PEDESTRIAN/BICYCLE/MOTOR VEHICLE COMMISSION COVER SHEET

AGENDA ITEM D.	**MEETING DATE** September 27, 2016
ITEM 1.	
ID Number 44204	**Council report back due date:**
OTHER REFERRALS AND ACTIONS TAKEN TO DATE: (Asterisk indicates lead agency.)	

STAFF DISCUSSION OF ITEM:

The U.S. Dept. of Transportation reports that there are three types of distractions: visual, manual and cognitive. Most of data and research relates to distractions inside the vehicle, especially with respect to smart phones and other electronic devices. See, for example, the attached NHTSA's Traffic Safety Facts on Distracted Driving 2013. According to this source, "Ten percent of fatal crashes, 18 percent of injury crashes, and 16 percent of all police-reported motor vehicle traffic crashes in 2013 were reported as distraction-affected crashes. "

Regarding distractions outside the vehicle, the Distracted Driving 2013 Traffic safety Facts notes "In the reporting of distraction-affected crashes, oftentimes external distractions are identified as a distinct type of distraction. Some of the scenarios captured under external distractions might actually be related to the task of driving (e.g., looking at a street sign). However, the crash reports may not differentiate these driving-related tasks from other external distractions (looking at previous crash or billboard). Currently, the category of external distractions is included in the counts of distraction-affected crashes. "

There are few research studies on distractions outside the vehicle. Most of these relate to either billboards or roadside memorials.

Here is the abstract from an article titled "Modulation of attention and urgent decisions by affect-laden roadside advertisement in risky driving scenarios".

> In road safety literature the effects of emotional content and salience of advertising billboards have been scarcely investigated. The main aim of this work was to uncover how affect-laden roadside advertisements can affect attention - eye-movements - and subsequent risky decisions - braking - on the Honda Riding Trainer motorcycle simulator. Results indicated that the number of fixations and total fixation time elicited by the negative and positive emotional advertisements were larger than the neutral ones. At the same time, negative pictures got later gaze disengagement than positive and neutral ones. This attentional capture results in less eye fixation times on the road relevant region. where the important driving events happen. Finally, the negative emotional valence advertisements sped up braking on subsequent risky situations.

FISCAL IMPLICATIONS:

MATERIALS PRESENTED WITH ITEM: NHTSA Traffic Safety Facts, Distracted Driving 2013

STAFF RECOMMENDATION/RATIONALE:

PREPARED BY:	**SIGNED**

cc: Ald.

U.S. Department of Transportation
National Highway Traffic Safety Administration

TRAFFIC SAFETY FACTS
Research Note

NHTSA
www.nhtsa.gov

DOT HS 812 132 Summary of Statistical Findings April 2015

Distracted Driving 2013

The Department of Transportation works to reduce the occurrence of distracted driving and raise awareness of the dangers of distracted driving. This risky behavior poses a danger to vehicle occupants as well as nonoccupants such as pedestrians and bicyclists. Driver distraction is a specific type of driver inattention. Distraction occurs when drivers divert their attention from the driving task to focus on some other activity. Oftentimes, discussions regarding distracted driving center around cell phone use and texting, but distracted driving also includes other activities such as eating, talking to other passengers, or adjusting the radio or climate controls, to name but a few. A distraction-affected crash is any crash in which a driver was identified as distracted at the time of the crash.

- Ten percent of fatal crashes, 18 percent of injury crashes, and 16 percent of all police-reported motor vehicle traffic crashes in 2013 were reported as distraction-affected crashes.
- In 2013, there were 3,154 people killed and an estimated additional 424,000 injured in motor vehicle crashes involving distracted drivers.
- Ten percent of all drivers 15 to 19 years old involved in fatal crashes were reported as distracted at the time of the crashes. This age group has the largest proportion of drivers who were distracted at the time of the crashes.
- In 2013, there were 480 nonoccupants killed in distraction-affected crashes.

Methodology

The data sources include NHTSA's Fatality Analysis Reporting System (FARS) and National Automotive Sampling System (NASS) General Estimates System (GES). FARS contains data on a census of fatal traffic crashes from all 50 States, the District of Columbia, and Puerto Rico. NASS GES contains data from a nationally representative probability sample of police-reported crashes of all severities, including those that result in death, injury, or property damage. The national estimates produced from GES data are subject to sampling errors.

As defined in the *Overview of the National Highway Traffic Safety Administration's Driver Distraction Program* (Report No. DOT HS 811 299), distraction is a specific type of inattention that occurs when drivers divert their attention from the driving task to focus on some other activity instead. That document describes that distraction is a subset of inattention (which also includes fatigue, and physical and emotional conditions of the driver). However, while NHTSA may define the terms in this manner, inattention and distraction are often used interchangeably or simultaneously in other material, including police accident reports. It is important that NHTSA and NHTSA's data users be aware of these differences in definitions.

There are inherent limitations in the data for distraction-affected crashes and the resulting injuries and fatalities. These limitations are being addressed through efforts within and outside of NHTSA as detailed in the Overview. The appendix of this document contains a table that describes the coding for distraction-affected crashes for FARS and GES as well as a discussion regarding limitations in the distracted driving data.

Data

Fatalities in Distraction-Affected Crashes

In 2013, there were a total of 30,057 fatal crashes in the United States involving 44,574 drivers. As a result of those fatal crashes, 32,719 people were killed.

In 2013, there were 2,910 fatal crashes that occurred on U.S. roadways that involved distraction (10% of all fatal crashes). These crashes involved 2,959 distracted drivers, as some crashes involved more than one distracted driver. Distraction was reported for 7 percent (2,959 of 44,574) of the drivers involved in fatal crashes. In these distraction-affected crashes, 3,154 fatalities (10% of overall fatalities) occurred. Table 1 provides information on crashes, drivers, and fatalities involved in fatal distraction-affected crashes in 2013.

Much attention across the country has been devoted to the use of cell phones and other electronic devices while driving. In 2013, there were 411 fatal crashes reported to have involved the use of cell phones as distractions (14% of all fatal

Table 1
Fatal Crashes, Drivers in Fatal Crashes, and Fatalities, 2013

	Crashes	Drivers	Fatalities
Total	**30,057**	**44,574**	**32,719**
Distraction-Affected (D-A)	2,910 (10% of total crashes)	2,959 (7% of total drivers)	3,154 (10% of total fatalities)
Cell Phone in Use	411 (14% of D-A crashes)	427 (14% of distracted drivers)	445 (14% of fatalities in D-A crashes)

Source: National Center for Statistics and Analysis (NCSA), FARS 2013 (ARF)

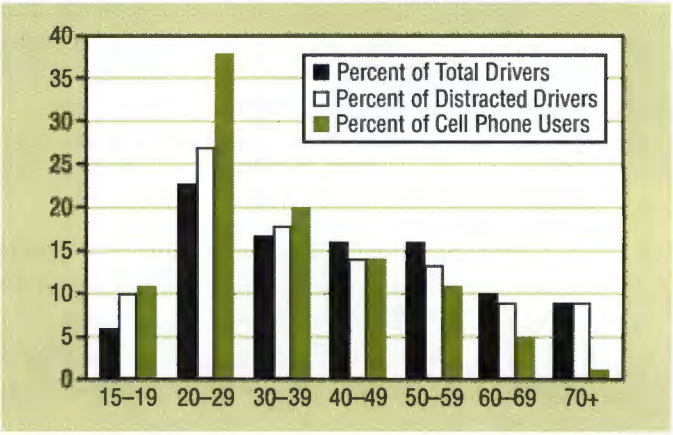
distraction-affected crashes). For these distraction-affected crashes, the police accident report stated that the driver was talking on, listening to, or manipulating a cell phone (or other cell phone activity) at the time of the crash. Cell phones were reported as a distraction for 14 percent of the distracted drivers in fatal crashes. A total of 445 people died in fatal crashes that involved the use of cell phones or other cell phone-related activities as distractions.

Table 2 presents 2013 fatal crash data for distraction-affected crashes by driver age. Ten percent of all drivers 15 to 19 years old involved in fatal crashes were distracted at the time of the crash. This age group is the group with the largest proportion of drivers who were distracted.

The comparison of the proportion of drivers involved in fatal crashes and those involved in distraction-affected fatal crashes points to overrepresentation of drivers under 40. For all fatal crashes, only 6 percent of the drivers in the fatal crashes were 15 to 19 years old. However, for distracted drivers in fatal crashes, 10 percent of the distracted drivers were 15 to 19 years old. And 11 percent of all the distracted drivers using cell phones were 15 to 19 years old. Similarly, drivers in their 20s are 23 percent of drivers in all fatal crashes, but are 27 percent of the distracted drivers and 38 percent of the distracted drivers that were using cell phones in fatal crashes.

Figure 1 illustrates the distribution of drivers by age for total drivers involved in fatal crashes, distracted drivers involved in fatal crashes, and distracted drivers on cell phones during fatal crashes.

Figure 1
Percent Distribution of Drivers Involved in Fatal Crashes By Age, Distraction, and Cell Phone Use, 2013



Source: NCSA, FARS 2013 (ARF)

In 2013, 85 percent of the fatalities in distraction-affected crashes involved motor vehicle occupants or motorcyclists.

Table 2
Drivers Involved in Fatal Crashes by Age, Distraction, and Cell Phone Use, 2013

	Total Drivers		Distracted Drivers			Drivers Using Cell Phone		
Age Group	#	% of Total	#	% of Total Drivers	% of Distracted Drivers	#	% of Distracted Drivers	% of Cell Phone Drivers
15-19	2,839	6	294	10	10	45	15	11
20-29	10,427	23	803	8	27	161	20	38
30-39	7,598	17	517	7	17	84	16	20
40-49	7,321	16	423	6	14	61	14	14
50-59	7,079	16	384	5	13	46	12	11
60-69	4,483	10	258	6	9	22	9	5
70+	3,951	9	252	6	9	6	2	1
Total	**44,574**	**100**	**2,959**	**7**	**100**	**427**	**14**	**100**

Source: NCSA, FARS 2013 (ARF); Note: The total includes 56 drivers 14 and younger, 7 of whom were noted as distracted. Additionally, the total includes 820 of unknown age, 21 of whom were noted as distracted.

This compares to 83 percent of all motor vehicle crash fatalities involving occupants. Thus, the victims of distraction-affected crashes vary little from the victims of crashes overall. Table 3 describes the role of the people killed in distraction-affected crashes in 2013. Distracted drivers were involved in the deaths of 480 nonoccupants during 2013. It is unknown how many of these nonoccupants were potentially distracted as well.

Table 3
People Killed in Distraction-Affected Crashes, by Person Type, 2013

Person Type	Killed in Distraction-Affected Crashes	Percentage of Distraction-Affected Fatalities
Occupants		
Driver	1,898	60%
Passenger	776	25%
Total Occupants	2,674	85%
Nonocccupants		
Pedestrian	384	12%
Pedalcyclist	74	2%
Other	22	1%
Total Nonoccupants	480	15%

Source: NCSA, FARS 2013 (ARF)

In 2013, 69 percent of the distracted drivers in fatal crashes were male as compared to 73 percent of drivers in all fatal crashes. Additionally, 58 percent of distracted drivers involved in fatal crashes were driving in the daytime (between 6 a.m. and 5:59 p.m.) as compared to 53 percent of drivers in all fatal crashes.

Estimates of People Injured in Distraction-Affected Crashes

In 2013, an estimated 2,313,000 people were injured in motor vehicle traffic crashes (Table 4). The number of people injured in distraction-affected crashes in 2013 was estimated at 424,000 (18% of all the injured people). An estimated 34,000 people were injured in 2013 in crashes involving cell phone use or other cell phone-related activities, 8 percent of all people injured in distraction-affected crashes.

Table 4
Estimated Number of People Injured in Crashes and People Injured in Distraction-Affected Crashes

Year	Total	Distraction	
		Estimate (% of Total Injured)	Cell Phone Use (% of People Injured in Distraction-Affected Crashes)
2010	2,239,000	416,000 (19%)	24,000 (6%)
2011	2,217,000	387,000 (17%)	21,000 (5%)
2012	2,362,000	421,000 (18%)	28,000 (7%)
2013	2,313,000	424,000 (18%)	34,000 (8%)

Source: NCSA, GES 2010–2013

Over the past four years, the estimated number of people injured in distraction-affected crashes has shown decreases and increases. The percentage of injured people in distraction-affected crashes as a portion of all injured people has remained relatively constant. As these are estimates, the changes may not be statistically significant.

In 2013, there were an estimated 284,000 distraction-affected injury crashes (Table 5) or 18 percent of all injury crashes. In these crashes, 294,000 drivers were distracted at the time of the crashes.

Table 5
Estimates of Distraction-Affected Injury Crashes, Drivers In Injury Crashes, and Injured People, 2013

Distraction-Affected Injury Crashes	Distracted Drivers in Injury Crashes	People Injured in Distraction-Affected Crashes
284,000 (18% of all injury crashes)	294,000 (10% of all drivers in injury crashes)	424,000 (18% of all injured people)

Source: NCSA, GES 2013

Crashes of All Severity

Table 6 provides information for all police-reported crashes from 2010 through 2013 including fatal crashes, injury crashes, and property-damage-only (PDO) crashes for the year. During this time period, the percentages of crashes of all severities that involve distractions fluctuated very little.

Table 6
Motor Vehicle Traffic Crashes and Distraction-Affected Crashes by Year

Crash by Crash Severity		Overall Crashes	Distraction-Affected Crashes (% of Total Crashes)	D-A Crashes Involving Cell Phone Use (% of D-A Crashes)
2010	Fatal Crash	30,296	2,993 (10%)	366 (12%)
	Injury Crash	1,542,000	279,000 (18%)	16,000 (6%)
	PDO* Crash	3,847,000	618,000 (16%)	30,000 (5%)
	Total	**5,419,000**	**900,000 (17%)**	**47,000 (5%)**
2011	Fatal Crash	29,867	3,047 (10%)	354 (12%)
	Injury Crash	1,530,000	260,000 (17%)	15,000 (6%)
	PDO Crash	3,778,000	563,000 (15%)	35,000 (6%)
	Total	**5,338,000**	**826,000 (15%)**	**50,000 (6%)**
2012	Fatal Crash	31,006	3,098 (10%)	380 (12%)
	Injury Crash	1,634,000	286,000 (18%)	21,000 (7%)
	PDO Crash	3,950,000	619,000 (16%)	39,000 (6%)
	Total	**5,615,000**	**908,000 (16%)**	**60,000 (7%)**
2013	Fatal Crashes	30,057	2,910 (10%)	411 (14%)
	Injury Crash	1,591,000	284,000 (18%)	24,000 (8%)
	PDO Crash	4,066,000	616,000 (15%)	47,000 (8%)
	Total	**5,687,000**	**904,000 (16%)**	**71,000 (8%)**

*PDO – Property Damage Only
Source: NCSA, FARS 2010–2012 Final, FARS 2013 ARF, GES 2010-2013.

Appendix—Coding of Distraction During Crashes

In keeping with its distraction plan (*Overview of the National Highway Traffic Safety Administration's Driver Distraction Program*, April 2010, Report No. DOT HS 811 299), NHTSA continues to refine collection of information about the role of distracted driving in police-reported crashes. This includes improvements to the coding of distraction in FARS. Prior to 2010, FARS, which contains data about fatal motor vehicle crashes, and the NASS-GES, which contains data about a sample of all severities of police-reported crashes, coded distraction information in different formats. FARS was more general and inclusive of generally inattentive behavior, whereas GES identified specific distracted driving behaviors. In 2010, the two systems' coding of distraction was unified. Beginning in 2010 for both systems, when looking at distraction-affected crashes, the driver in both FARS and GES is identified as "Yes-Distracted," "No-Not distracted," or "Unknown if distracted." If the driver is identified as distracted, further coding is performed to distinguish the specific activity that was distracting the driver. This was not a change for data coding for GES, but was in FARS. The data collected on the PAR did not change; rather, it is the way the data is classified in FARS to focus the fatal crash data on the set of distractions most likely to affect the crash. Prior to 2010 in FARS, distraction was not first identified in a Yes/No/Unknown manner. Rather, specific behaviors of the driver as coded on the PAR were combined and categorized as "distracted."

Because of this change in data coding in FARS, distraction-affected crash data from FARS beginning in 2010 cannot be compared to distracted-driving-related data from FARS from previous years. With only four years of fatal crash information for distraction under the new coding, the reader should take caution in making conclusions of trends in these data. GES data can be compared over the years, as the data coding did not change in this system.

Of additional note is the terminology regarding distraction. For FARS and GES data, beginning with 2010 data, any crash in which a driver was identified as distracted at the time of the crash is referred to as a distraction-affected crash. Discussion of cell phones is also more specific starting with the 2010 data. Starting in 2010, FARS no longer offers "cell phone present in vehicle" as a coding option; thus this code cannot be considered a distraction within the data set. From discussion with law enforcement officers, this code in years past was used when it was believed that the driver was using a cell phone at the time of the crash and thus contributed to the crash, but proof was not available. The use of a cell phone is more specific with the current coding and if the specific involvement cannot be determined, law enforcement has other options available to discuss the role of the cell phone and thus the coding would reflect such. Because of these changes, the current language referring to cell phones is that the crash involved the *use of a cell phone* as opposed to the generic cell-phone-involvement used previously.

In a continuing effort towards uniformity in data collection among states, the Model Minimum Uniform Crash Criteria (MMUCC) was updated in June 2012. MMUCC is a guideline for collection of crash characteristics in police accident reports. In this updated edition, *MMUCC Guideline, 4th Edition*, the reporting element for distraction was improved after consultation with law enforcement, safety advocates, first responders, and industry representatives. The States are increasingly becoming compliant with these MMUCC guidelines.

Attribute Selection

As discussed in the Methodology section of this Research Note, FARS and GES were accessed to retrieve distraction-affected crashes. Table A-1 contains every variable attribute available for coding for driver distraction along with examples to illustrate the meaning of the attribute. This is the coding scheme available for FARS and GES. Table A-1 further indicates whether that attribute was included in the analysis for distraction-affected crashes.

In 2012, the variable attributes changed to account for different ways that State police accident reports describe general categories of distraction, inattention, and careless driving. These additional attributes provide a more accurate classification of the behavior indicated on the police accident report. If the cell in the table is greyed out, the attribute did not exist for the indicated data years.

If there are no indications of usage for distraction-affected crashes, the attribute was not considered as a type of distraction behavior and therefore not included in the analysis.

Data Limitations

NHTSA recognizes that there are limitations to the collection and reporting of FARS and GES data with regard to driver distraction. The data for FARS and GES are based on PARs and information gathered after the crashes have occurred.

One significant challenge for collection of distracted driving data is the PAR itself. Police accident reports vary across jurisdictions, thus creating potential inconsistencies in reporting. Many variables on the police accident report are nearly universal, but distraction is not one of those variables. Some police accident reports identify distraction as a distinct reporting field, while others do not have such a field and identification of distraction is based upon the narrative portion of the report. The variation in reporting forms contributes to variation in the reported number of distraction-affected crashes. Any national or State count of distraction-affected crashes should be interpreted with this limitation in mind

Table A-1

Attributes Included in "Driver Distracted by" Element and Indication of Inclusion in Distraction-Affected Definitions, GES and FARS

Attribute	Examples	Distraction-Affected Crashes	
		2010–2011	2012–2013
Not distracted	Completely attentive to driving; no indication of distraction or noted as Not Distracted		
Looked but did not see	Driver paying attention to driving but does not see relevant vehicle, object, etc.		
By other occupant	Distracted by occupant in driver's vehicle; includes conversing with or looking at other occupant	X	X
By a moving object in vehicle	Distracted by moving object in driver's vehicle; includes dropped object, moving pet, insect, cargo.	X	X
While talking or listening to cellular phone	Talking or listening on cellular phone; includes talking or listening on a "hands-free" or Bluetooth enabled phone	X	X
While manipulating cellular phone	Dialing or text messaging on cell phone or any wireless email device; any manual button/control actuation on phone qualifies	X	X
Other cellular phone-related	Used when the police report indicated the driver is distracted from the driving task due to cellular phone involvement, but none of the specified codes are applicable (e.g., reaching for cellular phone, etc.). This code is also applied when specific details regarding cellular phone distraction/usage are not provided.	X	X
While adjusting audio and/or climate controls	While adjusting air conditioner, heater, radio, cassette, using the radio, using the cassette or CD mounted into vehicle	X	X
While using other component/ controls integral to vehicle	Manipulating a control in the vehicle including adjusting headlamps, interior lights, controlling windows, door locks, mirrors, seats, steering wheels, on-board navigational devices, etc.	X	X
While using or reaching for device/object brought into vehicle	Radar detector, CDs, razors, music portable CD player, headphones, a navigational device, a laptop or tablet PC, etc.; if unknown if device is brought into vehicle or integral, use Object Brought Into Vehicle	X	X
Distracted by outside person, object, or event	Animals on roadside or previous crash, non-traffic related signs. Do not use when driver has recognized object/event and driver has taken evasive action	X	X
Eating or drinking	Eating or drinking or actively related to these actions	X	X
Smoking related	Smoking or involved in activity related to smoking	X	X
No driver present/unknown if driver present	When no driver is in this vehicle or when it is unknown if there is a driver present in this vehicle at the time of the crash		
Distraction/Inattention	Used exclusively when "distraction/inattention" or "inattention/distraction" are noted in case materials as one combined attribute		X
Distraction/Careless	Used exclusively when "distraction/careless" or "careless/distraction" are note in case materials as one combined attribute		X
Careless/Inattentive	Used exclusively when "careless/inattentive" or "inattentive/careless" are noted in case materials as one combined attribute		X
Distraction/inattention, details unknown	Distraction and/or inattention are noted on the PAR but the specifics are unknown	X	
Distraction (distracted), details unknown	Used when "distraction" or "distracted" are noted in case materials but specific distraction(s) cannot be identified		X
Inattention (inattentive), details unknown	Used when "inattention" or "inattentive" are noted in the case materials but it cannot be identified if this refers to a distraction		X
Not reported	No field available on PAR; field on PAR left blank; no other information available		
Inattentive or lost in thought	Driver is thinking about items other than the driving task (e.g., daydreaming)	X	
Lost in thought/Daydreaming	Used when the driver is not completely attentive to driving because he/she is thinking about items other than the driving task.		X
Other distraction	Details regarding the driver's distraction are known but none of the specified codes are applicable	X	
Unknown if distracted	PAR specifically states unknown		

due to potential under-reporting in some States and over-reporting in others.

The following are potential reasons for underreporting of distraction-affected crashes.

- There are negative implications associated with distracted driving—especially in conjunction with a crash. Survey research shows that self-reporting of negative behavior is lower than actual occurrence of that negative behavior. There is no reason to believe that self-reporting of distracted driving to a law enforcement officer would differ. The inference is that the reported driver distraction during crashes is lower than the actual occurrence.
- If a driver fatality occurs in the crash, law enforcement must rely on the crash investigation in order to report on whether driver distraction was involved. Law enforcement may not have information to indicate distraction. These investigations may rely on witness account and oftentimes these accounts may not be available either.
- Technologies are changing at a rapid speed and it is difficult to update the PAR to accommodate these changes. Without broad-sweeping changes to the PAR to incorporate new technologies and features of technologies, it is difficult to capture the data that involve interaction with these devices.

The following is a challenge in quantifying external distractions.

- In the reporting of distraction-affected crashes, oftentimes external distractions are identified as a distinct type of distraction. Some of the scenarios captured under external distractions might actually be related to the task of driving (e.g., looking at a street sign). However, the crash reports may not differentiate these driving-related tasks from other external distractions (looking at previous crash or billboard). Currently, the category of external distractions is included in the counts of distraction-affected crashes.

Limitations in the data can be seen in a quantifiable manner in a research paper titled, *Precrash Data Collection in NHTSA's Databases* by Mark Mynatt and Greg Radja, published in 2013 for the ESV Conference. In this research paper, Mynatt and Radja reviewed crashes that were common in the National Motor Vehicle Crash Causation Survey (NMVCCS), an on-site investigations crash survey; the GES (police report data); and the Crashworthiness Data System (CDS), data from follow-on vehicle and crash scene inspections and driver interviews along with the police report. A total of 379 crashes involving 653 vehicles were determined to be present in all three programs. Mynatt and Radja looked at specific data for distraction in the common cases to quantify the difference in reporting of distracted driving behaviors due to additional sources of information as can be seen in the following excerpt from the paper:

Table A-2 shows the percentage of the common vehicles with a coded Distraction in each of the programs.

Table A-2
Common Vehicles With a Distraction Present (Percentages rounded)

Distraction	NASS-GES	NASS-CDS	NMVCCS
Yes	11%	14%	28%
No	60%	46%	48%
Unknown	30%	40%	24%

As Table A-2 indicates, in these same vehicles a distraction was coded in the on-scene program twice as often as in the follow-on program; and 2½ times more often than in the PAR-based program. The on-scene based program also had a lower percentage of Unknown Distraction coding.

While these findings cannot be expanded to quantify the potential underreporting in FARS and GES, they are valuable in understanding the potential underreporting that the FARS and GES data may experience for driver distraction.

U.S. Department of Transportation
National Highway Traffic Safety Administration

This research note and other general information on highway traffic safety may be accessed by Internet users at: www-nrd.nhtsa.dot.gov/CATS/index.aspx