

Public Transportation Safety and the Public Interest

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System Safety in Rail Transportation

- The Way Forward

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Abstract

A discussion of public concern about the safety of different transportation modes, particularly rail. A reality check of the real risk levels is often needed. Issues have been raised about Safety Management Systems, an approach which shifts safety responsibility from government inspection to self-regulation by transport providers. Government regulation can affect fatigue among train engineers, airline, pilots, and bus or truck drivers. There have also been concerns about the availability of qualified persons to assist in safe evacuation of aircraft, trains and buses in emergency situations.

Public Engagement on Railway Safety

- Public doesn't know much about rail safety
- Public doesn't know much about railways
- Media coverage of accidents has a major impact

- Some individual accidents have a major impact on safety measures and policy

Government Consultation Opportunities:

- Railway Safety Act Review Panel (2007)
- House of Commons Transportation Committee
- Senate Transportation Committee (2011)
- Canadian Aviation Regulation Advisory Council

VIA Rail Fatal Accidents

- Hinton, (Dalehurst), AB, 1986, 26 fatalities
- Coteau, QC, 1992, 2 passenger fatalities
- Biggar, SK, 1997, 1 passenger fatality
- Thamesville, ON, 1999, 2 crew fatalities
- Aldershot, (Burlington), ON, 2012, 3 crew fatalities

Major accidents with no fatalities:

- Brighton, ON, 1994, (major train fire)
- Stewiacke, NS, 2001 (derailment)
- MacKay, AB, 2005 (derailment)
- St. Charles de Bellechasse, QC, 2010 (derailment)



VIA Rail
Burlington
2012

VIA Rail, Thamesville, 1999



Public View of Safety Responsibility

Different roles not well understood

- Transport Canada
- Canadian Transportation Agency
- Transportation Safety Board

Municipal self-regulation, (e.g. Toronto subway, new for Ottawa LRT)

Police investigations where fatalities occur.

Doors Open at Transportation Safety Board Labs, a very welcome and popular event, (2010 and 2012).

Other Important Players

- Railway Association of Canada: Outreach to politicians and government bureaucrats through the Rail-Government Interface Conferences
- Operation Lifesaver: Outreach to educate the public, particularly school children, about dangers around the railway and railway grade crossings
- The class one railways: corporate safety culture and elimination of hazards
- the rail transit operators: large numbers of people close to potential hazards.
- the short line railways, (examples of community engagement).

Transit Fatal Accidents

- Toronto Subway, 1995, 3 fatalities (collision)
- Washington metro, 2009, 9 fatalities, (collision)
- New York subway, 1991, 5 fatalities, (derailment)
This was the worst accident in 85 years! None since.
- Some passenger fatalities due to falling on tracks or between cars, (Calgary, Montreal 2013)
- Suicides are an ongoing cause of deaths
(32 attempts in Montreal in 2005, 12 in 2012)

U.S. Fatal Rail Passenger Accidents

- Chatsworth, CA, 2008, 25 fatalities (train collision)
- Los Angeles, CA, 2005, 10 fatalities (road vehicle)
- Florida, 2002, 4 fatalities (derailment)
- Illinois, 1999, 13 fatalities (truck collision)
- Indiana, 1998, 3 fatalities (truck collision)
- Mobile, Alabama, 1993, 47 deaths (bridge failure)
- Silver Spring, MD, 1993, 11 deaths (train collision)

- Fairfield CT, 2013, 70 injured (derailment)

U.K. Major Rail Passenger Accidents

- Ufton Nervet, 2004, 6 deaths (road vehicle collision)
- Potter's Bar, 2002, 7 deaths (track failure)
- Great Heck, 2001, 10 deaths (road vehicle collision)
- Hatfield, 2000, 4 deaths (track failure)
- Ladbroke Grove, 1999, 31 deaths (collision)
- Southall, 1997, 7 deaths (collision)
- Taunton, 1978, 12 deaths (sleeping car fire)

High Speed Rail Passenger Accidents

- China, 2011, train collision, 40 deaths (2.4%)
- Germany, 2006, 23 fatalities, maglev test track
- Germany, 1998, 101 fatalities (wheel failure, and collision with bridge, not on the high-speed line)

- Japan, 2004, earthquake derailment, 0 fatalities
- France, 1993, 294 km/h derailment, 0 fatalities

France and Japan have a perfect record of no fatal accidents in high-speed rail operation.

High Speed Rail Passenger Accidents



Terrorism Incidents

- Madrid, 2004, 191 deaths (4 trains, 10 bombs)
- Mumbai, 2006, 180 deaths (bombs on 7 trains)
- Moscow metro, 2004, 41+10 deaths (2 bombers)
- London Underground, 2005, 7+6+26 (3 bombers)
- Moscow metro, 2010, 40 deaths (2 suicide bombers)
- Moscow-St. Petersburg, 2009, 26 deaths (bomb)
- Tokyo subway, 1995, 13 deaths (Sarin gas attack)
- Paris metro, 1995, 8 deaths (bomb)
- French TGV, 1993, 2 deaths, (bomb)

Recently identified threat to Amtrak/VIA Rail train.

Positive Train Control

- automatic braking or speed control from signals
- different systems in use since 1920's
- elaborate systems use for high-speed rail safety
- Ottawa's O-Train uses a German system (INDUSI)
- U.S. Legislation triggered by Chatsworth accident
- U.S. Railroads delaying implementation: high cost
- British system failed to prevent Ladbroke Grove
- Toronto subway system failed to prevent collision
- no plan for mainline Canadian railways
- Transportation Safety Board has been urging action

Positive Train Control

"We know from many investigations that crews sometimes misinterpret railway signals," said Ed Belkaloul, TSB's Manager, Eastern Region Operations. "The answer lies in additional safety defenses so that railway signals will always be correctly identified. ... The TSB has been calling for these defenses since 2001. The Board remains concerned that without additional backup safety defenses to help ensure that signal indications are consistently recognized and adhered to, the risk of a serious train collision or derailment remains." (re 2010 St. Charles accident)

Safe Evacuation in Emergencies

- Air France Toronto Crash, 2005, 309 survivors, (rapid evacuation supervised by highly trained crew).
- Fredericton, NB, crash, Air Canada Regional Jet, 1997
- Cincinnati, OH, fire, Air Canada DC-9 1983, 23 deaths
- American Airlines Hudson River, 2009, 155 survivors
- Washington Potomac River Crash, 1982, 5 survivors out of 79 on plane. Frigid, icy river conditions.
- VIA Rail Richmond, ON, fire, 2009; 325 passengers evacuated in remote location; confused instructions.

Safe Evacuation in Emergencies

Air France, Toronto, 2005



Safe Evacuation in Emergencies

Air Florida, 1982

American Airlines, 2009



Safe Evacuation in Emergencies VIA Rail, Richmond, ON, 2009



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Transport Action is a national advocacy group for public transportation, founded in 1976 as Transport 2000. It is concerned with transcontinental and intercity transportation by rail, air, and bus, urban transit, and marine ferries within Canada. David holds a B.A.Sc. (Engineering Science) and M.Eng. (Electrical Engineering) from U of T. Transport Action has spoken to the media and appeared before various hearings and parliamentary committees reviewing rail and air safety. We participate with Transport Canada in committees on air safety matters, such as CARAC, (the Canadian Aviation Regulation Advisory Council).

Brief to Railway Safety Act Review Panel

21 August 2007: Transport Action Canada is a national voice for sustainable public transportation, founded in 1976 in response to an invitation by the government of the day for broad public involvement in planning the rationalization of Canada's transcontinental passenger trains. A volunteer-based nonprofit and registered charity, we attract a nationwide membership of people with knowledge and concerns about the state of transportation in Canada. We act as a voice for users and the public. Over the years we have expanded our scope to urban public transit, marine and air modes for passenger transportation and particularly safety of the traveling public, whether by rail, air, road or marine.

Transport Action, (originally known as Transport 2000), has regional associate groups in Atlantic Canada, Quebec, Ontario, Prairies and British Columbia, and specialized associated groups which address safety concerns in the rail, air and highway modes. In recent years, the level and severity of rail accidents has raised public concerns, despite periods when the overall accident statistics may have actually improved. The potential for such accidents to put human life at risk or to damage the environment are the most acute concerns, but the impacts to Canada's economy and the traveling public, resulting from accidents, are also real issues.

This is exacerbated as the drive for greater efficiency and productivity on the railways actually has reduced the resilience of the overall network, and increased the potential level of property or environmental damage from accidents. Thankfully there were for many years no railway accidents involving a substantial number of fatalities, since the Hinton collision of February 1986 when 23 persons died. However, many recent derailments have occurred in areas of high train speeds and frequency on multiple-track railways, where the potential for catastrophic accidents is always present.

The Burlington derailment of a VIA Rail train at high speed in 2011 killed the locomotive crew of three and had the potential for deaths among the passengers. There have been recent examples of serious rail accidents in the United States and countries overseas, where a derailment led to collision with another train on an adjacent track and multiple fatalities, such as Great Heck, England in February 2001 when 10 persons died, or the January 2005 Metrolink derailment in Los Angeles which killed 11.

Economic impact of derailments and other accidents has been highlighted again and again in recent years. Where a main line of CN or CP has been blocked, there is often no longer any practical detour route available and all traffic comes to a halt. Such an incident was the derailment in Montmagny in 2004 that destroyed the bridge over the Rivière du Sud and effectively blocked all container access to the port of Halifax for several days. This incident and this year another derailment in Montmagny in 2007, as well as in the busiest parts of the Toronto-Montreal corridor at Pickering and Kingston, each caused many days disruption to passenger services of VIA Rail Canada and, in the Pickering case, to GO Transit. This represents lost productivity for passengers and lost revenues and increased public costs to VIA and GO. Had a passenger train actually been passing at high speed at the time of the corridor derailments, the consequences could have been catastrophic.

Railways are a major contributor to environmental programs, in already exceeding Kyoto objectives, in publicly committing to further emission reductions, and in delivering the best fuel economy for high-volume freight and passenger transportation. However, transport of hazardous goods on increasingly longer and heavier trains means that when accidents do occur the potential for catastrophic environmental damage is very great. The Railway Safety Act and regulations must ensure that the railways are prepared to respond quickly if such accidents happen. Delayed response, such as occurred in August 2005 at Lake Wabamun AB and Cheakamus BC, is increasingly unacceptable.

Much of Toronto's commuter rail network has had to be shut down if freight trains derail at critical points on the network. This happened at Mimico yard in July 2006, affecting most afternoon GO Train service in Toronto. Even in such a dense part of the rail network, there are insufficient alternate or detour routes to allow service to continue when an incident occurs. For this reason, the inspection regime for infrastructure and for all trains operating in such critical areas must meet a very high standard.

VIA Rail's eastern and western transcontinental service is affected by rail accidents anywhere along the railway lines that are used. This involves multiple railways, though CN has by far the greatest route mileage used by VIA. Major delays or total cancellation of transcontinental trips of the Canadian or Ocean have become a far too frequent occurrence. They have created major negative impact for foreign and Canadian tourists and substantially increase costs for VIA to respond to line blockages and other incidents.

Concerns have already been expressed by Transport 2000 Canada and by Mr. Justice Virgil Moshansky, among others, about introduction of the Safety Management System approach. We fear it may dilute the ability of Transport Canada to continue its effective inspection capability, in parallel with the assumption of a safety culture by the private transportation companies. We raised this concern before the parliamentary committee hearings on Bill C-6, governing aviation safety, but the same principles apply to rail.

We are concerned about the timeliness of public information release by the Transportation Safety Board after accidents have occurred. Both in the United States and in Britain the practice has developed of rapid publication of factual information on rail or other transportation accidents, within days of occurrence. In Canada there is often public speculation, in the absence of a factual account, for some time after a major incident.

Brief to Senate Standing Committee on Transport and Communications 2011

Transport Action Canada, (formerly Transport 2000), is a national group advocating for sustainable public transportation. We were founded in 1976 in response to an invitation by the government of the day for broad public involvement in planning the rationalization of Canada's transcontinental passenger trains. As a volunteer-based nonprofit corporation and registered charity, with associated regional organizations in Atlantic Canada, Quebec, Ontario, the Prairies and British Columbia, our members are people with knowledge and concerns about the state of public transportation in Canada. We speak for transportation users and the general public.

Bill S-4, the Safer Railways Act, represents the final stage in a process initiated by the government in late 2006 by then Minister of Transport, Infrastructure and Communities, the Hon. Lawrence Cannon, who announced the review of the Railway Safety Act. Transport Action was one of a large number of organizations that appeared before the review panel chaired by Mr. Doug Lewis, which delivered its report at the end of 2007.

At that time we stated that although rail is a very safe transport mode, in recent years the frequency and severity of rail accidents had raised public concerns. The potential for such accidents to endanger human life or damage the environment were the greatest concern, but also the impacts on Canada's economy and the needs of travellers for reliable transportation.

However, mainline derailments are still occurring and may disrupt passenger train services which share the same tracks. We are concerned about the impacts on users of VIA Rail's passenger operations as well as commuter rail services in cities such as Toronto, Montreal and Vancouver.

Canada has important national capabilities which support safe railway operation and allow us to respond to advances in technology. These include the regulatory roles of Transport Canada and the Canadian Transportation Agency, investigative capabilities of the Transportation Safety Board and the scientific and engineering expertise at the Centre for Surface Transportation Technology. The latter organization provided its world-class capabilities when the 2000 fatal rail accident at Hatfield in the UK exposed serious safety issues with the maintenance of Britain's privatized rail network. That accident led to re-nationalization of rail infrastructure ownership and maintenance. We believe the strong federal role has helped avoid such problems in Canada.

The federal role in railway safety is critical, because neither the provincial nor the municipal levels of government can afford to create the competencies that already exist nationally here in Ottawa. In a few cases municipalities have self-regulated their rail transit networks, but there have been consequences, such as the multiple-fatality Toronto subway collision in 1995, that was largely due to the continued use of 40-year old signalling and safety technology.

At that time two very serious derailments two years earlier were still in the public memory, the 2005 Lake Wabamun accident in Alberta and the Cheakamus River BC derailment the same year, which both resulted in severe environmental damage. Fortunately these have not been repeated.

We support the changes to the Act that deal with simplification of the process for development of rules. Transport Canada has clearly explained the effectiveness of the rules-based process that facilitates changes in collaboration with the rail industry that allow more timely response to technology change, and operational and safety requirements. This is in contrast to the more time-consuming and expensive process based on orders. Similarly there needs to be more transparency and better reporting on how Transport Canada is actually responding by regulation, enforcement or other actions to recommendations made by the TSB or other inquiries into transportation accidents. An example of successful development of such new rules was the collaboration 10 years ago between the City of Ottawa and Transport Canada for one-person operation and automated train control of Ottawa's O-Train.

We share concerns expressed earlier this week by the Railway Association of Canada about the impact of municipal land use planning on development in proximity to railways that create safety issues. We have seen an example here in Ottawa with the rezoning of land for housing within a former industrial area adjacent to Ottawa's Walkley rail freight yards. We are concerned that municipal planning makes no provision for the potential future return of a greater degree of rail freight activity to Ottawa's last remaining rail freight facility, which was originally built for this purpose by the National Capital Commission as part of the Gréber Plan for the National Capital.

A second concern of the RAC was that there needs to be more provision to avoid the creation of new highway crossings of railways at grade. Improving safety at many such crossings has been a significant cost for the federal government, but these crossings also have a significant detrimental impact for the provision of higher speed rail passenger service in Canada. It should be noted that the speeds of high speed trains

in an increasingly large number of industrialized countries cannot be achieved where such crossings exist.

The high-speed lines of Japan and France, in operation since 1964 and 1981 respectively, have never seen a passenger fatality due to a rail accident. In fact some of the most serious accidents that have occurred to passenger train operation in other countries such as the United Kingdom and the United States have been due to collisions with road vehicles. Only the federal government is in a position to deal with this issue for Canada's railways, in the same way that the provinces and municipalities do for the freeways that fall under their jurisdiction.

We have followed closely the introduction of Safety Management Systems, both in the airline and the rail sectors, and support the clear identification of safety responsibilities at senior management levels in the railways. We are concerned, however, that the costs of effective SMS may be beyond the resources of some of the smaller rail operating companies, including short lines and transit agencies. In this context we note that a number of such organizations currently contract with Transport Canada to provide rail safety inspections.

It is our opinion that the federal competency in railway safety should be applied or at least available to provincial and municipal transit operators. For example the City of Ottawa is proposing to take responsibility for all safety matters on its planned 12 km light rail line, even though such services have been very effectively provided for the last 10 years on Ottawa's federally regulated light rail line, Capital Railway. The federal role is not only important because of the competence in rail safety, but also because many transit operations involve some use of federally regulated rail infrastructure and may in future even include interprovincial rail connections.