Driving While Distracted by a Cell Phone and/or Texting Device:

Review of the Literature and Recommendations for Ohio

by Kenneth R. Buckwalter Jr., RN

With contributions by

Nancie Bechtel, Timothy Erskine, & Amy Wermert

Edited by Nancie Bechtel

Central Ohio Trauma System

431 E. Broad St.
Columbus, Ohio 43215

This White Paper is approved by the COTS Board of Trustees by consensus on April 7, 2010 for dissemination and use to advance injury prevention in Ohio.
Contents

Executive Summary 3
Introduction 4
Current Research 5
  Incidence of Drivers Using Cell Phones/Texting Devices While Driving 5
  Performance Data Regarding Cell Phone/Texting Device Use While Driving 9
  Result of Legislation Pertaining to Cell Phone/Texting Device Use from Other States 19
  Public Support for Legislation Banning Cell Phone/Texting Device Use While Driving 20
Current Laws 22
  Federal 22
  State 23
  Ohio Localities 26
Proposed Ohio Law 27
  Primary vs. Secondary 27
  Fines/Penalties 27
Recommendations/Conclusion 28
References 29
Appendix A – Bexley Text Messaging Ban 38
Appendix B – Cleveland Text Messaging Ban 40
Appendix C – Summit County Text Messaging Ban 41
Appendix D – Toledo Text Messaging Ban 42
Executive Summary

This paper was spawned by a discussion at the State of Ohio’s Trauma Committee on January 13, 2010 which documented committee support for a state law that banned text-messaging while driving. Subsequent conversations supported that a compilation of current research and laws about cell phone use and texting while driving could be useful in educating stakeholders and legislators.

This paper highlights several findings.

- Common sense dictates the obvious perils of taking one’s eyes off the road and hands off the steering wheel while driving, yet millions ignore the risks and choose to engage in cell phone and texting activity every day.
- Scientific research demonstrates that cell phone use and especially text-messaging while driving are hazardous and even deadly. The combination of multiple, complex brain functions encompassing reading, hand-eye coordination and conversation make texting while driving more dangerous than other in-car distractions such as eating.
- Response times among those who text while driving are equal or worse than response times of drunk drivers. Ohio has laws to protect citizens from drunk drivers, but no laws to protect citizens from driver text-messengers.
- Forty-eight percent of teens---who are the most inexperienced drivers by age group---say that they have text-messaged while driving.
- Studies document widespread public support for laws banning cell phone use and texting while driving.
- Ohio is in the minority among other states who have enacted legislation banning cell phone use and/or texting while driving.
- In light of the State’s inaction, several Ohio municipalities have enacted their own legislation to ban cell phone use and/or text messaging while driving. Laws among these municipalities are somewhat dissimilar. Ohio commuters may not be aware of varying municipalities’ legal restrictions with regards to cell phone use and/or text messaging while driving.
- In states with legislation banning texting while driving, public awareness (media coverage on the new law) likely contributes to early success, but ongoing enforcement is the key to long-term compliance.
- Primary enforcement is more effective than secondary enforcement in motor vehicle violations.
- Traffic fines must be substantial enough to de-incentivize drivers from engaging in texting while driving behavior.

This paper may be disseminated freely. Questions regarding this paper should be directed to Nancie Bechtel at nbechtel@goodhealthcolumbus.org.

About the Author and Contributors

- Kenneth Buckwalter, RN, is a nurse at The Ohio State University Medical Center in Columbus, Ohio.
- Tim Erksine, EMTP, is Chief of Trauma Systems and Research, Division of EMS, Ohio Dept. of Public Safety.
- Amy Wermert, MPH, is the Injury Prevention Coordinator at Grant Medical Center in Columbus, Ohio and the Chairperson of the Ohio Injury Prevention Partnership.
- Nancie Bechtel, RN, BSN, MPH, CEN, EMTB is the Executive Director of the Central Ohio Trauma System (COTS). COTS is a 501(c)(3) who serves trauma stakeholders across Central Ohio. The COTS mission is to reduce injuries and save lives by improving and coordinating trauma care, emergency care, and disaster preparedness systems in Central Ohio. This paper was approved by e-mail consensus of the COTS Board on April 7, 2010.
Introduction

Distracted driving accounts for 1.2 million motor vehicle accidents annually in the U.S. (Stutts, 2003). The International Conference on Distracted Driving (2005) defines distracted driving in this way:

“Distraction involves a diversion of attention from driving, because the driver is temporarily focusing on an object, person, task, or event not related to driving, which reduces the driver’s awareness, decision-making, and/or performance, leading to an increased risk of corrective actions, near-crashes, or crashes.” (International Conference on Distracted Driving, 2005)

“Texting while driving” is one form of distracted driving. The act of texting can be defined as digitally using some sort of keyboard on a cell phone, laptop computer or other electronic device to send a conversational message to another individual or group, or to play a game on an electronic screen. Texting while driving is an especially hazardous activity when done by drivers. Studies show that the physical and mental acts of focusing eyes on an electronic screen to read printed material and/or manually typing a message on a keyboard---while engaging in a conversation or a game---require that the driver take his eyes off the road, remove his hand(s) from the steering wheel, and divert his conscious decision-making from the act of driving. This is clearly dangerous.

Yet every day, millions of drivers text while on their way to work, school, and other destinations. With recent high profile crashes highlighting the dangers of texting while driving, other states and the federal government are creating new policies and laws prohibiting this dangerous practice. Ohio does not currently have a law that addresses the problem of cell phone use or, more specifically, text messaging while driving.

This paper assembles much of the research done to date on cellular phone use and texting while driving. The overwhelming majority of scientific evidence supports that driving while distracted instigates a driver that is dangerous to himself, his passengers, other drivers and pedestrians. Some studies, also documented in this paper, indicate that driving performance while texting mimics that of a significantly intoxicated driver.

This paper compiles current laws regarding cell phone use and text messaging at the federal, state, and local levels. A sample Ohio law is suggested, along with recommendations and penalties.

The intent of this paper is two-fold. First, it is intended to help educate readers on the scientific findings that document the dangers of cell phone use and specifically texting while driving. The second intent of this paper is to spur stakeholders and legislators to support appropriate legislation targeting irresponsible drivers who choose distraction over driving while behind the wheel. Ohio legislation that bans texting while driving will prevent motor vehicle crashes and ultimately save lives.
Current Research

A literature review finds multiple citations that address components of cell phone use and texting while driving issues. Research included in this paper falls into four categories:

1) The incidence of drivers using cell phones/texting devices while driving as well as the incidence of texting as a cause for motor vehicle crashes;
2) Performance data regarding cell phone/texting device use while driving;
3) Result of legislation pertaining to cell phone/texting device use from other states; and
4) Public support for legislation banning cell phone and/or texting device use while driving.

The Incidence of Drivers Using Cell Phones/Texting Devices While Driving

The use of cell phones and texting devices is commonplace in our society. The exact incidence of cell phone/texting device use while driving can only be estimated. Similarly, the incidence of cause and effect between texting while driving and subsequent motor vehicle crashes is not known.

The following references indicate how frequently drivers’ engagement with a cell phone/texting device results in a motor vehicle crash.

An Examination of Driver Distraction as Recorded in NHTSA Databases (Ascone, Lindsey, & Varghese, 2009) found that:

“Driver distraction was reported to have been involved in 16 percent of all fatal crashes in 2008 according to data from the Fatality Analysis Reporting System (FARS). The age group with the greatest proportion of distracted drivers was the under-20 age group—16 percent of all under-20 drivers in fatal crashes were reported to have been distracted while driving. An estimated 21 percent of injury crashes were reported to have involved distracted driving, according to data from the General Estimates System (GES). Based on data from the National Motor Vehicle Crash Causation Survey (NMVCCS), a nationally representative survey, of the crashes in which the critical reason for the crash was attributed to the driver, approximately 18 percent involved distraction. During the 100-Car Naturalistic Driving Study, driver involvement in secondary tasks contributed to over 22 percent of all crashes and near-crashes recorded during the study period.”

Distractions in Everyday Driving (Stutts, 2003) found that:

“An estimated 1.2 million crashes occur each year in the U.S. because of distracted or inattentive drivers. With all of the many technologies that future vehicles will afford, learning how to safely manage current everyday distractions is of critical importance to the safety of our roadways.”

The following references indicate how frequently cell phones and/or texting devices are used by drivers in the U.S.

Passenger Vehicle Driver Cell Phone Use Results from the Fall 2000 National Occupant Protection Use Survey (Utter, 2001) found that:

“Nationally, overall hand-held cell phone use by drivers of passenger vehicles was estimated at 3 percent. This means that at any given time during daylight hours, about 3 percent of drivers of passenger cars, vans, SUVs, and pickups are actively using a cell phone...the highest National use rates were observed for drivers of vans and sport utility vehicles (SUVs)...Cell phone use by drivers was higher on weekdays than on weekends...overall cell phone use rates were slightly higher in
suburban areas than in rural areas (3.4 percent compared to 3 percent). Female drivers were observed using a cell phone more frequently than male drivers. Finally, use by drivers classified as “White” was higher than use by Black drivers or drivers of other races (3.7 percent compared to 2.3 and 1.7 percent, respectively)."

Driver Cell Phone Use in 2005 (Glassbrenner, 2005) found that:
“Driver cell phone use increased in 2005, with 6 percent of drivers on hand-held phones in 2005 nationwide compared to 5 percent in 2004. The 2005 rate translates into 974,000 vehicles on the road at any given daylight moment being driven by someone on a hand-held phone. It also translates into an estimated 10 percent of vehicles in the typical daylight moment whose driver is using some type of phone, whether hand-held or hands-free. The 2005 survey also found the following: Hand-held use increased in a number of driver categories, including female drivers (from 6 percent in 2004 to 8 percent in 2005), drivers age 16-24 (8 percent in 2004 to 10 percent in 2005), and drivers in suburban areas (4 percent in 2004 to 7 percent in 2005). The incidence of drivers speaking with headsets on while driving also increased in 2005, from 0.4 percent of drivers in 2004 to 0.7 percent in 2005. In the first nationwide probability-based estimate of the incidence of hand-held device manipulation, the survey found that 0.2 percent of drivers were dialing phones, checking PDAs, or otherwise manipulating some hand-held device while driving in 2005.”

Driver Hand-held Cellular Phone Use: A Four-year Analysis (Eby, Vivoda, & St. Liouisa, 2006) found that:
“Driver hand-held cellular phone use has more than doubled between 2001 and 2005, from 2.7% to 5.8%. This change represents an average increase of 0.78 percentage points per year. The 5.8% use rate observed in 2005 means that at any given daylight hour, around 36,550 drivers were conversing on cellular phones while driving on Michigan roadways. The trend line fitted to these data predicts that by the year 2010, driver hand-held cellular phone use will be around 8.6%, or 55,000 drivers at any given daylight hour... These results make it clear that cellular phone use while driving will continue to be an important traffic safety issue, and highlight the importance of continued attempts to generate new ways of alleviating this potential hazard.”

Driver Electronic Device Use in 2007 (Pickrell & Ye, 2008) found that:
“Hand-held cell phone use by drivers was up again to 6 percent in 2007 compared to 5 percent in 2006, and this increase in use occurred in many driver categories, including male drivers, female drivers, drivers age 25 to 69, drivers of all races, and drivers in all vehicle types. The 2007 rate translates into 1,005,000 vehicles on the road at any given daylight moment being driven by someone using a hand-held phone. It also translates into an estimated 11 percent of vehicles in the typical daylight moment whose driver is using some type of phone, either hand-held or hands-free. The 2007 survey also found the following: Hand-held cell phone use continued to be higher among 16- to 24-year-olds and lower among drivers 70 and older. About 1 percent of drivers 16 to 24 were visibly manipulating hand-held devices. The use of visible headsets while driving was still less than 1 percent.”

Observed Driver Phone Use Rates in Canada (Burns, Lécyuer, & Chouinard, 2008) found that:
“The observational survey recorded driver phone use rates at 2.8% for rural areas and 5.9% for urban areas. Phone use varied widely by urban community, with Alberta being highest (11.7%) and Nova Scotia the lowest (2.2%). Drivers aged 50 years and older (2.4%) were much less likely to use a cell phone while driving than drivers 25 to 49 years old (4.5%) and drivers under 25 years (6.7%). There were a slightly greater proportion of women (4.5%) than of men (4.0%) using a cell phone while driving. Cell phone users are more likely to be unbelted (10.8%) than those who are not using a cell phone while driving (8.1%). Observed cell phone use is also higher among light trucks and minivans/SUVs (respectively 5.0% and 4.8%) than in passenger cars (3.6%).”
**Driver Distraction: A Review of the Current State-of-knowledge** (Ranney, Garrott, & Goodman, 2008) found that:

“Although existing data is inadequate and not representative of the driving population, it is estimated that drivers engage in potentially distracting secondary tasks approximately 30 percent of the time their vehicles are in motion. Conversation with passengers is the most frequent secondary task followed by eating, smoking, manipulating controls, reaching inside the vehicle, and cell phone use...for the period between 1995 and 2003 it is estimated that 10.5 percent of crash-involved drivers were distracted at the time of their crash involvement. Approximately 70 percent of distracted drivers’ crashes were either non-collision (single-vehicle) or rear-end collisions. Although not representative of the U.S. experience, the available evidence suggests that cell phone use increases drivers’ crash risk by a factor of 4. Experimental studies consistently reveal driving performance degradation (primarily slowed response time) associated with cell phone use; however phone tasks used in these studies are generally unrealistic and often more complex than everyday phone conversations. Insufficient data exist to assess the distraction effects of in-vehicle information systems (IVIS), however experimental results suggest that voice-based interfaces are less distracting than those requiring manual entry (e.g., via keyboard). Standard behavioral countermeasures, including laws, enforcement, and sanctions, are considered unlikely to be effective because distraction is a broad societal problem associated with lifestyle patterns and choices.”

**Driver Electronic Device Use in 2008** (Pickrell & Ye, 2009) found that:

“The percentage of drivers visibly manipulating hand-held devices has reached 1 percent while the hand-held cell phone use by drivers stood at 6 percent in 2008...The 2008 hand-held cell phone use rate translates into 812,000 vehicles being driven by someone using a hand-held cell phone at any given daylight moment. It also translates into an estimated 11 percent of the vehicles whose drivers were using some type of phone (hand-held or hands-free) in the typical daylight moment. The 2008 survey also found the following: Hand-held cell phone use continued to be higher among 16 to 24-year-olds and lower among drivers age 70 and older. Hand-held cell phone use by drivers in the Western United States has increased from 6 percent in 2007 to 7 percent in 2008. The use of visible headsets while driving was still less than 1 percent. The percentage of drivers visibly manipulating hand-held devices in the West significantly increased from 0.6 percent in 2007 to 2.1 percent in 2008.”

**Large Majority of Drivers who Own Cell Phones use Them while Driving Even Though they Know this is Dangerous** (Harris Interactive, 2009) found that:

“72% of those who drive and own cell phones say they use them to talk while they are driving; Most of these people (66%) say they usually use hand-held rather than hands-free telephones to talk; Even in states that have banned the use of hand-held cell phones while driving, half (49%) of cell phone users use hand-held, rather than hands-free, phones; Only 2% of those who use cell phones while driving believe this is not dangerous at all. Most believe it is very dangerous (26%), dangerous (24%) or somewhat dangerous (33%); A 71% majority of those who use cell phones while driving believes that hands-free cell phones are safer than hand-held phones (even though some research suggest otherwise); Younger drivers are more likely than older drivers to talk on the phone while driving. Most (58%) “Matures” (people older than Baby Boomers, currently aged 64 or over) who drive and own cell phones say they do not use their cell phones while driving; and, A quarter of drivers with cell phones report using them to send or receive text messages while driving, although a large majority (74%) does not.”

**Driver Engagement in Distracting Activities and the Strategies Used to Minimize Risk** (Young & Lenné, 2010) found that:

“Almost 60% of drivers use a mobile phone while driving and over one third use the phone in hand-held mode. A high proportion of drivers use audio entertainment systems, but relatively few use in-vehicle visual displays such as DVD players. Driver engagement in non-technology-based activities, such as eating, drinking, smoking and reading is also prevalent. Young drivers (18–25 yrs) were
significantly more likely to report engaging in certain distracting activities, such as using a mobile phone, CD player and eating and drinking, than their middle-age (26–54 yrs) and older (55+ yrs) counterparts. Most drivers (84%) believe that their driving is less safe when engaged in distracting tasks and take steps to avoid distraction.”

*Teens and Distracted Driving: Texting, Talking and Other Uses of the Cell Phone Behind the Wheel* (Madden & Lenhart, 2009) found that:

“75% of all American teens ages 12-17 own a cell phone, and 66% use their phones to send or receive text messages. Older teens are more likely than younger teens to have cell phones and use texting; 82% of teens ages 16-17 have a cell phone and 76% of that cohort are cell texters. **One in three (34%) teens ages 16-17 say they have texted while driving.** That translates into 26% of all American teens ages 16-17. Half (52%) of cell-owning teens ages 16-17 say they have talked on a cell phone while driving. That translates into 43% of all American teens ages 16-17. **48% of all teens ages 12-17 say they have been in a car when the driver was texting. 40% say they have been in a car when the driver used a cell phone in a way that put themselves or others in danger.”

The 2009 *Traffic Safety Culture Index* (AAA Foundation for Traffic Safety, 2009) provides the following statistics:

- **“35% of drivers report that driving feels less safe today than it did five years ago. Distracted driving, mentioned by 31%, was the most often cited reason.** Other major reasons that respondents mentioned for feeling less safe driving today than five years ago included aggressive driving and/or road rage (20%) and speeding (15%).
- **When asked about their driving behavior in the past month:**
  - 67% of drivers reported talking on the cell phone while driving; including 28% who reported doing so fairly often or regularly.
  - 44% reported speeding 15 mph over the speed limit on freeways.
  - 29% reported driving through a light that had already turned red even though they could have stopped safely.
  - 27% reported tailgating another driver when they could have backed off.
  - 24% reported speeding 15 mph over the speed limit on residential streets.
  - **21% of drivers reported text messaging while driving.**
- **When asked about perceived threats to their safety:**
  - 90% rated people driving after drinking alcohol as a very serious threat to their safety.
  - 87% rated drivers text messaging or emailing as a very serious threat.
  - 79% rated drivers not paying attention as a very serious threat.
  - 70% rated aggressive driving as a very serious threat.
  - 58% rated drivers talking on cell phones as a very serious threat.
  - 56% rated speeding as a very serious threat.
- **When asked how acceptable they considered it to be for a driver to engage in various behaviors while driving, large majorities rated the behaviors as unacceptable, even after having already admitted to doing those things themselves. For example:**
  - **95% of drivers said that text messaging while driving was completely or somewhat unacceptable; 18% of those same drivers admitted having read or sent a text message or email while driving in the past month.**
  - 94% rated running red lights as unacceptable; 26% of those same drivers admitted having run a red light when they could have stopped safely.
  - 91% rated tailgating as unacceptable; 24% of those same drivers admitted having tailgated another driver when they could have backed off.
  - 95% rated driving 15 mph over the speed limit on a residential street as unacceptable; 21% of those same drivers admitted having done this.
Cognitive engagement while on a cell phone can divert drivers’ attention from the task of driving. Studies have shown that there is no advantage to hands-free versus hand-held cell phones. Texting while driving encompasses a potentially deadly triad. This triad is a combination of eyes off the road, hands off the (steering) wheel, and mind off the road. Some studies indicate that driving performance while texting mimics that of an intoxicated driver.

Using Wireless Communication Devices While Driving (National Highway Traffic Safety Administration, 2003) found that:

“Whether the vehicle is a small car or a large truck, there are many things that can distract the driver from his or her primary task --- getting to a destination safely. Those distractions come in many forms, from eating and drinking to conversations with others in the vehicle. While drivers must recognize that all distractions can be dangerous, wireless communication devices are a particularly unique and troublesome since they involve cognitive distraction. Research has consistently demonstrated that diversion of a driver's cognitive attention can seriously impair the ability to drive safely. And, the reality is, driver' performance can be compromised regardless of whether the device is hand-held or hands-free. Consequently, we recommend that drivers not use a cell phone while driving.”

Association between cellular telephone calls and motor vehicle collisions (Redelmeier & Tibshirani, 1997) found that:

“The risk of a collision when using a cellular telephone was four times higher than the risk when a cellular telephone was not being used... calls close to the time of the collision were particularly hazardous... and units that allowed the hands to be free (relative risk, 5.9) offered no safety advantage over hand-held units...”

Crashes Induced by Driver Information Systems and What Can Be Done to Reduce Them (Green, 2000) found that:

“Future in-vehicle information systems may overload drivers, compromising driving safety and product usability... From most to least frequent, tasks associated with crashes were receiving a call, dialing, talking (on a phone), looking at a (navigation) display and operating an interface (for navigation).”

Effects of Verbal and Spatial-Imagery Tasks on Eye Fixations While Driving (Recarte & Nunes, 2000) found that:

“The consequences of performing verbal and spatial-imagery tasks on visual search when driving were studied...Pupillary dilation indicated similar effort for each task. Visual functional-field size decreased horizontally and vertically, particularly for spatial-imagery tasks. Compared with ordinary driving, fixations were longer during the spatial-imagery task. With regard to driving performance, glance frequency at mirrors and speedometer decreased during the spatial-imagery task.”

Cell Phone Induced Perceptual Impairments During Simulated Driving (Strayer, Drews, & Johnston, 2003) found that:
“When subjects were deeply involved in cellular phone conversations using either a hand-held or hands-free device, they were more than twice as likely to miss simulated traffic signals presented at the center of fixation than when they were not distracted by the cell phone conversation...Implicit perceptual memory was strong when subjects were not engaged in a cell-phone conversation but impaired when they were so engaged. We suggest that active participation in a cell phone conversation disrupts performance by diverting attention to an engaging cognitive context other than the one immediately associated with driving.”

**Driven to Distraction: Dual-task Studies of Simulated Driving and Conversing on a Cellular Phone** (Strayer & Johnston, 2001) found that:

“Dual-task studies assessed the effects of cellular-phone conversations on performance of a simulated driving task...significant interference was observed in a word-generation variant of the shadowing task, and this deficit increased with the difficulty of driving. Moreover, unconstrained conversations using either a handheld or hands-free cell phone resulted in a twofold increase in the failure to detect simulated traffic signals and slower reactions to those signals that were detected. We suggest that cellular-phone use disrupts performance by diverting attention to an engaging cognitive context other than the one immediately associated with driving.”

**The Impact of Auditory Tasks (as in Hands-Free Cell Phone Use) on Driving Task Performance** (Insurance Corporation of British Columbia, 2001) found that:

“Listening and responding to relatively complex messages, as might occur when using a hands-free cellular telephone to conduct business or deal with important domestic issues, was found to significantly degrade driving performance in a series of driving tasks...Most importantly though, there was evidence that the problems associated with divided attention (driving and message attention/response) were exacerbated by adverse driving conditions. Attention to the secondary message task seemed to prevent the normal adjustment by drivers for potentially slippery road conditions in their decision-making. While it was not possible to make a direct connection to crash risk from the experimental results, the nature of the driving performance degradations measured in relation to the presence of the message task clearly point to potential safety-related problems associated with such things as phone use while driving – even if such use does not involve physical manipulation of the device.”

**Predicting the Effects of In-car Interface Use on Driver Performance: An Integrated Model Approach** (Salvucci, 2001) found that:

“The integrated model of dialing and driving made two main sets of rank-order predictions: (1) the full-manual interface had large significant effects on driver performance, the speed-manual interface had small significant effects, and the voice interfaces had no significant effect; (2) the speed-manual interface required the least time, followed by the speed-voice interface, the full-manual interface, and finally the full-voice interface. The empirical study of human drivers, while not supporting some of the model’s quantitative predictions, supported both sets of rank-order predictions with respect to the measures of dialing time and lateral position.”

**Speech-Based Interaction with In-Vehicle Computers: The Effect of Speech-Based E-Mail on Drivers’ Attention to the Roadway** (Lee, Caven, Haake, & Brown, 2001) found that:

“The results show that a speech-based interface is not a panacea that eliminates the distraction potential of in-vehicle information systems. A speech-based interface can distract drivers. The data show a 30% increase in reaction time and a large increase in subjective workload due to the cognitive demands of speech-based interaction. Although system complexity did not increase drivers’ reaction time, it did increase the subjective workload and perceived distraction. These results show that speech-based interaction draws upon the cognitive resources required for driving, leading to a 310 msec increase in the time it takes for drivers to react to an intermittently braking lead vehicle. This increase is comparable to the effect of cellular phone interactions; in a study with a similar car following task, reaction time increased by 385 msec for an expected event...and by 560
msec for an unexpected event…This analysis shows that a 300-msec meaningfully affect driving safety.”

Cell Phone Use (Monteressi, 2003) found that:
“The scientific studies reviewed for this document indicate that engagement in a cell phone conversation while driving significantly degrades driving performance and contributes to an increased risk of vehicular incidents.”

Driver Distraction: Evaluation with Event Detection Paradigm (Greenberg et al., 2003) found that:
“… it is clear that hand-held voicemail retrieval and hand-held phone dialing presented significant levels of distraction to the adult drivers. In particular, the large lane violation rate for the vmHH task is alarming and drivers who engage in this or similar tasks that require a large number of key presses on a hand-held phone would be well advised to stop their vehicles before proceeding. Hands-free incoming calls generated significant results in three of the five measures. The front event missed detection rate for this task was nearly the same as for hand-held dialing…Drivers were actually looking out the windshield and still failed to detect events occurring directly in front of their vehicle. We also note that this did not occur when answering incoming calls with the hand-held phone. Hand-held incoming calls were not innocuous, however. They were responsible for both heading errors and missed rear detection events, although at a level that was very similar to those seen while performing the climate control task. Hands-free dialing generated a significant number of missed front detection events. However it is important to remember that the majority of these missed events can be accounted for by the visual demand required to read the voicemail phone number affixed to the steering wheel. In the absence of these events the hands-free dialing task would not have generated a significant distraction result by any measure…Manual radio tuning was responsible for a large heading error, but not for lane violations. This indicates that the errors were transient and were quickly corrected before a large error in lane position could occur. The level of distraction indicated by the front and rear detection events did rise during radio tuning but not enough to reach statistical significance during this test. Finally, the hands-free voicemail retrieval task did not reach significance in any of the five distraction measures. The dramatic contrast between this result and the result for the same task performed with the hand-held phone is a powerful example of the benefits of a hands-free interface for specific applications…teen drivers exhibit behaviors that may place them at higher risk even when no distraction is present. The teens choose small following distances and time headways (1.3-seconds) that leave little room for error. They also generate relatively high heading errors, indicating that they have not fully learned the basics of vehicle control. The second effect on teen drivers is that distraction from the secondary tasks was more pronounced with this group. The lane violation rate for the hand-held voicemail task (vmHH) was 56% higher for teens than for adults (3.9 lane violations/hour for teens vs. 2.5 lane violations/hour for adults). The front missed event rate for the hand-held dialing task was even more dramatic: 53.8% for the teens and 13.6% for adults. The combination of poor judgment in following distance, poor vehicle control skills and more severe distraction seen in teen drivers is a serious cause for concern. Cellular phones, pagers and other devices are popular among teens. The results of this study indicate that, at a minimum, driver education curricula should be revised to address the use of communication technology while driving. The use of hand-held phones by teens, in particular, should be strongly discouraged.”

Fatal Distraction? A Comparison of the Cell-Phone Driver and the Drunk Driver (Strayer, Drews, & Crouch, 2003) found that:
“When drivers were conversing on either a hand-held or hands-free cell-phone, their reactions were sluggish and they attempted to compensate by driving slower and increasing the following distance from the vehicle immediately in front of them. By contrast, when drivers were legally intoxicated they exhibited a more aggressive driving style, following closer to the vehicle immediately in front of them and applying more force while braking. When controlling for driving difficulty and time on task, cell-phone drivers exhibited greater impairment than intoxicated drivers.”
The Inquiry into the Use of Mobile Phones and Other IT Systems While Driving” (Patten, Ceci, Malmstrom, & Rehnberg, 2003) found that:

“The inquiry has to date found no clear advantages in using hands-free mobile phone systems while driving. What is clear is that it is the conversation and its complexity per se that give rise to adverse changes in the driver’s ability to drive due to increased mental workload and distraction, rather than the type of phone system being used. We are therefore unable to suggest requirements on handsfree systems for mobile phones, as there is no scientific evidence to support the idea that they would lead to an improvement in road traffic safety.”

Wireless telephones and the risk of road crashes (Laberge-Nadeau et al., 2003) found that:

“The relative risk of all accidents and of accidents with injuries is higher for users of cell phones than for non-users. The relative risks (RR) for injury collisions and also for all collisions is 38% higher for men and women cell phone users. These risks diminish to 1.1 for men and 1.2 for women if other variables, such as the kilometres driven and driving habits are incorporated into the models. Similar results hold for several sub-groups. The most significant finding is a dose-response relationship between the frequency of cell phone use, and crash risks. The adjusted relative risks for heavy users are at least two compared to those making minimal use of cell phones; the latter show similar collision rates as do the non-users.”

Effects of Cellular Telephones on Driving Behaviour and Crash Risk: Results of Meta Analysis (Caird, Scialfa, Ho, & Smiley, 2004) found that:

“Epidemiological findings consistently showed an increase in crashes associated with use of cell phones. However, these studies did not control for exposure to cell-phone use or to driving. A meta-analysis of performance studies showed that conversation on cell phones, either handheld or hands-free, was associated with deterioration in driving performance. Differences in findings were evident among computer-based studies, driving simulator studies and on-road studies, with the strongest effects found for the first of these. Based on the available data, performance did not differ between hand-held and hands-free cell phones. More study is needed of the former, which are more widely used. With respect to age effects, older drivers are more likely to be at risk of a crash because of further decrements in already slowed reaction time. However, they are also less likely than younger drivers to be regular users of cell phones while driving.”

Effects of Passenger and Cellular Phone Conversations on Driver Distraction (Laberge, Scialfa, White, & Caird, 2004) found that:

“The results indicated that lane and speed maintenance were influenced by increased driving demands. Response times to a pedestrian incursion increased when the driver was driving and talking compared with those detected when the driver was not talking at all. Contrary to what some researchers have assumed, there was little practical evidence that passengers adjusted their conversations to changes in the traffic environment. The workload was rated higher when the driver was driving and talking and was also rated higher by drivers than by non-drivers.”

Hand-Held or Hands-Free? The Effects of Wireless Phone Interface Type on Phone Task Performance and Driver Preference (Mazzae, Ranney, Watson, & Wightman, 2004) found that:

“Results showed that in most cases participants overestimated the ease of use afforded by hands-free phone interfaces. In general, participants considered the hand-held interface to be most difficult to use, followed by the headset hands-free and voice dialing hands-free interfaces, respectively. However, significant differences among interfaces were evident for dialing and hanging up. The hand-held interface was associated with the fewest dialing errors and significantly faster dialing times than the two hands-free interfaces for all three age groups. Findings concerning the time taken to dial and answer are directly applicable to real world driving since a real phone connection was used in the study. No differences were found among interface conditions in phone conversation task performance, including judgments about the sentences and recall of sentence subjects or objects.”
Mobile Telephone Simulator Study (Kircher et al., 2004) found that:
“Mobile phone conversation while driving caused increased mental workload...Drivers tried to compensate for the increased workload caused by phone conversation by slowing down and by increasing the headway to a lead vehicle in car following. The decreased variation in lateral position might also be interpreted as attempts to compensate. It cold, however, just as well be an effect of the steering becoming less prioritized and in this way becoming more or less “locked” during the phone conversation...The dialing part of a mobile phone call appeared to have more negative consequences from a safety point of view – even though drivers tried to compensate for the increased workload by slowing down, their variation in lateral position increased...Hands free and mobile phone use had similar effects on driving performance...Receiving SMS messages while driving had large negative effects on brake reaction time. The effects of a short SMS message are, however, expected to depend to a significant extent on the strategy for reading the message...”

Profiles in Driver Distraction: Effects of Cell Phone Conversations on Younger and Older Drivers (Strayer & Drews, 2004) found that:
“...the effects of hands-free cell phone conversations on simulated driving. We found that driving performance of both younger and older adults was influenced by cell phone conversations. Compared with single-task (i.e., driving only) conditions, when drivers used cell phones their reactions were 18% slower, their following distance was 12% greater, and they took 17% longer to recover the speed that was lost following braking. There was also a twofold increase in the number of rear-end collisions when drivers were conversing on a cell phone.”

Using Mobile Telephones: Cognitive Workload and Attention Resource Allocation (Patten, Kircher, Ostlund, & Nilsson, 2004) found that:
“We compared effects of conversation type (simple versus complex) and telephone mode (hands-free versus handheld) to baseline conditions. The participants’ reaction times increased significantly when conversing but no benefit of hands-free units over handheld units on rural roads/motorways were found. Thus, in regard to mobile telephones, the content of the conversation was far more important for driving and driver distraction than the type of telephone when driving on a motorway or similar type of road. The more difficult and complex the conversation, the greater the possible negative effect on driver distraction.”

Driver Distraction in Long-haul Truck Drivers (Hanowski, Perez, & Dingus, 2005) found that:
“Crash, near-crash, and crash-relevant conflict data from 41 long-haul truck drivers, driving approximately 140,000 miles, were examined. Of the 2737 crashes, near-crashes, and crash-relevant conflicts (collectively termed “critical incidents”) that were recorded, 178 were attributed to “driver distraction”. The 178 distraction-related critical incidents were analyzed and 34 unique distraction types were identified...The frequency and duration of a task, along with the visual demand associated with performing the task, were found to contribute in combination to the prevalence of critical incidents. Finally, it was found that simply because a task does not necessarily require visual attention does not mean that long-haul drivers will not look (sometimes often) away from the roadway. However, it is also clear that visually demanding tasks carry the highest degree of risk, relative to other categories of tasks.”

Driving Performance During Cell Phone Conversations and Common In-vehicle Tasks While Sober and Drunk (Rakauskas, Ward, Bernat, Cadwallader, & De Waard, 2005) found that:
“The results indicated that during a car following scenario, drivers engaged in the conversations or completing in-vehicle tasks were more impaired than drivers that were not involved in any distraction task. Indeed, both the cell phone and in-vehicle sources of distraction were generally more impairing than intoxication at the legal limit.”
A Meta-analysis of Driving Performance and Crash Risk Associated with the Use of Cellular Telephones While Driving (Caird, Scialfa, Ho, & Smiley, 2005) found that:
“Epidemiological findings consistently showed an increase in crashes associated with use of cell phones. However, these studies did not control for exposure to cell phone use or to driving. The negative impact of cell phone usage is larger for responses to critical events than for vehicular control. Drivers responded about a quarter of a second later to stimuli in the presence of a cell phone distracter for all studies that were analyzed. Hands-free cell phones produced similar performance decrements to hand-held phones.”

Mobile Phone Use—Effects of Handheld and Hands-free Phones on Driving Performance (Törnros & Bolling, 2005) found that:
“Performance on a peripheral detection task (PDT) while driving was impaired by dialing and conversation for both phone modes, interpreted as an increase in mental workload. Driving performance was impaired by dialing—lateral position deviation increased in a similar way for both phone modes. Conversation had, however, opposite effects—lateral position deviation decreased in a similar way for both phone modes. Driving speed decreased as an effect of dialing with the greatest effect for hands-free phone mode. Conversation also caused reduced speed, but only for handheld phone mode. The effects on speed can be interpreted as a compensatory effort for the increased mental workload. In spite of the compensatory behavior, mental workload was still markedly increased by phone use.”

Role of Mobile Phones in Motor Vehicle Crashes Resulting in Hospital Attendance: A Case-crossover Study (McEvoy et al., 2005) found that:
“Driver’s use of a mobile phone up to 10 minutes before a crash was associated with a fourfold increased likelihood of crashing (odds ratio 4.1, 95% confidence interval 2.2 to 7.7, P<0.001). Risk was raised irrespective of whether or not a hands-free device was used (hands-free: 3.8, 1.8 to 8.0, P<0.001; hand held: 4.9, 1.6 to 15.5, P=0.003). Increased risk was similar in men and women and in drivers aged 30 and <30 years. A third (n=21) of calls before crashes and on trips during the previous week were reportedly on hand held phones...When drivers use a mobile phone there is an increased likelihood of a crash resulting in injury. Using a hands-free phone is not any safer.”

The 100-Car Naturalistic Driving Study, Phase II — Results of the 100-Car Field Experiment (Dingus et al, 2006) found that:
“...Almost 80 percent of all crashes and 65 percent of all near-crashes involved the driver looking away from the forward roadway just prior to the onset of the conflict. Prior estimates related to "distraction" as a contributing factor have been in the range of 25 percent. Inattention, which was operationally defined as including: (1) secondary task distraction, (2) driving-related inattention to the forward roadway (e.g., blind spot checks), (3) moderate to extreme drowsiness, and (4) other non-driving-related eye glances, was a contributing factor for 93 percent of the conflict with lead vehicle crashes and minor collisions. In 86 percent of the lead vehicle crashes/collisions, the headway at the onset of the event was greater than 2.0 seconds... The rate of inattention-related crash and near-crash events decreases dramatically with age, with the rate being as much as four times higher for the 18- to 20-year-old age group relative to some of the older driver groups (i.e., 35 and up). The use of hand-held wireless devices (primarily cell phones but including a small amount of PDA use) was associated with the highest frequency of secondary-task distraction-related events. This was true for both events of lower severity (i.e., incidents) and for events of higher severity (i.e., near-crashes). Wireless devices were also among the categories associated with the highest frequencies of crashes and minor collisions, 350 along with looking at/reaching for an object in vehicle and passenger-related secondary tasks...”

Assessing Driver Distraction from Cell Phone Use: A Simulator-based Study (Schattler, Pellerito, McAvoy, & Tapan, 2006) found that:
“...results indicated that when cell phones were used while driving, subject performance scores were significantly lower, average speeds significantly slower, and proportions of improper lateral placement observed significantly higher. In addition, twice as many crashes (also statistically significant) were observed when subjects used cell phones while driving as were observed under the control condition. In this controlled laboratory experiment, the distraction caused by answering a call and engaging in a conversation on a hand-held cell phone significantly degraded driving performance.”

**A Comparison of the Cell-phone Driver and the Drunk Driver** (Strayer, Drews, & Crouch, 2006) found that: “When driving conditions and time on task were controlled for, the impairments associated with using a cell phone while driving can be as profound as those associated with driving while drunk.”

**Driving Performance While Using Cell Phones: An Observational Study** (Rosenbloom, 2006) found that: “T-test for matched samples revealed that the gaps between the drivers’ cars and those in front of them diminished when drivers were engaged in the cell phone conversations. Repeated measures ANOVA revealed that drivers that had short conversations did not change their speed, while drivers who were engaged in long (over 16 minutes) conversations drove faster. No effect of drivers’ awareness toward cell phone-related disturbance on actual driving behavior monitored in the present study was found.”

**The Effects of Text Messaging on Young Novice Driver Performance** (Hosking, Young, & Regan, 2006) found that: “...The results revealed that retrieving and, in particular, sending text messages had a detrimental effect on a number of safety critical driving measures. When text messaging, drivers’ ability to maintain their lateral position on the road and to detect and respond appropriately to traffic signs was significantly reduced. In addition, drivers spent up to 400 percent more time with their eyes off the road when text messaging, than when not text messaging. While there was some evidence that drivers attempted to compensate for being distracted by increasing their following distance when following a lead vehicle, drivers did not reduce their speed while distracted...”

**Engrossed in Conversation: The Impact of Cell Phones on Simulated Driving Performance** (Beede & Kass, 2006) found that: “Performance was significantly impacted in all four categories when drivers were concurrently talking on a hands-free phone. Performance on the signal detection task was poor and not significantly impacted by the phone task, suggesting that considerably less attention was paid to detecting these peripheral signals. However, the signal detection task did interact with the phone task on measures of average speed, speed variability, attention lapses, and reaction time. The findings lend further empirical support of the dangers of drivers being distracted by cell phone conversations.”

**The Impact of Distraction Mitigation Strategies on Driving Performance** (Donmez, Boyle, & Lee, 2006) found that: “Distraction was a problem for both age groups. Visual distractions were more detrimental than auditory ones for curve negotiation, as depicted by more erratic steering, F(6, 155) = 26.76, p < .05. Drivers did brake more abruptly under auditory distractions, t(155) = 8.37, p < .05, and locking strategies, t(155) = 8.49, p < .05. The locking strategy also resulted in longer minimum time to collision for middle-aged drivers engaged in visual distractions, F(6, 138) = 2.43, p < .05.”

**The Impact of Driver Inattention on Near-crash/Crash Risk: An Analysis Using the 100-car Naturalistic Driving Study Data** (KlaUSER Dingus, Neale, Sudweeks, & Ramsey, 2006) found that: “The results indicated that driving while drowsy results in a four- to six-times higher near-crash/crash risk relative to alert drivers. Drivers engaging in visually and/or manually complex tasks have a
three-times higher near-crash/crash risk than drivers who are attentive. There are specific environmental conditions in which engaging in secondary tasks or driving while drowsy is more dangerous, including intersections, wet roadways, and areas of high traffic density. Short, brief glances away from the forward roadway for the purpose of scanning the driving environment are safe and actually decrease near-crash/crash risk. Even in the cases of secondary task engagement, if the task is simple and requires a single short glance the risk is elevated only slightly, if at all. However, glances totaling more than 2 seconds for any purpose increase near-crash/crash risk by at least two times that of normal, baseline driving.”

The Impact of Secondary Task Cognitive Processing Demand on Driving Performance (Blanco, Bievera, Gallaghera, & Dingus, 2006) found that:
“The experiments showed that, for both presentation modalities, the presence of multiple decision-making elements in a task had a substantial negative impact on driving performance of both automobile drivers and truck drivers when compared to conventional tasks or tasks with only one decision-making element.”

Analysis of the Literature: The Use of Mobile Phones While Driving (Brace, Young, & Regan, 2007) found that:
“The research reviewed indicates that use of a mobile phone can have a significant impact on a number of safety-critical driving performance measures. Using a mobile phone while driving can distract drivers visually, physically, and/or cognitively. Research to date shows a four-fold increase in crash risk with mobile phone use, regardless of hand-held or hands-free mobile phone application. In particular, the distraction caused by conversing on mobile phones while driving has been shown to impair a driver’s ability to maintain an appropriate speed, throttle control and lateral position on the road. It can also impair driver’s visual search patterns, reaction times, and decision making processes. Moreover, these impairments have been demonstrated for both hand-held and hands-free phones, refuting the belief held by many drivers that conversing on hands-free phones is safer than conversing on hand-held phones.”

Driving Without a Clue: Evaluation of Driver Simulator Performance During Hands-free Cell Phone Operation in a Work Zone (Muttart, Fisher, Knodler, & Pollatsek, 2007) found that:
“Drivers not engaged in a cell phone task were able to reduce their speed earlier in response to a slowing lead vehicle than were drivers engaged in the cell phone task. Drivers on the cell phone were also more likely to brake hard and less likely to make a mirror glance when changing lanes. The results strongly suggest that cell phone use reduces driver awareness and will increase the two major types of crashes in work zone activity areas, which are rear end and sideswipe collisions.”

Safety Implications of Providing Real-time Feedback to Distracted Drivers Donmez, Boyle, & Lee, 2007) found that:
“Distraction was observed as problematic for both age groups with delayed responses to a lead vehicle-braking event as indicated by delayed accelerator releases. Significant benefits were not observed for braking and steering behavior for this experiment, but there was a significant change in drivers’ interaction with IVIS. When given feedback on their distracted state, drivers looked at the in-vehicle display less frequently regardless of where feedback was displayed in the vehicle. This indicates that real-time feedback based on the driver state can positively alter driver’s engagement in distracting activities, helping them attend better to the roadway.”

Cell Phones and Driving: Research Update (AAA Foundation for Traffic Safety, 2008) found that:
“Studies using driving simulators have found that using a cell phone while driving significantly impairs several aspects of driving performance, principally reaction time. Studies of the cell phone records of crash-involved drivers suggest that using a cell phone while driving is associated with roughly a quadrupling of crash risk. Two out of every three drivers believe that using a hands-free cell phone while driving is safer than using a hand-held phone; however, the overwhelming majority of available
Evidence suggests that it is not. Over half of all drivers admit using a cell phone while driving at least occasionally; 16–17% report doing so regularly. Younger people report higher levels of cell phone use while driving than older people do; however, the proportion of drivers aged 35 to 44 who report using cell phones while driving is not significantly lower than the proportion of drivers ages 18 to 24 who report doing so. **One in seven drivers admits to text messaging while driving. Younger people are overwhelmingly more likely than older people to text message while driving—nearly half of survey respondents aged 18 to 24 admit doing so**, whereas fewer than 5% of drivers aged 45 and older admit doing so. More than four out of five drivers rate drivers using cell phones as a serious or extremely serious traffic safety problem, over half say that it is unacceptable, and one in seven even mention reducing or eliminating driver cell phone use in an open-ended question seeking ideas for ways to prevent motor vehicle crashes. Drivers who express these attitudes are less likely than average to report using a cell phone while driving; however between 29% and 46% of these same drivers report that they themselves have used a cell phone while driving at least occasionally in the past month."

**Combined Effects of Alcohol and Distraction on Driving Performance** (Rakauskas et al, 2008) found that: "Distraction tasks produced more changes in driving behavior than did alcohol for both longitudinal (primary) and lateral (secondary) driving goals. Alcohol impairment was evident only in relation to lateral driving performance, however there was an amplification of impairment when alcohol and distraction conditions were combined. Distraction resulted in a general level of impairment across all driving goals, whereas participants with alcohol appeared to shed secondary driving goals to “protect” primary driving goals. Drivers’ strategies to cope with alcohol (and distraction) may not be sufficient to offset the increased crash risk.”

**A Decrease in Brain Activation Associated with Driving When Listening to Someone Speak** (Just, Keller, & Cynkar, 2008) found that: "Participants steered a vehicle along a curving virtual road, either undisturbed or while listening to spoken sentences that they judged as true or false. The dual-task condition produced a significant deterioration in driving accuracy caused by the processing of the auditory sentences. At the same time, the parietal lobe activation associated with spatial processing in the undisturbed driving task decreased by 37% when participants concurrently listened to sentences. The findings show that language comprehension performed concurrently with driving draws mental resources away from the driving and produces deterioration in driving performance, even when it does not require holding or dialing a phone.”

**The Effect of Text Messaging on Driver Behavior: A Simulator Study** (Reed & Robbins, 2008) found that: "Participants were impaired in their performance when reading and writing text messages, particularly reaction time and ability to maintain lateral vehicle control. Reaction times were around 35% slower when writing a text message. Earlier studies at TRL showed that alcohol consumption to the legal limit caused a 12% reaction time increase; cannabis slowed reaction times by 21%. When texting, drivers slowed significantly, indicating that they recognized the impairment, attempting to mitigate risk by reducing speed. However, greater lateral variability in lane position and drifting into adjacent lanes when texting are not mitigated by speed reduction and would lead to potential conflict with other traffic. Female drivers showed greater variability in lateral lane position when texting than male drivers. However, female participants tended to show greater speed reductions indicating that they may have had greater awareness that their driving was impaired. This study highlighted that when texting, a driver may present a greater accident risk than when at the legal limit for alcohol consumption or when under the influence of cannabis, reinforcing that drivers should refrain from this dangerous activity.”

**Mobile Telephones, Distracted Attention, and Pedestrian Safety** (Nasar, Hecht, & Wener, 2008) found that: "In two studies, we examined distraction of pedestrians associated with mobile phone use. The first had 60 participants walk along a prescribed route, with half of them conversing on a mobile phone,
and the other half holding the phone awaiting a potential call, which never came. Comparison of the performance of the groups in recalling objects planted along the route revealed that pedestrians conversing recalled fewer objects than did those not conversing. The second study had three observers record pedestrian behavior of mobile phone users, i-pod users, and pedestrians with neither one at three crosswalks. Mobile phone users crossed unsafely into oncoming traffic significantly more than did either of the other groups. For pedestrians as with drivers, cognitive distraction from mobile phone use reduces situation awareness, increases unsafe behavior, putting pedestrians at greater risk for accidents, and crime victimization."

*Telephone Conversation Impairs Sustained Visual Attention Via a Central Bottleneck* (Kunar, Carter, Cohen, & Horowitz, 2008) found that:

“In Experiment 1, participants conversed on a telephone or listened to a narrative while engaged in multiple object tracking (MOT), a task requiring sustained visual attention. We found that MOT was disrupted in the telephone conversation condition, relative to single-task MOT performance, but that listening to a narrative had no effect. In Experiment 2, we asked which component of conversation might be interfering with MOT performance. We replicated the conversation and single-task conditions of Experiment 1 and added two conditions in which participants heard a sequence of words over a telephone. In the shadowing condition, participants simply repeated each word in the sequence. In the generation condition, participants were asked to generate a new word based on each word in the sequence. Word generation interfered with MOT performance, but shadowing did not. The data indicate that telephone conversation disrupts attention at a central stage, the act of generating verbal stimuli, rather than at a peripheral stage, such as listening or speaking.”

*Driver Distraction in Commercial Vehicle Operations* (Olson, Hanowski, Hickman, & Bocanegra, 2009) found that:

“Key findings were that drivers were engaged in non-driving related tasks in 71 percent of crashes, 46 percent of near-crashes, and 60 percent of all safety-critical events. Also, performing highly complex tasks while driving lead to a significant increase in risk. Eye glance analyses examined driver eye location while performing tasks while operating a CMV. Tasks associated with high odds ratios (increased risk) were also associated with high eyes off forward road times. This suggests that tasks that draw the driver’s visual attention away from the forward roadway should be minimized or avoided.”

*Driver-initiated Distractions: Examining Strategic Adaptation for In-vehicle task Initiation* (Horrey & Lesch, 2009) found that:

“Drivers were asked to perform one of four in-vehicle tasks (e.g., phone conversation; read a text message; find an address; pick up an object on the floor); however, they were free to decide when to initiate these tasks, provided they finish them before a given deadline. Although drivers were fully aware of the relative demands of the road, they did not tend to strategically postpone tasks—a finding that was consistent across the different tasks (p > .05). Rather, drivers tended to initiate tasks regardless of the current driving conditions. This strategy frequently led to driving errors. Given the control that drivers have over many in-vehicle distractions, interventions that focus on strategic decisions and planning may have merit.”

*Is a Hands-free Phone Safer than a Handheld Phone?* (Ishigami & Klein, 2009) found that:

“Our review shows that talking on the phone, regardless of phone type, has negative impacts on performance especially in detecting and identifying events. Performance while using a hands-free phone was rarely found to be better than when using a handheld phone. Some studies found that drivers compensate for the deleterious effects of cell phone use when using a handheld phone but neglect to do so when using a hands-free phone.”
Some data has also been provided describing a relationship between cell phone use and the concomitant non-use of seat belts. This combination exacerbates the risk of injury and death from driving distracted by a cell phone and/or texting device.

*Risky Driving: Relationship between Cellular Phone and Safety Belt Use* (Eby, Kostyniuk, & Vivoda, 2003) found that:

“Safety belt use rates of drivers using and drivers not using hand-held cellular phones were compared. The study found that safety belt use for drivers using a hand-held cellular phone was significantly lower than for drivers not using cellular phones. This same significant relationship was found within nearly all demographic categories analyzed. The logistic regression model showed that the odds of a hand-held cellular phone user not using a safety belt was 1.77 times that of a driver not using a cellular phone. These results stress the importance of the public health issue posed by cellular phone use; not only are those who are conversing on cellular phones potentially more likely to be in a motor vehicle crash, they are also more likely to sustain greater injury due to the lack of safety belt use.”

**Result of Legislation Pertaining to Cell Phone/Texting Device Use from Other States**

Thirty-four other states and a number of municipalities in Ohio have enacted laws banning cell phone use and/or texting while driving. A few states have published retrospective data describing the efficacy of such laws on decreasing cell phone/texting device use by drivers. Diligent law enforcement with penalty may be a significant component of long-term compliance. No studies were found relating compliance rates with motor vehicle crash rates in any of the states/municipalities that had these laws.

*Longer-term Effects of Washington, DC, Law on Drivers’ Hand-held Cell Phone Use* (McCartt & Hellinga, 2007) found that:

“The rate of talking on hand-held phones declined significantly from 6.1 percent before the law to 3.5 percent shortly after; when measured 1 year later, use was 4.0 percent, still significantly lower than baseline. Based on increases in rates of talking on hand-held phones in Maryland and Virginia, longer-term phone use in DC was estimated to be 53 percent lower than would have been expected without the ban. Declines in DC were identified for drivers of vehicles registered in all three jurisdictions. CONCLUSIONS: In DC, there was an initial decline of about 50 percent in drivers talking on hand-held cell phones following a ban, and this decline was sustained about 1 year later. After a similar ban in New York, there was an initial decline in phone use comparable with the initial decline in DC, but the decline a year after the New York ban took full effect was only about 21 percent and not statistically significant. The potential difference in sustained effectiveness for the DC ban may reflect tougher enforcement in DC. Even if full compliance with hand-held phone bans can be achieved, the risks from drivers’ use of hands-free phones will remain.”

*Effects of Washington, D.C. Law on Drivers’ Hand-held Cell Phone Use* (McCartt, Hellinga, & Geary, 2006) found that:

“The rate of talking on hand-held cell phones among drivers in D.C. declined significantly from 6.1% before the law to 3.5% after. Phone use declined slightly in Maryland and increased significantly in Virginia so that, relative to the patterns of hand-held phone use in the two states, phone use in D.C. declined 50%. Hand-held phone use in D.C. declined comparably among drivers of vehicles registered in all three jurisdictions. D.C. police issued 2,556 citations and 1,232 warnings for cell phone violations during July-November 2004. There were spates of media coverage when the law was passed and when it took effect...D.C.’s law prohibiting drivers’ hand-held phone use had a strong effect on such use among drivers in D.C. Without ongoing publicized enforcement of the law, long-term compliance may be difficult to achieve.”
Drivers' Use of Handheld Cell Phones Before and After New York State’s Cell Phone Law (McCartt, Braver, & Geary, 2003) found that:

“The use rate in New York declined significantly from 2.3% before the law to 1.1% after the law (P < 0.05). Use rates in Connecticut, an adjacent state without a law, did not change. In both states, use was higher among drivers of sport utility vehicles (P < 0.05) and minimal among drivers ages 60 or older. In New York, observed use declined among drivers younger than 60, male and female drivers, and all vehicle types...A well-publicized law restricting drivers’ use of handheld cell phones had a strong effect on behavior. Whether compliance will remain high is unknown.”

Insurance Institute for Highway Safety Status Report --- Phoning While Driving (Insurance Institute for Highway Safety, 2009) found that:

“So it’s a good time to step back and consider whether laws that ban driver phoning and texting make sense. A key question is whether such laws succeed in changing patterns of driver cell phone use. Institute researchers recently conducted a new round of observations of driver use of hand-held phones in 3 jurisdictions where the practice is banned. The findings, along with results of previous studies (see Status Report, Aug. 26, 2003; on the web at iihs.org), reveal differing effects. In the District of Columbia, the proportion of drivers using hand-held phones dropped by about half immediately after a ban took effect in 2004. Nearly 5 years later use has edged up a little, but the decline is largely holding relative to nearby Virginia and Maryland. The story is different in New York, the first US state to prohibit drivers from using hand-held phones in 2001. Connecticut enacted a ban in 2005. Comparing trends in these states over time, researchers found immediate effects of both laws. Cell phone use declined an estimated 76 percent in Connecticut and 47 percent in New York. But then use began going back up... “What’s clear from the surveys, despite some variability in their findings, is that bans on hand-held phoning while driving can have big and long-term effects, but the safety implications still aren’t clear,” says Institute president Adrian Lund. “Many drivers still use their hand-held phones, even where it’s banned, and other drivers simply switch to hands-free phones, which doesn’t help because crash risk is about the same, regardless of phone type.”

Cell Phones and Driving: Review of Research (McCartt, Hellenga, & Braitman, 2006) found that:

“Even if total compliance with bans on drivers' hand-held cell phone use can be achieved, crash risk will remain to the extent that drivers continue to use or switch to hands-free phones. Although the enactment of laws limiting drivers’ use of all phones is consistent with research findings, it is unclear how such laws could be enforced. At least in the short term, it appears that drivers' phone use will continue to increase, despite the growing evidence of the risk it creates. More effective countermeasures are needed but are not known at this time.”

Public Support for Legislation Banning Cell Phone/Texting Device Use While Driving

Some national studies document widespread public support for legislation banning cell phone/texting device use while driving. No specific study has surveyed Ohio independently.

Nationwide’s Third Annual Driving While Distracted Survey (Nationwide Insurance, 2009) found:

“A new On Your Side® Survey by Nationwide verifies with concrete data the general assumption that there is strong public support for legislation to restrict cell phone usage while driving. The results of the new survey show there are varying degrees of support for different types of restrictions. 8 in 10 drivers support some type of cell phone usage restriction. The majority of respondents say they are supportive of laws restricting any type of cell phone use while driving. 80 percent respondents support a ban on text messaging while driving. 80 percent of respondents support a ban on e-mailing while driving. Two thirds (67 percent) of respondents say they are supportive of laws restricting phone calls while driving. Of those who supported enacting some type of cell phone usage restriction, nearly 3 in 4 believed the law should apply to all drivers, not just specific groups. Survey
respondents perceive a growth in distracted driving behavior on the roads, underscoring the ongoing need for increased public education to raise awareness of the dangers caused by distracted drivers. More than half of respondents say they see more drivers using cell phones while driving than they did 12 months ago. Nearly three-quarters of respondents said that when they drive, they always or often see other drivers using cell phones. The survey results also bolster Nationwide’s position that legislation alone will not eliminate distracted driving. The development of technology that prevents cell phone usage in moving vehicles must be part of the solution to address the driving habits of survey respondents who indicated that a new law would not change their personal driving habits, including those who plan to resist changes in the law and those who are in denial about their current bad habits. Survey data suggests that some drivers may now be in denial about their personal DWD problem. Others may simply prefer not to admit that they DWD because they are aware of its inherent dangers. Nearly half (49%) of drivers said a law restricting use of cell phones would not change their behavior because they don’t currently use cell phones while driving. Survey data also suggests that some drivers may resist a change in the law. In the new survey, only 41 percent of respondents said their behavior would change if cell phone usage were restricted by law. 9 percent of respondents said they would continue to use a cell phone regardless of a change in the law, with Generation Y most likely to resist the change (13 percent). The 2008 survey found that only 63% of drivers planned to abide by laws prohibiting cell phone usage. Experts agree that the success of DWD legislation will rely on our ability to enforce new laws, which has been a challenge. Historically, communities with new DWD bans have experienced an initial dip in behavior, followed by a rebound when the public begins to perceive that the law has not been enforced effectively. The survey reports that 80 percent of drivers surveyed are in support of some type of legislation to restrict cell phone use while driving.”


“Ninety-seven percent support the prohibition of texting while driving, an unusual level of agreement for any topic. Eighty percent also support a ban on talking on a hand-held cell phone while driving. Fifty percent said the punishment for texting while driving should be just as severe as for drunken driving. An additional 2 percent said those who text while driving should be penalized even more rigorously than those who drink and drive. Forty-three percent said motorists who text should not be treated like drunken drivers. Eighty percent said using a hand-held cell phone while driving should be illegal, up from 69 percent in a 2001 ABC News poll. Seventy percent have no problem with drivers who use a hands-free phone while behind the wheel, a view unchanged from what ABC News found in 2001. Two-thirds of those surveyed in the recent poll said it was safer to talk and drive using a hands-free cell phone, and almost 9 in 10 of them said the practice should be legal."
Current Laws

Federal Level

Several federal level initiatives demonstrate support for a text messaging ban across the U.S. The President of the United States signed an executive order in October of 2009 regarding distracted driving. Some highlights include:

“Federal employees shall not engage in text messaging (a) when driving GOV, or when driving POV while on official Government business, or (b) when using electronic equipment supplied by the Government while driving.” (President Obama, 2009)

“All agencies of the executive branch are directed to take appropriate action within the scope of their existing programs to further the policies of this order and to implement section 2 of this order. This includes, but is not limited to, considering new rules and programs, and reevaluating existing programs to prohibit text messaging while driving, and conducting education, awareness, and other outreach for Federal employees about the safety risks associated with texting while driving. These initiatives should encourage voluntary compliance with the agency's text messaging policy while off duty.” (President Obama, 2009)

“Each Federal agency, in procurement contracts, grants, and cooperative agreements, and other grants to the extent authorized by applicable statutory authority, entered into after the date of this order, shall encourage contractors, subcontractors, and recipients and subrecipients to adopt and enforce policies that ban text messaging while driving company-owned or -rented vehicles or GOV, or while driving POV when on official Government business or when performing any work for or on behalf of the Government.” (President Obama, 2009)

The U.S. Transportation Secretary Ray LaHood announced a federal ban on texting for the drivers of interstate buses and trucks over 10,000 pounds in January of 2010. It provides for civil or criminal penalties of up to $2750. (United State Department of Transportation, 2010)

Senator Charles Schumer introduced S.1536 in July, 2009. The Bill, known as the Avoiding Life-Endangering and Reckless Texting by Drivers Act of 2009 (ALERT Driver Act of 2009), contains the following provisions:

Requires the Secretary of Transportation to withhold 25% of a state’s apportionment of certain federal-aid highway program funds for the fiscal year if the state has not enacted or is not enforcing a law that:

(1) prohibits, except in an emergency, an operator of a motor vehicle from writing, sending, or reading a text message using a hand-held mobile telephone (excluding as voice-activated device); and

(2) requires, upon conviction of a violation of such prohibition, the imposition of certain minimum penalties (opencongress.gov, 2009)

Representative Carolyn McCarthy (D-NY) introduced H.R.3535 in September, 2009 as a companion bill to S.1536. The text is identical (www.opencongress.gov, 2009).
State Level

Ohio is one of only 16 states that lack legislation addressing a cell phone/text message ban while driving. In the majority of states that have such legislation, cell phone use and/or texting while driving is a primary offense. The following table documents cell phone and texting laws of U.S. states comparatively. A blank field in the table indicates an aspect that is not addressed as a component of the respective state’s laws.

<table>
<thead>
<tr>
<th>State</th>
<th>Handheld Ban</th>
<th>All Cell Phone Ban</th>
<th>Text Messaging Ban</th>
<th>Crash Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>School Bus Drivers</td>
<td>Novice Drivers</td>
<td>All Drivers</td>
</tr>
<tr>
<td>Alabama</td>
<td></td>
<td></td>
<td></td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Alaska</td>
<td></td>
<td></td>
<td></td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Arizona</td>
<td></td>
<td>Yes (Primary)</td>
<td></td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Arkansas</td>
<td>18 – 20 years old (Primary)</td>
<td>Yes (Primary)</td>
<td>&lt;18 (Secondary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>California</td>
<td>Yes (Primary)</td>
<td>Yes (Primary)</td>
<td>&lt;18 (Secondary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Colorado</td>
<td></td>
<td>&lt;18 (Primary)</td>
<td>Yes (Primary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Connecticut</td>
<td>Yes (Primary)</td>
<td>Yes (Primary)</td>
<td>Learner’s permit and &lt;18 (Primary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Delaware</td>
<td></td>
<td>Yes (Primary)</td>
<td></td>
<td>Learner’s permit and intermediate license holders (Primary)</td>
</tr>
<tr>
<td>D.C.</td>
<td>Yes (Primary)</td>
<td>Yes (Primary)</td>
<td>Learner’s permit (Primary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Florida</td>
<td></td>
<td></td>
<td></td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Georgia</td>
<td></td>
<td></td>
<td></td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Guam</td>
<td></td>
<td></td>
<td></td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Hawaii</td>
<td></td>
<td></td>
<td></td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Idaho¹</td>
<td></td>
<td></td>
<td></td>
<td>See footnote</td>
</tr>
<tr>
<td>Illinois²</td>
<td>See footnote</td>
<td>Yes (Primary)</td>
<td>&lt;19 (Primary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Indiana</td>
<td></td>
<td>&lt;18 (Primary)</td>
<td></td>
<td>&lt;18 (Primary)</td>
</tr>
<tr>
<td>Iowa</td>
<td></td>
<td></td>
<td></td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Kansas</td>
<td></td>
<td></td>
<td>Learner or intermediate license (Primary)</td>
<td>Learner or intermediate license (Primary)</td>
</tr>
<tr>
<td>Kentucky</td>
<td></td>
<td>Yes (Primary)</td>
<td></td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Louisiana</td>
<td>Yes (Primary)</td>
<td>Yes (Secondary)</td>
<td>Yes (Secondary)</td>
<td>Covered under all driver ban</td>
</tr>
<tr>
<td>State</td>
<td>Handheld Ban</td>
<td>All Cell Phone Ban</td>
<td>Text Messaging Ban</td>
<td>Crash Data</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>School Bus Drivers</td>
<td>Novice Drivers</td>
<td>All Drivers</td>
</tr>
<tr>
<td>Maine¹</td>
<td>&lt;18 (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maryland</td>
<td>Yes (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massachusetts</td>
<td>Yes (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michigan³</td>
<td>Yes (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minnesota</td>
<td>Yes (Primary)</td>
<td>&lt;18 w/ Learner or provisional license (Primary)</td>
<td>Yes (Primary)</td>
<td>Covered under all driver ban</td>
</tr>
<tr>
<td>Mississippi</td>
<td>Learner or provisional license (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missouri</td>
<td>≤21 (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montana</td>
<td>Yes (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nebraska</td>
<td>&lt;18 w/ Learners or provisional license (Secondary)</td>
<td>Yes (Primary)</td>
<td>&lt;18 w/ Learners or provisional license (Secondary)</td>
<td>Yes</td>
</tr>
<tr>
<td>Nevada</td>
<td>Yes (Primary)</td>
<td>&lt;21 w/ GDL or provisional license (Primary)</td>
<td>Yes (Primary)</td>
<td>Covered under all driver ban</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>Yes (Primary)</td>
<td></td>
<td>Yes (Primary)</td>
<td>Covered under all driver ban</td>
</tr>
<tr>
<td>New Jersey</td>
<td>Yes (Primary)</td>
<td></td>
<td>&lt;21 w/ GDL or provisional license (Primary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>New Mexico</td>
<td>In State vehicles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td>Yes (Primary)</td>
<td></td>
<td>Yes (Secondary)</td>
<td>Covered under all driver ban</td>
</tr>
<tr>
<td>North Carolina</td>
<td>Yes (Primary)</td>
<td></td>
<td>&lt;18 (Primary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>North Dakota</td>
<td>Yes (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td>Yes (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oklahoma</td>
<td>Yes (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oregon</td>
<td>Yes (Primary)</td>
<td></td>
<td>&lt;18 (Primary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>Yes (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhode Island</td>
<td>Yes (Primary)</td>
<td></td>
<td>&lt;18 (Primary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>South Carolina⁶</td>
<td>Yes (Primary)</td>
<td></td>
<td>&lt;18 (Primary)</td>
<td>Yes (Primary)</td>
</tr>
<tr>
<td>South Dakota</td>
<td>Yes (Primary)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tennessee</td>
<td>Yes (Primary)</td>
<td>Learner’s permit or intermediate license (Primary)</td>
<td>Yes (Primary)</td>
<td>Covered under all driver ban</td>
</tr>
</tbody>
</table>

¹ See footnote

² All Cell Phone Ban includes Text Messaging Ban

³ Learner or provisional license (Primary) only

⁶ See footnote
<table>
<thead>
<tr>
<th>State</th>
<th>Handheld Ban</th>
<th>All Cell Phone Ban</th>
<th>Text Messaging Ban</th>
<th>Crash Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>School Bus Drivers</td>
<td>Novice Drivers</td>
<td>All Drivers</td>
</tr>
<tr>
<td>Texas⁷</td>
<td></td>
<td>Yes w/ passenger ≤17 (Primary)</td>
<td>Intermediate stage, 1st 12 months (Primary)</td>
<td>Yes w/ passenger ≤17 (Primary)</td>
</tr>
<tr>
<td>Utah⁸</td>
<td>See footnote</td>
<td>Yes (Primary)</td>
<td>Covered under all driver ban</td>
<td>Yes</td>
</tr>
<tr>
<td>Vermont</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virgin Islands</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Virginia</td>
<td></td>
<td>Yes (Primary)</td>
<td>&lt;18 (Primary)</td>
<td>Covered under all driver ban</td>
</tr>
<tr>
<td>Washington</td>
<td></td>
<td>Yes (Secondary)</td>
<td>Yes (Secondary)</td>
<td>Covered under all driver ban</td>
</tr>
<tr>
<td>Wisconsin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wyoming</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>6 + D.C., Virgin Islands</strong></td>
<td><strong>17 + D.C.</strong></td>
<td><strong>19 + D.C., Guam</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Primary (5)</td>
<td>All Primary</td>
<td>Primary (15 + D.C.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Secondary (1)</td>
<td></td>
<td>Secondary (6)</td>
</tr>
</tbody>
</table>

¹ Idaho has a "Distraction in/on Vehicle (List)" attribute as part of its Contributing Circumstances element, and officers are supposed to list the distractions in the narrative.
² Illinois bans the use of cell phones while driving in a school zone or in a highway construction zone.
³ Maine has passed a law making it against the law to drive while distracted in the state.
⁴ In Michigan, teens with probationary licenses whose cell phone usage contributes to a traffic crash or ticket may not use a cell phone while driving.
⁵ Dealt with as a distracted driving issue; New Hampshire enacted a comprehensive distracted driving law.
⁶ South Carolina has a Distracted/inattention attribute under Contributing Factors.
⁷ Texas has banned the use of hand-held phones and texting in school zones.
⁸ Utah’s law defines careless driving as committing a moving violation (other than speeding) while distracted by use of a handheld cell phone or other activities not related to driving.

(Governors Highway Safety Association, 2009)
Ohio Municipalities

Numerous Ohio municipalities have enacted laws to protect their citizens by banning text messaging while driving. Other cities, such as Columbus, are actively engaged in establishing such legislation. Ohio municipalities with existing legislation include the following.

- Bexley. *Appendix A* provides a full description text of Bexley’s law. The Bexley texting ban is a misdemeanor enforced as a primary offense if any of following actions occur while driving:
  1) Manually entering letters or text messages into a device as a means of communicating with another person; or
  2) Reading any received emails or text messages transmitted to the device or stored within the device; or
  3) Sending, reading, creating or interacting with internet-based content or games.

- Cleveland. In Cleveland, it is illegal to use a wireless handset to compose, send or read text messages while driving a motor vehicle. Violators are fined one hundred dollars for the first offense, two hundred and fifty dollars for a second offense, and up to $500 for each subsequent offense. *Appendix B* provides the full text of Cleveland’s law.

- Summit County. In Summit County, no person may use a wireless handset to compose, read or send text messages while operating a motor vehicle on any public street or public highway. A violation constitutes a minor misdemeanor and is punishable by a fine up to $150.00 for each single violation. Each violation constitutes a separate and distinct offense. The full text of Summit County’s law can is in *Appendix C*.

- Toledo. In Toledo, no person shall operate a motor vehicle on any street or highway while engaging in any conduct defined as the "use" of a Text Messaging Device. Violators are guilty of a minor misdemeanor upon the first offense, guilty of a third degree misdemeanor upon a second violation, and guilty of a first degree misdemeanor for a third or subsequent violation. *Appendix D* documents Toledo’s law.
Considerations for a Proposed Ohio Law

Multiple considerations exist for legislation banning texting while driving. Evidence-based key aspects based are provided below.

Primary vs. Secondary Enforcement

Primary enforcement allows a law officer to stop a motorist for the relevant violation. Secondary enforcement does not allow a law officer to stop a motorist; secondary enforcement laws may be enforced only when a motorist has already been stopped for another reason. Studies show that primary enforcement of laws is more effective than secondary enforcement. Documentation of seatbelt utilization is a comparative example. According to Beck & Shults (2006):

“Seat belt use was 86.0% in states and territories with primary enforcement laws and 75.9% in states with secondary enforcement laws...Seat belt use continues to increase in the United States. Primary enforcement laws remain a more effective strategy than secondary enforcement laws in getting motor-vehicle occupants to wear their seat belts.” (Beck & Shults, 2006)

The majority of states or U.S. territories that have enacted cell-phone or text messaging statutes have enacted them as primary enforcement (Governors Highway Safety Association, 2009).

Fines/Penalties

Traffic violations in Ohio are typically “minor misdemeanors” under Ohio Revised Code (ORC). ORC defines the purposes of misdemeanor sentencing as “to protect the public from future crime by the offender and others and to punish the offender” (ORC 2929.21A). Sentences imposed for misdemeanors “shall be reasonably calculated to achieve the two overriding purposes of misdemeanor sentencing set forth in division (A) of this section, commensurate with and not demeaning to the seriousness of the offender’s conduct and its impact upon the victim, and consistent with sentences imposed for similar offenses committed by similar offenders” (ORC 2929.21B). Minor misdemeanors typically carry a fine of up to $150 (http://www.clelaw.lib.oh.us/Public/Misc/FAQs/Sentencing.html, retrieved March 24, 2010).

Research shows that texting while driving results in driving performance that is equal to or worse than driving performance while intoxicated (Strayer, Drews, & Crouch, 2003; Rakauskas, Ward, Bernat, Cadwallader, & de Waard, 2005; Strayer, Drews, & Crouch, 2006; Rakauskas et al, 2008). Penalties for operating a motor vehicle while under the influence of alcohol in Ohio include a fine of $350-$1500, jail or a driver intervention program, and license suspension (http://dui.drivinglaws.org/ohio.php, retrieved March 24, 2010).

Consideration must be given to respective fines/penalties for texting-while-driving violations. Fines should be set so that drivers are de-incentivized from repeating texting-while-driving behaviors.
Recommendations/Conclusion

The evidence suggests that:

- Thousands of Ohio drivers engage in cell phone/texting device use every day.
- Cell phone use and especially text-messaging while driving are hazardous and even deadly. The combination of multiple, complex brain functions encompassing reading, hand-eye coordination and conversation make texting while driving more dangerous than other in-car distractions such as eating.
- Response times among those who text while driving are equal or worse than response times of drunk drivers. Ohio has laws to protect citizens from drunk drivers, but no laws to protect citizens from driver text-messagers.
- Forty-eight percent of teens—who are the most inexperienced drivers by age group—say that they have text-messaged while driving.
- Studies document widespread public support for laws banning cell phone use and texting while driving.
- Ohio is in the minority among other states who have enacted legislation banning cell phone use and/or texting while driving.
- In light of the State’s inaction, several Ohio municipalities have enacted their own legislation to ban cell phone use and/or text messaging while driving. Laws among these municipalities are somewhat dissimilar. Ohio commuters may not be aware of varying municipalities’ legal restrictions with regards to cell phone use and/or text messaging while driving.
- In states with legislation banning texting while driving, public awareness (media coverage on the new law) likely contributed to early success, but ongoing enforcement is the key to long-term compliance.
- Primary enforcement is more effective than secondary enforcement in motor vehicle violations.
- Traffic fines must be substantial enough to de-incentivize drivers from engaging in texting while driving behavior.

The following recommendations are suggested concerning Ohio legislation related to text messaging while driving:

1. Act without delay to save lives of Ohio citizens.
2. Legislate prohibition against texting while driving.
3. Engage the media to help educate the general public about the dangers of texting while driving and the new law.
4. Enforce the texting ban via primary enforcement.
5. Fine violators between $150-$350 to signify the seriousness of the offense.
6. Include the hazards and penalties of texting while driving in teen driving education programs.
7. Exempt emergency vehicles.

In conclusion, texting ban legislation driving will reduce motor vehicle crashes and save lives in Ohio.
References


Bexley Text Messaging Ban

432.38  Ord. 43-09. Passed 9-22-09
(c) No person shall operate a vehicle on public roadways in the City of Bexley, Ohio while using any wireless or handheld personal communication devices to:
   (1) Manually enter letters or text messages into a device as a means of communicating with another person; or
   (2) Read any received emails or text messages transmitted to the device or stored within the device; or
   (3) Send, read, create or interact with internet based content or play games.
(d) Subsection (c) hereof shall not apply to emergency vehicles or to any person reporting a health or safety emergency.
(e) Subsection (c) hereof will be considered a primary offense.

408.01  Penalties for Misdemeanor
(a) Whoever is convicted of or pleads guilty to a misdemeanor, other than a minor misdemeanor, shall be imprisoned for a definite term or fined, or both, which term of imprisonment and fine shall be fixed by the court as provided in this section.
(b) Terms of imprisonment for misdemeanor shall be imposed as follows:
   (1) For a misdemeanor of the first degree, not more than 180 days;
   (2) For a misdemeanor of the second degree, not more than ninety days;
   (3) For a misdemeanor of the third degree, not more than sixty days;
   (4) For a misdemeanor of the fourth degree, not more than thirty days.
(c) Fines for misdemeanor shall be imposed as follows:
   (1) For a misdemeanor of the first degree, not more than one thousand dollars ($1,000);
   (2) For a misdemeanor of the second degree, not more than seven hundred fifty dollars ($750.00);
   (3) For a misdemeanor of the third degree, not more than five hundred dollars ($500.00);
   (4) For a misdemeanor of the fourth degree, not more than two hundred fifty dollars ($250.00).
(d) Whoever is convicted of or pleads guilty to a minor misdemeanor shall be fined not more than one hundred fifty dollars ($150.00).
(e) The court may require a person who is convicted of or pleads guilty to a misdemeanor to make restitution for all or part of the property damage that is caused by his offense. If the court determines that the victim of the offense was sixty-five years of age or older or permanently or totally disabled at the time of the commission of the offense, the court shall, regardless of whether or not the offender knew the age of the victim, consider this fact in favor of imposing restitution, but this fact shall not control the decision of the court.

408.02  General Code Penalty
(a) Predicate Motor Vehicle or Traffic Offenses. Except as otherwise provided in this section, whoever violates any provision of this Traffic Code which is a predicate motor vehicle or traffic offense and for which no other penalty is provided is guilty of a minor misdemeanor. If, within one year of the offense, the offender previously has been convicted of or pleaded guilty to one predicate motor vehicle or traffic offense, whoever violates such provision is guilty of a misdemeanor of the fourth degree. If, within one year of the offense, the offender previously has been convicted of two or more predicate motor vehicle or traffic offenses, whoever violates such provision is guilty of a misdemeanor of the third degree.
(b) Non-Predicate Motor Vehicle or Traffic Offense. Whoever violates any provision of this Traffic Code which is not a predicate motor vehicle or traffic offense and for which no other penalty is
provided is guilty of a minor misdemeanor on a first offense; on a second offense within one year after the first offense, the person is guilty of a misdemeanor of the fourth degree; on each subsequent offense within one year after the first offense, the person is guilty of a misdemeanor of the third degree.
Cleveland Text Messaging Ban

433.09 Text Messaging While Driving

(a) As used in this section:
   (1) “Text message” means a message sent or received via a process using wireless handsets. For the purposes of this section, an e-mail shall be considered a “text message.”
   (2) “Wireless handset” means a portable electronic device capable of transmitting or receiving data in the form of a text message.

(b) No person shall use a wireless handset to compose, send or read text messages while driving a motor vehicle in the City of Cleveland.

(c) Notwithstanding the provisions of division b, this section shall not be construed to prohibit the use of a wireless handset inside a motor vehicle to compose, send or read a text message by:
   (1) a driver using a wireless handset to contact any law enforcement, police officers, emergency services personnel, emergency medical technicians, or fire safety officials to report an emergency situation; or
   (2) a driver using a wireless handset inside a motor vehicle while such vehicle is parked, standing or stopped and is removed from the flow of traffic, in accordance with applicable laws or rules, or is stopped due to the inoperability of such vehicle.

(d) Penalty. Whoever violates this section shall be fined one hundred dollars for the first offense, two hundred and fifty dollars for a second offense, and no more than five hundred dollars for each subsequent offense.
Appendix C

Summit County Text Messaging Ban


345.01 DEFINITIONS. Words and terms are used in this Chapter with the following meanings:

(a) "Hands-free" shall mean the manner in which a wireless handset is operated for the purpose of composing, reading or sending text messages, by using an internal feature or function, or through an attachment or addition, including but not limited to an ear piece, head set, remote microphone or short-range wireless connection, thereby allowing the user to operate said device without the use of hands.

(b) "Inoperability" shall mean a motor vehicle that is incapable of being operated or being operated in a safe and prudent manner due to mechanical failure, including but not limited to, engine overheating or tire failure.

(c) "Motor vehicle" shall mean any vehicle that is self-propelled by a motor, including but not limited to, automobiles, trucks, vans, construction vehicles, etc.

(d) "Person" shall mean any natural person, corporation, unincorporated association, firm, partnership, joint venture, joint stock association or other entity or business organization of any kind.

(e) "Stopped" shall mean not in motion.

(f) "Text message", also referred to as short messaging service (SMS), shall mean the process by which users send, read or receive messages on a wireless handset, including but not limited to, text messages, instant messages, electronic messages or e-mails, in order to communicate with any person or device.

(g) "Use" shall mean to hold a wireless handset in one's hand.

(h) "Wireless handset" shall mean a portable electronic or computing device, including but not limited to, cellular telephones, laptop computers and personal digital assistants (PDAs), or other similar electronic or computing device, capable of transmitting data in the form of a text message.

345.02 TEXT MESSAGING WHILE DRIVING PROHIBITED

(a) No person shall use a wireless handset to compose, read or send text messages while operating a motor vehicle on any public street or public highway within the County of Summit.

(b) Notwithstanding subsection (a), this law shall not be construed to prohibit the use of any wireless handset by:
   
   (1) Any law enforcement, public safety or police officers, emergency services officials, first aid, emergency medical technicians and personnel, and the fire safety officials in the performance of duties arising out of and in the course of their employment as such.
   
   (2) A person using a wireless handset to contact an individual listed in subsection (b)(1); or
   
   (3) A person using a wireless handset inside a motor vehicle while such motor vehicle is parked, standing or stopped and is removed from the flow of traffic, in accordance with applicable laws, rules or ordinances, or is stopped due to the inoperability of such motor vehicle.

(c) Notwithstanding subsection (a), this law shall not be construed to prohibit a person operating a motor vehicle from utilizing a hands-free wireless handset.

345.03 ENFORCEMENT AND PENALTIES. A violation of any provisions of this chapter shall constitute a minor misdemeanor and be punishable by a fine not exceeding $150.00 for each single violation. Each such violation shall constitute a separate and distinct offense.

345.04 PREEMPTION. This chapter shall be null and void on the day that statewide legislation goes into effect, incorporating either the same or substantially similar provisions as are contained in this law, or in the event that a pertinent state or federal administrative agency issues and promulgates regulations preempting such action by the County of Summit.
331.45 Use of text messaging devices while operating a motor vehicle.

(a) Definitions. As used in this section:

(1) "Text Messaging Device" means any portable communication device that can be used to transmit typed or text messages to another person or entity.

(2) "Use" means to use a Text Messaging Device in:
   (A) Sending messages
   (B) Answering messages
   (C) Typing
   (D) Reading
   (E) Dialing

(3) "Park" means for an automatic transmission vehicle that the vehicle is in the Park gear; for a standard transmission vehicle that the vehicle is in the neutral gear and the brake is being utilized or otherwise stationary.

(b) Title and Application.

(1) This section shall be known and may be cited as the Text Messaging Operation Ordinance.

(2) This section shall be liberally construed and applied to promote its purposes and policies.

(c) Purpose. It is the purpose of this section and the policy of the City of Toledo to regulate the use of Text Messaging Devices, which are used while persons are operating a motor vehicle in order to protect other persons operating motor vehicles and pedestrians in the Municipality.

(d) Severability. In the event that any provision of this section is found by the court of competent jurisdiction to be invalid, unconstitutional or unenforceable, such provision shall be deemed severable from the remainder of this section and shall not cause the invalidity or unenforceability of the remainder of this section; and if a provision shall be deemed invalid only because of excessive scope or breadth, the provision shall be deemed valid to the extent of the scope and breadth permitted by law.

(e) Use; Restrictions.

(1) No person shall operate a motor vehicle on any street or highway while engaging in any conduct defined as the "use" of a Text Messaging Device.

(2) Subsection (e)(1) hereof does not apply to a person who is using the Text Messaging Devices:
   (A) To contact public safety forces, or
   (B) While maintaining the vehicle in the Park position either on public or private property outside the flow of traffic.

(f) Penalty. Whoever violates any of the provisions of this section shall be guilty of a minor misdemeanor upon the first offense and shall be guilty of a third degree misdemeanor upon any second violation and shall be guilty of a first degree misdemeanor for any third or subsequent violation.