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October 5, 2009

Senator Steven Baddour, Chair
Joint Committee on Transportation
State House, Room 208
Boston, MA 02133

Representative Joseph Wagner, Chair
Joint Committee on Transportation
State House, Room 134
Boston, MA 02133

Subject: Support for S.1948 and H.3785 "An Act Relative to the
Transportation of Individuals Seated in Wheelchairs" (Rep. Marc R.
Pacheco and Sen. Stephen R. Canessa)

Chairpersons and Members of the Joint Committee on Transportation:

I am writing to indicate my strong support for the proposed Massachusetts' legislation S.1948 ad H.3785 brought forward by Representative Marc R. Pacheco and Senator Stephen R. Canessa, "An Act Relative to the Transportation of Individuals Seated in Wheelchairs," that will:

- a) require that wheelchair tiedown and occupant restraint systems (WTORS) provided on paratransit vehicles comply with specific design and performance requirements set forth in Society of Automotive Engineers (SAE) Recommended Practice J2249, *Wheelchair Tiedown and Occupant Restraint Systems for Use in Motor Vehicles (5)*,
- b) require that all drivers and/or attendants on these vehicles make every reasonable effort to secure each occupied wheelchair facing forward in the vehicle's wheelchair station and provide restraint for the wheelchair user following procedures established in a training course, and
- c) require that each employee or volunteer who transports or aids in the transportation of a person in a wheelchair completes a training course offered by the executive office of health and human services and the executive office of transportation prior to operation of, or assisting in, a paratransit vehicle.

My strong support for this Act stems from my extensive knowledge of the current status of transportation safety for people who use wheelchairs, and the potential of the proposed Act to prevent injuries and deaths of wheelchair users in the Commonwealth of Massachusetts. For the past 35 years I have held a research faculty position in the Biosciences Division of the University of Michigan Transportation Research Institute (UMTRI). During this time, a primary focus of my research has been related to understanding injury causation in motor vehicle crashes and improving occupant crash protection and reducing injuries and fatalities on our nations highways and roadways. For more than thirty of those years, I have sought to apply the basic principles of occupant protection to improving transportation safety for people with

disabilities who travel while seated in their wheelchairs.

My efforts in this regard have included providing leadership for the development of SAE J2249 and related international standards for WTORS, and for the development of voluntary standards for wheelchairs relative to their use as seats in motor vehicles. In the U.S., the latter is known as Section 19 of ANSI/RESNA wheelchair standards, *Wheelchairs Used as Seats in Motor Vehicles*, or simply “WC19.” (1) This standard was first published in May 2000 and establishes minimum design and performance requirements for wheelchairs relative to their very foreseeable and federally mandated (by IDEA and ADA) use as seats in motor vehicles.

I am currently serving as Chair of the RESNA (The Rehabilitation Engineering and Assistive Technology Society of North America) Committee on Wheelchairs and Transportation (COWHAT). This Committee is continuing to work on the development and modification of voluntary industry standards that will further improve the opportunity for people to travel safely when they remain seated in their wheelchairs. In fact, we are now close to completing revised versions of SAE J2249 and ANSI/RESNA WC19 that will be published in a new volume of RESNA wheelchair standards, Volume 4: *Wheelchairs and Transportation* (7).

I am also currently serving as Director of the Rehabilitation Engineering and Research Center on Wheelchair Transportation Safety (RERC WTS), which is funded by the National Institute on Disability and Rehabilitation Research (NIDRR). The RERC WTS is dedicated to making measurable improvements in transportation safety, usability, and independence for people who travel while seated in wheelchairs through conducting research and development projects, disseminating information, and providing leadership for the development and implementation of the voluntary WTS standards described above. In one of our research projects, we are conducting in-depth investigations of motor vehicle crashes and non-crash adverse incidents involving people seated in wheelchairs. To date, we have assembled data from 50 real-world crashes or adverse incidents that involved 53 wheelchair-seated occupants. The results of these investigations are providing clear and objective evidence that people seated in wheelchairs in motor vehicles are generally at much higher risk of serious to fatal injuries in both crash and non-crash events (6).

Other recent studies also point to a high risk of injuries and fatalities for wheelchair-seated travelers. In 1998, the National Center for Statistics and Analysis (NCSA) of the National Highway Traffic Safety Administration (NHTSA) reported on results from a retrospective analysis of the Consumer Product Safety Commission’s (CPSC) National Electronic Injury Surveillance System (NEISS) database, which is a representative sample of emergency department visits (4). This analysis estimated that, for the four-year period between 1991 and 1995, about 2,294 injuries/deaths occurred to wheelchair-seated occupants as a result of improper securement of occupied wheelchairs.

In a more recent cross-sectional study reported by Songer et al. (8) and Fitzgerald et al. (2), in-depth interviews were conducted with 336 participants who use their wheelchair as a seat in a public or private vehicle. More than one-quarter of the respondents (28.7%) reported at least one injury while using motor-vehicle transportation in the previous three years. Crash involvement was reported by about 15% of the study population at an estimated rate of 10.6 events per 100,000 miles traveled. Of 55 respondents who provided further details about their

crash experience, 38% reported being injured and two-thirds of the injured occupants required medical attention.

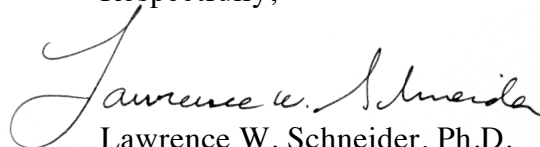
In addition to the crashes and incidents that comprise the data used in these studies, I am personally aware of numerous unpublished real-world accidents where a wheelchair-seated passenger of a paratransit van or public bus was seriously or fatally injured due to the non use or improper use of a lap/shoulder belt restraint system that was available in the vehicle, or due to improper securement of the wheelchair. In a high proportion of these cases the vehicle made a sudden turn or stop, resulting in the passenger coming out of their wheelchair or the wheelchair tipping over sideways or backward, resulting in injurious contact of the wheelchair passenger with vehicle interior components.

Thus, while precise statistics on the incidence and risk of injuries and fatalities to wheelchair-seated travelers are not available, there is little question that people seated in wheelchairs are traveling at a significantly higher risk of serious and fatal injuries than people who are able to travel seated in vehicle manufacturers' seats and use the vehicle manufacturers' restraint systems. It is also clear that people traveling in wheelchairs are needlessly being seriously and fatally injured because of improper installation and use of WTORS.

Because it can be difficult to properly secure many of the manual and power wheelchairs that are in use today, most of which do not comply with WC19, and because it can be equally challenging to properly position the lap/shoulder belt restraints of WTORS on passengers seated in wheelchairs due to interference by wheelchair components, the third part of the proposed Act, driver training, is a critical part that must be properly developed and implemented if the Act is to have the desired result of improving safety for wheelchair-seated travelers. However, if the Act is passed, and if an effective driver training program is developed and implemented, I have little doubt that the Commonwealth of Massachusetts will make measurable improvements in transportation safety for people riding in paratransit vehicles while sitting in a wheelchair, and that Massachusetts will then serve as a model for other states to follow.

If you have any questions about the information and opinions offered in this letter, please don't hesitate to contact me at 734 936-1103 or by email at lws@umich.edu. In addition, because the driver-training program is so important to the success of this legislation in reducing injury and fatality risk to wheelchair-seated passengers, I would be pleased to assist with the development and implementation of that program after the Act is passed.

Respectfully,



Lawrence W. Schneider, Ph.D.
Research Professor
Director, RERC on WTS
Chair, COWHAT

References (indicated by numbers in parentheses above)

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- 2) Fitzgerald, S. G., Songer, T., Rotko, K., & Karg, P. (2007). Motor vehicle transportation use and related adverse events among persons who use wheelchairs. *Assistive Technology*, 19 (4), pp. 180-187.
- 3) Klinich, K.D.; Moore, J.L.; Manary, M.A.; Schneider, L.W. (2006). Use and Performance of Occupant Restraint Systems by Wheelchair Users in Real-World Crashes *RESNA Proceedings*.
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