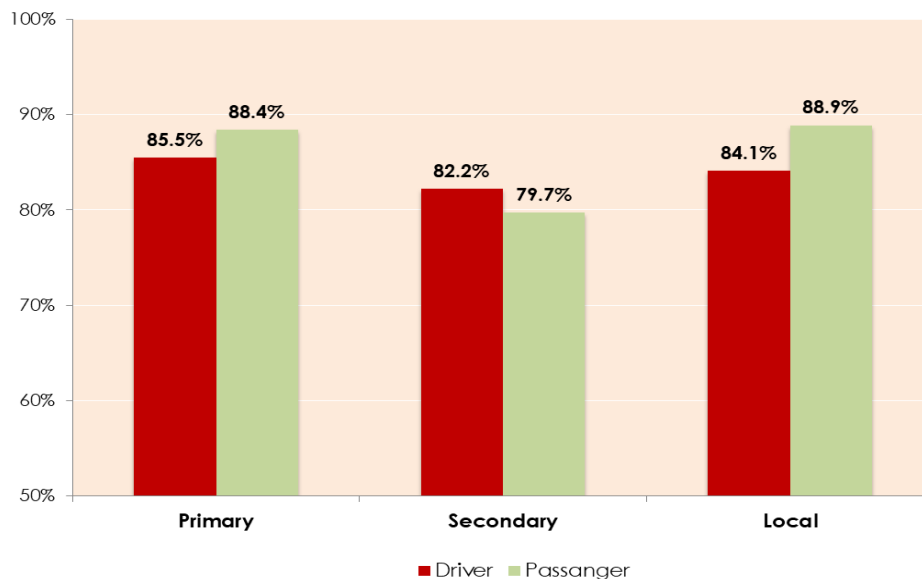
As Graph 11 shows, differences in belt use can be observed when counties are considered separately. The counties that measured the biggest differences between drivers and passengers were: Mayagüez, Juana Díaz and Carolina. Mayagüez measured a belt use of 86.1 percent for passengers, while drivers measured a belt use of 69.9 percent, for a difference of 16.2 percentage points. In the case of Juana Díaz, passengers measured 86.1 percent of belt use, while drivers recorded 76.5 percent, for a difference of 9.6 percentage points. In Carolina, the difference in belt use between drivers (90.9 percent) and passengers (99.9 percent) was of 9.0 percentage points.

GRAPH 11: OBSERVED BELT USE BY COUNTY PER SEATING POSITION



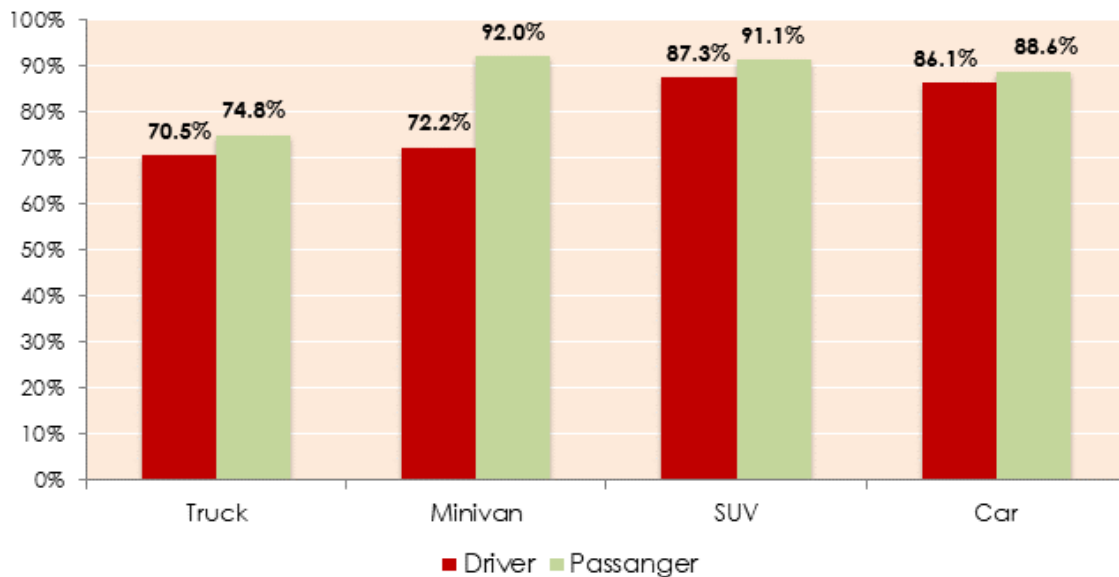
The biggest difference of belt use between drivers and passengers by road type was observed in local roads. Passengers measured 88.9 percent of belt use, while drivers measured 84.1 percent, for a difference of 4.8 percentage points. A smaller difference was measured in Secondary roads, consisting of 2.5 percentage points between drivers (82.2 percent) and passengers (79.7 percent).

GRAPH 12: OBSERVED BELT USE BY ROAD TYPE PER SEATING POSITION



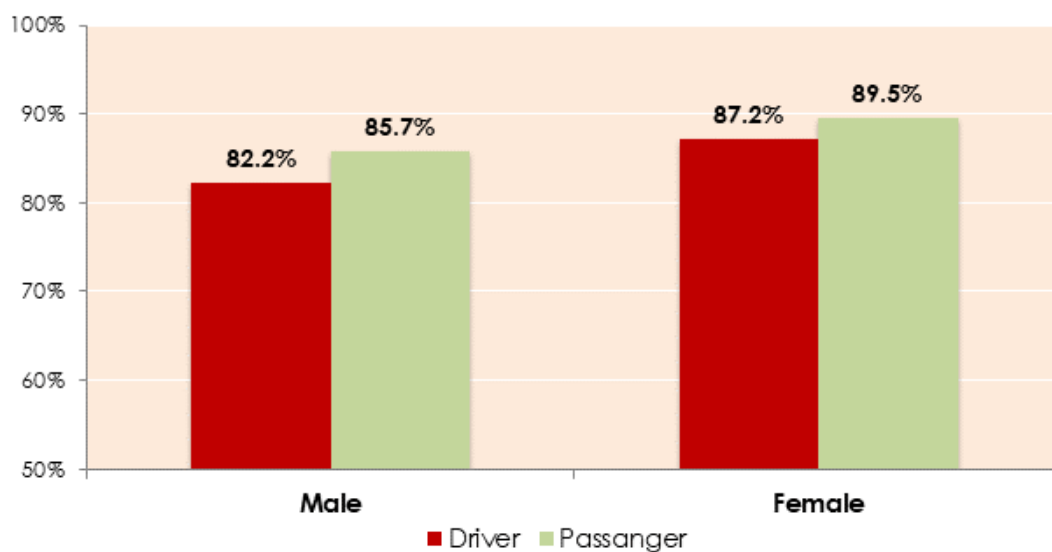
Related to belt use by type of vehicle, differences were found between drivers and passengers. Drivers recorded a higher belt use in SUVs (87.3%), while passengers have a higher use in Minivans (92.0%).

GRAPH 13: OBSERVED BELT USE BY VEHICLE TYPE PER SEATING POSITION



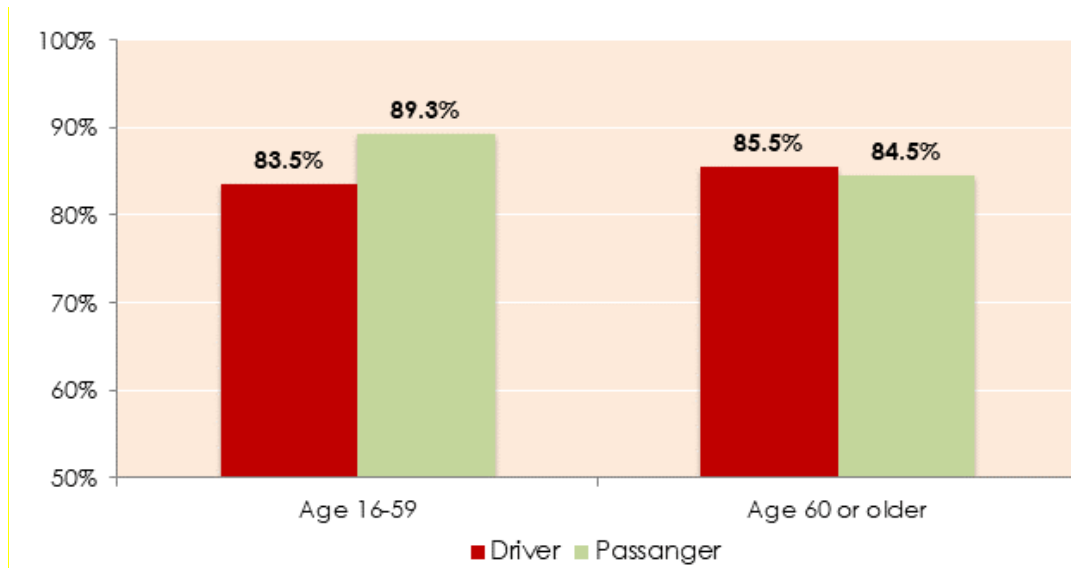
As Graph 5 showed, more females were observed using the belt than males. This tendency, as Graph 14 shows, is similar for drivers and passengers.

GRAPH 14: OBSERVED BELT USE BY GENDER PER SEATING POSITION



A 5.8 percentage point difference was registered in belt use between drivers (with 83.5 percent) and passengers (89.3 percent) regarding persons between 16 and 59 years old. However, for people of 60 years or older, drivers measured 85.5 percent, while passengers 84.5 percent, for a difference of 1 percentage point.

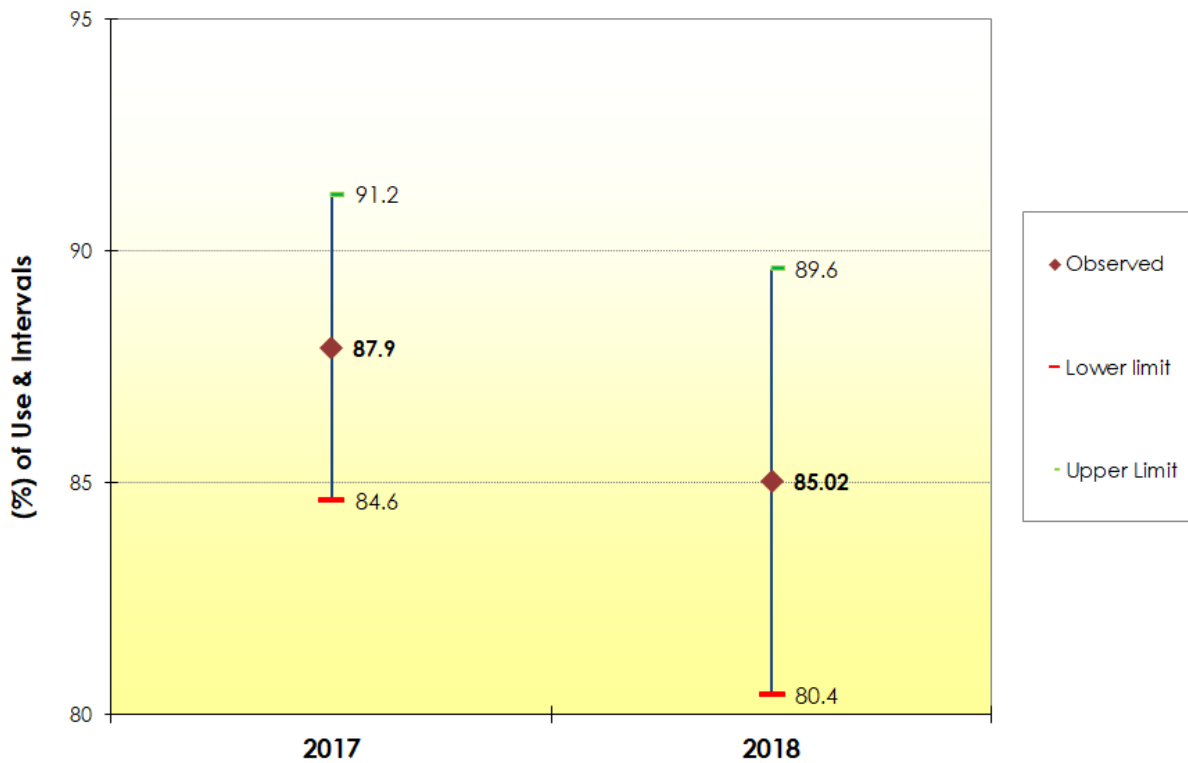
GRAPH 15: OBSERVED BELT USE BY AGE PER SEATING POSITION



Conclusions

In Puerto Rico the belt use rate has been similar and consistent throughout recent studies. The last valid study was conducted in 2017 and the general belt use rate was 87.9%, being 87.1% for drivers and 90.9% for passengers. In the present study (2018), the belt use was measured at 85.0%; being 84.2% for drivers and 88.1% for passengers, and with a standard error of 2.35%. As shown in graph 16, at 95 percent confidence level, the belt use rate difference between 2017 and 2018 is not statistically significant.

GRAPH 16: 2017-2018 RATE OF BELT USE AND 95 PERCENT CONFIDENCE LEVEL.



APPENDIX 1: LIST AND MAP OF SAMPLED ROAD SEGMENTS

Region	County	Type	Road Segment	X Coordinate	Y Coordinate	Day	Time	Belt use percentage
West	Aguada	Secondary	Pr- 417	18.360792	-67.141408	Wednesday	12:30	65.3%
West	Aguada	Local	Pr- 419	18.326512	-67.152832	Wednesday	11:00	82.5%
West	Aguada	Local	Marginal 2	18.356027	-67.162926	Wednesday	8:00	86.8%
West	Aguada	Local	PR-4416	18.354545	-67.166826	Wednesday	9:30	88.0%
North	Arecibo	Primary	Expreso Jose de Diego	18.436628	-66.586889	Saturday	14:30	92.7%
North	Arecibo	Secondary	Pr- 656	18.420692	-66.684354	Saturday	10:00	68.5%
North	Arecibo	Local	Cll Las Carolinas	18.403766	-66.595401	Saturday	13:00	77.4%
North	Arecibo	Local	Cll Municipal	18.459663	-66.590922	Saturday	11:30	79.8%
East	Caguas	Primary	Autopista Luis A Ferre	18.297559	-66.044480	Sunday	13:30	87.8%
East	Caguas	Secondary	Pr- 789	18.222181	-66.022902	Sunday	9:00	80.7%
East	Caguas	Local	Ave. Gautier Benitez	18.212775	-66.045942	Sunday	12:00	84.9%
East	Caguas	Local	Ave Degetau	18.222341	-66.039008	Sunday	10:30	84.6%
East	Canovanas	Primary	Pr- 66	18.367641	-65.886149	Tuesday	12:00	86.6%
East	Canovanas	Secondary	Pr- 185	18.313359	-65.891835	Tuesday	10:30	66.7%
East	Canovanas	Local	Cll 12	18.394256	-65.888067	Tuesday	13:30	56.5%
East	Canovanas	Local	Cll 1	18.339961	-65.894689	Tuesday	9:00	55.4%
Metropolitan	Carolina	Primary	Pr- 26	18.400937	-65.981510	Sunday	14:30	96.0%
Metropolitan	Carolina	Secondary	Pr- 874	18.395630	-65.934822	Sunday	11:30	92.9%
Metropolitan	Carolina	Local	Carr. Boca Cangrejos	18.443467	-66.006781	Sunday	13:00	93.7%
Metropolitan	Carolina	Local	Ave Iturregui	18.417931	-66.000311	Sunday	10:00	93.0%
South	Cayey	Primary	Autopista Luis A Ferre	18.104720	-66.161588	Monday	12:00	81.9%
South	Cayey	Secondary	Pr- 1	18.132996	-66.128660	Monday	13:30	88.2%
South	Cayey	Local	Cll Nuñez Romeu	18.113004	-66.164986	Monday	15:00	84.6%
South	Cayey	Local	Pr- 7722	18.108191	-66.209815	Monday	16:30	85.7%
East	Fajardo	Primary	Pr- 53	18.285711	-65.649759	Tuesday	13:30	92.9%

Region	County	Type	Road Segment	X Coordinate	Y Coordinate	Day	Time	Belt use percentage
East	Fajardo	Secondary	P R- 195	18.332613	-65.632474	Tuesday	9:00	79.0%
East	Fajardo	Local	Pr- 3	18.296082	-65.642378	Tuesday	12:00	91.7%
East	Fajardo	Local	Ave el Conquistador	18.339485	-65.656198	Tuesday	10:30	85.1%
North	Hatillo	Primary	Pr- 2	18.488131	-66.799438	Thursday	13:30	89.3%
North	Hatillo	Secondary	Ave Dr Susoni	18.487730	-66.824029	Thursday	12:00	94.2%
North	Hatillo	Local	Calle E	18.487776	-66.789458	Thursday	15:00	87.2%
North	Hatillo	Local	Marg.Cll Comercio	18.485504	-66.818322	Thursday	16:30	86.3%
West	Isabela	Secondary	Pr- 2	18.468321	-67.031808	Wednesday	11:30	88.6%
West	Isabela	Local	Cll Dr Gonzalez	18.501772	-67.020247	Wednesday	14:30	88.0%
West	Isabela	Local	Cll Lamela	18.500950	-67.026652	Wednesday	10:00	82.8%
West	Isabela	Local	Cll la Sierra	18.504912	-67.061166	Wednesday	13:00	75.8%
South	Juana Díaz	Primary	Autopista Luis A Ferre	18.032402	-66.434595	Monday	15:30	93.6%
South	Juana Díaz	Secondary	Pr- 14	18.052872	-66.521361	Monday	12:30	76.0%
South	Juana Díaz	Local	Cll Ext Munoz Rivera	18.053821	-66.504846	Monday	11:00	79.4%
South	Juana Díaz	Local	Avecamino Real	18.011116	-66.493727	Monday	14:00	76.8%
East	Juncos	Primary	Expreso Cruz Ortíz Stella	18.244460	-65.940350	Thursday	13:30	86.2%
East	Juncos	Secondary	Pr- 189	18.240805	-65.932685	Thursday	12:00	72.7%
East	Juncos	Local	Cll Martínez	18.228180	-65.921854	Thursday	9:00	63.1%
East	Juncos	Local	Cll Algarin	18.227368	-65.927396	Thursday	10:30	58.3%
West	Mayagüez	Secondary	P R - 105	18.203182	-67.145643	Thursday	12:30	75.0%
West	Mayagüez	Local	Cll Simon Carlos	18.202173	-67.149470	Thursday	14:00	65.6%
West	Mayagüez	Local	Calle M Columbus Lndg	18.198214	-67.150428	Thursday	15:30	65.9%
West	Mayagüez	Local	Cll Nenadich E	18.197356	-67.143562	Thursday	11:00	79.5%
East	Naguabo	Primary	Pr- 53	18.214525	-65.718318	Friday	8:00	85.8%
East	Naguabo	Secondary	Pr- 3	18.201024	-65.711556	Friday	9:30	62.7%

Region	County	Type	Road Segment	X Coordinate	Y Coordinate	Day	Time	Belt use percentage
East	Naguabo	Local	Cll Goyco	18.212429	-65.734183	Friday	12:30	66.9%
East	Naguabo	Local	Cll 7	18.206030	-65.737460	Friday	11:00	65.0%
South	Ponce	Primary	Autopista Luis A Ferré	18.002135	-66.583322	Thursday	14:00	83.8%
South	Ponce	Secondary	Pr- 2	17.974190	-66.680717	Thursday	12:30	89.7%
South	Ponce	Local	Ave Padre Noel	17.982400	-66.622295	Thursday	15:30	83.3%
South	Ponce	Local	Cll 2	18.018618	-66.604890	Thursday	11:00	69.2%
South	Salinas	Primary	Autopista Luis A Ferre	17.993180	-66.261345	Friday	13:30	84.8%
South	Salinas	Secondary	Pr- 1	18.039239	-66.240620	Friday	12:00	80.3%
South	Salinas	Local	Cll Miguel Ten	17.976603	-66.297964	Friday	15:00	81.1%
South	Salinas	Local	Cll Victoria Mateo Serrano	17.977954	-66.296859	Friday	16:30	76.2%
Metropolitan	San Juan	Primary	Expreso Las Americas	18.389778	-66.071626	Friday	10:00	84.0%
Metropolitan	San Juan	Secondary	Ave John F Kennedy	18.431885	-66.089463	Friday	7:00	78.3%
Metropolitan	San Juan	Local	Cll Hoare	18.450362	-66.081601	Friday	11:30	89.5%
Metropolitan	San Juan	Local	Cll 7 S	18.401591	-66.090262	Friday	8:30	83.3%
North	Toa Baja	Primary	Pr- 22	18.415249	-66.207233	Saturday	16:00	90.7%
North	Toa Baja	Secondary	Pr- 2	18.403435	-66.216572	Saturday	17:30	90.0%
North	Toa Baja	Local	Pr- 866	18.416051	-66.200846	Saturday	13:00	88.4%
North	Toa Baja	Local	Cll Canarios	18.425498	-66.172550	Saturday	14:30	80.2%

APPENDIX 2: TABLE B

Seat Belt Usage: Final Report

Region	County	Road type	ID_RS	Road Segment	Direction	Site Type	Date	W _{gchjktm}	Number of Drivers	Number of front Passengers	Number of occupants	Numbers de occupants belted	Numbers de occupants unbelted	Numbers de occupants with unknown belt use
West	Aguada	Secondary	1	Pr- 417	E & W	Original	Wednesday, 9-5-2018	2541536.331	100	20	120	77	41	2
West	Aguada	Local	2	Pr- 419	N	Original	Wednesday, 9-5-2018	18148618.403	100	23	123	99	21	3
West	Aguada	Local	3	Marginal 2	N	Original	Wednesday, 9-5-2018	68221515.943	100	14	114	99	15	0
West	Aguada	Local	4	PR-4416	N	Original	Wednesday, 9-5-2018	18112327.173	100	21	121	103	14	4
North	Arecibo	Primary	5	Expreso Jose de Diego	W	Original	Saturday, 9-8-2018	5532245.166	100	16	116	102	8	6
North	Arecibo	Secondary	6	Pr- 656	N & S	Original	Saturday, 9-8-2018	3915599.241	100	27	127	85	39	3
North	Arecibo	Local	7	Cl Las Carolinas	E & W	Original	Saturday, 9-8-2018	26162534.281	100	40	140	106	31	3
North	Arecibo	Local	81	Cl Municipal	E & W	Original	Saturday, 9-8-2018	46206071.559	100	33	133	99	25	9
East	Caguas	Primary	9	Autopista Luis A Ferre	S	Original	Sunday, 9-9-2018	2031518.474	100	18	118	101	14	3
East	Caguas	Secondary	10	Pr- 789	N & S	Original	Sunday, 9-9-2018	1565834.158	100	18	118	92	22	4
East	Caguas	Local	111	Ave. Gautier Benitez	N	Original	Sunday, 9-9-2018	37012758.085	100	31	131	107	19	5
East	Caguas	Local	121	Ave Degetau	S	Original	Sunday, 9-9-2018	64768817.235	100	38	138	110	20	8
East	Canovanas	Primary	13	Pr- 66	S	Original	Tuesday, 9-11-2018	425181.134	100	39	139	116	18	5
East	Canovanas	Secondary	14	Pr- 185	N	Original	Tuesday, 9-11-2018	16350155.153	100	30	130	84	42	4
East	Canovanas	Local	151	Cl I 12	E & W	Original	Tuesday, 9-11-2018	61429810.434	100	18	118	65	50	3
East	Canovanas	Local	16	Cl I 1	E & W	Original	Tuesday, 9-18-2018	16986001.014	100	30	130	72	58	0
Metropolitan	Carolina	Primary	17	Pr- 26	S	Original	Sunday, 9-9-2018	61054939.249	100	32	132	119	5	8
Metropolitan	Carolina	Secondary	18	Pr- 874	E & W	Original	Sunday, 9-9-2018	5471602.986	100	14	114	105	8	1
Metropolitan	Carolina	Local	191	Carr. Boca Cangrejos	E	Original	Sunday, 9-9-2018	17947296.375	100	33	133	119	8	6
Metropolitan	Carolina	Local	201	Ave Iturregui	E	Original	Sunday, 9-9-2018	1125162543.944	100	32	132	119	9	4
South	Cayey	Primary	21	Autopista Luis A Ferre	N	Original	Monday, 9-10-2018	4632952.442	100	20	120	95	21	4
South	Cayey	Secondary	221	Pr- 1	S	Original	Monday, 9-10-2018	34060897.895	100	23	123	105	14	4
South	Cayey	Local	231	Cl Nuñez Romeu	N	Original	Monday, 9-10-2018	29539865.280	100	36	136	115	21	0
South	Cayey	Local	24	Pr- 7722	N	Original	Monday, 9-10-2018	15594279.896	100	20	120	102	17	1
East	Fajardo	Primary	25	Pr- 53	S	Original	Monday, 9-10-2018	2103568.577	100	30	130	117	9	4
East	Fajardo	Secondary	26	Pr R- 195	S	Original	Monday, 9-10-2018	5928569.508	100	21	121	94	25	2
East	Fajardo	Local	271	Pr- 3	N	Original	Monday, 9-10-2018	143013404.165	100	25	125	110	10	5
East	Fajardo	Local	28	Ave el Conquistador	N	Original	Monday, 9-10-2018	81870556.199	100	16	116	97	17	2
North	Hatillo	Primary	29	Pr- 2	E	Original	Thursday, 9-20-2018	22480466.203	100	23	123	109	13	1
North	Hatillo	Secondary	30	Ave Dr Susoni	E & W	Original	Thursday, 9-20-2018	15583713.904	100	21	121	113	7	1
North	Hatillo	Local	31	Calle E	S	Original	Thursday, 9-20-2018	158367480.453	100	29	129	109	16	4
North	Hatillo	Local	321	Marg.Cl Comercio	W	Original	Thursday, 9-20-2018	66840124.455	100	32	132	113	18	4
West	Isabela	Secondary	33	Pr- 2	W	Original	Wednesday, 9-5-2018	108426586.024	100	22	122	101	13	8
West	Isabela	Local	34	Cl Dr Gonzalez	N & S	Original	Wednesday, 9-5-2018	20334074.925	100	29	129	110	15	4
West	Isabela	Local	351	Cl Lamela	N & S	Original	Wednesday, 9-5-2018	31172732.605	100	23	123	101	21	1
West	Isabela	Local	36	Cl la Sierra	N & S	Original	Wednesday, 9-12-2018	21612213.581	100	33	133	97	31	5
South	Juana Díaz	Primary	37	Autopista Luis A Ferre	E	Original	Monday, 9-17-2018	1650457.239	100	15	115	102	7	6
South	Juana Díaz	Secondary	38	Pr- 14	E	Original	Monday, 9-10-2018	10401795.977	100	30	130	92	29	9
South	Juana Díaz	Local	39	Cl Ext Munoz Rivera	N & S	Original	Monday, 9-10-2018	81701995.578	100	33	133	104	27	2
South	Juana Díaz	Local	40	Aecamino Real	E & W	Original	Monday, 9-17-2018	45675186.279	100	17	117	86	26	5
East	Juncos	Primary	41	Expreso Cruz Ortiz Stella	S	Original	Thursday, 9-6-2018	9704057.077	100	22	122	100	16	6
East	Juncos	Secondary	42	Pr- 189	E & W	Original	Thursday, 9-6-2018	1523964.505	100	24	124	88	33	3
East	Juncos	Local	43	Cl Martínez	W	Original	Thursday, 9-6-2018	42068031.840	100	23	123	77	45	1
East	Juncos	Local	441	Cl Algarín	E & W	Original	Thursday, 9-6-2018	60721036.896	100	40	140	81	58	1
West	Mayagüez	Secondary	45	Pr R - 105	E	Original	Thursday, 9-6-2018	31816844.310	100	16	116	84	28	4
West	Mayagüez	Local	46	Cl Simon Carlos	N & S	Original	Thursday, 9-20-2018	51355006.100	100	29	129	84	44	1
West	Mayagüez	Local	47	Calle M Columbus Lndg	N & S	Original	Thursday, 9-20-2018	14755252.679	100	33	133	87	45	1
West	Mayagüez	Local	481	Cl Nenadich E	E	Original	Thursday, 9-6-2018	70046444.295	100	18	118	93	24	1
East	Naguabo	Primary	49	Pr- 53	E	Original	Friday, 9-14-2018	53202734.021	100	17	117	91	15	11
East	Naguabo	Secondary	50	Pr- 3	N & S	Original	Friday, 9-14-2018	26843583.698	100	32	132	79	47	6
East	Naguabo	Local	51	Cl Goyco	E & W	Original	Friday, 9-7-2018	32053814.425	100	19	119	79	39	1
East	Naguabo	Local	52	Cl I 7	N & S	Original	Friday, 9-7-2018	38355283.025	100	25	125	80	43	2
South	Ponce	Primary	53	Autopista Luis A Ferré	N	Original	Thursday, 9-20-2018	9501105.423	100	14	114	88	17	9
South	Ponce	Secondary	541	Pr- 2	E	Original	Thursday, 9-20-2018	30972181.474	100	19	119	104	12	3
South	Ponce	Local	55	Ave Padre Noel	E	Original	Thursday, 9-20-2018	195203601.333	100	36	136	110	22	4
South	Ponce	Local	56	Cl 2	E & W	Original	Thursday, 9-13-2018	9378604.390	100	35	135	92	41	2
South	Salinas	Primary	57	Autopista Luis A Ferre	N	Original	Friday, 9-7-2018	10916327.271	100	19	119	95	17	2
South	Salinas	Secondary	58	Pr- 1	N	Original	Friday, 9-7-2018	10764727.180	100	30	130	102	25	3
South	Salinas	Local	59	Cl Mguel Ten	N	Original	Friday, 9-7-2018	47038324.484	100	27	127	103	24	0
South	Salinas	Local	601	Cl Victoria Mateo Serrano	E	Original	Friday, 9-7-2018	92698781.658	100	31	131	99	31	1
Metropolitan	San Juan	Primary	61	Expreso Las Americas	N	Original	Friday, 9-21-2018	427659824.810	100	24	124	100	19	5
Metropolitan	San Juan	Secondary	62	Ave John F Kennedy	N	Original	Friday, 9-21-2018	92237522.521	100	13	113	83	23	7
Metropolitan	San Juan	Local	63	Cl Hoare	N	Original	Friday, 9-21-2018	2333899.079	100	15	115	102	12	1
Metropolitan	San Juan	Local	64	Cl I 7 S	N	Original	Friday, 9-21-2018	60573904.154	100	15	115	95	19	1
North	Toa Baja	Primary	65	Pr- 22	E	Original	Saturday, 9-22-2018	43110370.206	100	29	129	107	11	11
North	Toa Baja	Secondary	66	Pr- 2	O	Original	Saturday, 9-8-2018	8699609.423	100	43	143	126	14	3
North	Toa Baja	Local	67	Pr- 866	E	Original	Saturday, 9-8-2018	67385349.380	100	31	131	114	15	2
North	Toa Baja	Local	68	Cl Canarios	E & W	Original	Saturday, 9-22-2018	16738826.210	100	28	128	97	24	7
TOTAL									6800	1732	8532	6691	1587	254

Nonresponse rate: 3.0%
 Ratio estimator: 85.02%
 Standard error: 2.35% (SUDAAN Software)