Prevalence of Driver Behaviors Secondary to Driving:
2019 Louisiana Observational Survey

LHSC Project No. 2019-20-10

September 10, 2019

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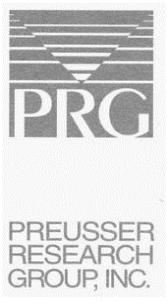
This document is a product of Preusser Research Group, Inc. under contract with The Louisiana Highway Safety Commission. The work presented here was competed under LHSC Project Number 2019-20-10.



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I. INTRODUCTION

Distraction is a common occurrence for drivers and can have serious consequences on performance. A distracting event is anything that takes the driver's attention away from the primary (i.e. driving) task and results in a delay in recognition of information necessary for optimum driving performance (Stutts et al., 2001; Treat, 1980). Potential sources of distractions are many, such as using a cell phone, adjusting the radio or climate control devices, manipulating an on-board navigation system, eating or drinking, presence of passengers, outside person/object, etc. National Highway Traffic Safety Administration (NHTSA) estimates that 10 percent of fatal crashes, 15 percent of injury crashes, and 15 percent of all motor vehicle crashes in 2015 were reported as distraction-affected (NCSA, 2017).

Cell phone use is the most common example of distracted driving. Using a cell phone while driving can divert attention aurally, cognitively, and even visually and physically (Young, Regan, & Hammer, 2003). Dialing and receiving calls are especially distracting since multiple modalities are involved (i.e. hands and eyes). Hand-held cell phone use is currently banned in 16 States and the District of Columbia, text messaging is banned in 47 States and the District of Columbia (IIHS, 2017), and novice drivers are restricted from use of all cellphones in 38 States and the District of Columbia. When compared to hand-held phones, hands free devices show a slight advantage in driving performance but the conversation itself can be quite distracting, especially if emotionally charged or cognitively demanding (e.g. high information content) (Eby & Kostyniuk, 2003).

Distracted driving issues are further complicated by the fact that cell phones are not limited to receiving and/or making phone calls, but are also used for activities such as texting, and in the case of smart phones, reading/writing emails, searching the web, using a phone-based navigation system, etc. With a reported 61 percent of cell phone users owning a smart phone, the frequency of such distracting behaviors may be hard to suppress. Smith (2013) reports that the percentage of cell phone users engaging in texting has increased from 58 to 80 percent between 2007 and 2012. Forty-seven States and the District of Columbia currently have a texting ban for all drivers (IIHS, 2017).

The effect of these bans on behavior, however, is not as would have been expected. The National Survey on Distracted Driving Attitudes and Behaviors indicated that close to half of drivers answer their cell phones while driving at least some of the time; close to a quarter are willing to make a call at least some of the time. Texting is less common, but still 10 percent report sending text messages or email at least sometimes, and 14 percent read messages at least sometimes. Despite the bans and frequent publicity campaigns informing the driving public of the dangers of cell phone use while driving, half of the drivers who do talk while driving report no change in the quality and nature of their driving while on the phone. Moreover, one-third of

those admitting to texting while driving report that their driving is unaffected by the distraction (Schroeder, Meyers, & Kostyniuk, 2013). Some suggest that drivers using their cell phone may engage in compensatory behaviors such as increasing headway (i.e. distancing themselves from lead vehicles) and decreasing speed but a meta-analysis of the effects of texting on driving confirm that these adaptations do not reduce risk. Indeed, by taking their eyes off the road for reading or typing a text, drivers tend to show lower lateral control, which often results in overcorrection maneuvers once they refocus their eyes back on the road (Caird, Johnston, Willness, Asbridge, & Steel, 2014). A status report published by IIHS (2010) also suggests that drivers have reacted to the bans, not by ceasing to use their cell phones, but rather by moving their phones out of sight when manipulating them.

Cell phone use represents only one category of distracting agents among a myriad of additional in-vehicle activities which may also distract drivers from their primary driving task. Eating, drinking, smoking, and interacting with passengers and the like are further examples of behaviors potentially diverting attention from the driving task. A prior observational study conducted in Virginia showed that roughly 23 percent of drivers observed were involved in some sort of secondary behavior while driving (Kidd, Tison, Chaudhary, McCartt, & Casanova-Powell, 2015). The methodology developed by PRG in that project was used in the current study investigating the frequency and nature of potentially distracting behaviors across the State of Louisiana. The survey for Louisiana was first developed in 2017 and carried out in May of that year. Subsequent surveys were conducted in May of 2018 and May of 2019. This report documents the most recent May 2019 iteration.

II. METHODOLOGY

Preusser Research Group, Inc. (PRG), under contract with the Louisiana Highway Safety Commission (LHSC) in 2017, developed a survey measure designed to document various driver secondary behaviors to identify which were most prevalent, how often they occurred, and under what conditions. LHSC requested an observational survey using approximately 80 sites that could provide statewide representation and some ability to make general judgments about these behaviors regionally across all nine (9) Strategic Highway Safety Plan (SHSP) Regional Traffic Safety Coalitions (Safety Coalitions). An effort of this size prevents some details from being analyzed completely on a coalition level. Overall comparisons of findings can be made between regions but further exploration into the data will be limited.

Observations for the 2019 measure occurred within the dates of May 6th - May 24th on weekdays only. PRG observed a mix of moving and stopped traffic each day in each safety coalition, with observations taking place from morning rush hour through evening rush hour, roughly 7 a.m. - 6 p.m. Observers stood roadside and typically observed vehicle occupants in the nearest lane.

Observers coded the following secondary, potentially distracting behaviors for drivers:

- Phone-to-ear
- Texting/surfing/phone manipulation
- Phone in hand (not using)
- Blue-tooth device or ear buds visible
- Manipulating other device (stereo, dashboard, mounted GPS devices, etc.)
- Talking/singing
- Eating/drinking
- Smoking
- Grooming (applying makeup/shaving, combing hair)
- Reading
- Pet in vehicle

Observers also coded:

- Sex of driver
- Ethnicity/Race of driver
- Estimated age of driver (<25, 26 to 59, 60+)
- Vehicle type (Car, SUV, Pickup Truck, or Van)
- Passenger presence (any, including specifically any child 12 and under)

Further descriptions of secondary behaviors coded can be found in Appendix B.

Site Selection and Determining Site Location

To achieve balance across all nine Safety Coalitions, PRG selected 81 sites from Louisiana's daytime Statewide Seat Belt Survey in 2017 to obtain an equal distribution of nine

sites per Safety Coalition. PRG excluded low travelled local roadways from possible selection due to lack of volume. In addition, PRG excluded interstates and high-speed roads because standalone observational data would be difficult to capture. PRG assigned each site to one of two "site types," defining them as either "low-speed moving traffic" or "stoplight controlled."

PRG randomly chose observational sites out of "qualified" Statewide Survey segments. Only arterial roadways were considered for potential inclusion. A database of eligible segments was compiled and grouped by Safety Coalition. Final sites were chosen at random, and the designation of each site as a "moving" or "stoplight" observation was determined by information gathered from previous site visits and/or mapping – with an effort to achieve site type balance in so far as possible (4 to 5 per type, per Safety Coalition).

Observers had discretion to move any site along the roadway segment to a spot fitting for the type of observation required. In the event a site type had to be changed in the field (usually from stopped to moving), another site within the Safety Coalition was adjusted so as not to disrupt the type balance. Observers utilized the same site locations for the 2018 and 2019 collection efforts.

Data Collection Protocol

PRG deployed four experienced observers for data collection. Our observers have previously collected distracted driving information for NHTSA, the Insurance Institute for Highway Safety (IIHS) and for several states (California, Connecticut, Delaware, Virginia, New York and Oregon), including prior surveys for Louisiana.

Data collection procedures differed slightly depending on whether moving or stopped traffic was measured, and each observation period lasted 60 minutes for all site locations. Observers collected data using pen and paper forms, and used the same data collection form in all instances, which can be found in Appendix C.

For moving traffic observations, observers chose ideal spots on arterial locations with traffic speed between 35-45 MPH. Observers only captured information on vehicles travelling in the nearest lane. Vehicle and driver information was collected on the first four columns of the data collection sheet (vehicle type, sex, race, age category), and then observers proceeded to record information in the subsequent columns if the driver was engaged in secondary behaviors. Multiple secondary behaviors or events provided on the form could be checked per driver or vehicle. The number of passengers present and also if a child 12 or under was present, was also documented, regardless of driver behavior.

For stoplight observations, observers were tasked to find intersections ***without*** a right turn lane or to observe only the next closest lane - if drivers in that lane were visible. Observers waited for a stopped cycle to begin their observations and counted to seven before recording their first vehicle/driver. Observers were instructed to spend only a couple of seconds per vehicle (just as they would for moving traffic). Information for each vehicle was recorded in the same manner as moving traffic; however, after each vehicle's information was recorded, observers moved up the line to record subsequent drivers until the stoplight changed and traffic

began to move. The last column, which numbers the drivers/vehicles in the queue that was recorded, was then filled out. Numbering started over the next stopped cycle.

Data Entry and Analyses

PRG staff key punched the written data into a Microsoft Excel electronic database and performed a 10 percent check on all entered data to ensure stability. PRG used the Statistical Package for the Social Sciences (SPSS) software for statistical analyses.

III. RESULTS

Observers recorded information on 12,644 drivers. Thirty-two percent (31.8%) of the data were collected on drivers stopped at lighted intersections and 68.2 percent were collected on drivers in free-flowing traffic. Distribution of observations across safety coalitions likely reflected differences in traffic volume, with more populous agglomerations accounting for a larger percentage of data: Acadiana (12.9%), Capital Region (13.4%), Central Louisiana (7.5%), New Orleans (17.4%), Northeast (4.9%), North Shore (13.4%), Northwest (8.8%), South Central (11.6%), and Southwest (10.1%).

A slight majority of drivers observed were male (54.9%, 45.1% female). Approximately two thirds (65.3%) of observed drivers were judged to be between the ages of 26 and 59 (17.4% were between the ages of 16 and 25, and 17.3% were 60 and over). Sixty-eight percent (68.3%) of drivers observed were White, 25.2 percent were African-American, and 6.5 percent were recorded as "Other". Most drivers travelled alone (76.8%) or with one passenger (20.9%). Nearly two percent (1.8%) had two passengers, and only 0.6 percent had three or more passengers. Fewer than 4 percent (3.5%) had children in the car. Regarding vehicle type, almost forty-two percent (41.5%) observed were passenger cars, 29.6 percent were pickup trucks, 24.0 percent were SUVs, and 4.9 percent were vans.

Analyses

Although rates for all behaviors are presented in the following tables, statistical analyses were conducted only on the four most common secondary tasks (i.e. behaviors observed in at least 4% of drivers) and the combined *any secondary task* variable. The remaining behaviors recorded are too infrequent to lend themselves to a proper statistical analysis. The impact of seven variables on rates of the four most common secondary driving tasks as well the combined behaviors *any secondary task* variables were analyzed using binary logistic regressions. The seven independent variables included in the analyses were Safety Coalition, Vehicle Type, Sex, Race, Age, Passenger Presence, and Traffic Situation. *Main effects terms* for all variables were entered. The regression treated Southwest, Car, Male, White, Age 16-25, No Passenger Present, and Free Flowing, respectively, as the comparison values (i.e. bases). The dependent variables were: *any secondary task*, *phone to ear*, *phone manipulation*, *talking or singing*, and *eating or drinking*.

Thus, five binary logistic regressions were computed, one for each of the common behaviors listed above. Each of these regressions includes the same set of seven independent variables. Full results, including odds ratios for each comparison, are reported in Appendix A.

Observed Overall Rates

Overall, 31.2 percent of all observed drivers engaged in at least one secondary task while driving and 1.8 percent were involved in more than one secondary task. Among the most

common behaviors were: *phone manipulation* (6.8%), *talking/singing* (6.6%), *holding a phone to the ear* (5.3%), *eating or drinking* (4.1%), *smoking* (3.0%), and *holding a phone* (2.6%). A complete list of secondary tasks and their observed rates appears in Table 1.

Table 1. Rates of Observed Secondary Tasks (2019)*

Observed Secondary Tasks	Frequency (n observed)	Percent of Drivers (%)
Manipulating a Cell Phone	857	6.8%
Talking/Singing	829	6.6%
Holding phone to ear	667	5.3%
Eating/Drinking	524	4.1%
Smoking	383	3.0%
Phone in Hand	335	2.6%
Grooming	236	1.9%
Touching the Dashboard	163	1.3%
Wearing a Bluetooth Device	132	1.0%
Pet in Vehicle	35	0.3%
Reading	23	0.2%
Any Secondary Task	3,946	31.2%
Total N Observations	*12,644*	*100.0%*

*Multiple secondary tasks could be coded for each driver (e.g. talking and smoking).

Passenger Presence

Table 2 shows the prevalence of secondary tasks by passenger presence. In all but three categories rates of secondary tasks were higher in the absence of a passenger. The exceptions were *talking or singing* (21.7% with passengers, 2.0% without), *pet in vehicle* (0.4% with passengers, 0.2% without), and *reading* (0.2% in both cases). Note that the prevalence of *any secondary task* was also higher with passengers present (35.5%) than without passengers (29.9%).

Results of the regression analyses showed that the presence of a passenger significantly increased the likelihood of *any secondary behavior* (+33%) and *talking or singing* (more than 14 times higher than when alone, or +1,401%) compared to no passenger present. Conversely, driving alone significantly increased the likelihood of *phone to ear* (+139%), *manipulating a phone* (+176%), and *eating or drinking* (+45%) compared to when a passenger was present. One supplemental analysis was conducted looking at impacts of having child passenger(s) in the vehicle. Less than 4 percent (3.5%) of vehicles observed had at least one child passenger. Given the potential confound with the *passenger presence* variable, child passengers were not included in the logistic regressions. Instead, the impact of child presence was assessed with chi-square analyses, comparing rates of secondary behaviors between *child passenger* and *no child passenger*. Only one of the main behaviors showed a significant difference. Rates of *talking or singing* were significantly higher with a child present (14.2%) compared to no child present (6.3%) [X^2 (1, N = 12,644) = 43.49, p <.0001]. Although rates of *any secondary behavior* were higher with a child present (34.8% compared to 31.1% when no child present), the difference failed to reach significance.

Table 2. Rates of Observed Secondary Tasks by Passenger Presence (2019)

Observed Secondary Tasks	Passenger Present		No Passenger	
	N obs.	% obs.	N obs.	% obs.
Manipulating a Cell Phone	89	3.0%	768	7.9%
Talking/Singing	637	21.7%	192	2.0%
Holding phone to ear	76	2.6%	591	6.1%
Eating/Drinking	90	3.1%	434	4.5%
Smoking	74	2.5%	309	3.2%
Phone in Hand	72	2.5%	263	2.7%
Touching the Dashboard	25	0.9%	138	1.4%
Grooming	32	1.1%	204	2.1%
Wearing a Bluetooth Device	14	0.5%	118	1.2%
Pet in Vehicle	12	0.4%	23	0.2%
Reading	5	0.2%	18	0.2%
Any Secondary Task	1,041	35.5%	2,905	29.9%
Total N Observations	*2,933*	*100.0%*	*9,711*	*100.0%*

Note: Multiple behaviors can be observed in a single driver and thus total may not match the sum of individual behaviors.

Traffic Situation

Two traffic situations were examined: *stopped* at a signalized intersection, and *free-flowing* traffic. Rates of secondary tasks tended to be lower in free-flowing conditions. This was the case for 9 of the 11 categories listed in Table 3, noting that most differences are quite small. Rates of *any secondary task* were 27.3 percent in free-flow traffic, and 39.5 percent at signalized intersections. The binary logistic regressions indicate that being *stopped* at an intersection was associated with a significantly higher likelihood of *any secondary task* (+ 76%), *manipulating a cell phone* (+ 88%), *talking or singing* (+103%), and *eating or drinking* (+66%). Conversely, moving in free-flowing traffic was associated with significantly higher probability of observing drivers holding a *phone to ear* (+23%) when compared to drivers stopped at an intersection.

Table 3. Observed Secondary Tasks by Traffic Situation (2019)

Observed Secondary Tasks	Intersection		Free Flowing	
	N obs.	% obs.	N obs.	% obs.
Manipulating a Cell Phone	393	9.8%	464	5.4%
Talking/Singing	373	9.3%	456	5.3%
Holding phone to ear	189	4.7%	478	5.5%
Eating/Drinking	223	5.5%	301	3.5%
Smoking	140	3.5%	243	2.8%
Phone in Hand	97	2.4%	238	2.8%
Touching the Dashboard	84	2.1%	79	0.9%
Grooming	120	3.0%	116	1.3%
Wearing a Bluetooth Device	76	1.9%	56	0.6%
Pet in Vehicle	16	0.4%	19	0.2%
Reading	19	0.5%	4	0.0%
Any Secondary Task	1,588	39.5%	2,358	27.3%
Total N Observations	*4,022*	*100.0%*	*8,622*	*100.0%*

Note: Multiple behaviors can be observed in a single driver and thus total may not match the sum of individual behaviors.

Safety Coalition

Observations were carried out in nine Safety Coalitions within the State of Louisiana: Acadiana, Capital Region, Central, New Orleans, Northeast, North Shore, Northwest, Southeast, and Southwest. Rates of observed secondary tasks by Safety Coalition are presented in Table 4. Occurrence of *any secondary task* was lowest in Central Louisiana (26.9%) and highest in Northeast Louisiana (39.2%). Note that, given the smaller sample size when split by safety coalition, only the most frequent secondary behaviors are reviewed in this table. Rates of *phone to ear* were highest in the Southwest Louisiana (7.9%) and lowest in the Capital Region (4.0%); rates of *phone manipulation* were highest in the Capital region (11.6%) and lowest in Central Louisiana (3.5%); rates of *talking/singing* were highest in Northeast Louisiana (15.4%) and lowest in Southwest Louisiana (4.2%); rates of *eating/drinking* were highest in the Capital Region (5.4%) and lowest in Southwest Louisiana (3.1%).

Southwest served as the base in the binary logistic regressions (i.e., all coalitions were compared to Southwest). Compared to Southwest, the likelihood of engaging in *any secondary behavior* was significantly higher in Acadiana (+21%), Capital Region (+67%), Northeast (+35%), North Shore (+57%), and Northwest (+50%). Likelihood of drivers holding *phone to ear* was significantly higher in Southwest than in Acadiana (+103%), the Capital Region (+105%), New Orleans Region (+59%), Northeast (+96%), North Shore (+69%), and South Central Louisiana (+90%). Compared to Southwest, probability of engaging in *phone manipulation* was significantly higher in Acadiana (+39%), and the Capital Region (+117%, or more than 2 times the rate of Southwest). Drivers in the Southwest however had a higher probability (+83%) of engaging in *phone manipulation* than drivers in Central Louisiana. Compared to Southwest, drivers in Central Louisiana (+82%), New Orleans Region (+62%), Northeast (+69%), Northshore (+341%), Northwest (+243%) and South Central Louisiana (+54%) had a higher likelihood of being observed *talking or singing*. Likelihood of being observed *eating or drinking* did not differ significantly across regions.

Table 4. Observed Secondary Tasks by Safety Coalition (2019)

Observed Secondary Tasks	Acadiana	Capital Region	Central LA	New Orleans	Northeast	North Shore	Northwest	South Central	Southwest
Manipulate Cell Phone	7.1%	11.6%	3.5%	7.2%	7.3%	6.5%	6.0%	4.1%	5.7%
Talking/Singing	5.3%	4.9%	7.2%	6.3%	15.4%	6.1%	10.4%	5.7%	4.2%
Holding phone to ear	4.3%	4.0%	6.3%	5.5%	5.2%	4.3%	6.6%	4.7%	7.9%
Eating/Drinking	4.5%	5.4%	3.3%	3.8%	4.4%	4.4%	3.9%	4.1%	3.1%
Any Secondary Task	29.6%	39.0%	26.9%	28.3%	39.2%	31.6%	35.2%	27.6%	27.3%
Total N Observations	*1,635*	*1,698*	*947*	*2,195*	*618*	*1,694*	*1,115*	*1,469*	*1,273*

Note: Multiple behaviors can be observed in a single driver and thus totals may not add up to 100%.

Sex of Driver

Table 5 shows the rates of secondary task by sex of driver. Ten of the 11 categories of secondary task showed higher incidence for female drivers and one (smoking) showed higher incidence for male drivers. Overall, occurrence of *any secondary task* was higher in female drivers (34.3%) than male drivers (28.7%). Alongside *any secondary task*, the four most commonly observed behaviors were investigated: 1) *phone to ear*, 2) *phone manipulation*, 3) *talking or singing*, and 4) *eating or drinking*. The binary logistic regressions indicated that *female* drivers had a significantly higher probability of being observed engaging in *any secondary behavior* (+23%), *talking or singing* (+32%), and *phone to ear* (+41%). The main effect of sex was not significant for *phone manipulation* or *eating or drinking*.

Table 5. Observed Secondary Tasks by Sex of Driver (2019)

Secondary Task	Male		Female	
	N obs.	% obs.	N obs.	% obs.
Manipulating a Cell Phone	433	6.2%	424	7.4%
Talking/Singing	418	6.0%	411	7.2%
Holding phone to ear	319	4.6%	348	6.1%
Eating/Drinking	266	3.8%	258	4.5%
Smoking	241	3.5%	142	2.5%
Phone in Hand	144	2.1%	191	3.3%
Touching the Dashboard	80	1.2%	83	1.5%
Grooming	93	1.3%	143	2.5%
Wearing a Bluetooth Device	72	1.0%	60	1.1%
Pet in Vehicle	16	0.2%	19	0.3%
Reading	10	0.1%	13	0.2%
Any Secondary Task	1,988	28.7%	1,958	34.3%
Total N Observations	*6,936*	*100.0%*	*5,707*	*100.0%*

Note: multiple behaviors can be observed in a single driver thus totals may not add up to 100%.

Estimated Driver Age

Observers recorded estimated driver age based on three age groups: 16 to 25, 26 to 59, and 60 and over. Overall rates of secondary tasks by age group are shown in Table 6. Seven of the 11 categories of secondary tasks showed higher incidence for drivers aged 16 to 25; three showed a higher rate for drivers 26 to 59. Overall, the occurrence of *any secondary task* was higher among drivers with an estimated age of 16-25 (38.8%), followed by drivers with an estimated age of 26-59 (32.3%), and estimated age of 60 or older (19.6%).

As was the case in previous sections, only the 4 most commonly observed behaviors were investigated further. Analyses also included comparisons for *any secondary task*.

Table 6. Observed Secondary Tasks by Age of Driver (2019)

Secondary Task	16-25		26-59		60+	
	N obs.	% obs.	N obs.	% obs.	N obs.	% obs.
Manipulating a Cell Phone	248	11.3%	568	6.9%	41	1.9%
Talking/Singing	159	7.2%	538	6.5%	131	6.0%
Holding phone to ear	129	5.9%	481	5.8%	57	2.6%
Eating/Drinking	102	4.6%	361	4.4%	61	2.8%
Smoking	65	3.0%	257	3.1%	61	2.8%
Phone in Hand	93	4.2%	223	2.7%	19	0.9%
Touching the Dashboard	25	1.1%	111	1.3%	27	1.2%
Grooming	54	2.5%	153	1.9%	29	1.3%
Wearing a Bluetooth Device	26	1.2%	93	1.1%	12	0.5%
Pet in Vehicle	3	0.1%	18	0.2%	14	0.6%
Reading	2	0.1%	19	0.2%	2	0.1%
Any Secondary Task	851	38.8%	2,665	32.3%	428	19.6%
Total N Observations	*2,196*	*100.0%*	*8,258*	*100.0%*	*2,183*	*100.0%*

Note: Multiple behaviors can be observed in a single driver and thus totals may not add up to 100%.

The youngest age group (16-25) served as the base in the binary logistic regressions. Compared to drivers aged 26-59, drivers 16-25 showed significantly higher probability of being observed engaging in secondary tasks for two behaviors: *any secondary task* (+32%) and *phone manipulation* (+73%). Compared to drivers 60+, drivers aged 16-25 had a higher probability of being observed engaging in *any secondary task* (+156%), *manipulating a cell phone* (more than 65x the rate, +520%), *phone to ear* (+109%), and *eating or drinking* (+60%).

Eating or drinking showed no difference across the two youngest age groups and t*alking or singing* showed no significant differences across age groups.

Driver Race

Observers recorded the race of drivers (White, Black, Other). Overall rates of secondary task by driver race are shown in Table 7. White drivers served as the base in the binary logistic regression. Overall, occurrence of *any secondary* task was higher in African-American drivers (36.1%) than in White drivers (29.8%) and Other drivers (26.9%). The four most commonly observed behaviors and *any secondary task* were investigated further: 1) *phone to ear*, 2) *phone manipulation, 3) talking or singing*, and 4) *eating or drinking*. The binary logistic regressions indicated that White drivers had a significantly higher probability of being observed engaging in *any secondary behavior* (+30%) than Other drivers. Compared to White drivers, African-American drivers had a significantly higher probability of being observed engaging in *any secondary behavior* (+21%), *manipulating a cell phone* (+38%), and *phone to ear* (+20%). The comparison of White drivers to Other drivers did not reach significance for *phone manipulation* and holding *phone to ear*. The main effect of race was not significant for *talking or singing* or *eating or drinking.*

Table 7. Observed Secondary Tasks by Race of Driver (2019)

Secondary Task	White		Black		Other	
	N obs.	% obs.	N obs.	% obs.	N obs.	% obs.
Manipulating a Cell Phone	518	6.0%	288	9.0%	51	6.2%
Talking/Singing	529	6.1%	245	7.7%	55	6.7%
Holding phone to ear	445	5.2%	189	5.9%	33	4.0%
Eating/Drinking	341	3.9%	155	4.9%	28	3.4%
Smoking	282	3.3%	85	2.7%	16	1.9%
Phone in Hand	188	2.2%	131	4.1%	16	1.9%
Touching the Dashboard	117	1.4%	38	1.2%	8	1.0%
Grooming	179	2.1%	44	1.4%	13	1.6%
Wearing a Bluetooth Device	70	0.8%	53	1.7%	9	1.1%
Pet in Vehicle	31	0.4%	3	0.1%	1	0.1%
Reading	14	0.2%	8	0.3%	1	0.1%
Any Secondary Task	2,573	29.8%	1,152	36.1%	221	26.9%
Total N Observations	*8,635*	*100.0%*	*3,187*	*100.0%*	*822*	*100.0%*

Note: Multiple behaviors can be observed in a single driver and thus totals may not add up to 100%.

Vehicle Type

Overall rates of secondary task by vehicle type are shown in Table 8. Overall, occurrence of *any secondary task* was highest in van drivers (34.4%), followed by car drivers (32.6%), SUV drivers (32.4%), and pickup truck drivers (27.8%). The four most commonly observed behaviors were investigated further: 1) *phone to ear*, 2) *phone manipulation*, 3) *talking or singing*, and 4) *eating or drinking*. Analyses also included comparisons for *any secondary task.*

Table 8. Observed Secondary Tasks by Vehicle Type (2019)

Secondary Task	Car		Pick Up		SUV		Van	
	N obs.	%	N obs.	%	N obs.	%	N obs.	%
Manipulating a Cell Phone	414	7.9%	216	5.8%	184	6.1%	43	6.9%
Talking/Singing	341	6.5%	208	5.6%	234	7.7%	46	7.4%
Holding phone to ear	245	4.7%	194	5.2%	190	6.3%	38	6.1%
Eating/Drinking	239	4.6%	146	3.9%	119	3.9%	20	3.2%
Smoking	156	3.0%	128	3.4%	79	2.6%	20	3.2%
Phone in Hand	162	3.1%	71	1.9%	85	2.8%	17	2.7%
Touching the Dashboard	65	1.2%	48	1.3%	38	1.3%	12	1.9%
Grooming	113	2.2%	43	1.1%	66	2.2%	14	2.2%
Wearing a Bluetooth Device	69	1.3%	26	0.7%	26	0.9%	11	1.8%
Pet in Vehicle	14	0.3%	9	0.2%	11	0.4%	1	0.2%
Reading	12	0.2%	5	0.1%	4	0.1%	2	0.3%
Any Secondary Task	1,709	32.6%	1,042	27.8%	980	32.4%	215	34.4%
Total N Observations	5,246	100.0%	3,744	100.0%	3,029	100.0%	625	100.0%

Note: Multiple behaviors can be observed in a single driver and thus totals may not add up to 100%

Drivers of cars served as the base in the binary logistic regressions. Of the five analyses, only *phone to ear* showed a significant effect based on vehicle type. Compared to cars, drivers of pickup trucks (+28%), SUVs (+30%) and vans (+51%) had a significantly higher probability

of being observed holding a *phone to ear*. No other behavior showed a significant main effect based on vehicle type.

IV. DISCUSSION

The main objective of this project was to assess the presence of a variety of secondary behaviors. Overall results suggest that close to a third of Louisiana drivers engage in some sort of secondary task while driving. The behaviors are more prevalent when drivers are stopped at an intersection than when they are in free-flowing traffic. This suggests that drivers may adjust their behavior to the demands of the roadway situation, perhaps "saving" the distraction to the safer condition (i.e. stopped at an intersection). The higher prevalence of distracting behavior at intersections was observed for *phone manipulation, talking or singing, eating or drinking,* and the general *any secondary task.* However, rates of holding a *phone to ear* were higher for moving drivers than for stopped drivers.

Overall, the presence of a passenger was associated with higher prevalence of secondary behaviors, but looking at specific behaviors suggests that this effect was driven by the *talking/singing* behavior. Indeed, rates of *talking/singing* were up to fourteen times higher when a passenger was present. In contrast, rates of holding a *phone to ear, manipulating* a phone, and *eating or drinking* were elevated when a driver was alone in the vehicle.

Perhaps not surprisingly, younger drivers (age 16 to 25) were more likely to engage in secondary behaviors than their older counterparts. Analyses on specific behaviors showed that the drivers aged 16 to 25 were most likely to engage in *any secondary behavior* and *phone manipulation* compared to older drivers. Younger drivers also showed significantly higher likelihood of *eating/drinking* and holding a *phone to ear* than drivers ages 60 and older.

Results indicate that female drivers are more likely to engage in secondary behaviors than male drivers. Specific behaviors showed this to be the case for *any secondary behavior,* holding a *phone to ear,* and *talking/singing*. Male and female drivers were equally likely to be observed *manipulating* a phone or *eating or drinking*.

Observations of driver race further showed that overall occurrences of *any secondary task* were higher among African-American drivers. They also showed that White drivers had a significantly higher probability of *any secondary behavior* than those drivers marked Other. African-American drivers had a higher probability than White drivers of *any secondary behavior, manipulating a cell phone,* and holding a *phone to ear.*

Appendix. A. Logistic Regressions Table of Results

	Any Secondary Task	Phone Manipulation	Talking or Singing	Phone to Ear	Eating or Drinking
Safety Coalition	χ^2=102.65, p<0.0001	χ^2=89.19, p< 0.001	χ^2=120.91, p< 0.0001	χ^2=35.81, p<0.0001	No main effect
Acadiana vs. Southwest	1.21 [1.02, 1.43]	1.39 [1.02, 1.90]		0.49 [0.36, 0.68]	
Capital Region vs. Southwest	1.67 [1.42, 1.96]	2.17 [1.62, 2.89]		0.49 [0.35, 0.67]	
Central vs. Southwest		0.55 [0.36,0.84]	1.82 [1.22, 2.70]		
New Orleans vs. Southwest			1.62 [1.15, 2.29]	0.63 [0.47, 0.84]	
Northeast vs. Southwest	1.35 [1.15, 1.59]		1.69 [1.18, 2.41]	0.51 [0.37, 0.70]	
North Shore vs. Southwest	1.57 [1.27, 1.93]		4.41 [3.01, 6.46]	0.59 [0.39, 0.90]	
Northwest vs. Southwest	1.50 [1.26, 1.80]		3.43 [2.40, 4.91]		
South Central vs. Southwest			1.54 [1.06, 2.23]	0.53 [0.38, 0.73]	
Sex	χ^2=22.12, p<0.0001	No main effect	χ^2=10.04, p=0.002	χ^2=13.63, p<0.0001	No main effect
Female vs. Male	1.24 [1.13, 1.35]		1.32 [1.11, 1.56]	1.41 [1.18, 1.69]	
Age	χ^2=176.60, p<0.0001	χ^2=118.58, p<0.0001	No main effect	χ^2=30.26, p<0.0001	χ^2=10.09, p=0.006
26-59 vs. 16-25	0.76 [0.69, 0.84]	0.58 [0.49, 0.68]			
60+ vs. 16-25	0.39 [0.34, 0.45]	0.16 [0.12, 0.23]		0.48 [0.35, 0.66]	0.62 [0.45, 0.87]
Race	χ^2=31.74, p<0.0001	χ^2=17.83, p<0.0001	No main effect	χ^2=6.94, p=0.031	No main effect
Black vs. White	1.21 [1.10. 1.32]	1.38 [1.17, 1.62]		1.21 [1.00, 1.45]	
Other vs. White	0.77 [0.65, 0.91]				
Vehicle Type	No main effect	No main effect	No main effect	χ^2=10.14, p=0.017	No main effect
Pickup vs. Car				1.28 [1.03, 1.61]	
SUV vs. Car				1.30 [1.06, 1.59]	
Van vs. Car				1.51 [1.05, 2.16]	
Passenger Presence	χ^2=38.84, p=0.0001	χ^2=77.10, p<0.0001	χ^2=952.28 , p<0.0001	χ^2=48.92, p<0.0001	χ^2=9.99, p=0.002
Passenger vs. No Passenger	1.33 [1.22, 1.46]	0.36 [0.29, 0.46]	15.01 [12.63, 17.82]	0.42 [0.33, 0.53]	0.69 [0.55, 0.87]
Traffic Situation	χ^2=182.33, p<0.0001	χ^2=71.85, p<.0001	χ^2=75.35, p<0.0001	χ^2=5.35, p=0.021	χ^2=29.89, p<0.0001
Intersection vs. Free-flowing	1.76 [1.62, 1.91]	1.88 [1.62, 2.17]	2.03 [1.73. 2.38]	0.81 [0.68, 0.97]	1.66 [1.38, 1.99]

Appendix B. Operational Definitions of Observed Driver Secondary Behaviors

Secondary behavior	Operational definition
Talking on phone (Phone to Ear)	Holding cellphone to ear or between head and shoulder; or talking while holding cellphone at or above steering wheel midline.
Manipulating hand-held cellphone (Text/Surf/Dial)	Manually interacting with cellphone. Excludes looking at cellphone in mount or other storage location.
Holding cellphone (In hand, not using)	Holding but not manually interacting with cellphone in hand. Excludes holding related to conversation or when device is resting on lap out of driver's hand.
Wearing Bluetooth earpiece or headset with microphone	Wearing headset with microphone or visible earpiece.
Manipulating in-vehicle system (Dashboard Touch)	Touching radio, climate control, embedded touchscreen display, or other controls located in center console. Excludes operating stalks or buttons on steering wheel.
Talking or singing	Driver's lips moving and appearing to form words.
Eating or drinking	Holding or consuming food or beverage.
Smoking	Lighting/extinguishing/holding/smoking cigarette, cigar, or other smoking implement.
Grooming	Shaving, brushing, or flossing teeth; combing hair; applying makeup; nose picking. Excludes stroking face or hair twirling (i.e., casual/habitual behaviors).
Reading	Reading print material (looking at newspaper, map, book, etc.), adjusting sun visor, putting on sunglasses, holding other non-electronic objects in hand (e.g., spray bottle), and all other observable secondary behaviors.
Pet In Vehicle	Any animal seen inside the vehicle.
Number of Passengers	Number of passengers present in vehicle.

Child (< 12) present	Presence of any child 12 or under inside vehicle.
Number in line	Relative position of vehicle in observed lane at a red light.

Appendix C. Louisiana Distracted Driving Observation Data Collection Form

SITE ID NUMBER: _____ **PARISH**: _____ **OBSERVER NAME**_____

LOCATION: _____
(Street) **(Cross Street or other landmark)**

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

Weather:
1 Clear / Sunny **4 Fog**
2 Light Rain **5 Clear- Wet**
3 Cloudy

TRAFFIC Type (Circle one): 1-Lighted Intersection 2-Free-flowing

START TIME: _____ **(military time)**

					Phone Related Distractions				**Other Distractions**							**Passengers**		
	Veh. Type C T S V	**Driver Sex** M F U	**Driver Race** W B H (isp) O U	**Driver Age** 1=16-25 2=26-59 3 = 60+	**Phone to Ear**	**Text / Surf / Dial/Manipulation**	**In hand (not using)**	**Bluetooth**	**Dashboard Touch**	**Talking / Singing**	**Eating / Drinking**	**Smoking**	**Grooming**	**Reading**	**Pet in Vehicle**	**Num. Passengers**	**Child (< 12) present**	**Number in line**
1																		
2																		
3																		
4																		
5																		
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References

Caird, J.K., Johnston, K.A., Willness, C.R., Asbridge, M., & Steel, P. (2014). A meta-analysis of the effects of texting on driving. *Accident Analysis and Prevention, 71,* 311-318.

Chaudhary, N. K., Casanova-Powell, T. D., Cosgrove, L., Reagan, I., & Williams, A. (2012, August). Evaluation of NHTSA distracted driving demonstration projects in Connecticut and New York. (Report No. DOT HS 811 635). Washington, DC: National Highway Traffic Safety Administration.

Eby, D.W. & Kostyniuk, L.P. (2003). *Crashes and Driver Distraction: An Assessment of Databases, Crash Scenarios, and Distracted-Driving Scenarios*. Cambridge, MA: The Volpe National Transportation Systems Center.

Insurance Institute for Highway Safety (2017, September). Distracted Driving State Laws. Arlington, VA. Recovered on 9/11/2017: http://www.iihs.org/iihs/topics/laws/cellphonelaws?topicName=distracted-driving

Kidd, D. G., Tison, J., Chaudhary, N.K., McCartt, A.T., & Casanova-Powell, T.D. (2016). The influence of roadway situation, contextual factors, and driver characteristics on the prevalence of driver secondary behavior. *Transportation Research Part F, 41,* 1-9

National Center for Statistics and Analysis. (2017, March). *Distracted driving 2015*. (Traffic Safety Facts Research Note. Report No. DOT HS 812 381). Washington, DC: National Highway Traffic Safety Administration.

Pickrell, T. M., & Liu, C. (2014, January). *Seat Belt Use in 2013* – Overall Results. (Traffic Safety Facts Research Note. Report No. DOT HS 811 875). Washington, DC: National Highway Traffic Safety Administration.

Schroeder, P., Meyers, M., & Kostyniuk, L. (2013, April). *National Survey on Distracted Driving Attitudes and Behaviors – 2012.* Report No. DOT HS 811 729. Washington, DC: National Highway Traffic Safety Administration.

Stutts, J. C., Reinfurt, D. W., Staplin, L., & Rodgman, E. A. (2001). *The Role of Driver Distraction in Traffic Crashes*. Report prepared for AAA Foundation for Traffic Safety, Washington, DC.

Treat, J.R. (1980). A study of pre-crash factors involved in traffic accidents. *HSRI Research Review* 10(6)/11(1): 1-35.

Young, K., Regan, M., & Hammer, M. (2003). *Driver Distraction: A Review of the Literature* (Report No. 206). Victoria, Australia: Monash University Accident Research Centre, Melbourne, Australia.