IMPORTANT NOTE ON METHODOLGY FOR EXTRAPOLATING USE OF HANDS-FREE BLUETOOTH DEVICE OR HEADSET

Please read before examining the study

The following report uses actual observational raw data and percentages drawn from that raw data. Researchers acknowledge that the use of Bluetooth devices, speaker phones, headsets and other methods of hands-free cell phone talking while driving is difficult to directly observe, for a wide variety of reasons.

Therefore, in order to have a statistically valid figure for such hands-free usage, methodology was employed, post observation, that matches that used by the National Highway Traffic Safety Administration (NHTSA). It employs the application of a ratio multiplier to the hand-held raw data that matches what surveyed California cell phone using drivers have indicated is the ratio of hand-held to hands-free usage.

The figures in the attached draft study show actual observed hands-free use numbers, prior to the ratio multiplier used to create the statistically valid figure. Application of the ratio multiplier has only been done to a few top-line results which appear in the press release which announced the study, but does not appear in the attached draft study.

As you read the tables in this study, it is important that you remain aware that the hands-free device usage numbers are not indicative of real-world usage. In most cases, those numbers would be significantly higher.

In order to get ratio multiplied figures for any of the categories in the study, you would have to request it from OTS. The researchers would have to go into the layers of data that comprised each of the figures shown and apply the ratio multiplier. If requested, this would take some number of days, depending on the amount of information requested and number of requestors.

Ewald & Wasserman
RESEARCH CONSULTANTS, LLC

OBSERVATIONAL STUDY OF CELL PHONE AND TEXTING USE AMONG CALIFORNIA DRIVERS 2014 AND COMPARISON TO 2013 THROUGH 2011 DATA

METHODOLOGICAL AND ANALYSIS REPORT

Conducted on Behalf of

The California Office of Traffic Safety

The Safe Transportation Research and Education Center - University of California, Berkeley

May 2014

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I. SUMMARY

Overall distracted driving due to electronic devices variable

In total, 3.8% of all observed drivers displayed distracted driving by device use, compared to 4.6% in 2013; the decrease of 0.8% is significant (Table 16).

Use of headset or Bluetooth device and holding phone to ear

The use of headsets or Bluetooth devices was 0.9% lower in the 2014 wave compared to 2013, the difference is significant. The 0.5% reduction in 2014 of the observation of holding a phone to the ear is significant (Table 17).

Distracted driving due to electronic devices and area of observation

The difference in device use by area defined as: rural, urban and suburban is significant. The decrease of overall electronic device use while driving in 2014 was most pronounced in rural areas, with a 1.5% significant reduction compared to the previous year (Table 19).

Area type and talking on headset or Bluetooth

There is a significant decrease of headset or Bluetooth use of 1.6% in rural and 1.1% in suburban areas between 2013 and 2014 (Table 20).

Distracted driving due to electronic devices and time of observation

Distracted driving by electronic devices by time frame of data collection does not show any significant differences among the rush hour, weekend observations and all other observation times (Table 23).

Distracted driving due to electronic devices and age

There is a significant difference among age groups and distracted driving by electronic device use. A total of 8.3% of all 16 -24 year-olds were using some electronic device while driving, compared to 3.8% of all 25-69 year olds (Table 21).

Manipulating electronic device while driving among 16-24 year-olds

The rate of drivers age 16 to 24 (7.2%) manipulating a hand-held device while driving is significantly higher than among drivers age 25 to 69 (2.0%, Table 24).

Holding phone to ear by region

There is a significant 1.2% decrease in the number of drivers who are holding a phone to the ear in the northern California region between 2014 and 2013 (Table 29).

Talking on headset/Bluetooth by region

In northern California the rate of talking with a headset or Bluetooth device significantly reduced by 1.5% since 2013 (Table 30).

Distracted driving due to electronic devices by number of passengers in car

Of drivers alone in a car, 4.4% were observed using an electronic device while driving, a percentage that is significantly lower with passengers in the vehicle. Compared to 2013, the incidence of distracted driving by electronic device use for single drivers was significantly reduced by 1.2% (Table 33).

II. INTRODUCTION

Ewald & Wasserman Research Consultants' (E&W) conducted the fourth annual wave of the "Observational Survey of Cell Phone and Texting Use among California Drivers Study" on behalf of the California Office of Traffic Safety (OTS) and the Safe Transportation Research and Education Center (SafeTREC) at the University of California, Berkeley.

This combined methodological and analysis report describes E&W's survey research and data collection procedures implemented for the fourth wave of this longitudinal study, which is collecting data of a statistically representative sample on drivers' distracted driving behaviors, including cell phone and other electronic device use.

The overall study design included the observation of California vehicle drivers at controlled intersections - such as traffic lights and stop signs - using a data collection protocol similar to the National Occupancy Protection Use Study (NOPUS) methodology published by the National Highway Transportation Safety Administration (NHTSA) on electronic device use by drivers in their Traffic Safety Facts publications DOT HS 811 372 and DOT HS 811 361. The data collection plan also incorporated sections of the methodological outline of the Seat Belt Survey Regulation for Section 157 Surveys: 23CRF Part 1340, published by NHTSA.

The 2014 dataset includes 5,693 observations from 128 sites in the State of California out of 130 sites visited total; with two sites not having any vehicle traffic in the 45-minute observation time frame. Data observed included the observer-rated information on driver's age, gender, ethnicity, vehicle type, number of passengers in vehicle, and the presence of children less than eight years of age. Additional observations of driver behaviors included the driver holding a phone to the ear, talking on a Bluetooth or other headset, manipulation of a hand-held device, or talking on a hand-held device.

III. METHODS

A. Sample Methodology and Sample Site Selection

Similarly to the previous waves, the counties and sites included for site visits were the same as in the preceding waves of data collection. The original study sample frame was created in a multi-stage proportional random site selection based on the Daily Vehicle Miles Traveled (DVMT) on California roadways, using DVMT by county as the primary sampling units. The DVMT information was derived from the California Department of Transportation's Highway Performance Monitoring System (HPMS) 2009 California Public Road Data. Tables listing the maintained daily vehicle miles traveled by jurisdictions and by county were summarized to create the overall main sample frame for the site selection.

In the first step of sample preparation, all ineligible jurisdictions (areas not open to the public, with limited access, or no roadways) were removed from the sample frame. The list of ineligible jurisdictions can be found in Table 1; all remaining jurisdictions were deemed eligible and included city jurisdictions, highways, and unincorporated land and broken down by county.

Table 1. List of ineligible jurisdiction

Army Corps of Engineers	State Department of Water Resources
Bureau of Indian Affairs	State Forestry Service
Department of Defense	State Park Services
Golden Gate Bridge	University of California
Indian Tribal Nation	U.S. Bureau of Reclamation
National Park Service	U.S. Fish & Wildlife Service
Port of Oakland	U.S. Forest Service
San Diego Unified Port District	

After removing ineligible jurisdictions, all counties in the State of California accounting for less than 1.0% each of the total DVMT in the State were excluded. In this process, ten of California's 58 counties were removed, leaving the sample frame with counties and jurisdictions accounting for 99.2% of the total CA DVMT. The ten excluded counties, which accounted for 0.8% of all DVMT in the State of California, were:

- Amador
- Calaveras
- Plumas
- Mono
- Del Norte
- Modoc
- Trinity
- Mariposa
- Sierra
- Alpine

In the following step, a random selection of counties where included in the sample frame, the proportion determining inclusion was calculated based on the DVMT per county. For the eligible 48 counties and jurisdictions, a sample interval was created based on a target of 17 counties, a number defined by the original NOPUS design, which served as the random value for the first stage of site inclusion. All counties with a DVMT larger than the random value were automatically included in the sample frame due to their size and excluded from the subsequent random selection list. These five counties included: Los Angeles, Riverside, San Bernardino, San Diego and Orange Counties. They accounted for 53.6% of all DVMT in the State of California.

The remaining 12 sites to be selected were pulled in a proportional randomized design which increased the probability of inclusion in the sample frame for counties with a higher DVMT volume. The final list of counties selected, together with their DVMT (in 1,000s), is shown in Table 2.

Table 2. Total 17 counties included in sample frame and number of DVMT (1,000s)

#	COUNTY	DVMT	#	COUNTY	DVMT
1	ALAMEDA	37,675	10	SOLANO	12,752
2	BUTTE	4,518	11	SONOMA	10,897
3	EL DORADO	4,371	12	TULARE	9,792
4	KERN	21,512	13	LOS ANGELES	214,207
5	MERCED	6,973	14	ORANGE	72,778
6	PLACER	9,373	15	SAN BERNARDINO	58,072
7	SAN JOAQUIN	17,066	16	SAN DIEGO	75,014
8	SAN MATEO	17,630	17	RIVERSIDE	54,438
9	SANTA CLARA	40,679			

In a subsequent step of the proportional random selection, the actual sites within each selected county were determined. The secondary sampling unit consisted of either: city or town jurisdictions, unincorporated land, or State Highway jurisdictions. Using a proportional cell selection method, jurisdictions with higher volumes of DVMT had a higher probability to be included in the sample frame. This procedure resulted in 130 sites in the selected 17 counties (Table 3).

Table 3. List of sites per county

COUNTY	JURISDICTION	Total
ALAMEDA	COUNTY (UNINCORP.)	4
	LIVERMORE	1
	OAKLAND	3
	STATE HIGHWAYS	3
ALAMEDA Total		11
BUTTE	STATE HIGHWAYS	1
BUTTE Total		1
EL DORADO	STATE HIGHWAYS	1
EL DORADO Total		1
KERN	BAKERSFIELD	1
	COUNTY (UNINCORP.)	4
	STATE HIGHWAYS	1
KERN Total		6
ORANGE	ANAHEIM	1
	BREA	1
	BUENA PARK	1
	COSTA MESA	1
	COUNTY (UNINCORP.)	1
	GARDEN GROVE	1
	HUNTINGTON BEACH	3
	LA HABRA	1
	SANTA ANA	3
	SEAL BEACH	1
	TUSTIN	1
ORANGE Total		15
MERCED	COUNTY (UNINCORP.)	2
	MERCED	1
	STATE HIGHWAYS	4
MERCED Total		7
LOS ANGELES	ALHAMBRA	1
	ARCADIA	1
	BALDWIN PARK	1
	BEVERLY HILLS	1
	COUNTY (UNINCORP.)	1
	GARDENA	1
	GLENDORA	1
	HAWTHORNE	1
	INDUSTRY	1
	LA CANADA-FLINTRIDGE	1
	LANCASTER	1
	LAWNDALE	1
	LONG BEACH	1
	LOS ANGELES	1
	MONROVIA	1
	PASADENA	1
	POMONA	1
	REDONDO BEACH	1
	SANTA CLARITA	1
	SANTA MARINO	1
	SOUTH GATE	2
	STATE HIGHWAYS	1
	TORRANCE	1
LOS ANGELES Total		24
PLACER	COUNTY (UNINCORP.)	1
	ROSEVILLE	2
	STATE HIGHWAYS	3
PLACER Total		6

Table 3. List of sites per county (continued)

RIVERSIDE	BLYTHE	1
	CORONA	1
	COUNTY (UNINCORP.)	1
	INDIAN WELLS	1
	MORENO VALLEY	1
	PALM DESERT	2
	RIVERSIDE	1
	STATE HIGHWAYS	2
	TEMECULA	1
RIVERSIDE Total		11
SAN BERNARDINO	CHINO	3
	COUNTY (UNINCORP.)	1
	FONTANA	1
	HESPERIA	1
	ONTARIO	1
	REDLANDS	1
	STATE HIGHWAYS	1
	VICTORVILLE	2
SAN BERNARDINO Total		11
SAN DIEGO	CARLSBAD	1
	CHULA VISTA	1
	COUNTY (UNINCORP.)	3
	EL CAJON	1
	OCEANSIDE	2
	POWAY	1
	SAN DIEGO	2
	STATE HIGHWAYS	1
SAN DIEGO Total		12
SAN JOAQUIN	STATE HIGHWAYS	4
	STOCKTON	1
SAN JOAQUIN Total		5
SAN MATEO	COUNTY (UNINCORP.)	1
	SAN MATEO	1
	STATE HIGHWAYS	2
SAN MATEO Total		4
SANTA CLARA	COUNTY (UNINCORP.)	3
	CUPERTINO	1
	SAN JOSE	2
	STATE HIGHWAYS	2
SANTA CLARA Total		8
SOLANO	COUNTY (UNINCORP.)	1
	FAIRFIELD	1
	VALLEJO	1
SOLANO Total		3
SONOMA	SANTA ROSA	1
	STATE HIGHWAYS	1
SONOMA Total		2
TULARE	COUNTY (UNINCORP.)	2
	TULARE	1
TULARE Total		3
Grand Total		130

Table 4 shows the final list of selected counties and the number of selected sites within each county.

Table 4. Total number of selected sites within the 17 counties

COUNTY	Total	COUNTY	Total
ALAMEDA	11	SAN BERNARDINO	11
BUTTE	1	SAN DIEGO	12
EL DORADO	1	SAN JOAQUIN	5
KERN	6	SAN MATEO	4
LOS ANGELES	24	SANTA CLARA	8
MERCED	7	SOLANO	3
ORANGE	15	SONOMA	2
PLACER	6	TULARE	3
RIVERSIDE	11		
		Total	130

Of the 130 selected observation sites, 27 were highway sites and 25 were unincorporated land sites, all others were surface streets with controlled intersections. For the highway sites, only controlled exit ramps with either a stop sign or a traffic light were included. For the unincorporated sites, the controlled intersection closest to the geographically determined site was selected.

After the selection of jurisdictions within each county, each site was pinpointed geographically, using mapping software. For jurisdiction sites with defined boundaries and where information on boundaries was available for the software, a random site selector was used to select a site within a defined area. For this process, the software created a random number stream based on the x- and y-axis of the jurisdiction boundaries, which were partitioned into polygons using a standard partitioning algorithm. Polygons were further geospatially partitioned into triangles of varying sizes. A number stream created two random numbers based on the axis length of the triangle, thus ensuring that the larger the target area, the higher the probability of selection. For geographic sites with limited geospatial information, a similar but manual process was employed, which determined the outer boundaries of the jurisdiction, the latitude and longitude of the area, and then randomly created a latitude and longitude number set for the target geographic area. The electronic maps used for this purpose were overlaid with a meter grid reference system (MGRS) to produce a grid layer of 1,000 x 1,000 meters and all selected locations were placed in the exact middle of that square kilometer.

During the first wave and original site definition, the final site selected was confirmed using Google Earth to ensure that a) an eligible roadway existed and b) it had an intersection or highway exit ramp that was controlled and eligible for data collection. Sites that did not qualify or those that could not be accessed safely by a field observer for their targeted 45-minute observation period were re-selected by either selecting the opposite side of the intersection, or, for highway exit ramps, selecting the exit ramp for traffic from the opposite travel direction.

For the fourth wave of the Observational Study of Cell Phone and Texting Use among California Drivers, the same site locations as those in the previous waves were selected. Due to some traffic and roadway changes, some minor differences to the original data collection locations occurred, mainly due to some exit ramps reconfigured from a stop sign to a yield traffic sign. Since the site had to be controlled, the next qualifying exit ramp of the same site was selected.

Monitoring of the number of observations between the current and last waves identified any outlying differences in traffic volume. These sites were flagged and the location re-visited at another time to confirm long-term changes in traffic volume and to avoid biases as a result of temporary traffic changes.

B. Interview Locations, Times, and Duration

Field observations were conducted between February 23, 2014, and April 8, 2014, within the same time frame as previous waves. A team of 12 E&W Field Observers based out of the San Francisco Bay Area, the Los Angeles and San Diego areas visited all 130 sites of the sample frame. Observation times ranged from 6:43 a.m. to 5:30 p.m. during non-rainy days and during daylight hours and included weekdays as well as weekends. All staff were rigorously trained in the methodology and protocols and assigned defined location sites where they would conduct the 45-minute observation. The field observers were monitored and managed by the E&W Project Manager throughout the study period.

The Southern California team visited in San Bernardino, San Diego, Riverside, Orange, Kern and Los Angeles Counties. The Bay Area team in Northern California was assigned Alameda, Butte, El Dorado, Merced, Placer, San Joaquin, San Mateo, Santa Clara, Solano, Sonoma, and Tulare Counties for their data collection routes. For data collection sites that produced no vehicle traffic in the allocated time frame, as well as those that showed a substantial difference to the previous year data, staff re-visited the sites again within the time frame defined in the sample frame (weekend/weekday/rush hour and other) to confirm the finding and control for outlying information.

C. Staff Training

Training procedures and pre-testing of observation form

All E&W Field Observer teams were trained in groups beginning with a formal review of the documents and forms and including a detailed review of data collection procedures and observation protocol and a rehears of coding categories. This was followed by a closely supervised on-site visit and a 45-minute round of test observations and a review of findings. The final version of the observation form can be found in Appendix A.

All teams in the Bay Area, Los Angeles and San Diego Area were trained in the second and third week of February 2014. The training team and Research Coordinator visited several selected sites for observation testing within each locale, practicing all aspects of data collection, including site positioning, identifying the accurate lane to code, and swift and accurate markings in the coding selections on the observation form. All observers were instructed on the coding categories in advance of the data collection, as outlined on the data collection form. During the practical training, the E&W Research Coordinator monitored all staff for accuracy and quality control.

The field observers were provided with materials including observation forms, assigned site location maps and images, a validation letter on UC Berkeley SafeTREC and OTS letterhead (see Appendix B) for respondents inquiring about the purpose of the observations, safety vests and guidelines for procedures while in the field. The field observers also received explicit instructions on: a) locating and ensuring the accurate assigned location; b) confirming that the position and orientation of the observation direction was as specified on the detailed map for that location; and c) implementing an exact procedure for time recording, accurate lane selection, and coding accuracy.

Field data collection

After the training, all field observer staff was assigned a number of sites for traffic observations. A total 12 field staff were deployed in California, some of whom had also conducted the 2013 study. The number of observations gathered per site ranged from 1-160 vehicles, similar to the 2013 range. Completed observation forms were submitted with all additional documentation to the E&W headquarters in San Francisco for a comprehensive data review and data entry into electronic format. The data from the observation forms were entered electronically using a data entry program specifically written for this project, designed to eliminate data entry errors and ensure accuracy of the electronic data.

D. Study Outcomes

Notes: Data differences between 2013 and 2014 observation waves are only indicated when they constitute large and/or significant differences. Any significant differences between the previous waves including 2011, 2012, and 2013 observations can be found in their respective reports.

Statistical significance is defined as a two-tailed p value of less than p=0.05, all p values in this report are noted with two decimals. The p values equaling or less than a value of 0.00 are noted as p=0.00.

Percentage comparison of values is calculated using the z-ratio and two-tail probabilities between assumed independent proportions.

A total of 17 counties were included in the sample frame and a total 5,693 observations were made. Overall, the sample frame consisted of 130 unique sites which were each visited for a 45-minute data collection period. In 128 sites vehicle traffic was observed, two additional sites did not have any traffic and were re-

visited at a second time with the same outcome. The number of observations per site ranged from 1 to 160 observations; the average was 40 observations per site. Table 5 indicates the 17 counties with the number and percentages of observations per county, relative to the number of observations in previous waves.

Table 5. Counties and number of observations per county with comparison to previous waves

COUNTY	# observations 2014	% observations 2014	# observations 2013	# observations 2012	# observations 2011
Alameda	478	8.4%	556	483	567
Butte	25	0.4%	28	26	21
El Dorado	104	1.8%	80	74	40
Kern	110	1.9%	182	134	182
Los Angeles	1,161	20.4%	1,272	1,337	1,215
Merced	245	4.3%	258	179	291
Orange	629	11.0%	782	604	606
Placer	431	7.6%	375	343	231
Riverside	204	3.6%	203	181	289
San Bernardino	251	4.4%	149	404	118
San Diego	771	13.5%	824	890	553
San Joaquin	213	3.7%	203	101	115
San Mateo	216	3.8%	280	235	358
Santa Clara	488	8.6%	464	459	418
Solano	101	1.8%	101	102	78
Sonoma	14	0.2%	41	28	164
Tulare	252	4.4%	301	84	167
Total	5,693	100.0%	6,099	5,664	5,413

Time frames of data collection and comparison to previous waves

The observational data was collected between February 23, 2014, and April 8, 2014, and data collection times ranged from 6:43 a.m. to 5:30 p.m., and included weekend days and weekdays, with a higher emphasis on data collection during morning and evening rush hours as described in the NOPUS methodology. About a third of all observations were completed during morning and evening rush hours, defined to be weekdays from 7:00 a.m. to 9:30 a.m. and from 3:30 p.m. to 5:00 p.m.

The data collection time frames of rush hour, weekend, and all other times is shown in Table 6 and compared with the previous waves. Similarly to before, 33.0% of all observations were collected during rush hour traffic, 21.1% on weekends and 45.8% were all other times.

Table 6. Time points of data collection with comparison to previous waves

Time frame	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent
Rush Hour	33.0%	1,880	34.1%	29.7%	30.3%
Weekend	21.1%	1,203	18.7%	22.4%	19.1%
All Other	45.8%	2,610	47.2%	47.9%	50.7%
Total	100.0%	5,693	100.0%	100.0%	100.0%

E&W also collected the exact time frame of the data observation shift for additional segmentation of the 'rush hour' time line as needed. However, for the purpose of this study, analysis adhered to the NOPUS methodology definition.

Data site definitions and comparison to previous waves

In total, 20.6% of all observations were made at highway exit ramps, including major California routes and freeways, and 79.4% of observations were made at controlled intersections on surface streets (Table 7).

Table 7. Road types of observations with comparison to previous waves

Road type	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent
HWY exit ramp	20.6%	1,174	21.2%	26.6%	28.8%
Surface Street	79.4%	4,519	76.7%	72.8%	70.5%
Other	0.0%	0	2.1%	0.5%	0.7%
Total	100.0%	5,693	100.0%	100.0%	100.0%

Area types of the observation sites assumed the three categories of rural, urban, and suburban, which were confirmed or changed by the interviewer in the field. The rural locations constituted 22.9% of the sites observed, 43.0% of sites were coded as urban, and the remaining 34.1% sites were in suburban locations (Table 8).

Table 8. Area type of observations with comparison to previous waves

Area type	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent
Rural	22.9%	1,304	24.4%	21.0%	20.6%
Urban	43.0%	2,447	46.5%	49.6%	45.4%
Suburban	34.1%	1,942	29.1%	29.4%	29.4%
Total	100.0%	5,693	100.0%	100.0%	100.0%

Demographic characteristics of drivers and comparison to previous waves

The observed age of drivers, as coded by the data collectors, is comparable to the previous waves with the majority of drivers, or 88.5%, coded as between the ages of 25 and 69, while 6.1% were ages 16-24, and 5.4% were older than 70 years (Table 9).

Table 9. Observed age of drivers with comparison to previous waves

Age of driver	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent
16-24	6.1%	348	7.6%	7.6%	8.7%
25-69	88.5%	5,036	87.6%	87.2%	88.2%
70 and older	5.4%	309	4.8%	5.2%	3.1%
Total	100.0%	5,693	100.0%	100.0%	100.0%

The driver gender as observed by the data collector shows a comparable distribution to the 2013 data, with 57.4% of drivers being male and 42.6% female (Table 10).

Table 10. Observed gender of drivers with comparison to previous waves

Gender of driver	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent
Female	42.6%	2,427	42.7%	54.0%	41.4%
Male	57.4%	3,266	57.3%	46.0%	58.6%
Total	100.0%	5,693	100.0%	100.0%	100.0%

The gender and age cross-tabulation in Table 11 shows a significant difference in the age and gender of drivers. The percentage of females in the 70 and older age group (37.2%) was significantly lower compared to the percentage of females in the age group of 16 to 24 year-olds (p=0.04).

Table 11. Gender and age crosstabulation

Age by gender	Female	Male	Total
16-24	47.4%	52.6%	100.0%
25-69	42.6%	57.4%	100.0%
70+	37.2%	62.8%	100.0%

As with all demographic attributes of drivers, the ethnicity was determined by the observer to the extent possible. The distribution is comparable to previous waves, with 57.3% of drivers coded as white, 11.4% as Asian, 4.0% as African-American and 25.5% as Hispanic/Latino drivers (Table 12).

Table 12. Observed ethnicity of with comparison to previous waves

Ethnicity driver	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent
White	57.3%	3,260	54.6%	55.9%	57.7%
African American	4.0%	230	4.1%	4.4%	3.3%
Asian	11.4%	649	11.1%	10.6%	11.8%
Hispanic/Latino	25.5%	1,450	28.4%	26.1%	25.7%
Other	1.8%	104	1.8%	3.1%	1.6%
Total	100.0%	5,693	100.0%	100.0%	100.0%

The number of passengers per vehicle is shown in Table 13 and ranged from 1 passenger (only the driver) to 6 passengers total (the driver plus 5). The majority of drivers (68.2%), similarly to previous waves, drove alone, 25.5% had two passengers (the driver plus one passenger) in the car. Differences between 2014 and 2013 are not significant.

Table 13. Observed number of passengers in vehicle with comparison to previous waves

# passengers	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
1	68.2%	3,881	68.6%	71.8%	67.9%	-0.4%
2	25.5%	1,451	24.2%	21.1%	25.8%	+1.3%
3	4.6%	262	5.3%	5.0%	4.6%	-0.7%
4	1.4%	82	1.4%	1.8%	1.5	0.0%
5	0.2%	12	0.4%	0.2%	0.2%	-0.2%
6	0.1%	5	0.0%	0.0%	0.1%	+0.1%
Total	100.0%	5,693	100.0%	100.0%	100.0%	--

Overall, 6.3% of observed vehicles had a passenger under the age of eight, a comparable percentage to previous years (Table 14).

Table 14. Presence of children under age eight in vehicle with comparison to previous waves

# children < 8 in car	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent
Yes, kid < 8 in car	6.3%	357	7.0%	7.0%	5.3%
No	93.7%	5,336	93.0%	93.0%	94.7%
Total	100.0%	5,693	100.0%	100.0%	100.0%

The observed vehicle types are shown in Table 15, with 53.7% of all vehicles coded as passenger cars, 31.2% as vans or SUVs, and 15.2% as pickup trucks. These numbers were comparable to previous waves.

Table 15. Observed vehicle type with comparison to previous waves

Vehicle type	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent
Passenger Car	53.7%	3,056	52.9%	51.3%	51.5%
Van or SUV	31.2%	1,774	29.2%	32.1%	29.8%
Pickup Truck	15.2%	863	17.9%	16.6%	18.7%
Total	100.0%	5,693	100.0%	100.0%	100.0%

IV. RESULTS

A. Statewide Results on Distracted Driving by Electronic Device Use

Note: Due to rounding, some of the table percentages do not add up to a full 100%

Overall electronic device use and distracted driving due to electronic devices variable

A variable "distracted driving due to electronic devices (DD)" was created based on the observations of three behaviors observed by field staff and included:

1. holding a phone to the ear,
2. manipulating a hand-held electronic device while driving, and,
3. talking on a hand-held device.

Table 16 shows the percentage of driver behavior and electronic device use in all observed locations in California. Talking on a phone using a headset or Bluetooth device was NOT included in the variable created for the purpose of this evaluation. Any observed instance of the three behaviors was coded as "distracted driving by electronic device" in a separate variable (labelled DD). The data collection on these three driver behaviors included every instance observed and was noted as an exclusive occurrence on the observation form. The DD variable created reflects the number of unique vehicles in which the behavior was observed; the number of unique observations of distracted behavior is higher.

Overall, 3.8% of all observed drivers displayed distracted driving by device use, compared to 4.6% in 2013. The decrease of 0.8% is significant (p=0.04). At a 95% confidence level the true percentage of the decrease between both observation years lies between 0.0% and 1.5%.

Table 16. Distracted driving due to electronic devices variable with comparison to previous waves

DD by device	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Yes	3.8%	219	4.6%	6.4%	4.2%	-0.8%
No	96.2%	5,474	95.4%	93.6%	95.8%	+0.8%
Total	100.0%	5,693	100.0%	100.0%	100.0%	- -

The frequency of the individual distracted driving behaviors compared with the previous waves and including the use of a headset or Bluetooth device are shown in Table 17. The use of headsets/Bluetooth devices was 0.9% lower in the 2014 wave, a difference that is significant (p=0.00). The 0.5% reduction of the observation of holding a phone to the ear is significant (p=0.03).

Table 17. Frequencies of device use behaviors with comparison to previous waves

DD behavior * not part of the distracted driving variable	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Phone to Ear	1.1%	64	1.6%	2.4%	2.1%	-0.5%
Talking w/headset or Bluetooth*	0.9%	53	1.8%	2.0%	1.5%	-0.9%
Manipulating hand-held	2.2%	126	2.5%	3.3%	1.7%	-0.3%
Talking on hand-held	0.7%	41	0.7%	0.9%	0.6%	0.0%

Distracted driving due to electronic devices by gender, location, and age of driver

The relationship between gender and distracted driving due to electronic devices is shown in Table 18. There is no significant difference between males and females in the rate of distracted driving, nor is the difference to the 2013 observations significant.

Table 18. Distracted driving due to electronic devices by gender with comparison to previous waves

Gender	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Female	4.2%	103	4.8%	6.3%	4.3%	-0.6%
Male	3.6%	116	4.4%	6.6%	4.1%	-0.8%
Total	3.8%	219	4.6%	6.4%	4.2%	-0.8%

The area types of the observations, defined as rural, urban, or suburban by the distracted driving variable are shown in Table 19. The difference in device use by area is significant (p=0.00). The decrease of electronic device use while driving was most markedly in rural areas, with a 1.5% reduction compared to the previous year and it is significant (p=0.02).

Table 19. Distracted driving due to electronic devices by area type with comparison to previous waves

DD by area type		2014 Percent	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Area type	Rural	2.5%	4.0%	5.8%	3.6%	-1.5%
	Urban	4.0%	4.3%	6.9%	4.1%	-0.3%
	Suburban	4.6%	5.6%	6.0%	4.7%	-1.0%

The relationship between the area type and the use of Bluetooth or a headset shows a larger decrease in rural compared to urban areas (Table 20). While the difference within areas is not significant, the decrease in rural areas by 1.6% and in suburban areas by 1.1% is significant (p=0.00 for both).

Table 20. Area type by talking on headset or Bluetooth with comparison to previous waves

Bluetooth/headset by area type		2014 Percent	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Area type	Rural	0.8%	2.4%	3.1%	0.9%	-1.6%
	Urban	0.8%	1.2%	1.4%	1.1%	-0.4%
	Suburban	1.2%	2.3%	2.4%	2.5%	-1.1%
Total		0.9%	1.8%	2.0%	1.5%	0.9%

The analysis of distracted driving due to electronic devices by age group is shown in Table 21, showing a significant (p=0.00) difference among the 16 -24 year-olds in electronic device use and the only increase in use overall among all age groups (the increase of 2.7% is not significant).

Table 21. Distracted driving due to electronic devices by age with comparison to previous waves

DD by age 2012		2014 Percent	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Age	16-24	8.3%	5.6%	11.4%	5.3%	+2.7%
	25-69	3.8%	4.7%	6.2%	4.2%	-0.9%
	70 and older	0.3%	0.3%	3.4%	1.8%	0.0%

Distracted driving by electronic devices by gender for the 16-24-year-old drivers did not show any significant differences between males and females. Compared to 2013, female 16-24 year-olds showed an increase in electronic device use of 1.4%, males and increase of 4.4% both of which are not significant (Table 22).

Table 22. Distracted driving due to electronic devices by gender for 16-24 year-olds with comparison to previous waves

DD 16-24 year-old by gender		2014 Percent	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Gender	Female	8.5%	7.1%	12.3%	4.3%	+1.4%
	Male	8.2%	3.8%	10.4%	4.4%	+4.4%

Distracted driving due to electronic devices by time of observation

Distracted driving by electronic devices by time of observation does not show any significant differences among the rush hour, weekend and all other times of data collections. The 1.2% decrease in rush hour and weekend distracted driving rate compared to the 2013 data is also not significant (see Table 23).

Table 23. Distracted driving due to electronic devices by time of observation with comparison to previous waves

DD by time		2014 Percent	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Time	rush hour	3.5%	4.7%	7.0%	3.5%	-1.2%
	weekend	3.3%	4.5%	6.0%	3.1%	-1.2%
	all other	4.4%	4.6%	6.3%	5.0%	-0.2%

Distracted driving due to electronic devices by geography and age

The breakdown of driver age by individual distracted driving behavior by electronic devices is shown in Table 24, along with the comparison to previous waves. In some cases, the total percentages of the individually observed behaviors add up to a higher percentage of distracted driving compared to the created variable shown in Table 21 due to the double-counting cases that displayed more than distracted behavior.

There is a significantly higher rate of 25 to 69 year-olds being observed holding a phone to their ear while driving (1.3%) compared to the other age groups (p=0.04).

The percentage of drivers age 16-24 (7.2%) manipulating a hand-held device in 2014 is significantly higher than among drivers age 25 and older (p=0.00). However, the actual number of observations is very small (see also the frequencies in brackets next to percentages). In comparison with the 2013 data (4.1% of 16-24 year-olds), the 3.1% increase in the manipulation of a hand-held device by 16-24 year –olds is not significant.

Table 24. Age by distracted driving behavior with 2013 frequencies with comparison to previous waves

Age	Phone to ear 2014	Phone to ear 2013	Phone to ear 2012	Phone to ear 2011
16-24	0.3% (1)	1.1% (5)	4.7%	3.2%
25-69	1.3% (63)	1.7% (91)	2.2%	2.0%
70 and older	0.0% (0)	0.0% (0)	1.4%	0.6%
Total	1.1% (64)	1.6% (96)	2.4%	2.1%
Age	**Headset/Bluetooth 2014**	**Headset/Bluetooth 2013**	**Headset/Bluetooth 2012**	**Headset/Bluetooth 2011**
16-24	0.9% (3)	0.6% (3)	2.3%	2.3%
25-69	1.0% (50)	1.9% (104)	2.1%	1.5%
70 and older	0.0% (0)	0.7% (2)	1.0%	0.6%
Total	0.9% (53)	1.8% (109)	2.0%	1.5%
Age	**Manipulating hand-held 2014**	**Manipulating hand-held 2013**	**Manipulating hand-held 2012**	**Manipulating hand-held 2011**
16-24	7.2% (25)	4.1% (19)	6.3%	1.9%
25-69	2.0% (100)	2.5% (134)	3.1%	1.7%
70 and older	0.3% (1)	0.3% (1)	1.0%	1.2%
Total	2.2% (126)	2.5% (154)	3.3%	1.7%
Age	**Talking on hand-held 2013**	**Talking on hand-held 2013**	**Talking on hand-held 2012**	**Talking on hand-held 2011**
16-24	0.9% (3)	0.6% (3)	0.5%	0.2%
25-69	0.8% (38)	0.7% (37)	0.9%	0.7%
70 and older	0.0% (0)	0.0% (0)	1.0%	0.6%
Total	0.7% (41)	0.7% (40)	0.9%	0.6%

Table 25 shows the observed distracted driving behaviors by select counties. The behavior of holding a phone to the ear while driving was not significantly different amongst all the counties. The observation of headset or Bluetooth use ranged from 0.0% in San Bernardino and Sonoma to 2.1% in Placer counties, which is significant at p=0.01 (with the caveat of the actual number of observations is very small).

The manipulation of a hand-held device while driving ranged from 0.4% in San Bernardino to 7.1% in Sonoma, a difference significant at p=0.01.

Talking on a hand-held device did not show any differences among the selected counties.

Table 25. Selected counties by distracted driving behavior – with comparison to previous waves

County	Phone to ear 2014	Phone to ear 2013	Phone to ear 2012	Phone to ear 2011
Alameda	0.4%	2.9%	1.0%	1.1%
Los Angeles	1.1%	1.5%	2.5%	2.1%
Orange	0.5%	0.5%	1.0%	1.3%
Placer	2.6%	4.5%	3.2%	2.2%
Riverside	1.5%	2.0%	2.8%	4.5%
San Bernardino	1.6%	0.0%	4.0%	2.5%
San Diego	0.9%	0.5%	2.2%	1.1%
San Mateo	0.0%	1.1%	3.8%	2.0%
Santa Clara	0.6%	1.3%	1.1%	0.5%
Sonoma	0.0%	2.4%	0.0%	0.6%
County	**Headset/Bluetooth 2014**	**Headset/Bluetooth 2013**	**Headset/Bluetooth 2012**	**Headset/Bluetooth 2011**
Alameda	1.9%	2.0%	2.7%	1.2%
Los Angeles	0.4%	1.2%	1.0%	0.7%
Orange	1.6%	1.5%	2.0%	1.8%
Placer	2.1%	2.7%	1.7%	1.7%
Riverside	1.0%	3.0%	0.6%	2.8%
San Bernardino	0.0%	0.0%	0.5%	3.4%
San Diego	0.4%	0.7%	1.5%	0.2%
San Mateo	1.9%	1.1%	3.8%	6.4%
Santa Clara	0.4%	4.7%	1.7%	1.0%
Sonoma	0.0%	0.0%	3.6%	0.6%
County	**Manip. hand-held 2014**	**Manip. hand-held 2013**	**Manip. hand-held 2012**	**Manip. hand-held 2011**
Alameda	2.1%	3.1%	3.9%	2.5%
Los Angeles	2.8%	2.5%	3.4%	2.2%
Orange	2.5%	3.2%	2.6%	0.3%
Placer	4.6%	3.2%	2.9%	0.4%
Riverside	3.9%	1.0%	0.0%	3.5%
San Bernardino	0.4%	4.0%	3.5%	5.9%
San Diego	1.4%	2.8%	4.8%	1.4%
San Mateo	0.9%	2.5%	3.8%	2.8%
Santa Clara	2.0%	2.4%	2.4%	0.0%
Sonoma	7.1%	12.2%	3.6%	1.8%
County	**Talking hand-held 2014**	**Talking on hand-held 2013**	**Talking on hand-held 2012**	**Talking on hand-held 2011**
Alameda	0.4%	1.1%	0.0%	0.5%
Los Angeles	0.4%	0.7%	0.7%	0.7%
Orange	0.6%	0.3%	1.3%	1.5%
Placer	2.1%	1.1%	0.9%	0.4%
Riverside	1.5%	1.0%	0.0%	0.7%
San Bernardino	0.4%	0.0%	0.0%	0.8%
San Diego	0.6%	0.7%	0.8%	0.5%
San Mateo	0.9%	0.0%	0.4%	0.0%
Santa Clara	0.8%	0.9%	0.9%	0.2%
Sonoma	0.0%	4.9%	0.0%	0.6%

B. Countywide and Regional Results on Distracted Driving

Overall electronic device use and distracted driving due to electronic devices variable by county

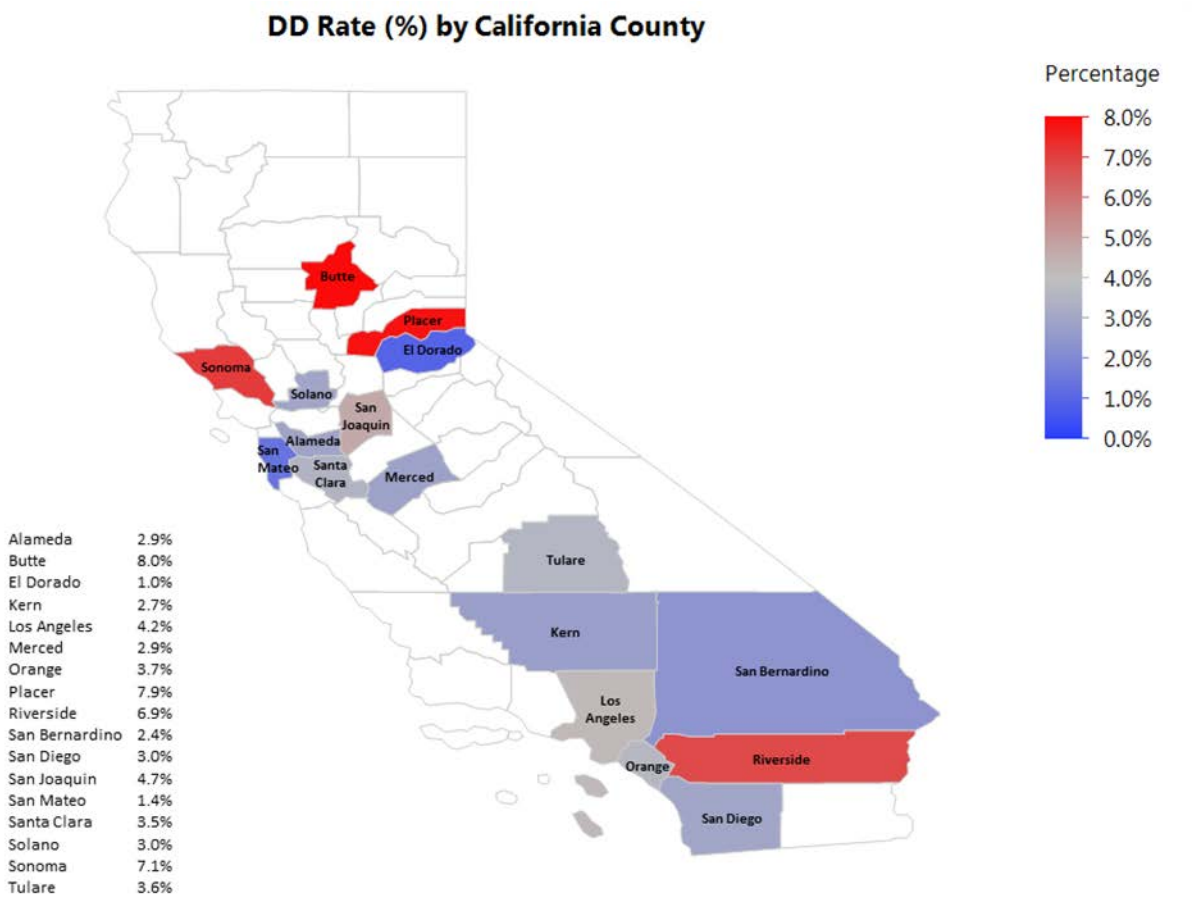
The rate of distracted driving by device use by county is shown in Table 26, and ranges from 1.0% in El Dorado County to 8.0% in Butte County. The percentage of the DD behavior between counties is significantly different (p=0.00), however, the number of total observations is some counties is very small.

Table 26. Distracted driving due to electronic devices by county with comparison to previous waves

DD by county	2014 Percent	2013 Percent	2012 Percent	2011 Percent
Butte	8.0%	3.6%	15.4%	0.0%
Placer	7.9%	8.3%	6.1%	3.0%
Sonoma	7.1%	14.0%	3.6%	1.8%
Riverside	6.9%	3.9%	2.8%	8.3%
San Joaquin	4.7%	1.5%	10.9%	4.3%
Los Angeles	4.2%	4.7%	6.6%	5.0%
Orange	3.7%	4.0%	5.0%	3.0%
Tulare	3.6%	5.3%	7.1%	4.8%
Santa Clara	3.5%	4.1%	4.4%	0.7%
San Diego	3.0%	4.0%	7.9%	3.1%
Solano	3.0%	4.0%	10.8%	7.7%
Alameda	2.9%	6.3%	5.0%	3.2%
Merced	2.9%	1.9%	8.4%	5.8%
Kern	2.7%	5.5%	3.0%	6.0%
San Bernardino	2.4%	4.0%	7.4%	9.3%
San Mateo	1.4%	3.6%	8.1%	4.7%
El Dorado	1.0%	2.5%	6.8%	2.5%

Figure 1 shows the rate of distracted driving by electronic device use for all the surveyed counties in the sample frame. The DD rate is color-coded as a heat map with red indicating a higher rate and blue a lower DD rate per county.

Figure 1. Map of DD by County



Region Variable

As in the previous waves of the study, three regions were delineated by county into "Northern California," "Central California," and "Southern California." Table 27 shows the grouping of counties into the three geographic areas.

Table 27. Counties by region

Northern California	Central California	Southern California
Butte	Tulare	Los Angeles
Alameda	Kern	Riverside
Santa Clara	Merced	San Bernardino
El Dorado		Orange
San Joaquin		San Diego
San Mateo		
Santa Clara		
Solano		
Sonoma		

Out of all 5,693 observations, 2,070 (36.4%) were completed in the Northern California region, 607 (10.7%) in Central and 3,016 (53.0%) in Southern California; an observation volume comparable to previous waves (see Table 28).

Table 28. Number of observations by region with comparison to previous waves

Region	2014 Percent	2014 Frequency	2013 Percent	2012 Percent	2011 Percent
North	36.4%	2,070	34.9%	32.7%	36.8%
Central	10.7%	607	12.1%	7.0%	11.8%
South	53.0%	3,016	53.0%	60.3%	51.4%
Total	100.0%	5,693	100.0%	100.0%	100.0%

The comparison of the region variable by the observation of holding the phone to the ear is shown in Table 29, without significant differences. The decrease of 1.2% of this behavior between 2014 and 2013 in the northern regions is significant (p=0.00).

Table 29. Holding phone to ear by region with comparison to previous waves

Talking on hand-held by region		2014 Percent	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Region	North	1.1%	2.3%	2.5%	1.5%	-1.2%
	Central	1.8%	2.2%	2.0%	4.1%	-0.4%
	South	1.0%	1.0%	2.3%	2.0%	0.0%

The region variable and the observation of drivers talking on a head-set or Bluetooth device shows a significant difference (p=0.02, see Table 30) with a higher observation rate among northern region drivers. The reduction of headset or Bluetooth use in the north by 1.5% compared to 2013 is significant as well (p=0.00).

Table 30. Talking on headset/Bluetooth by region with comparison to previous waves

Talking on headset by region		2014 Percent	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Region	North	1.4%	2.9%	2.3%	2.0%	-1.5%
	Central	0.7%	1.2%	7.8%	1.9%	-0.5%
	South	0.7%	1.2%	1.2%	1.2%	-0.6%

Distracted driving due to electronic devices by passenger and vehicle characteristics

The percentage of distracted driving by presence of children under the age of eight in the car, together with the previous waves data is shown in Table 31. There is no significant difference between drivers with or without children in the car with respect to being distracted by electronic device use.

Table 31. Distracted driving due to electronic devices by presence of children under age eight in car with comparison to previous waves

DD by kids under 8 in car		2014 Percent	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Kid < 8 in car	Yes, kid <8 in car	2.8%	2.8%	6.9%	1.7%	0.0%
	No	2.5%	2.4%	6.4%	4.3%	-0.1%

There is no significant difference of the distracted driving variable by vehicle type (Table 32).

Table 32. Distracted driving due to electronic devices by vehicle type with comparison to previous waves

DD by vehicle type		2014 Percent	2013 Percent	2012 Percent	2011 Percent
Vehicle	Passenger Car	4.0%	4.3%	6.5%	3.8%
	Van or SUV	3.5%	5.0%	6.3%	4.6%
	Pickup Truck	3.9%	4.9%	6.4%	4.5%

There are significant differences in the incidence of distracted driving and the number of passengers in the car (Table 33). Of drivers alone in a car, 4.4% were observed using an electronic device while driving, a percentage that is reduced with passengers in the vehicle (significant at p=0.02). Compared to previous year data, the incidence of distracted driving by electronic device use for single drivers reduced by 1.2%, which is also significant (p=0.02).

Table 33. Distracted driving due to electronic devices by number of passengers in car with comparison to previous waves

DD by # of passengers		2014 Percent	2013 Percent	2012 Percent	2011 Percent	Difference 2014-2013
Passengers	1	4.4%	5.6%	6.7%	5.1%	-1.2%
	2	2.9%	2.4%	5.8%	2.1%	+0.5%
	3	1.1%	2.8%	6.7%	3.2%	-1.7%
	4	2.4%	2.4%	2.9%	1.3%	0.0%
	5	0.0%	0.0%	7.7%	0.0%	--
	6	0.0%	0.0%	0.0%	0.0%	--

Distracted driving by electronic devices combined with observation categories

Tables 34, 35, 36 and Table 37 show the combined observation categories by the distracted driving by electronic device use variable.

Table 34. Combined table of cell phone use and driving by electronic devices by time, road and area type

	Yes		No		Total	
Time	**#**	**%**	**#**	**%**	**#**	**%**
Rush Hour	65	3.5%	1,815	96.5%	1,880	100%
Weekend	40	3.3%	1,163	96.7%	1,203	100%
All Other	114	4.4%	2,496	95.6%	2,610	100%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**
Road Type	**#**	**%**	**#**	**%**	**#**	**%**
HWY exit ramp	24	2.0%	1,150	98.0%	1,174	100%
Surface Street	195	4.3%	4,324	95.7%	4,519	100%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**
Area Type	**#**	**%**	**#**	**%**	**#**	**%**
Rural	32	2.5%	1,272	97.5%	1,304	100%
Urban	97	4.0%	2,350	96.0%	2,447	100%
Suburban	90	4.6%	1,852	95.4%	1,942	100%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**

Table 35. Combined table of cell phone use and driving by electronic devices by demographic variables

	Yes		No		Total	
Time	**#**	**%**	**#**	**%**	**#**	**%**
16-24	29	8.3%	319	91.7%	348	100.0%
25-69	189	3.8%	4,847	96.2%	5,036	100.0%
70+	1	0.3%	308	99.7%	309	100.0%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**
Gender	**#**	**%**	**#**	**%**	**#**	**%**
Female	103	4.2%	2,324	95.8%	2,427	100.0%
Male	116	3.6%	3,150	96.4%	3,266	100.0%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**
Ethnicity	**#**	**%**	**#**	**%**	**#**	**%**
White	134	4.1%	3,126	95.9%	3,260	100.0%
African American	16	7.0%	214	93.0%	230	100.0%
Asian	13	2.0%	636	98.0%	649	100.0%
Hispanic/Latino	54	3.7%	1,396	96.3%	1,450	100.0%
Other	2	1.9%	102	98.1%	104	100.0%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**

Table 36. Combined table of cell phone use and driving by electronic devices by vehicle type and occupancy

	Yes		No		Total	
No. of Passengers	**#**	**%**	**#**	**%**	**#**	**%**
1	172	4.4%	3,709	95.6%	3,881	100.0%
2	42	2.9%	1,409	97.1%	1,451	100.0%
3	3	1.1%	259	98.9%	262	100.0%
4	2	2.4%	80	97.6%	82	100.0%
5	0	0.0%	12	100.0%	12	100.0%
6	0	0.0%	5	100.0%	5	100.0%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**
Presence of Children < 8	**#**	**%**	**#**	**%**	**#**	**%**
Yes	10	2.8%	347	97.2%	357	100.0%
No	209	3.9%	5,127	96.1%	5,336	100.0%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**
Vehicle Type	**#**	**%**	**#**	**%**	**#**	**%**
Passenger Car	123	4.0%	2,933	96.0%	3,056	100.0%
Van or SUV	62	3.5%	1,712	96.5%	1,774	100.0%
Pickup Truck	34	3.9%	829	96.1%	863	100.0%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**

Table 37. Combined table of cell phone use and driving by electronic devices by geographic

	Yes		No		Total	
County	**#**	**%**	**#**	**%**	**#**	**%**
Alameda	14	2.9%	464	97.1%	478	100%
Butte	2	8.0%	23	92.0%	25	100%
El Dorado	1	1.0%	103	99.0%	104	100%
Kern	3	2.7%	107	97.3%	110	100%
Los Angeles	49	4.2%	1,112	95.8%	1,161	100%
Merced	7	2.9%	238	97.1%	245	100%
Orange	23	3.7%	606	96.3%	629	100%
Placer	34	7.9%	397	92.1%	431	100%
Riverside	14	6.9%	190	93.1%	204	100%
San Bernardino	6	2.4%	245	97.6%	251	100%
San Diego	23	3.0%	748	97.0%	771	100%
San Joaquin	10	4.7%	203	95.3%	213	100%
San Mateo	3	1.4%	213	98.6%	216	100%
Santa Clara	17	3.5%	471	96.5%	488	100%
Solano	3	3.0%	98	97.0%	101	100%
Sonoma	1	7.1%	13	92.9%	14	100%
Tulare	9	3.6%	243	96.4%	252	100%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**
Region	**#**	**%**	**#**	**%**	**#**	**%**
North	85	4.1%	1,985	95.9%	2,070	100%
Central	19	3.1%	588	96.9%	607	100%
South	115	3.8%	2,901	96.2%	3,016	100%
Total	**219**	**3.8%**	**5,474**	**96.2%**	**5,693**	**100%**

Notes on Limitations

As outlined in the Driver Electronic Device Use Protocol published by NHTSA (DOT HS 811 361), the methodology has two noteworthy limitations. First, the observation protocol only observes drivers during daylight hours. Secondly, it only observes them at controlled intersections, and not while moving. It is therefore plausible that the actual observed numbers on distracted driving might be either higher or lower than observed.

Appendix A– Observation Form

ID of Location: _____ **Time Type:** _____ **Alternate 1:** _____ **Road: 1=HWY Exit Ramp 2=Surface Street 3=Other**

Data Collected by: _____ **Weather condition:** _____ **Start Time:** _____ **End Time:** _____

Data Collected on: _____ **Area Type: 1=Rural 2=Urban 3=Suburb** **Notes:** _____

	DRIVER/VEHICLE CHARACTERISTICS						DRIVER BEHAVIOR			
Event #	**Age** A=16-24 B=25-69 C=70 and older	**Gender** M=Male F=Female	**Ethnicity** W=White AA=African American A=Asian H=Hispanic O=Other	**Vehicle type** 1=Passenger car 2=Van or SUV 3=Pickup truck	**Passengers** Number in car (If 1 - SKP next question)	**Kids under age 8** Y=Yes N=No	**Holding Phone to Ear with Hand** √	**Talking on Headset OR Bluetooth** √	**Manipulating Hand-Held Device** √	**Talking on Handheld Device** √
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2										
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Appendix B– Letter of Confirmation

UNIVERSITY OF CALIFORNIA, BERKELEY

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SAFE TRANSPORTATION
RESEARCH AND EDUCATION CENTER
2614 Dwight Way, MC 7374
BERKELEY, CA 94720-7374
Phone: (510) 642-0566 Fax: (510) 643-9922

February 2014

To Whom It May Concern:

The purpose of this letter is to tell you about a public safety survey being conducted by the University of California, Berkeley Safe Transportation Research and Education Center (SafeTREC) and the California Office of Traffic Safety (OTS). The purpose of the study is to observe cell phone use while driving throughout the State of California. The results of the study will provide the State with ideas for making the roads of California safer.

We are working with Ewald and Wasserman Research Consultants, a survey research firm. The trained interviewers, who are conducting the observations, will stand at intersections with either stop signs or traffic signals for approximately 45 minutes, and will not interact with drivers. Additionally, they will not interfere with any businesses, residents, etc. in the area.

If you have any questions about the research study, please call Jill Cooper at (510) 643-4259.

Thank you in advance for your understanding.

Sincerely,

David Ragland
Director
UC Berkeley SafeTREC

Russia Chavis
Deputy Secretary for Transportation Safety and
Enforcement, California State Transportation Agency
Acting Director, California Office of Traffic Safety