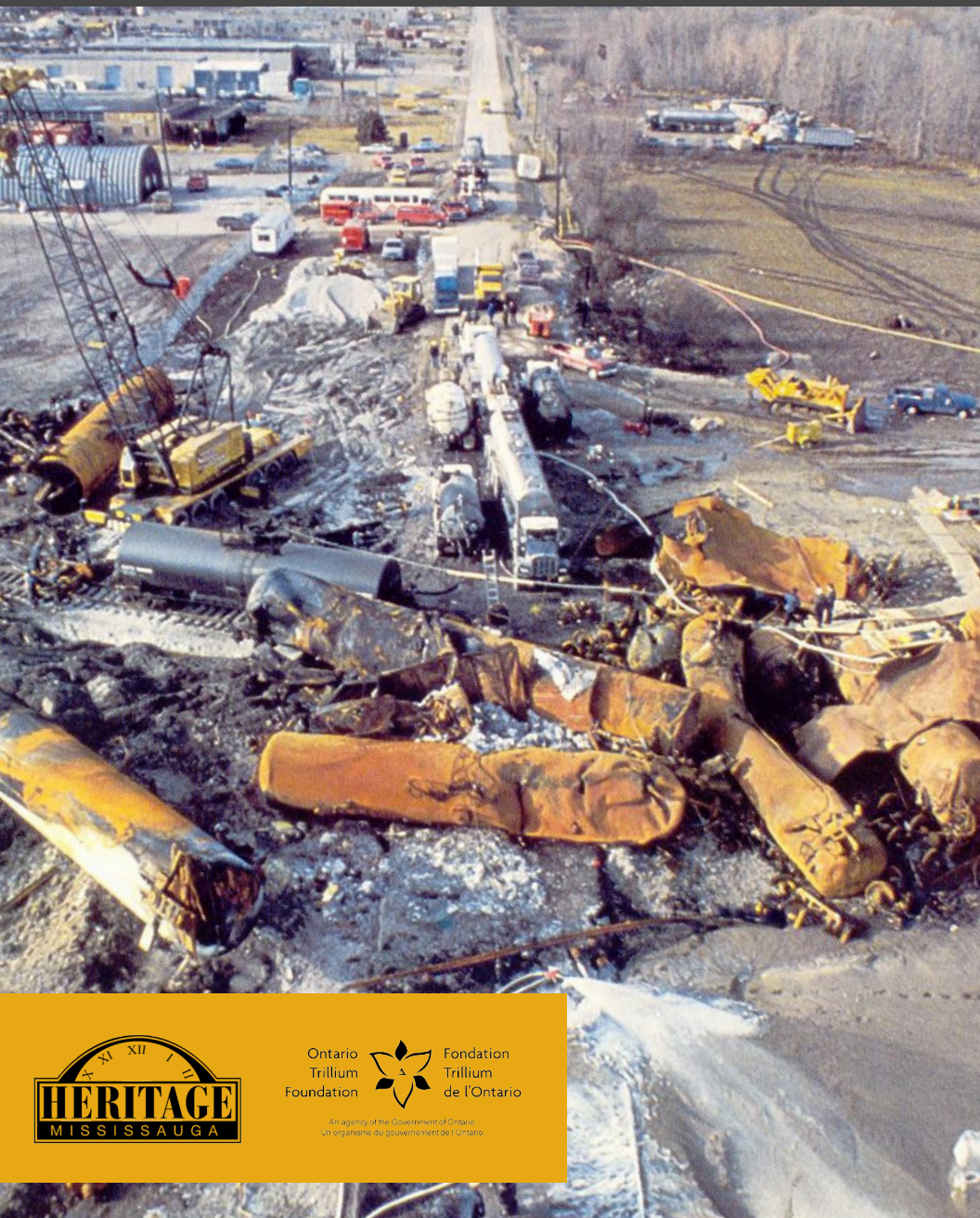


Tested by Fire

Remembering the Mississauga Train Derailment



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overview

On the evening of November 10, 1979, citizens in the City of Mississauga were unaware that something catastrophic was about to occur. Some refer to the train derailment as the “Mississauga Miracle” – no loss of life and no permanent scarring on the land, the people, or the collective psyche. Intangibly, the city that awoke amidst the thunderous explosions and mass evacuations in the early hours of November 11 was fundamentally changed. The first major evacuation and emergency faced by the young city tested its mettle, its leadership, its emergency services, its organization, and its citizens.

The ramifications and subsequent investigations led to industry changes in the transportation of hazardous materials. Yet through it all, the train derailment remains perhaps the most significant chapter of the ever-evolving Mississauga story – a moment in time that connected all “Mississaugans” through common experience – a veritable test by fire.

Front cover: Aftermath, Mavis Road looking north, image courtesy of the City of Mississauga

Below: Looking southwest from Mavis Road crossing, image courtesy of the City of Mississauga



What Happened?

Freight trains frequently carry hazardous materials through the City of Mississauga. On Saturday, November 10, 1979, CP train #54 was carrying 106 rail cars from Sarnia to Toronto on a weekly scheduled run. Thirty-eight cars were carrying cargo that the Canadian Transport Commission designated as hazardous materials, including liquid styrene, caustic soda, liquid petroleum products, and liquid chlorine. At approximately 11:53pm, as the train crossed Burnhamthorpe Road, an axle bearing failed and one rail car lost a pair of wheels. The train continued until, at approximately 11:56pm at the Mavis Road crossing, 24 rail cars derailed. The explosion was caused by ruptures in butane- and propane-carrying rail cars, and was seen more than 100 kilometres away. Several subsequent explosions, one of which hurled a 90-tonne tanker car filled with liquid propane more than 675 metres away from the derailment site, followed the first explosion within minutes.



“Tankers Afire”, image courtesy of Toronto Sun

The initial cause of the derailment was a “hot box” – an overheated journal box that connected the moving axle of the wheel to the car above. Car 33 had an older model journal box, which required lubrication by oil to avoid overheating. As the train reached Mississauga, the “hot box” failed. When the dangling undercarriage of the damaged car left the rail tracks, 23 other cars followed it, 19 of which carried dangerous commodities.

Emergency Response & Evacuation Process

The first policeman on the scene, having seen the initial explosion, arrived at about 11:58pm, while local firefighters arrived at 12:04am. Emergency personnel initiated the Peel Regional Police Disaster Plan, which coordinated the immediate institutional emergency response. Once the Peel Regional Police had established a Command Post, the Emergency Operations Control Group began to evaluate the situation and direct mitigation procedures.

The Disaster Plan also brought in many volunteer support agencies, including the Canadian Red Cross, St. John's Ambulance, the Salvation Army, the Mississauga Humane Society and the Ontario Humane Society. Evacuation Centres were quickly established at Square One Shopping Centre and Holy Name of Mary Secondary School; in total, the evacuation centres sheltered over 45,000 people.

Continual re-evaluation of the fire-fighting and emergency response measures, the progress of the fire, and changing weather conditions resulted in a series of expanding evacuations, which encompassed most of the City of Mississauga along with parts of the neighbouring towns of Oakville and Etobicoke. More than 240,000 residents were evacuated in stages.

As the threat of the fires was quelled and the chlorine car was sealed, the evacuation orders were gradually lifted. Residents were allowed to return to their homes beginning on Tuesday, November 13, once the initial fire had been extinguished after burning for some 50 hours. The final evacuation order for those in the immediate vicinity of the derailment was not lifted until Friday, November 16, almost six days after the initial derailment.

Top right: Police Command Centre, image courtesy of the Mississauga Library System

Bottom right: Firefighter in the aftermath, Heritage Mississauga





Cleanup, image courtesy of the Mississauga Library System

The federal government initiated an inquiry into the accident on December 4, 1979. Prepared by the Honourable Mr. Justice Samuel Grange, the Commissioner of Transportation for the Supreme Court of Canada, the report presented a comprehensive summary of the events surrounding the derailment. The report gave 15 recommendations aimed at adjusting the policies pertaining to rail transport of hazardous materials and hazard mitigation proposals targeted at lessening the likelihood of a similar emergency. The recommendations were aimed at improving the technical safety of the rail transport of hazardous materials, establishing chemical hazard emergency guidelines, setting stricter guidelines for railway companies travelling through urban areas, and establishing independent investigations of railway procedures and accidents.

Directly resulting from Justice Grange's recommendations, Transport Canada established an Emergency Response Assistance Plan. The plan identified 49 hazardous materials and established flame-resistant placard identification regulations. In 1980, the Federal Government also passed the Transportation of Dangerous Goods Act to regulate transportation of hazardous materials.

Aftermath

The success of the organizational response was due in large part to pre-planned emergency response procedures. The speed of arrival of personnel and equipment, as well as the speed of the initial assessment, ensured that the situation was dealt with successfully. In the aftermath, critical issues were addressed, which included the lack of established protocols to identify hazardous materials, standards to regulate the transportation of dangerous goods, and guidelines on how to effectively respond to a chemical emergency. However, the cause of the derailment, despite official maintenance checks, was a mechanical failure which could happen at any time or place.

In regards to the evacuation process, two things stand out as remarkable in Mississauga: the lack of panic and the sheer scale of evacuation – an estimated 98% of the population of the city was evacuated. The derailment showed that traditional emergency planning frameworks were inadequate, and new measures were introduced in the months following the accident. Both the evaluation of the evacuation and the emergency response immediately following the derailment must be considered a success; despite any economic costs, no lives were lost.

Below: Aftermath, Heritage Mississauga
Back cover: Fighting the fire, image courtesy of the Toronto Sun





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