

TABLE OF CONTENTS

Executive Summary.....1
Background on Junior Operator’s Law.....3
Methodology.....4
Personal Stories.....5
Existing Drowsy Driving Data and Evidence from the Literature.....7
Recommendations.....15
References.....18
Commission Members..... 21
Appendices.....23
 Appendix A: Chapter 428, Acts of 2006
 Appendix B: “An Act Relative to Drowsy Driving
 Appendix C: National Sleep Foundation: Comparison of States from 2007 State of
 the States Report
 Appendix D: National Sleep Foundation: Principles for State Drowsy Driving
 Legislation
 Appendix E: CIR/SEIU Testimony on Senate Bill 1247 – An Act Relative to Safe
 Work Hours for Physicians in Training & Protection of Patients
 Appendix F: CIR/SEIU Testimony on S. 2124 – An Act Relative to Drowsy Driving

DRAFT

EXECUTIVE SUMMARY

Drowsy driving has become an issue of national importance as the National Highway Traffic and Safety Association (NHTSA) estimates that >100,000 police-reported crashes, 71,000 injuries, and 1,550 deaths are caused per year by drowsy driving. To address this key public health issue, the Commonwealth of Massachusetts enacted a Junior Operators' Law (Chapter 428, Acts of 2006) that includes a requirement that the Registry of Motor Vehicles (RMV) conduct a full study of the impact of drowsy driving on the safety of the state's roadways. The RMV deferred to the Department of Public Health (DPH) to conduct the study and chair the special legislative commission to review existing data and draft recommendations for new legislation to prevent drowsy driving. This report documents the results of the commission's work to address this issue in accordance with Chapter 428, Acts of 2006.

A comprehensive literature review found that those at highest risk to drive while drowsy are young men aged 16-29, night-shift workers, commercial drivers, and persons working > 60 hours week. Sleep loss is the largest contributing factor, along with driving between 12 am-6 am, driving for long hours, medications, untreated sleep disorders, and alcohol. Massachusetts data on fatalities related to drowsiness are inconsistent, with little uniformity as police training for recognizing "drowsy driving" is minimal and there is no "blood test" for fatigue. In addition, there is no education component about drowsy driving in the current driver's education curriculum. Doctors are also not mandated to report sleep disorders for which there is no current license limitation. Research indicates that main prevention strategies include sleep (7-9 hours every 24 hours), rumble strips (placed on high-speed or rural roads have shown to reduce crashes by 30-50%), and prevention education of high risk groups.

The Commission reviewed the evidence in the literature and testimony from community advocates prior to formulating recommendations. From this emanated five key recommendations:

- 1) Incorporate drowsy driving prevention into driver's education curriculums and college health courses,
- 2) Develop and disseminate public service announcements on the internet and radio to raise awareness on sleepiness while on the road
- 3) Increase the presence of rumble strips on state highways to prevent crashes.
- 4) As negligence is easier to prove than drowsy driving, the commission recommends that codes on crash forms are clarified to encourage increased data collection through police training to recognize drowsy drivers.
- 5) Work with legislators to craft laws regulating work hours to assist those in high-risk professions (shift workers, hospital physicians, truckers).

Summary of Bill with Comments from Commission Members

BACKGROUND ON THE MASSACHUSETTS JUNIOR OPERATOR'S LAW

On June 26, 2002, a 19-year-old driver collided with and killed Major Rob Raneri, who was on his way to work at the Devens Reserve Forces Training Area in Ayer, Massachusetts. The driver told police that he had not slept in 24 hours because he was up all night playing video games. Massachusetts Senator Richard Moore filed "An Act Relative to Drowsy Driving," otherwise known as "Rob's Law" to initiate enforcement of drowsy driving legislation. Although the bill has not proceeded through the legislative process as yet, recent legislation relating to young drivers incorporates aspects of the bill.

In the fall of 2006, The Massachusetts Legislature enacted a Junior Operators' Law (Chapter 428, Acts of 2006) that includes a requirement that the Registry of Motor Vehicles (RMV) conduct a full study of the impact of drowsy driving on the safety of the state's roadways. The RMV deferred to the Massachusetts Department of Public Health (MDPH) to conduct the study, and to chair the special legislative commission assigned to review existing data and draft recommendations for new legislation to prevent drowsy driving.

The commission was composed of: 3 members of the house of representatives, 1 of whom shall be appointed by the minority leader; 3 members of the senate, 1 of whom shall be appointed by the minority leader; the secretary of transportation or his designee; the registrar of motor vehicles or his designee; the commissioner of state police or his designee; the president of the Massachusetts District Attorneys Association or his designee; the president of the Massachusetts Association of Chiefs of Police or his designee; and 3 persons to be appointed by the governor, 1 of whom shall be a member of the medical or academic community with expertise in sleep deprivation research, 1 of whom shall be a representative of the Massachusetts Trial Lawyers Association and 1 of

whom shall represent victims who have been injured or killed by drowsy drivers. (See complete list of Commission Members, Page XX).

The goals and objectives of the commission were to study the impact of drowsy driving on highway safety with respect to determining scientific and legal standards or other evidence that could be used by police officers and the courts in determining the effects of sleep deprivation on drivers, the appropriate sanctions for operating while sleep-deprived and the training requirements to be followed by licensed driver education programs and police training programs with respect to recognition of the symptoms and effects of sleep deprivation on drivers. The commission was directed to provide a final report, including legislative and administrative recommendations to the State Legislature by December 2008 (Chapter 428 of Acts of 2006, Appendix A).

METHODOLOGY

To compile the information contained in this report, over an 8-month period, MDPH staff conducted a review of the literature on the impact of sleep deprivation on highway safety, interviewed commission members, as well as local and national advocates and sleep experts. DPH worked with commission members and community advocates to assimilate personal stories and recommendations for prevention of drowsy driving in the community. Community advocates included those who had been personally affected by drowsy driving and college health educators who play a key role in promoting healthy sleep habits to college students and youth. In addition to the existing commission members, community advocates were contacted and interviewed for their opinions and thoughts about enacting legislation to prevent drowsy driving in Massachusetts:

(ADD COLLEGE NURSES—GET NAME)

Marian Berkowitz, sister of victim

Sandy Shea and Dr. Michael J. Mazzini, Committee on Interns and Residents/SEIU

Dr. Christopher Landrigan and Mr. Russell Sanna, Sleep Research Society

John Rancourt and Darrel Droblich, National Sleep Foundation

Branwen Smith-King, Athletic Director, Tufts University

Ian L. Wong, Director, Health Education, Tufts University Health Service
Steven Sullivan, Teamsters Local 25 (Charlestown)

MDPH staff also worked very closely with Senator Richard T. Moore, the Chair of Health Care Financing Committee, who had already introduced an earlier bill, “An Act Relative to Drowsy Driving (Appendix B),” which focused on enforcement actions against those found to be drowsy while driving. An exhaustive literature review of existing studies on drowsy driving was conducted with research sources provided by existing commission members. In addition, MDPH worked closely with the Massachusetts Highway Department and other state agency partners to craft ten important safety tips to prevent drowsy driving, which were published on the Commonwealth of Massachusetts’ website (www.mass.gov) as part of activities for National Drowsy Driving Awareness Week in November 2007.

PERSONAL STORIES

The problem of drowsy driving in Massachusetts can be highlighted by the stories of victims, and their loved ones, who have experienced the effects of drowsy driving personally.

Amy Huther was Major Raneri’s fiancée. She explains how Raneri was “killed by a 19-year old man who admittedly was awake for over 24 hours...Because of a drowsy driver, our wedding plans changed to funeral plans. Eight and a half months before her birth, I buried my daughter’s father... The public needs to be educated on the effects of drowsy driving.”

Marian Berkowitz describes the story of her brother, who died on his way home from college after daylight savings time began in the fall of 1986: *“My brother was in his second year of law school at Wake Forest University in North Carolina about 20 years ago now when his accident occurred. It happened during the fall semester when he was driving back from Washington, D.C. to his school after interviewing for summer associate positions. He was under pressure to return to his school quickly as he learned*

while up in D.C. that he got into the quarter-final rounds of a moot court competition. He was driving on a Monday night after the weekend of the clock change. There is no proof of a fatigue accident, but by all appearances, he fell asleep at the wheel and possibly the time change was a contributing factor in addition to his needing to drive alone over 5 hours that evening. We were told by the local police in Virginia where the accident occurred that his car swerved into the opposite lane and was hit by an oncoming bus. No one was injured except for him and he died instantly.”

Residents from CIR/SEIU provided testimony related to their experiences with driving while drowsy, but the residents also cautioned that they are required to work long hours by hospitals; unless hospitals can be forced to reduce the hours worked by residents, a drowsy driving enforcement threatens the residents’ very employment. *“I was working in the intensive care unit...I came in at 7:15 am and worked straight for 30 hours. There was no time for sleep. We were really busy, the unit was full of very sick patients and I was expected to take care of them throughout the night...I finally left the hospital [the next day] about 1:00 pm...Just as I was about to take a right from Center Street on to the VFW Parkway, I fell asleep. I veered off to the left and on to the median strip, missed a tree, but hit a pole which went flying up over the windshield. I was almost seven months pregnant at the time.... My rotation schedule in the intensive care unit is not unusual. Residents are working this kind of schedule (and worse) in every teaching hospital in the state. Residents do not choose to work these long hours. We are scheduled by our training program and the hospital depends on our being there to take care of patients. To refuse would be considered unprofessional. I am really lucky that I – and my baby – were not hurt when I fell asleep at the wheel...I don’t think that this danger should just be an accepted and routine part of residency training.”*

Commercial vehicle operators have also experienced the effects of drowsy driving. Mr. Steven Sullivan, speaking on behalf of the Teamsters union, stated that a major problem concerns the vast majority of trucking companies that hire non-union, hire subcontractors, whom he characterized as “Larry, Moe and Curly.” These subcontractors may be unlicensed and/or uncertified, and are paid by how much product they move in

the least amount of time. For independent workers who are not unionized, there is constant pressure to work 12-hour shifts without breaks, he said. Mr. Sullivan also expressed a desire to see employers have more liability as he advocated for corrective legislation or regulations to hold non-union drivers to the same standard as union shops and a “triple damages” law targeting companies that hire small subcontractors, but walk away from responsibility when an injury or crash occurs.

EXISTING DROWSY DRIVING DATA AND EVIDENCE FROM THE LITERATURE

An exhaustive review of existing data was conducted as part of the commission’s directive to study the impact of drowsy driving on highway safety. In addition, communication was held with the National Sleep Foundation for guidance regarding recommended principles for enacting State Drowsy Driving legislation.

Current data suggests that, each year, drowsy driving is responsible for >100,000 police-reported crashes, 71,000 injuries, 1,550 deaths and \$12.5 billion in diminished productivity and property loss, according to estimates by the National Highway Traffic and Safety Association (NHTSA). These numbers are likely an underestimate due to inconsistent data collection codes on crash forms, minimal training and education on drowsy driving recognition, unreliable self-reporting, and the lack of a “breathalyzer” test for drowsy driving. A 2005 National Sleep Foundation “Sleep in America Poll” found that 60% of adult drivers (168 million people) reported driving while drowsy in the previous year of which 37% had fallen asleep at the wheel. Eleven million drivers reported having an accident or near accident while drowsy. Several studies indicate that sleep deprivation is similar to alcohol use, with 24 hours of sleep deprivation the equivalent to a BAC of 0.10% (above the 0.08 % threshold to be considered legally drunk). Of note, at 17 hours of sleep deprivation, the BAC equivalent is 0.05%.

High-Risk Groups

Youth aged 16-29 years, in particular young men, are among the highest-risk groups at risk for drowsy driving. Sleep-related crashes are most common in this age group that tends to stay up late, sleep too little, and drive at night. A study of fall-asleep auto crashes in North Carolina in 1990-1992 indicated that in 55 percent of the crashes, drivers were age 25 or younger and predominantly male. The peak age of occurrence of all crashes was age 20, thus strengthening the argument for graduated licensing programs. The National Center for Sleep Disorders Research found that this age group is also prone to having automobile crashes at night in comparison to other age groups.

Driver Age/Time of Crash Occurrence

Years of Age	Time of Occurrence
16-25	most crashes at night
25-45	crashes less frequent, still mostly at night
45-65	not as many crashes at night, peak time is 7 a.m.
Over 65	few crashes at night; peak time is mid-afternoon.

Other high risk groups include shift workers, in particular those working the night-shift and resident physicians. A study in the New England Journal of Medicine showed that resident physicians had increased odds of falling asleep while driving or being stopped for erratic driving after working extended shifts ≥ 24 hours. A meta-analysis in Sleep found that sleep deprivation of 24 to <30 hours (which is approved by the Accreditation Council for Graduate Medical Education) leads to significant deterioration of residents' cognitive and clinical performance. Other risk groups include persons working > 60 hours week (which includes hospital residents who are mandated by the ACGME to work 80 hour work weeks); according to the National Sleep Foundation, this work schedule increases the risk of drowsy driving by 40%.

Commercial drivers are also at risk for drowsy driving; a recent study by the American College of Occupational and Environmental Medicine indicates that there is a high

incidence of obstructive sleep apnea among commercial drivers that contribute to crashes. New national guidelines for screening commercial drivers for sleep disorders are currently under development. Untreated sleep disorders are commonly cited as a risk factor for drowsy driving.

Another relevant study was a 1990 study by the National Traffic Safety Board of 182 heavy truck crashes that were fatal to the driver; the study showed that 31 percent of the crashes in this sample involved fatigue. This number is frequently cited as an estimate of the incidence of fatigue in truck crashes that were fatal to the truck driver. In Massachusetts, the overall rate of fatal occupational injury was 2.1 deaths per 100,000 workers for the 7 year period (2000-2006). The rate of fatal occupational injury among truck drivers was more than four times the overall rate.

Risk Factors

Multiple studies indicate that the number one risk factor contributing to drowsy driving is, as one would expect, not getting enough sleep. At least 7-9 hours of sleep every 24 hours is recommended by the National Sleep Foundation.

Other risk factors include driving between 12 am-6 am, driving for long hours, medications, untreated sleep disorders and alcohol. A report by NHTSA in 1998 found that major crash determinants were single vehicle, high-speed road, single driver, and occurred late night or in the early morning or in the mid-afternoon.

A case control study done in North Carolina compared drowsy police-reported crashes vs. non-drowsy police-reported crashes and to non-crash drivers. The results indicated that work/sleep schedules were strongly associated. Those involved in drowsy driving crashes were more likely to work in more than one job and work non-standard hours. The night-shift increased crash odds six times; crash odds also increased as hours of sleep decreased.

Current Massachusetts Data and Comparison with Other States

Unfortunately, data in Massachusetts is limited due to lack of education in recognizing drowsy driving and inadequate data collection. A current field code does exist in police reporting forms to document driver fatigue and/or sleepiness; however, recent review of the Fatal Accident Reporting System (FARS) indicates that these fields are not always completed. While nationwide statistics indicate that drowsy driving is increasing, FARS data shows an overall decrease in driver fatalities involving drowsy driving as noted below.

Drowsy Driving as a contributing factor in fatal MA auto crashes

	Driver Related Factor was Drowsy, Sleepy, Asleep, Fatigued - Fatal Crashes	Driver Related Factor was Drowsy, Sleepy, Asleep, Fatigued - Fatalities	% Fatalities where Driver Related Factor was Drowsy, Sleepy, Asleep, Fatigued	Total MV Fatalities MA
2001	13	13	2.7	477
2002	22	24	5.2	459
2003	7	7	1.5	462
2004	8	8	1.7	476
2005	3	3	0.7	442
Total	53	55	2.4	2316

In 2007, the National Sleep Foundation conducted a review of all fifty states and issued recommendations for state policies surrounding prevention of drowsy driving.

Massachusetts was reviewed for the following nine different categories of prevention policies:

1. Is there a law against drowsy driving: YES
2. Are there charges for drowsy driving fatalities: YES
3. Do provisions exist for limiting driver’s license for medical conditions/sleep disorders: NO.
4. Are there regulations requiring doctors to report medical conditions: NO.
5. Is there a code related to fatigue on police report form: YES
6. Is there training for law enforcement on the impact of fatigue on driving: YES

7. Is there a graduated driver licensing system and a curfew for new drivers: YES
8. Is there mandatory driver's education on drowsy driving: NO.
9. Is information available on drowsy driving in the driver license manual: YES.

Of these nine categories, Massachusetts currently does not require doctors to report medical conditions, does not have a driver's education mandate, and does not place licensing limits due to sleep disorders (Appendix C).

The NSF has proposed the following recommended principles for State Drowsy Driving legislation (Appendix D):

1. Establish an expert panel to coordinate state-wide drowsy driving prevention efforts; this panel should report directly to the governor.
2. Promote research to analyze police-reported crash data to provide estimates of the magnitude of the drowsy driving problem and to identify high-risk travel corridors and at-risk populations.
3. Establish uniform codes on motor-vehicle crash-report forms and additional documentation methods necessary for police officers to report fatigue-related crashes.
4. Provide for training of law-enforcement personnel in detecting and reporting drowsy driving as a factor in crashes.
5. Require that the state's DMV Medical Advisory Board include a sleep disorders specialist.
6. Fund the development and implementation of an on-going statewide public-awareness campaign that promotes the benefits of sleep and the prevention of drowsy driving and fall-asleep crashes.

7. Adopt night driving time curfews—from 10 pm to 6 am—for young drivers as part of graduated driver licensing laws.
8. Mandate that sleep and drowsy-driving prevention information be included in all state-sanctioned drivers’ education and health-education curricula.
9. Add accurate information on the impact of sleep deprivation and drowsy driving countermeasures to driver licensing manuals and testing materials.
10. Mandate the installation of continuous shoulder rumble strips along all appropriate expressways, highways, parkways, and rural interstates.
11. Incorporate recommendations regarding rest areas as outlined in the Federal Highway Administration’s report to Congress *Study of Adequacy of Parking Facilities*.
12. Establish drowsy driving enforcement provisions that are in keeping with other state traffic safety laws, i.e. reckless or careless driving, vehicular manslaughter.

Of these principles, the Massachusetts Junior Operator’s law provides for recommendations 1 and 7, while Senator Moore’s bill addresses principles 4,5,8,9 and 12. Currently, New Jersey is the only state in the country with an enforceable law (“Maggie’s Law”) against drowsy driving; a summary of pending legislation in other states is provided below.

CURRENT STATE DROWSY DRIVING LEGISLATION

State/Bill Number	Summary
Illinois SB 104	A person who causes a fatal accident by operating a motor vehicle, all-terrain vehicle, snowmobile, or watercraft while he or she is aware of being fatigued is guilty of reckless homicide.

Kentucky HB 150	A person is guilty of reckless homicide when, driving while fatigued, he causes the death of another person.
Massachusetts S No. 2072	Addresses drowsy driving education and enforcement.
Michigan HB 4332	Includes driving while fatigued in definition of reckless driving.
New Jersey AB2265 (SB1851)	Requires the recording of driver distraction, including fatigue, on accident forms.
New Jersey AJR 86	Creates a commission to study highway rest areas for truck drivers.
New York A970	Requires holders of commercial driver's licenses to submit to medical examinations and testing for sleep apnea.
New York A1234 (S1290)	Creates a misdemeanor for driving while drowsy; creates felony crime of vehicular homicide caused by driving while ability-impaired by fatigue.
New York A2332	An act to amend traffic law in relation to driving while fatigued.
New York A4134 (S2488)	Adds fatigue to definition of recklessness in vehicular assault and vehicular manslaughter statutes.
Oregon HB 3021	Creates offense of driving while fatigued; punishes by maximum of 5 years imprisonment, \$125,000 fine, or both; requires that fatigue be included on driver's license test.
Tennessee SB 71 (HB 117)	Allows a judge or jury to infer fatigue as a cause in a traffic fatality when the defendant had not slept in the past 24 hours.

Source: National Sleep Foundation, 2007

Prevention Strategies

Several studies have been conducted on how to prevent drowsy driving. As in other areas of injury prevention, strategies for prevention of drowsy driving fall into three major categories—education; enforcement of laws and policies; and use of technology. **Sleep** is the number one strategy recommended by all studies. At least 7-9 hours of sleep is recommended every 24 hours by the National Sleep Foundation. If symptoms of drowsiness occur while driving, NSF recommends stopping driving and taking a 15-20 minute nap. Regular stops every two hours or 100 miles for breaks are recommended; in addition, caffeine in low doses (100-200 mg) combined with a nap offer short-term benefits. No scientific evidence exists for turning on the radio, or opening the window for cold air as strategies for prevention.

The best evidence-based intervention has been shown to be **rumble strips** which are raised or grooved patterns constructed on, or in travel lane and shoulder pavements. Vehicle tires passing over them produce a sudden rumbling sound and cause the vehicle to vibrate, serving as an effective alarm for drivers who are veering off the roadway. In particular continuous shoulder rumble strips (CSR) placed on high-speed or rural roads have been shown to reduce crashes by 30-50%. In Pennsylvania, an innovative type of shoulder rumble strip called the Sonic Nap Alert Pattern (SNAP) has recently been installed which creates a distinct warning sound and vibration when drowsy or inattentive drivers' vehicles drift across the grooves of the rumble strip; after installation, drift-off-road accidents per month decreased by 70%.

Other strategies include prevention **education** of high risk groups, especially youth. In addition to promoting rumble strips, NHTSA recommends education of young males aged 16-24 and shift workers about the risks of drowsy driving and how to reduce lifestyle-related risks. In addition, NHTSA recommends that employers, unions and shift work employees need to be informed about effective measures they can take to reduce sleepiness from shift work schedules including scheduling shift changes. Testimony provided to the Massachusetts Joint Committee on Health Care Financing in December 2007 by the Committee of Interns and Residents/SEIU supports this recommendation: *"...multiple residents have fallen asleep while driving home from the hospital after working a 30 hour shift...the Accreditation Council for Graduate Medical Education allows 24 hour shifts plus and additional 6 hours to finish up work...residents do not choose to work these long hours but are scheduled by [their] training program and the hospital expects residents to work these hours...this danger should not be an accepted and routine part of residency training (Appendix E)."*

A major prevention strategy would be to **revitalize and expand public rest areas**. New York implemented an intensive campaign to revitalize rest stops in response to the increase in drowsy driving crashes. These included the construction of new rest areas, revitalization of existing facilities, expansion of parking for commercial vehicles, and enhanced security. The National Sleep Foundation also recommends revitalizing rest

stops as part of their recommendations for state legislation. Recently, the Federal Highway Administration provided a detailed report to Congress looking at adequate parking facilities at rest stops as a result of recent data indicating that driver fatigue is a primary factor in 4.5 percent of large truck-involved crashes and a secondary factor in an additional 10.5 percent of large truck-involved crashes. The report found that inadequate rest by truck drivers is a strong factor contributing to crashes and that the availability of safe places to obtain needed rest must be addressed as part of a comprehensive safety agenda.

In the future, **lane departure warning systems** may be installed in automobiles to alert drivers when they begin to drift while driving. Recent studies indicate that these systems, designed to help reduce car crashes by alerting drowsy drivers that the vehicle has wandered out of the lane, may cut drivers' reaction time in half. The systems rely on the detection of the vehicle's position in relation to the road lane through the use of a camera installed in the vehicle; four different types of warning systems are being tested including a rumble strip sound recording, steering wheel vibration, a row of flashing red LEDs, and an automatic steering wheel torque to return the driver to the lane.

RECOMMENDATIONS

Based on available research to date, it would be beneficial for Massachusetts legislation to focus on populations at highest risk for prevention measures. These prevention measures should include education of high risk groups through public service announcements, radio spots and national awareness weeks. In addition, a state-wide education campaign focusing on college students and athletes should be incorporated. Healthy sleep habits and prevention of drowsy driving should also be incorporated into driver's education manuals and be a mandatory part of the driver's education curriculum. Given the vulnerability of certain professions such as shift workers, hospital physicians, and commercial vehicle operators, the commission also recommends that legislation regulating their work hours also be implemented.

The lack of data in Massachusetts makes it difficult to gauge the extent of the problem of drowsy driving on the state's highways. Coding on police crash forms should be clarified to encourage data collection of fatigue-related crashes and fatalities. In addition, law enforcement officials should receive training on how to recognize drowsy drivers.

There is overwhelming evidence that highway revitalization is a successful strategy to prevent drowsy driving related crashes. The commission recommends rumble strip implementation and expansion of existing rumble strips along all of Massachusetts highways to further prevent crashes. In addition, as shown by the recent efforts in New York, expanding and revitalizing public rest stops also assist in preventing the act of drowsy driving. The commission recommends that Massachusetts consider construction of new rest areas, revitalization of existing facilities (including free coffee at rest areas), expansion of parking for commercial vehicles and enhanced security.

Given that highway revitalization is a costly endeavor, the commission also notes that there is the possibility of matching funds available from the federal government to support state initiatives for safe roadways. The Federal Highway Administration has recommended that the federal government consider a range of legislative and administrative policy/procedural changes including innovative financing (low-interest loans and grants) and commercialization/privatization of public rest areas and allowing States to use Federal-aid funds to operate and improve safety and security at public rest areas. Massachusetts may be able to use this federal support as a way to initiate revitalization of existing highway facilities toward prevention of drowsy driving.

Comments on the Bill based on Commission Member feedback

Regarding the current bill, “An Act Relative to Drowsy Driving,” the commission believes that negligence will be easier to prove than “drowsy driving.” In addition, prior to enforcing legislation to criminalize drowsy driving, the commission feels that the situation of vulnerable populations such as hospital physicians and commercial vehicle operators needs to be addressed through work schedule reductions. The CIR/SEIU provides the following testimony to guide the commission’s recommendations in this respect: *“Working in the Commonwealth’s teaching hospitals, [residents] are routinely scheduled and required to work 24-30 consecutive hour shifts – sometimes as often as three times a week. The accrediting body that oversees medical education has approved these hours. Proceeding with driving while drowsy legislation without also supporting resident work hours legislation to reduce these hours puts resident physicians in an untenable situation (Appendix F).”* To protect work hour restrictions for these vulnerable populations, the Commission also recommends that language be added to the bill to specify employer liability in situations where an employer has scheduled an employee for excessive and unsafe shifts. As Senate Bill 1247, An Act Relative to Safe Work Hours for Physicians in Training & Protection of Patients has been filed; the Commission supports passage of this bill prior to enforcement of An Act Relative to Drowsy Driving.

REFERENCES

NCSDR/NHTSA Expert Panel on Driver Fatigue and Sleepiness (1998). *Drowsy Driving and Automobile Crashes*, Report No. DOT HS 808 707, National Center on Sleep Disorders Research, National Heart, Lung, and Blood Institute, and National Highway Traffic Safety Administration, Washington, D.C. April 1998.

Knipling RR and Wang WS (1994). Crashes and fatalities related to driver drowsiness/fatigue. Research Note. Washington, D.C.: U.S. Department of Transportation, National Highway Traffic Safety Administration, Office of Crash Avoidance Research.

Stutts, J. C., Wilkins, J. W, and Vaughn, G. M. (1999) AAA Foundation for Traffic Safety: Why do people have drowsy driving crashes?

Horne JA and Reyner LA (1995). Sleep-related vehicle accidents. *British Medical Journal*, 310:565-567.

National Center on Sleep Disorders Research, National Heart, Lung and Blood Institute, and National Institutes of Health (1998) Educating youth about sleep and drowsy driving: Strategy development workshop report.

Horne JA, Reyner LA (1995). Driver sleepiness. *J Sleep Res*, 4(2):23-9.

National Sleep Foundation (2007). State of the States Report on Drowsy Driving. Washington, D.C.: National Sleep Foundation.

National Sleep Foundation (1999-2008). Sleep in America Polls. Washington, D.C.: National Sleep Foundation.

National Sleep Foundation (1997). Use of continuous shoulder rumble strips: consensus report. Washington, D.C.: National Sleep Foundation.

National Sleep Foundation (2008). Principles for State Drowsy Driving Legislation. Washington, D.C.: National Sleep Foundation.

National Sleep Foundation. "Asleep At The Wheel," *Sleep Review*, October 2007.

National Sleep Foundation (undated). Don't Cross that Line – Sleep Fact Sheet. Washington, D.C.: National Sleep Foundation.

Federal Highway Administration (2002). Report to Congress: Study of Adequacy of Parking Facilities.

New York State Task Force on Drowsy Driving. Status Report. 1996

Federal Highway Administration (1998). *The Driver Fatigue and Alertness Study*. U.S.

Department of Transportation, Federal Highway Administration, Office of Motor Carriers, Washington, D.C., 60 pp. (Technical Summary), 562 pp. (Project Report). [Executive Summary available through OMC home page]

Dawson D and Reid K (1997). Fatigue, alcohol and performance impairment. *Nature*, 338:235.

Dement WC (1997). The perils of drowsy driving (editorial). *The New England Journal of Medicine* 337(11):783-784.

National Transportation Safety Board (1990) Safety Study: Fatigue, Alcohol, Other Drugs, and Medical Factors in Fatal-to-the-Driver Heavy Truck Crashes (Volume 1). NTSB/SS-90/01:1-181.

Barger, L. K., Cade, B. E., Ayas, N. T., Cronin, J. W., Rosner, B., Speizer, F. E., and Czeisler, C. A. (2005) Extended work shifts and the risk of motor vehicle crashes among interns. *New England Journal of Medicine* 352:125-134.

Pack, A. I., Pack, A. M., Rodgman, E., Cucchiara, A., Dinges, D. F., and Schwab, C. W. (1995) Characteristics of crashes attributed to the driver having fallen asleep. *Accident Analysis and Prevention* 27:769-775.

Hickey, JJ, Jr. (1997) Pennsylvania Turnpike Commission: Shoulder Rumble Strip Effectiveness: Drift-Off-Road Accident Reductions on the Pennsylvania Turnpike TRB Research Record 1573.

Hartenbaum, N. et al (2006). Sleep Apnea and Commercial Motor Vehicle Operators: Statement From the Joint Task Force of the American College of Chest Physicians, American College of Occupational and Environmental Medicine, and the National Sleep Foundation. *JOEM*, 48(9) Supplement: S4-37.

Philibert, I. (2005) Sleep loss and performance in residents and non-physicians: a meta-analytic examination. *Sleep*, 28(11): 1392-1402.

“Lane Departure Warning Systems Help Drowsy Drivers Avoid Crashes,” *ScienceDaily* (Oct. 17, 2006).

Accreditation Council for Graduate Medical Education. Common Program Requirements. Available at:

http://www.acgme.org/acWebsite/dutyHours/dh_Lang703.pdf

http://safety.fhwa.dot.gov/roadway_dept/rumble/index.htm

<http://www.sleepfoundation.org>

<http://www.sleepresearchsociety.org/DrowsyDriving.aspx>

Census of Fatal Occupational Injuries, Occupational Health Surveillance Program,
MDPH

Fatal Accident Reporting System, Injury Surveillance Program, MDPH

DRAFT

Commission Members

Senator Richard T. Moore

Senator Steven A. Baddour

Senator Scott P. Brown

Representative Joseph Wagner

Representative Bradford Hill

Lewis C. Howe,
Injury Prevention Coordinator
MDPH
250 Washington Street, Boston, MA 02108
(617) 624-5460
Lewis.Howe@state.ma.us

Gretchen Lucas (RMV)
Registry of Motor Vehicles
10 Park Plaza
Boston, MA 02116
(617) 973-7970
Gretchen.A.Lucas@state.ma.us
CC: Anne.Collins@state.ma.us

Bill Keating
Norfolk District Attorney's Office
45 Shawmut Avenue
Canton, MA 02021
781-830-4800
William.R.Keating@state.ma.us

Tom O'Loughlin
Chief of Police, Milford
250 Main Street
Milford, MA 01757
milfordchief@aol.com

Sgt. Richard Eubanks
Massachusetts State Police
SCARR Program
470 Worcester Road
Framingham, MA 01702
(508) 820-2300
Richard.Eubanks@state.ma.us

Steven Sullivan
Director of Education and Training
Teamsters Local 25
544 Main Street
Boston, MA 02129
617-241-8825
ssullivan@teamsterslocal25.com

Paul Leavis
26 Woodland Ave
Melrose, MA 02176
781-665-0686
pfl@leavisandrest.com

Janet Raneri
34 Dutcher Street
Hopedale, MA 01747
508-478-1793
jraneri@verizon.net

Dr. Charles A. Czeisler
Division of Sleep Medicine, Department of Medicine
Brigham and Women's Hospital
221 Longwood Ave, Room 438A
Boston, MA 02115
617-732-4013
Charles.Czeisler@hms.harvard.edu

Darrel Droblich
National Sleep Foundation
1522 K Street, NW, Suite 500
Washington, DC 20005
(202) 347-3471, Ext. 202
ddroblich@sleepfoundation.org

Dr. Michael Mazzini
Committee on Interns and Residents, SEIU
c/o Boston Medical Centers
725 Mass. Ave., MS-22
Boston, MA 02118
617-414-5301
Michael.Mazzini@bmc.org

Marian Berkowitz
Somerville, MA
Marmb2@gmail.com

Dr. Sucheta Doshi
Preventive Medicine Resident
Centers for Disease Control and Prevention
Assigned to MA Department of Public Health
250 Washington Street, 5th Floor
Boston, MA 02108
Phone 617-624-5969; Fax 617-624-5990
scd6@cdc.gov

APPENDICES

DRAFT