

Chapter 2

EVENT RECONSTRUCTION

2.1 THE SETTING AND BACKGROUND

2.1.1. Background

The City of Mississauga, in the Regional Municipality of Peel, is one of the great Canadian success stories of the post-war period. The entire Region went from a 1941 population of 31,000 to a 1971 population of 260,000. In November 1979, there were more than that number of people living in Mississauga alone. This spectacular growth is dependent, as much as anything, on transportation. The rivers, roads, and railways criss-crossing the area west of Toronto were substantially responsible for the establishment and maintenance of the small towns and villages before the war; while the power of the automobile fueled the great suburbanisation of the area in the post-war years. In the words of a city brochure, Mississauga is "a city with the best connections and room to grow".

The best connections include the Toronto International Airport to the north at Malton; Highway 401 and the Queen Elizabeth Way; and three mainline tracks operated by Canadian National and Canadian Pacific Railways. Each of these transportation facilities has claims to being the busiest transportation corridor of its kind in Canada.

The possibilities for hazardous events whether connected or unconnected with transportation, have grown with the city. There have been previous emergencies: a natural gas explosion in 1969; an air crash near Malton in 1970; a hostage-taking incident in 1975; and another air crash and an oil refinery fire in 1978. The most recent was the train derailment just before midnight, November 10, 1979, at the Mavis Road crossing in the Centre of Mississauga.

What this event reconstruction tries to provide is not only an account of how this particular hazardous event affected the City of Mississauga and Peel Region on an unmatched scale; but also an account of the great resources - human and physical - that can be

marshalled to match the scale of the hazard.

2.1.2. The Train and its Cargo

At the time of its derailment on November 10, 1979, CP Rail Train 54 was nearing the end of a run from Windsor to the Toronto marshalling yards at Agincourt. It was made up of 3 engines and 106 cars. En route, it had undergone a number of changes - it began as Train 84 out of Windsor - and a series of additions and subtractions of cargo.

The run began in Windsor at 12:45, Saturday afternoon, with 57 cars, none of which contained dangerous commodities. At 15:00, the train pulled into Chatham to await the arrival of Local 4, a train from Sarnia composed of 69 cars, 63 of which were consigned to CP Rail at Chatham. Thirty-eight of these contained "dangerous commodities": 28 carried liquid petroleum products, 5 petroleum derivatives, 4 caustic soda, and one carried 90 tons of chlorine (car number CGTX 9009); 13 others carried materials CP Rail does not regulate as dangerous commodities, including styrene, petroleum oil, and auto parts.

At 18:00, the train left Chatham with 102 cars. Through the rest of the evening, empty cars and loaded cars were dropped and added at London (where the train became Train 54) and Woodstock. At 23:25, the train arrived at Guelph Junction, near Guelph. There were now 106 cars: 84 loaded, 22 empty. Concentrated almost half-way down the train was a mixed assortment of 24 cars containing styrene, toluene, propane, and caustic soda. Among them was the car of chlorine (No. 64 - counting from the back of the train).

2.1.3. Tests and Inspections

According to testimony before the Mississauga Railway Accident Inquiry (the Grange Commission), the train was tested and inspected a number of times before the derailment. Tests and inspections included:

- a) mechanical inspection in marshalling yards, including full brake inspection;
- b) mechanical inspection in interchange from one railway to another, including partial brake inspection;
- c) pull-by visual inspection by carmen as trains passed through terminals;
- d) visual inspection by passing trains;
- e) running visual inspection by crew of the train.

The last major inspection, which involved checking cars with plain bearings and partial brake testing, was done at Chatham, between 16:00 and 18:00, Saturday. All subsequent inspections were visual. Three trains were met, and mutual inspections were made in passing, the last being at Guelph Junction. Nothing unusual was seen.

The crew on Train 54 was a 3-man crew, differing from the standard 4-man crew in that there was no tail end trainman. In 1979, reduction of crews on trains of less than 120 cars was allowed, the trail end trainman being eliminated. The crew consisted of Keith Pruss, engineer, and Larry Krupa, head end trainman (also Pruss' son-in-law) at the front, and William ("Ted") Nichol, the conductor, at the back. They came on duty at London. None of these three saw anything suspicious until the derailment.

The car which would eventually cause the derailment was a car of toluene, 649 metres from the head end and 1,339 metres from the tail (it was 33 cars from the front). Between Guelph Junction and Mavis Road, the best place for a visible inspection of most of the length of the train is at a long curve beginning at Winston Churchill Blvd., which straightens up just before Mavis Road (Figure 2.1). Both the conductor and the head end trainman have testified that they inspected the train at the start of this curve. The engineer was preoccupied with many crossing signals and switches as the track approached the built-up area around Toronto.

2.1.4. Cause of the Derailment

The derailment was caused by the overheating of a journal box in the 33rd car. A "journal" is the extreme end of one of

the axles, which support the railway car and are attached to the wheels. Each car has journal boxes which house the journals and regulate the friction between the moving axle and the mountings securing the axle to the car above through the use of bearings. Newer cars use roller bearings, but the 33rd car used plain bearings. A lubrication pad between the bearings and the journal is soaked in oil and must be topped up fairly frequently. If the lubrication pad fails or dries out, the friction of bearing against journal will cause overheating and eventual burnout of the axle. This is a "hot-box" incident.

In this case, the right-rear journal box of Car 33 began to overheat. The car, originally made by Hawker-Siddeley in 1967, was owned by North American Car Corporation and leased to Shell Canada in 1970 as a general purpose tank car. In July, 1979, it was repacked with journal lubricator pads at Chesapeake and Ohio's yard in Sarnia. From debris picked up after the derailment, it appears that 6 x 12 inch lubricator pads instead of 6 x 11 inch lubricator pads were installed in some of the journal boxes by mistake (the actual pad went up in smoke). There is a chance that this may have been one of the causes of the overheating. It is CP Rail's contention that this is indeed the case. The man who conducted journal box inspections at Chatham testified at the Grange Commission hearings that he would have added oil if the level had fallen below three-quarters of an inch in the box (one-half inch is acceptable). Mr. Justice Grange cast doubt on the records of this inspection, but not necessarily on the inspection itself.

One area of dispute is the type of "hot box" fire that was created. The fact that the crew of the train did not detect any fire until the derailment suggested to CP Rail that there was a quick burn-off; that is, that the fire began sometime after Winston Churchill Blvd., becoming intermittently bright only at Derry Road, and thus out of the best view of the crew. On the other hand, if the fire had been a typical burn-off, the fire would have

started 29 to 32 km. before derailment and would have caused a trail of smoke and a constant fire to be present by the time the train passed Winston Churchill Blvd. A test run, with a constant light affixed, showed that a small fire could be seen along the Winston Churchill Blvd. curve for approximately 50 seconds.

2.1.5. Witnesses Before the Derailment

At this point, the testimony of witnesses to the passage of the train becomes relevant (see Figure 2.1 for locations mentioned).

A Mr. and Mrs. Houston testified at the Grange Commission hearings that they saw smoke coming from the right rear of the train as it went through Campbellville, 35 kilometres from the derailment site (23:15). A Mr. Anthony, 17 kilometres from the derailment at Trafalgar Road, saw nothing unusual. (He was on the north side of the train, however; the right rear journal box was on the south side). A Mr. and Mrs. MacGregor saw a fire, four feet in diameter, under the wheels at the Derry Road crossing. Two other witnesses between Derry Road and Eglinton Avenue testified that they saw nothing unusual. Mr. Justice Grange's assessment of this is as follows:

"I think it is a reasonable if not an inescapable inference that there was some flame, perhaps not steady, to be seen at Winston Churchill Blvd. by those who could see and were looking....I conclude that there was fire or sparks or both emanating.... from Derry Road to the derailment."

And, of the last inspection, he notes:

"On the fifth, the running inspection from Guelph Junction, the 'last defence', as it has been called, I can only say that either the crew or the system fell down badly. By that I mean either the crew or the system or both were not up to discovering the hot-box in time to prevent the derailment."

It is the resolution of these matters which is before the courts at present.

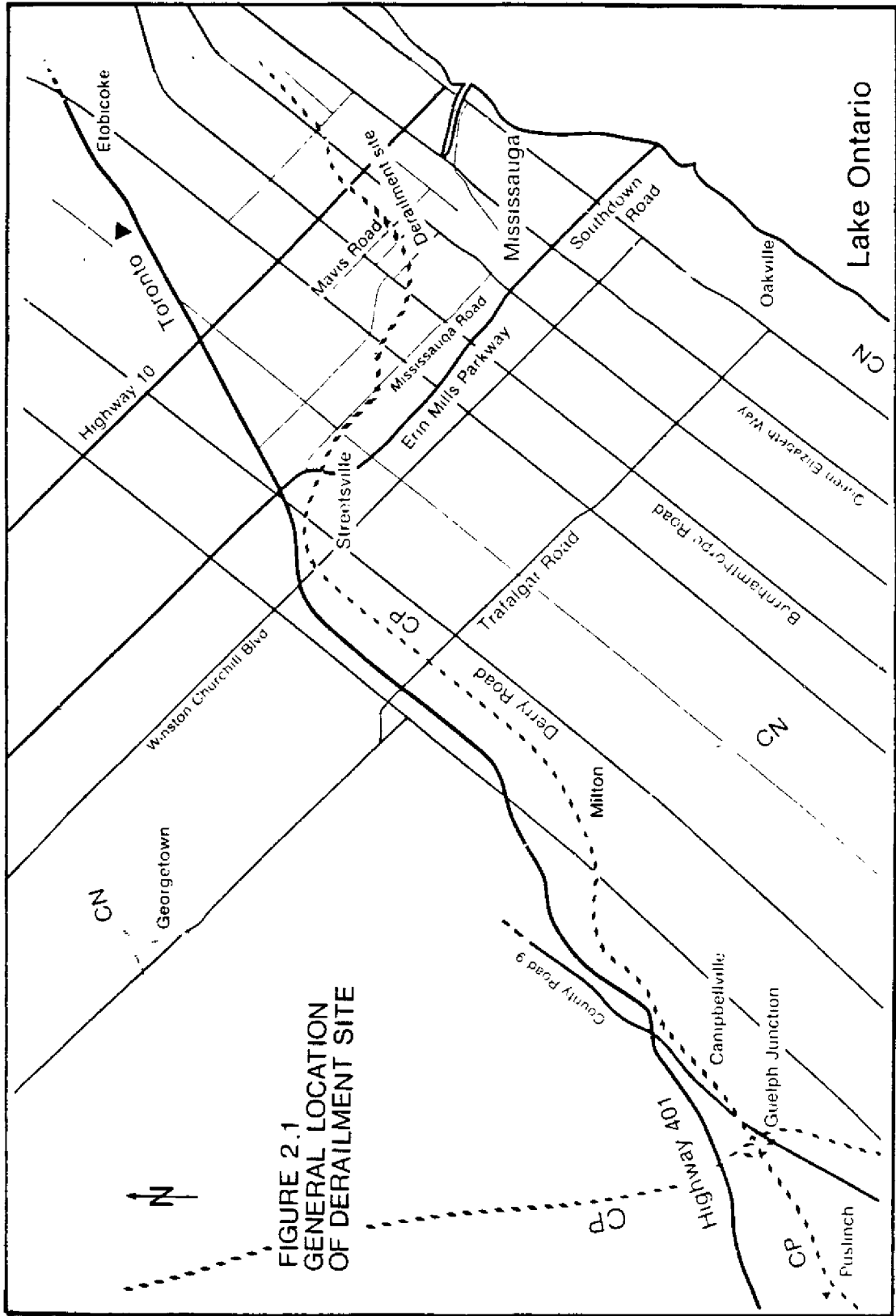


FIGURE 2.1
GENERAL LOCATION
OF DERAILMENT SITE

2.2 SUNDAY2.2.1. The Derailment

Between Winston Churchill Blvd. and the derailment site, the train was travelling at approximately 80 kilometres per hour, a speed which has subsequently been criticised, but which was acceptable according to regulations at the time. It therefore took the train approximately 10 minutes to cover the 13.4 kilometres between Winston Churchill Blvd. and Mavis Road. From the evidence, it seems that the journal box burnt through between McConnell Road and Burnhamthorpe, causing the rear axle assembly at the right rear of the car to drop. This was approximately 3 kilometres from Mavis Road. The right rear wheel began shifting to the south, until ultimately the entire axle went flying into a backyard on Freeport Avenue, alongside the tracks, just south of Burnhamthorpe Road. The car proceeded with the rear of the car trailing along the tracks, supported by the front two sets of wheels and the one remaining lead set of rear wheels. Crossings and switches were damaged all along the remaining route. The car made it over the switches at Erindale Station Road, although both front axles were damaged in passing, and the axles probably shifted south, coming away from the car. Witnesses at Erindale Station Road reported fan-like flames flying up the side of the tank car.

In his house on Eaglemount Crescent, the last street of houses before Mavis Road (see Figure 2.2), Peel Regional Police Constable Chuck McConnell heard the train approaching:

*"It was the normal time, the normal train,
but something didn't sound right."*

He walked up to the window overlooking the tracks. The train screeched and banged as it went by. Other witnesses at Wolfedale Road crossing reported the tank car giving off a spray of sparks, and listing over to one side.

For about 3 kilometres, the damaged train had been passing through residential neighbourhoods. Having managed to

stay on the tracks past Wolfedale Road, it came into an industrial area again (see Figure 2.2). On either side of the next crossing, the Mavis Road crossing, are small factories and factory outlets, a Mississauga Hydro building, and Mississauga Parks and Works Department facilities. Beyond the crossing is the last significant space of open waste ground between Mississauga and Union Station in Toronto. About 1.5 kilometres further east, residential housing begins again. It was at this Mavis Road crossing, luckily enough, that the dangling undercarriage hit a switch to the Akaril Chemical Ltd. building and finally derailed.

At 23:54, the three engines and the first cars went through the crossing, accompanied by "the screeching of metal". Mr. and Mrs. Ronald Dabor had stopped their Lincoln Continental on the north side of the crossing to let the train go through. Mrs. Dabor remembers trying to count the cars as they went past. Then she realised that there was a wheel off the track, giving out sparks. They suddenly saw cars begin to uncouple and pile into each other. This was at 23:54:27.

A transcript of radio communications between the engineer, the conductor and the Dispatch Co-ordinator at the Toronto Yard shows the following:

23:54:00 "CP 54 to CP Terminal Dispatcher"
(Engineer to Dispatcher)

23:54:27 "We're in the big hole Ted, but
still moving." (Engineer to
conductor - "big hole" means emergency)

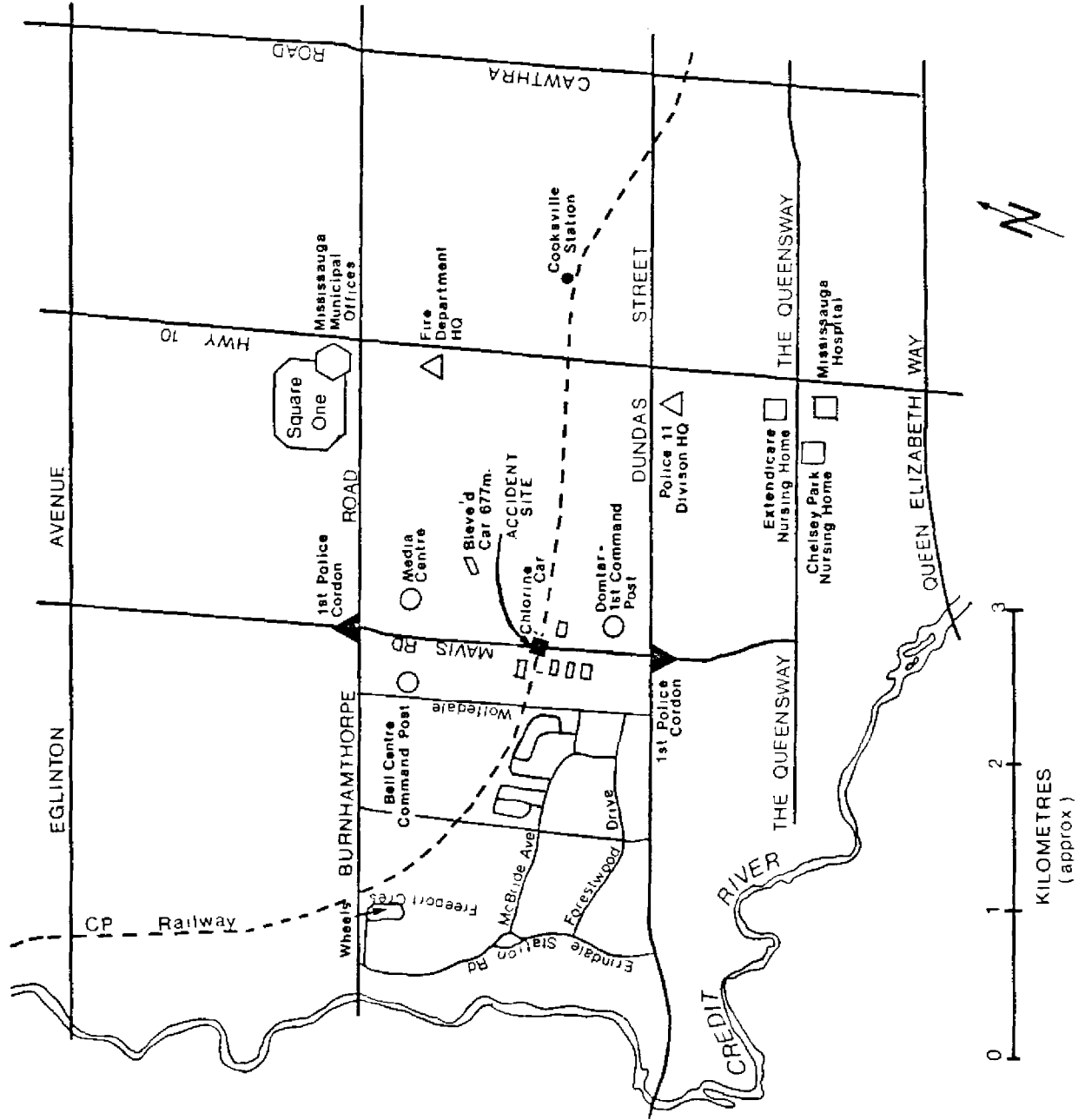
The engineer heard the rush of air pressure escaping from the brake lines, as the train uncoupled and the depressurising of the air brake lines automatically applied the brakes. Krupa, the head end trainman, looked out the window and yelled,

"Oh, my God, we've got a tanker afire."

The transcript continues:

23:54:47 "Jesus Christ Ted, one of them
tank cars blew up." Tail end of
54 (engineer to conductor).

FIGURE 2.2 THE NEAR SITE



At the crossing, Mr. Dabor had put his car into reverse, as bits of metal began flying through the air. He lost control of the car, and it swerved back into the ditch. The Dabors abandoned the car, and began running north. They were knocked to the ground by the first big explosion. They got to their feet again and finally reached Burnhamthorpe Road where they saw a policeman.

Counting from Car 32 back (33 becomes derailed Car 1), 24 cars were derailed (Figure 2.3). Derailed car number 8 appears to have been the first propane car to experience a Boiling Liquid Expanding Vapour Explosion (BLEVE), which flung it 43.5 metres east. Other propane and toluene cars were punctured and ignited.

Due to the momentum of the train, cars beginning with 33 were dropped 75 metres beyond the street crossing; and the now disengaged front 32 cars and the engines rolled 1.9 kilometres east of Mavis Road before the air brakes stopped them. Krupa volunteered to run back from the engine to the 32nd car and close the angle cock, a valve which would allow air pressure to build up in the train once more, and thereby allow the release of the brakes¹. Krupa ran back down along the train, keeping in radio contact with his engineer. The CP Rail dispatcher, also in contact, advised Pruss to get the train out of the area as soon as possible. Krupa reached the 32nd car, closed the angle-cock, and the train moved on a slight distance. There was a second, more massive BLEVE at 12:09, which Krupa reported seeing, in which a tank car (probably Car 13) was hurled like a rocket, in his general direction, ultimately coming to rest 675 metres to the northeast. He yelled into his radio for the engineer to pull the train further along the track. The train moved on to Cooksville, 3 kilometres east.

¹ Note that air brakes, unlike the hydraulic brakes with which we are more familiar, are applied by the release of pressure from brake lines; hence, a broken line or connection such as would accompany the decoupling of cars would automatically apply the brakes. The train could not restart until pressure could be build up again in the braking system.

2.2.2. Configuration of Cars

Behind them lay a jumble of cars, 24 in all (see Figure 2.3). At the heart of the jumble, possibly punctured by the BLEVE of Car 8, was Car 7, filled with 90 tons of chlorine. Ahead of it on the tracks were four cars of caustic soda (Cars 3-6); behind it were pieces of the BLEVE'd car of propane (Car 8), three twisted cars of styrene (Cars 9, 10, and 11), and a long string of propane cars (12, 13, 14, 17-23). All the propane cars were either ruptured or damaged, with their contents flowing off or exploding. The box cars burned. The styrene cars and caustic soda cars poured their contents onto the tracks, through punctures or damaged outlet valves, as did two of the toluene cars. The last car in the derailment, a toluene car, was found still to contain its cargo when the cleanup finally began some days later.

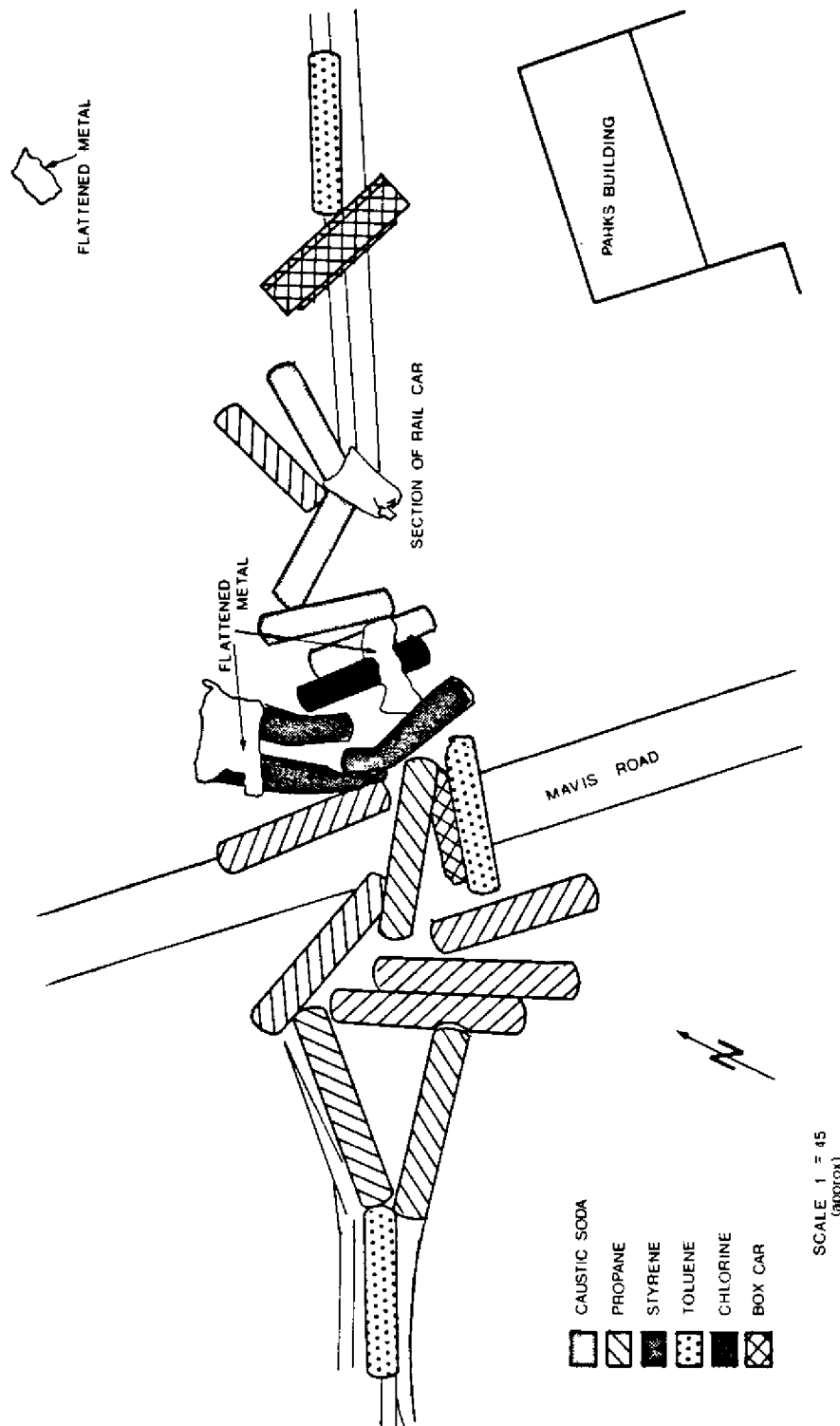
2.2.3. Initial Response: Police, Fire, Ambulance

The first agencies to respond to the derailment were the Peel Regional Police, Mississauga Fire Department, and Halton-Mississauga and Metropolitan Toronto ambulance services. All of these organisations had had experience in emergencies and in planning together for emergencies. Toronto International Airport at Malton to the north had been the scene of a number of major incidents in recent years. Only a year previously, the oil refinery fire at a Texaco plant in Clarkson, in the southern part of the area, had resulted in the evacuation of 1,000 people. All agencies had emergency plans prepared - indeed, the Fire Department Chief was in the process of revising his plan in the week before the derailment.

The Peel Regional Police Force's plan and response were of primary importance for the emergency as a whole: the police Disaster Plan was the only formally declared plan in effect for the week, and it provided the framework within which the rest of the emergency response developed.

The police plan, developed in conjunction with other emergency service agencies, calls for:

FIGURE 2.3 CONFIGURATION OF THE DERAILED CARS



- (a) alert of personnel;
- (b) the cordoning off of the affected area;
- (c) the smooth assumption of command;
- (d) the creation, if necessary, of a Command Post;
- (e) the alert and controlled entry of other agencies.

The circumstances of the derailment were such that cruising police units were alerted by the light of the explosion. The first recorded message at 11 Division is at 23:54:38, when Car 1111 reported in to the radio dispatch. Three or four police cars converged on the scene.

A constable who lived nearby was on the scene within a few moments, and a detective sergeant within five minutes. Traffic north and south bound on Mavis Road between Burnhamthorpe Road and Dundas Street was ordered blocked off by Detective Sergeant Kelly on-scene, who pinpointed the accident as being at the crossing. He used volunteers at the Mavis and Dundas intersection. Within three minutes of the derailment, police were requesting additional personnel to handle crowd control. All personnel from 11 Division, the division in which the derailment occurred, proceeded to the vicinity of the site to help with traffic and crowd control. Both 11 and neighbouring 12 Divisions held back all their shift personnel.

The Duty Inspector, Jim Kimber, was notified and proceeded to the scene to assume responsibility until the designated on-scene commander (Superintendent Ken Sider) could arrive. By midnight, then, much of the police Disaster Plan was already in operation, concentrating at this point on traffic control and the cordoning off of the affected area.

The high visibility and shock waves of the explosion made an initial alert of fire personnel unnecessary. Firemen at the Fairview Road Headquarters, less than a kilometre east of Mavis Road, saw the bright light, and were already putting on protective clothing when the first call came in. The dispatcher sent out his first call at 23:56 initiating a fan-out of calls, and requesting

assistance from area fire-fighting teams. Two pumpers and an aerial truck arrived within four minutes of the derailment, at 11:58.

Fire teams approached the scene separately from the north and south and, for the initial period, there was no communication between the two teams. Since the derailment contained propane cars, and there had already been explosions, the firefighters were prepared for BLEVE's. These explosions are particularly dangerous, not only because the heating up of propane in the cars and the subsequent explosion of escaping expanding gas can cause rocket-like hurling of tank cars for hundreds of metres, but because the 10 to 15 minute delay before the explosion occurs may lull people into approaching too close to the site.

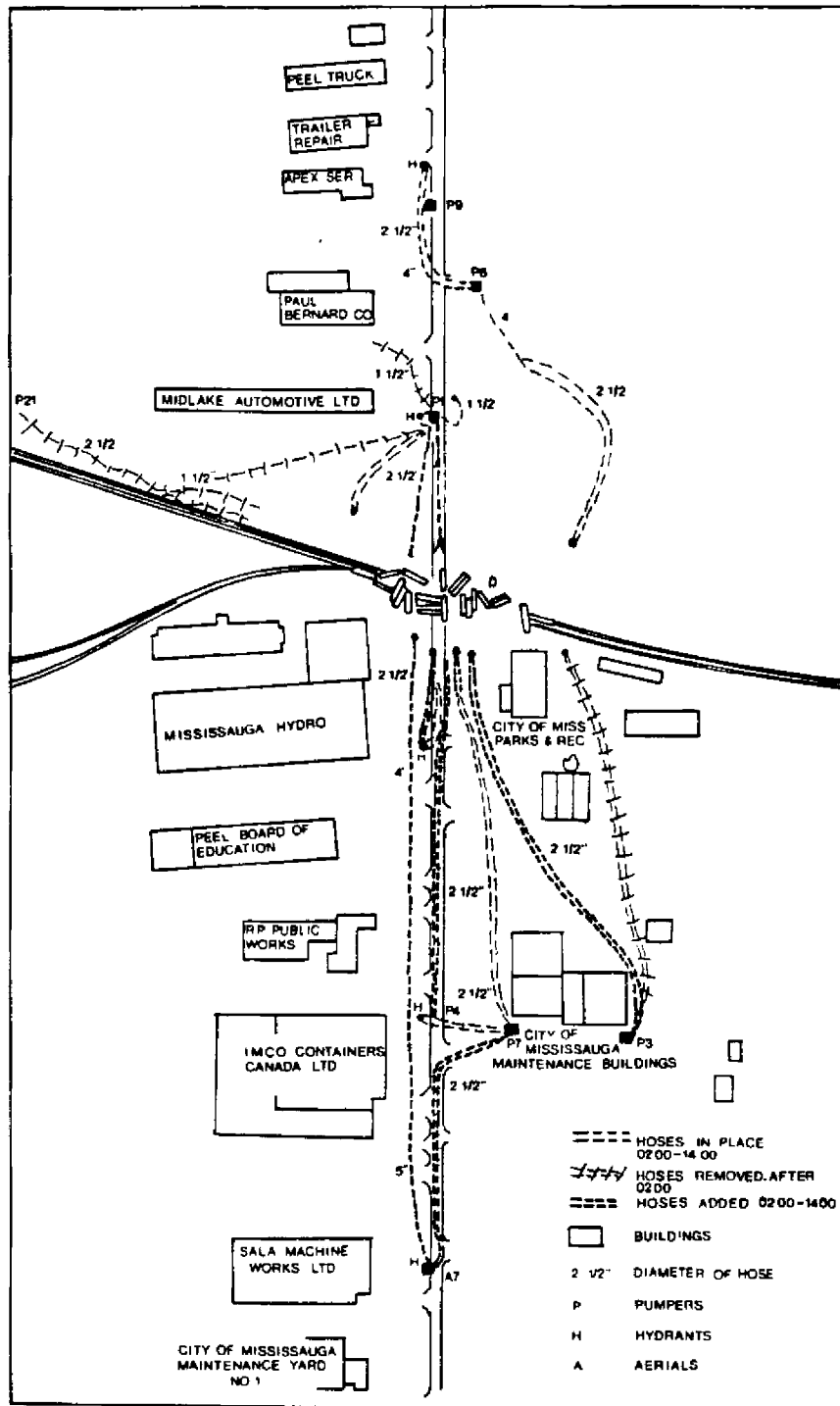
The Fire Chief describes the initial fire response (Figure 2.4):

"What we did was to get in and put some lines on as the BLEVE's started to happen. Each time there was a new BLEVE, we'd have to leave everything and run. We started with three deluge sets from each side, and some hand units to put out spot fires."

The unmanned deluge sets worked automatically once they were set in place, and could pump 20,250 litres of water per minute on the fire. The difficulty was in getting close enough to the fire before another BLEVE occurred. Pumper trucks were sheltered behind buildings at some distance from the crossing, and firefighters had to lug hoses and deluge sets up to as close as 80 metres away before being able to turn and run to safety.

The BLEVE at 00:09 was preceded by a low whistling sound which gave a few moments warning. District Chief Ross Kelly, in overall initial fire command, and on the north side, warned the firefighters of the impending BLEVE through his portable radio. They ran for cover, jumping into ditches and under the pumpers, as bits of flying metal hurled by. Chief Fire Inspector Hare, in charge of the south units, was knocked down as he ran back.

FIGURE 2.4 ARRANGEMENT OF FIRE HOSES AROUND THE ACCIDENT ON SUNDAY NOVEMBER 11, 1979



SOURCE: MISSISSAUGA FIRE DEPARTMENT

Everyone was ordered to retreat beyond a radius of 450 metres. District Chief Kelly noted:

"My concern was to keep the fire contained to one area..., to get major lines to contain it...and try not to have it move into the buildings."

Back at the Headquarters, the alert of senior personnel, including Deputy Chief Art Warner, who would eventually assume overall command of the on-site firefighting, and Fire Chief Gordon Bentley, who would go to Headquarters to command the overall fire response from Operations Centre, continued. All the city and region fire halls were alerted. Some lent equipment to the site; others provided back-up support in case of need.

Ambulance services were also alerted by the initial explosions. Within four minutes of the derailment, four ambulances were dispatched from the Halton-Mississauga Ambulance Service to the site. Cruising ambulances in Toronto saw the bright sky to the west and notified Metro Toronto Ambulance Services, which sent its ambulance bus (capable of carrying 20 patients), three emergency support units and four ambulances to the scene, again within minutes.

At Mississauga General Hospital, the first explosion was felt by the staff working at the hospital. The emergency staff made preparations for an influx of patients. The second and third BLEVE's accelerated these preparations: patients in Emergency were treated by on-duty staff and sent home where appropriate; physicians and on-call staff began arriving; and the hospital Disaster Plan was reviewed. Halton-Mississauga Ambulance Services alerted Queensway General Hospital and Etobicoke General about the derailment. Finding no injuries on-site, ambulances stationed themselves strategically about the area to respond to expected casualties.

The BLEVE's at 00:09 and 00:16 not only destroyed a municipal recreational building and a number of warehouses nearby, but the shock waves caused window breakage and some structural damage to buildings within a 600 metre radius. The explosions

also temporarily scattered the army of onlookers who had become a major headache for the police and other personnel. Traffic converged on the area; residents came out of their houses and walked towards better vantage points; teenagers wandered down the tracks from both ends. Using police and ambulance P.A. systems, teams from 11 and 12 Divisions began cordoning off the area bounded by Burnhamthorpe Road on the north and Dundas Street on the south, to keep people back at least 600 metres. By 00:30, all the factories north and south of the derailment had been checked or evacuated.

2.2.4 The First Command Post

Chief of Police Douglas Burrows was awakened at 00:19 by telephone, he asked that the Mayor of Mississauga and the Peel Region Chairman be alerted. Chief Burrows then proceeded to the scene, picking up his Deputy Chief, Wm. J. Teggart en route. At the same time, 00:19, the first police Command Post was set up outside a car wash south of the site on Mavis Road. The police requested that the Deputy Fire Chief, who was also approaching the scene, attend at this post. Police Duty Inspector Kimber arrived at the car wash at 00:20. The nucleus of the command structure that would co-ordinate the emergency response was now taking shape. Alan Duffin of Halton-Mississauga Ambulance Services and John Dean of Metro Toronto Ambulance Services were on site by 01:05 to co-ordinate ambulance response.

The greatest concern at this time was the potential explosion of further propane cars, visible through the flames and smoke. In addition, the Fire Department was concerned about the possibility that heat or embers would set off fires at nearby chemical storage tanks. The number of people available to fight the blaze increased from an initial 25 to 50 within a half hour, as fire fighters voluntarily reported in or were alerted by the call-back system of the department. At this stage, however, there was little to do except try and contain the blaze, and put out smaller fires scattered around the waste area near the railway crossing.

The immediate problem of containing the fire began to be overshadowed by uncertainty over what might be in some of the cars jumbled together at the crossing. The conductor of the train, Ted Nichol, had been thrown from his seat in the caboose and badly bruised by the abrupt stopping of the train when the middle section derailed. Picking himself up, he had grabbed the train's manifest, a carbon copy of a computerized sheet detailing in code the contents of the cars on the train. In his hurry, he left behind him the emergency handling instructions for dangerous commodities, documents required to be on each train. For the next few minutes, he set up warning flares some distance along the west side of the track. He also tried to warn onlookers back from the area. Then he proceeded to report to a police sergeant on Mavis Road. After some consultations, he was advised to go to Fire Department Headquarters, but was rerouted to the Command Post at the car wash. Numerous witnesses have reported that the manifest was virtually impossible to read under these conditions, and detailed analysis had to wait until the Command Post was removed to a new site, a Domtar building nearby.

One of the first acts of the Fire Chief upon reaching his headquarters was to request that CP Rail send a copy of the manifest to the scene.

The assumption then was that the conductor might have not survived the derailment, and a copy of the manifest arrived several hours later. The Fire Chief also contacted local propane experts, who confirmed the Fire Department's own standard procedure manuals. Other notifications in this period included the Transportation Emergency Assistance Program (see Section 3.2.4); the Environmental Protection Service of Environment Canada; and the Ontario Ministry of the Environment (MOE). The Duty Officer of MOE alerted Mr. Ron Graham of the Industrial Abatement Section who went to the scene at 00:20. At this time, a green haze was beginning to appear over the burning wreckage, and the first reports of chemical smells were made by firefighters and police.

2.2.5. First Emergency Meeting

At 00:47, Police Chief Burrows arrived on the scene with the Deputy Police Chief. In the previous half hour, there had been an attempt to locate a possible site for a new Command Post that would be able to accommodate the Police command trailer, complete with telephones and other equipment. Hydro had gone out in the area, and Mississauga Hydro was on scene to re-install power. It was decided to locate in a Domtar building not far from the car wash. Chief Burrows arrived there at 01:10. A first meeting was held among all the senior personnel available. Police Chief Burrows took overall command of the emergency, with Fire Chief Bentley taking command of the firefighting activities; Superintendent Sider became the designated on-scene commander of police activities; and Superintendent Barnhart was designated as Media Liaison Officer. Others at the meeting included Chief Fire Inspector Hare, members of the CP Railway Police, and Ron Graham from MOE.

Examination of the train's manifest began in detail: it appears that the CP Rail officials believed the chlorine car was not in the derailed section, either because there was a mistake in the manifest, or because it was difficult to determine which cars had actually derailed, since the front end of the train had, of course, proceeded to the Cooksville station by this time. Numbers and placards on the derailed cars had been burnt off or were difficult to read under the hazardous conditions.

Chief Burrows was dissatisfied with the assertion that the chlorine car was not in the derailed section, and he ordered a car-by-car visual check. This took 20 minutes, from 01:18 to 01:38, and revealed that the chlorine car was, probably somewhere in the centre of the derailed section of the train. A request that all personnel move back 600 metres from the scene was made, since further explosions were expected; and a request was made by one constable, at the direction of the Chief of Police, to central police communications in Brampton to contact

"Emergency Measures Organization, Military or whoever, to get as many pressurized gas masks as possible".

After consulting with CP Rail officials, Fire Department personnel, the MOE representative, and a Mr. Blondin of Ashland Chemicals (who had arrived to advise on chemicals), Superintendent Sider reported to Chief Burrows that the wind, blowing to the south-west, made an evacuation of the area west and south of the site - to Erindale Station and Dundas Street - advisable. At 01:47, Chief Burrows ordered the first official evacuation of this area under the direction of Inspector Kimber and Staff-Sergeant Crowell. Special emphasis was laid on prevention of panic. In the early stages, police went door-to-door, and were instructed to tell people that dangerous gases were on the train and they were advised to leave.

2.2.6. Transit

Mississauga Transit was put on standby at 01:09. Buses were brought into the area to assist those who had no cars (02:23). At the peak, over 50 buses were used, though there was some initial difficulty in getting Transit moving: first, the transmission tower used by Transit was only 30 metres from the derailment, and was destroyed; next, workers reporting for duty had some difficulty with identification procedures at the newly established police cordon; and finally, there was a lack of emergency liaison procedure with the police.

The Transit Superintendent ordered buses to proceed to three locations near the area about to be evacuated; and the police directed evacuees to these collection points. Some of the buses were underused because the police had no information that several of these collections points were being used. Later in the morning, Mississauga Transit set up an improvised marshalling yard outside the evacuation zone to prepare for possible further evacuations. To replace the damaged communications network, telephones and CB'ers off the street were used initially by the operations manager, and then supplemented by electronic dispatch equipment brought from Streetsville.

2.2.7. Volunteer Agencies

The question of accommodation for those who had no friends or relatives in the vicinity became vital. As early as 00:30, police had contacted Mrs. Margaret Leslie, Emergency Co-ordinator of the Canadian Red Cross (Mississauga Branch). Police knew her well from previous emergencies, including the 1978 Texaco fire. She went to the Command Post, where Peel Police asked her to set up Square One Shopping Centre, just north of Burnhamthorpe Road, as an evacuation area. Police also received a call at 01:07 to the effect that Holy Name of Mary Secondary School, 3.3 kilometres southwest of the accident site, was available. Square One was officially opened as an Evacuation Centre at 02:17, and the first evacuees were directed there.

Other agencies, including St. John Ambulance and the Salvation Army, also began to mobilize their resources (see Chapter 4). By 03:30, the Mississauga Humane Society, with assistance from the Ontario Humane Society, finished evacuating animals from their shelter on Mavis Road, 150 metres south of the accident.

2.2.8. Media

Within 10 minutes of the derailment, Broadcast News, the Toronto Star, and Radio CHIC News had contacted the police department for information. Cal Millar, Police Reporter for the Toronto Sun, lives three blocks from the site, and was the first reporter on the scene. Like many other reporters that morning, Millar tried to get as close to the derailment as possible to take pictures. Most television networks had cameramen on the scene within an hour, although incoming traffic tie-ups caused some delay. The CBC had a crew on scene until dawn, when four additional crews arrived; CFTO had four cameramen and four reporters there at 00:30; Global had two crews on at 01:00; CITY TV's crew proceeded from the east side along the railway tracks at about 00:45, but the heat was so great that they had to

retreat. Yvan Secan, the station's news director, broke his leg jumping a fence (the only early casualty of the accident, it appears).

As early as 00:38, police officers were seeking advice from the on-scene commander as to what to do with the members of the media who were requesting closer access to the scene. First, a police supervisor was dispatched to a point at Mavis Road and Dundas Street to set up liaison with the media, and a staff sergeant at Headquarters had all media telephone calls transferred to his office.

It is Peel Regional Police policy that the press needs to be as close to the scene - within the visual range, if possible - as is consonant with safety; otherwise, camera crews and reporters begin to feel that they are not being given the truth. The police therefore tried to set up a Media Centre just outside the "high hazard" zone. The first official police/media centre was set up at a Ministry of Transport Weigh Scale parking lot, 1 kilometre south of the fire. Approximately 50 media members were on hand, and were advised at 01:56 that regular releases would be given based on receipt of information.

2.2.9. Chlorine Response

Another priority was the location of expertise on the possible effects of a chlorine leak. Fire Chief Bentley had contacted CANUTEC (a 24-hour Federal chemical advisory service) for immediate information; and also got in touch with local chemical industry experts.

The CP Rail dispatcher in London alerted Plant Security at Dow Chemical in Sarnia at 01:49 of the derailment. Mr. Ron Johnson, Dow Emergency Response Co-ordinator, was called, and immediately set in motion Dow's chlorine emergency response (CHLOREP) team (see Section 3.2.4). Cyanamid was in the CHLOREP sector containing Mississauga, but they felt they were unable to

respond. Since Dow was prepared to go to the scene, and they were also the shippers of the chlorine, Dow's CHLOREP team was dispatched. The team left at 03:30, having notified CP London and the Mississauga Fire Department that they would arrive at 06:30 with their emergency vehicle.

In the meantime, the fire appeared to be gaining strength and approaching the chlorine car. Approximately 100 firefighters were now fighting the blaze. The Fire Department began with 3 ladder trucks, 7 pumpers and 2 squad cars, and added 2 more pumpers within hours; with 2 backup vehicles and 15 men (supplied by Etobicoke Fire Department) remaining at headquarters. The need for water prompted the Fire Chief to request an increase in pressure from the Waterworks Department. At 02:35, the Fire Department reported that the fire, for the moment, had been contained.

The Peel Regional Police Mobile Command Trailer arrived at 02:36 at the Domtar plant. Police requested Peel Region Industrial Waste, and Peel Region Works Department assistance. Other agencies began to augment their personnel and resources. The Ministry of the Environment official on-scene requested assistance from the Oakville office (03:50). Metro Toronto Police and Ontario Provincial Police stepped up their contributions (Metro began with 35 officers and reached 117 regular and auxiliary personnel by late Sunday morning; the OPP began with 13 vehicles and 17 officers and reached 154 members by Sunday's end). In addition, the R.C.M.P. offered their services, and 52 members were on scene throughout the week.

2.2.10. Worsening Situation

The situation on site continued to deteriorate. Fumes from the styrene, toluene, and chlorine car were becoming stronger and stronger. Available gas masks were distributed to officers in the immediate area of the fire. At 03:21, the CP Rail

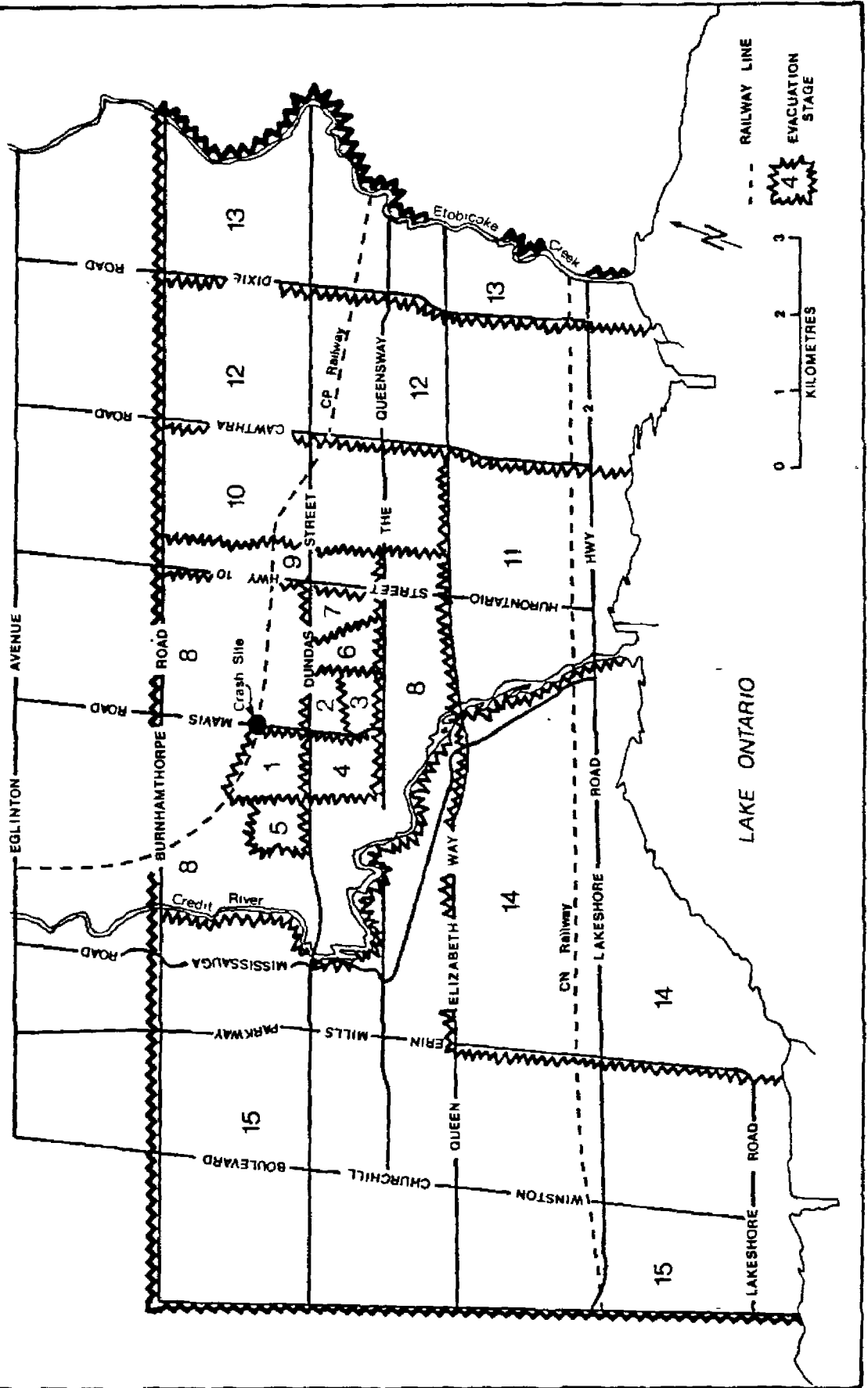
officials on-scene confirmed that the chlorine car was in the middle of the burning cars. Moreover, although the fire had generally been contained, it appeared that particular fires fed by spreading pools of propane were approaching the presumed location of the chlorine car. Operators of all police vehicles were instructed to park facing away from the fire in case of an explosion that blew open the car. Mississauga, Etobicoke, Queensway and Peel Memorial Hospitals were contacted by the police at 03:50, and were requested to stand by for possible inhalation casualties. The probability of a chlorine car as part of the wreck raised the spectre that a sudden explosion could trap emergency response workers in a rapidly spreading chlorine cloud. Supt. Sider, concerned about the chlorine danger, asked Mr. Ron Turnbull of Peel Region Industrial Waste, who had just arrived, to begin air samplings in the area with a Draeger tube sampler (a rough manual sampling system).

The first evacuation was now nearly complete. From the initial evacuation order (01:47) to the assigning of security details to the evacuated area (04:00), slightly over two hours had elapsed. The organising of platoons at staging areas, provision of response tactical vehicles, and transit for evacuees had taken approximately 45 minutes. It is therefore reasonable to state that the virtually door-to-door emergency evacuation of 3,500 people took from an hour and a half to two hours.

The wind, which had been blowing from the northeast, began to shift due north, and then northwest. A check at 04:09 with the Environment Canada weather office at Malton produced the forecast of winds between 2 and 4 knots from the north or northwest. Fumes were now so strong that the Mobile Command Trailer was moved to the east side of Mavis Road. The wind began veering in various northerly directions.

At 04:15, the second stage of the evacuation was ordered, involving 350 people almost directly south of the site (Figure 2.5). Slightly later, at 04:31, all supervisory personnel south of the site were themselves evacuated to the north of the site. Bell

FIGURE 2.5 THE EVACUATION ZONES



Telephone, Ambulance and Fire personnel, together with the Peel Police Mobile Command Trailer were relocated at a Bell Canada parking lot on Mavis Road, 500 metres north of the tracks. This would become the permanent site for the Command Post.

The size of the response operation required began to become apparent. Upon the setting up of the Police Command Post, the disaster plan calls for the creation of a "think tank" composed of senior police officers and on-scene advisors. This became the starting-point for an Emergency Operations Control Group (EOCG). Municipal and regional plans call for a Control Group of senior politicians to be set up in a declared emergency. Because the Police disaster plan was the only plan in operation, the name "Control Group" was applied unofficially to the gradually expanding "think tank."

The first political additions to the Control Group were the Mayor of Mississauga, Hazel McCallion, and the Chairman of Peel Region, Frank Bean. The Chief of Police had requested the notification of the Mayor and the Chairman, at 00:17, but it appears that Mayor McCallion called Police Headquarters at 01:34 of her own accord. Chairman Bean was not notified until much later; the Police chronology lists an attempt to contact him at 04:54, and a successful contact at 05:18. On the way to the site, Bean confirmed with Superintendent Barnhart that the Police plan had been put into effect, and that Mayor McCallion was also on the way. At this time, the Mobile Command Trailer was in the course of being transferred so there was a short meeting between Bean, McCallion and Barnhart on Dundas Street south of the site, at about 05:30. Bean recalls that their eyes were stinging and smarting all through the briefing. They were informed that more evacuations were probably necessary.

Following this discussion, McCallion and Bean went to the Evacuation Centres. Square One had become overcrowded by 04:25 and police were sent over to help with crowd control. Several thousand people were now there, and it became imperative to open new facilities. Police had contacted the Peel Board of Education at 01:29 to have