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Public Service Company of Colorado
Rochester Gas and Electric Company
Northeast Utilities Service Company
Detroit Edison Company
Pennsylvania Power and Light Company
United Kingdom Atomic Energy Authority
Atomic Energy of Canada Ltd.
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Central Electricity Generating Board
Philadelphia Electric Company
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INTRODUCTION

The current study is neither wholly descriptive nor entirely analytical. It provides an orientation to the Mississauga train derailment of November 10, 1979 and to the evacuation that followed. It also provides a review of some of the major facets of the evacuation. The story is far from complete; at this writing, much of the best information on emergency response activities is embargoed pending the conclusion of a formal inquiry into the accident. Moreover, it is virtually certain that the accident will be the subject of litigation for years to come. We are, after all, talking about the near total shutdown of the ninth largest city in Canada for a week. The costs, obviously, were enormous. The legal wake of the accident has carried away in its currents, much of the information needed for a thorough reconstruction of behind-the-scenes events. This is especially true with respect to information on the internal workings of the Emergency Operations Control Group (EOCG), the ad-hoc organization that managed emergency response. Most of the records of EOCG meetings were taken by the Commission of Inquiry.

A similar problem has arisen insofar as major actors are concerned. The combination of people seeking information on the accident, the inquiries and litigation, and the simple fact that the people who worked on emergency response management during the accident have their normal work to attend to, has made some of the principal actors very difficult to reach. Moreover, even when they are available for interview, perhaps because of possible embroilment in legal problems, they are quite circumspect in their answers. Still, there is considerable information available, more than enough, in fact, to present a reasonable survey of the Mississauga evacuation.

Planning done prior to the accident, the foundation of community emergency response, is discussed in Chapter One. Chapter Two is a narrative review of the evacuation of the general population while Chapter Three describes the arrangements made for accommodation of evacuees, many of whom were away from their homes for six days. Chapter Four examines from beginning to end the evacuation of hospitals and nursing homes (actually an evacuation within an evacuation). The police approach to managing an empty city is covered in Chapter Five and Chapter Six, which is, to some extent, an extension of the previous chapter, deals with the handling of phased re-opening of the evacuated areas. Finally, Chapter Seven presents some general lessons that can be drawn from the Mississauga events. We have also included a series of documentary appendices to provide background for the reader.

Chronology of Warning and Movement*

At 11:53 p.m. on Saturday night, November 10, 1979, a freight train crashed in Mississauga, Ontario, Canada. During the next twenty-four hours, 216,000 people were evacuated from homes and hospitals in a 50 square mile area around the accident site.

Saturday, November 10, 1979:

11:53 p.m. Twenty-four (24) cars of a Canadian Pacific freight train derail at the Mavis Road crossing in central Mississauga, Ontario. Eleven (11) cars carried propane, 3 styrene, 4 caustic soda, 3 toluene, and one was filled with 90 tons of liquid chlorine. Several cars ruptured immediately, resulting in intense fires and a series of explosions.

* All times are approximate.

Saturday, November 10, 1979:

11:56 p.m. Mississauga Fire Department notifies Peel Region Police and ambulance services; a pre-planned emergency response program is put into action.

Sunday, November 11, 1979:

12:06 a.m. Regional Police hold officers going off duty at change of shift, begin notifying all available officers to report for duty and begin restricting traffic flow in the accident area. Emergency Command Post is activated at the site.

12:10 a.m. A second major explosion, together with arrival of information on the contents (a copy of the train's manifest taken from the caboose) of the derailed cars causes police officials to begin consideration of evacuation. A third explosion about 8 minutes later reinforces this perception. Evacuation zone boundaries are under consideration. A specially equipped Command Post trailer is dispatched to the site.

12:30 a.m. Mississauga Branch Canadian Red Cross Emergency Services Chairman is notified and begins to mobilize personnel to staff the evacuee reception center. Ambulance services throughout the area, the St. John Ambulance Corps, and the Salvation Army are also mobilizing to respond.

Sunday, November 11, 1979:

- 1:00 a.m. Because of the intensity of the fire and risk of explosion, Mississauga Fire Department officials adopt a controlled burn strategy in fighting the fire. (It was finally extinguished early on Tuesday, November 13...more than 48 hours after the accident.)
- 1:20 a.m. Field representatives from the Ontario Ministry of Environment arrive at the site.
- 1:30 a.m. A legible copy of the train's manifest arrives at the Command Post. Officials learn of the chlorine tanker. Peel Regional Police Chief, after consultation with the Mississauga Fire Chief, orders evacuation of population within 900 meters (about 1/2 mile) of the accident site. He also appoints a press liaison officer. Evacuees begin to arrive at the Square One Shopping Centre about 2.4 km (1.5 miles) from the accident site.
- 1:35 a.m. Mississauga Mayor is briefed by phone.
- 1:50 a.m. First Zone Evacuation: Based on data from meteorologists and environmental scientists, Peel Police Chief Burrows expands the 900 meter area to a zone defined by major streets.
- 2:10 a.m. Red Cross and Salvation Army alert additional branches to staff reception and mass care centers.

Sunday, November 11, 1979:

- 2:15 a.m. Ontario Ambulance Coordinating Centre, preparing for the possibility of mass casualties, issues a general call for ambulances (139 respond within the next 6 hours).
- 2:20 a.m. A broad range of technical expertise now available at the site (at least 5 separate organizations represented). Conclusion is reached that the chlorine tank cannot be sealed until the fires are out.
- 3:40 a.m. Command Post notifies Mississauga General, Queensway, and Etobicoke Hospitals for possible evacuation.
- 4:15 a.m. Second Zone Evacuation: Peel Police Chief orders evacuation of a second zone (again defined by major roads). Mississauga Transit called in to support of evacuation. Additional reception centers are opened. Police expand entry restrictions to the new evacuation zone and begin anti-looting patrols.
- 4:50 a.m. Officials of the Ontario Ministry of Environment at the site begin alerting other provincial officials.
- 4:55 a.m. Peel Police alert the Chairman of Peel Region and Mississauga Councilors. At 4:57 a.m., Peel Police Chief Burrows notifies Regional Councilors, Regional Social Services, and Mississauga City Engineers.

Sunday, November 11, 1979:

- 6:00 a.m. Representative of the Attorney General/Solicitor General of Ontario is notified of the emergency. Mr. McMurtry was notified by about 7:00 a.m.)
- 6:20 a.m. Third Zone Evacuation: Evacuation is expanded to include zone 3.
- 6:30 a.m. Fourth Zone Evacuation: Shifting winds result in an evacuation order for a fourth area. Mississauga Hospital is alerted to prepare for evacuation.
- 7:00 a.m. Administrator of Mississauga Hospital arrives at his facility to prepare for evacuation, if necessary. Oakville-Trafalgar Hospital is notified to prepare to receive Mississauga Hospital patients.
- 7:30 a.m. Fifth Zone Evacuation: Peel Region Police Chief, in a phone conversation with the Administrator of Mississauga Hospital, discusses the chlorine leak and possible need for evacuation. Evacuation begins in fifth zone. First meeting of the Emergency Operations Control Group (EOCG) takes place. Members at this point are: Chairman of Peel Regional Council, Mayor of Mississauga, Peel Region Police Chief, Mississauga Fire Chief. Metro Toronto Police begin furnishing large scale aid under terms of the Metro Toronto Police Emergency Planning Guide.

Sunday, November 11, 1979:

- 8:00 a.m. Oakville-Trafalgar Hospital receives word of need to prepare to receive Mississauga Hospital patients. Begin preparations by discharging some patients, alerting staff, and setting up triage area.
- 8:30 a.m. Sixth Zone Evacuation: Peel Region Police Chief orders evacuation of another zone, the sixth. He also issues an evacuation order for Mississauga General Hospital, Mississauga Extendicare Nursing Home, and Chelsey Park I Nursing Home.
- 8:40 a.m. Red Cross begins activating additional branches. By about 9:00 a.m., 5 branches (in addition to Mississauga) are activated.
- 9:25 a.m. Evacuation of Mississauga Hospital, Mississauga Extendicare Nursing Home, and Chelsey Park I Nursing Home begins. Last patient leaves at about 1:15 p.m.
- 9:30 a.m. Attorney General/Solicitor General McMurtry arrives at the site.
- 9:40 a.m. Seventh Zone Evacuation: Shifting winds result in another expansion of the evacuation area, zone number 7.
- 10:00 a.m. First patients from Mississauga Hospital arrive at Oakville-Trafalgar. Last patients arrive at about 3:00 p.m. Consideration is given to evacuation of Queensway General Hospital but decision is deferred pending consultation with hospital officials.

Sunday, November 11, 1979:

- 11:10 a.m. Eighth Zone Evacuation Begins.
- 12:30 p.m. Secondary evacuation begins of evacuees from the reception center at the Square One Shopping Centre. Sherway Gardens Shopping Centre is opened to receive evacuees.
- 1:10 a.m. Ninth Zone Evacuation Begins.
- 3:10 p.m. Preparations begin for evacuation of Queensway General Hospital. Roy McMurtry consults (between this time and about 3:40 p.m.) with administrator of that facility.
- 3:40 p.m. Roy McMurtry, after consultation with EOCG and hospital officials, orders evacuation of Queensway General Hospital because of chlorine readings in the neighborhood of that facility.
- 3:45 p.m. Evacuation of Queensway General Hospital begins. Last patient leaves at about 8:00 p.m.
- 5:00 p.m. Tenth Zone Evacuation Begins.
- 6:30 p.m. Oakville-Trafalgar Hospital, which had earlier received the largest block of patients evacuated from Mississauga Hospital, gets first word of possible evacuation. Begins preparation.

Sunday, November 11, 1979:

- 6:45 p.m. Eleventh Zone Evacuation: Unpredictable winds force evacuation order for eleventh zone. Same problem forces the secondary evacuation of evacuees from the Sherway Gardens Shopping Centre.
- 8:15 p.m. Twelfth Zone Evacuation Begins.
- 8:30 p.m. Evacuation begins at three nursing homes: Sheridan Villa, The Pines, and Taara. Last patients leave by about 11:00 p.m.
- 9:10 p.m. Oakville-Trafalgar Hospital is formally notified by Halton Region officials to prepare for evacuation of patients.
- 9:45 p.m. Ambulances and buses begin to assemble near Oakville-Trafalgar Hospital.
- 10:20 p.m. Provincial Ministry of Health Officials request delay in hospital evacuation to confirm necessity. Confirmation received later.
- 10:55 p.m. Thirteenth Zone Evacuation: Parts of Oakville in neighboring Halton Region are ordered to evacuate.

Monday, November 12, 1979:

- 12:20 a.m. Evacuation begins at Oakville-Trafalgar Hospital and Oakville Extendicare Nursing Home. Last patients leave by 4:30 a.m.

End of evacuation operations.

Previous Large Evacuations

Large scale evacuations, while they don't happen every day, aren't especially uncommon. Mississauga is only the most recent. In the TMI accident, it is estimated that more than 140,000 people evacuated spontaneously between March 30 and April 1, 1979.

Hurricanes, by far the largest offenders in displacing populations, forced the evacuation of more than a million and a half people between 1961 and 1975. The largest recorded evacuation in North American history took place when Hurricane Carla struck the Texas and Louisiana Gulf coast in 1961. More than 500,000 people fled their homes.

Floods, fires and industrial/transportation accidents are other major triggering events. In the same 15 year period mentioned above some 75 accidents involving hazardous materials forced evacuation of about 300,000 people across the U.S. Half of these were in one incident: a chlorine barge accident in Baton Rouge, Louisiana in 1965. In that incident, more than 150,000 people evacuated in about two hours. This may seem surprising at first glance but it should not be.

Over the past quarter century, the United States alone has averaged better than one evacuation of 20,000 or more per year. Seven of these have involved more than 100,000 people. Thus, Mississauga is not unique; large scale evacuations in the face of natural and man-caused disasters occur with discomforting regularity. And it is precisely because it is not unique that it is worth study.

Some Notes of Caution

Mississauga was struck by a serious accident but after the derailment and explosions, the evolution of the mishap was extremely favorable.

- o The accident site was in an unpopulated area--the train had already passed through several kilometers of residential areas and there is no other clear zone anywhere along the train's route until its destination in eastern Metropolitan Toronto.
- o Had not the intense heat from the burning propane cars carried the chlorine aloft, a cloud of the lethal gas would have spread through the city.
- o One of the propane tank cars took off like a rocket flying 677 meters (2,222 feet) into an open field. Had it gone the same distance in any other direction it would almost certainly have struck occupied buildings.
- o Mississauga was able to request and receive almost immediately, the help of surrounding communities and the Provincial government. The city is in the middle of an area rich in the resources needed in such an emergency.
- o Municipal officials (particularly fire and police departments) in Mississauga and Peel Region where the city is located, were already experienced in dealing with large scale disasters. They studied their actions in previous events and updated their emergency plans in light of the lessons learned.

- o There were no casualties among the general population (and only one serious one among emergency workers). Mass casualties early in the event could easily have disrupted the emergency response effort. . . especially the evacuation.

Chapter One

THE ROLE OF PRE-PLANNED RESPONSE

Most of the organizations involved in the Mississauga evacuation had some form of emergency response plan. However, these were not, geared to the specific circumstances of large-scale evacuation. The emphasis in all cases was on lines of authority, mobilization procedures, structure of the emergency organization, assignment of responsibility, et cetera. They were, in short, plans for marshalling the resources of the organizations for a surge of effort in response to a variety of possible disasters. In some cases, the plans attempted to anticipate certain types of emergency measures that might be required (like evacuation) and to set down policy guides aimed at speeding response.

Specific and detailed evacuation plans did not exist prior to the accident. Peel Regional Police, for example, had well developed organization activation plans as well as a guidance policy and planning materials for evacuation, but these were not specific to any one site or hazard. Emergency plans at health care institutions focused on reception of large numbers of casualties, evacuation of patients within the facility or at most evacuation from the building (as in the case of fire). They did not anticipate wholesale relocation of patients to other institutions.

Emergency response, then, was the result of a combination of pre-planning and ad hoc measures. As the emergency evolved in the early hours of November 11, so too did the officials' knowledge of it and their efforts to respond. In the first hours of the accident, events moved so quickly that it is well nigh impossible to point to discreet stages in the emergency response effort. What we are left with, then, are

descriptions of the response envisioned in pre-emergency plans, and the structures and measures that emerged from the smoke and dust when the situation stabilized. Filling the gap between them is a disjointed collection of material from press reports, working documents, and the recollections of those involved. This is the common experience of communities and organizations in disasters when time and staff are in too short supply to permit detailed record keeping.

The present chapter describes the response envisioned in pre-accident plans of several key organizations. It also examines initial steps taken to activate them. Off-the-shelf planning and reference materials such as maps and population data are discussed where appropriate.

Background on Mississauga and Peel Region

Mississauga and the Regional Municipality of Peel exist as result of a long-term trend toward consolidation of governments mandated by the Province of Ontario over the last 30 years. The trend began with the effort to merge several communities (Toronto, Etobicoke, York, Scarborough) to form Metropolitan Toronto.

Under a Provincial policy that encouraged similar consolidations in the rest of southern Ontario, considerable long range planning was done. Communities in an area within roughly a ninety-mile radius of Metropolitan Toronto are under a Provincial mandate to produce long-range demographic, economic development, land use, and transportation plans. The plans are coordinated with one another and are part of a plan by the Government of the Province of Ontario to guide and control growth in southern Ontario through the remainder of this century. The long range plan calls for an

urban/commercial/industrial strip along the shore of Lake Ontario from Niagara Falls to Oshawa (see Figure 1-1). This commercial/industrial strip is to be between Lake Ontario and a surrounding "commuter-shed" of primarily residential communities. The City of Mississauga, as part of the strip along the lakeshore, has done considerable long-range planning; it was, in fact, in one of the city's planned industrial development areas that the train derailment of November 10, 1979 occurred.

The City of Mississauga and the Regional Municipality of Peel were formed on January 1, 1974. Mississauga incorporated the former towns of Streetsville and Port Credit, and parts of the former towns of Mississauga and Oakville, such as Toronto Township, Cooksville, Erindale, Clarkson, and Malton where Toronto International Airport is located.

Carrying Mississauga's genealogy one step further, the Town of Mississauga was formed in 1968 from the Township of Toronto, and the community of Malton where Toronto International Airport is located.

When it was formed in 1974, Mississauga already included Toronto International Airport (the busiest in Canada), a segment of the Queen Elizabeth Way (busiest highway in Canada), the second busiest port on the Canadian side of Lake Ontario, three oil refineries, a petroleum distribution terminal, and two major rail lines (including the one connecting the Detroit/Windsor area with Toronto, Montreal, and Quebec City--the line on which the derailment occurred).

Since 1969, the 285 square kilometers (111 square miles) territory that now comprises Mississauga has seen two air crashes, a major refinery fire, a gas pipeline fire, and now a rail accident involving hazardous materials.



Also Available On
Aperture Card

FIGURE 1-1
 SOUTHERN ONTARIO, CANADA
 (SHADED AREA IS THE REGIONAL
 MUNICIPALITY OF PEEL)

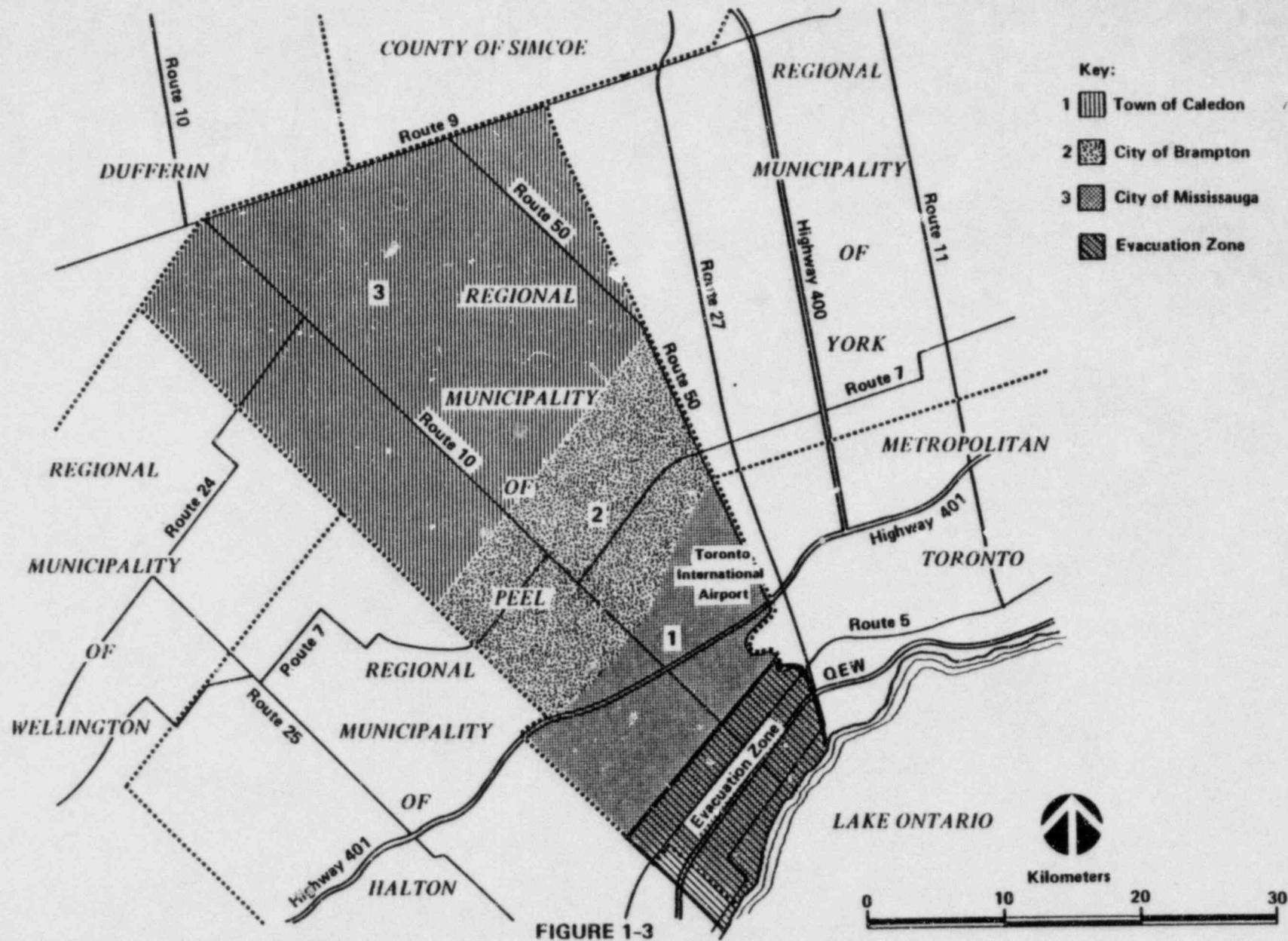
Three municipalities, the City of Mississauga in the south, the City of Brampton in the center, and the Town of Caledon to the north, make up the Regional Municipality of Peel. (See Figure 1-3).

Mississauga has its own Fire Department, headed by Chief Gordon Bentley. Policing is provided by the Peel Regional Police Force under Chief Douglas Burrows. In addition, there are both Federal and Provincial Police Forces, namely the Royal Canadian Mounted Police and the Ontario Provincial Police. To the west of Mississauga is the City of Oakville in the Halton region. To the east is Metropolitan Toronto.

Two of the principle actors in the November 1979 train derailment, Peel Regional Police Chief Douglas Burrows and Mississauga Fire Chief Gordon Bentley both were with Malton government when the consolidations began. They worked together on the earlier disasters and they worked together on the train derailment.

The Peel Regional Police Disaster Manual had its roots prior to 1968 in the Disaster Manual of the Malton Police. It moved and adapted as Malton became part of the Town of Mississauga which then became the City of Mississauga and a part of Peel Region. In the last consolidation certain services were reserved to the Regional government and certain others were held by its component cities. Police, social services, schools, and waterworks, for instance, are operated by the Region. The fire department and public works are controlled by the city.

Mississauga is the 9th largest city in Canada and the fastest growing. It consists of 290 square kilometers (111 square miles) and had, in September 1979, 283,429 people (about



INTERNAL DIVISIONS OF THE REGIONAL MUNICIPALITY OF PEEL

81,000 households). About four fifths of the population is concentrated in the southern part of the city (the area evacuated on November 11, 1979).

The City of Mississauga owns approximately 1168 km (726 miles) and has within its boundaries 41 km (25 miles) of freeway and 286 km (178 miles) of arterial roadway. Roads, like population, are concentrated in the southern part of the city. Road density is 1.1 km per square kilometer or 1.8 miles per square mile. Lane density is 3.5 lane kilometers per square kilometer or 5.8 lane miles per square mile. Again, this is concentrated in the southern part of Mississauga.

Mississauga's road density, combined with the fact that more than 90% of city households have at least one automobile made possible the rapid evacuation of November 11, 1979.

The guiding documents of three organizations, Peel Regional Police, Peel Region, and Queensway General Hospital, are discussed below.

Peel Regional Police Disaster Manual

The Peel Regional Police Disaster Manual originated out of a natural gas explosion in the Town of Mississauga in 1969. Police had an emergency plan at the time but police officials rated it poor, especially as it affected manpower utilization. As a result, they developed a plan with clearly delineated lines of authority and guidelines on scheduling personnel (so that all officers would not be on duty at once).

An air crash at the Toronto International Airport in 1972 pointed out additional needs in the areas of interaction with civic officials, mobilizing resources, and the advisability of having a formal declaration of disaster.

Amalgamation of several communities to form the Regional Municipality of Peel and the City of Mississauga in 1974, brought together a variety of potentially hazardous facilities in one jurisdiction: three oil refineries, a major international airport, and a Great Lakes port, not to mention rail lines. At this time, work began on expanding the scope of the earlier document to make it into a full-scale disaster plan. Douglas Burrows, Chief of the new Peel Regional Police Force, (formerly Police Chief of the Town of Mississauga) assigned an officer to work full-time on developing a disaster manual for the force. The officer was also instructed to coordinate the plan with those of other agencies in the region.

The Manual's first real test came in a fire at the Texaco oil refinery in 1978. That incident forced the evacuation of some 5,000 people and led to the addition of a plan annex on evacuation procedures (see Appendix A). More recent events have involved reaction to a plane crash and a mock plane crash. After each event, the plan has been reviewed and revised to incorporate lessons learned.

Evacuation Procedures

At the time of the Mississauga train derailment, the Peel Regional Police Disaster Manual included a six page annex on evacuation (full text appears as Appendix A). This consisted of eight main points, giving policy and guidance for police actions in cases where hazardous conditions exist:

1. Survey

Provides for a survey of the accident site and potentially threatened areas with an eye to determining needs for equipment and/or action, including evacuation.

This section also specifies those who may order an evacuation and describes circumstances under which they may do so.

2. Cooperation with Department of Welfare

Provides for liaison with and assistance to Department of Welfare (now called the Department of Social Services) personnel in areas such as: evacuation from buildings, transportation, emergency shelter, record keeping and notifications.

3. Factors to be Considered

Lists a set of points to be addressed by the official ordering an evacuation before the order is issued. Topics covered are: the area to be evacuated (this involves consideration existing and potential hazards); approximate number of evacuees; special groups (sick, aged, infirm); probable duration of evacuation; provision for shelter and support (food, clothing, et cetera) of evacuees; transportation (if needed) for evacuation; instructions to evacuees (what to take, securing property, et cetera).

4. Evacuated Buildings

This item addressed the potential necessity for entry of evacuated buildings by police, social service workers, Public Works inspectors, utility representatives, et cetera. It described reasons for entry (such as search for persons left behind, inspection for hazards, shutting off utilities) and provided for police escort or authorization. It also mandates record keeping procedures for such entries.

5. Notification

Provides for registration of evacuees who are given temporary shelter (name, age, sex, address, temporary shelter location, and agencies involved). Duplicate lists were to be prepared and filed with the Police Information Centre.

6. Unsafe Conditions

Instructs police to consider barricading or otherwise restricting access to dangerous areas "to prevent possible injuries."

7. Valuable Property

Under this guideline, police are instructed to safeguard unattended property either at the scene or (if necessary) by removing it to a secure storage area until the owner can reclaim it. Record keeping procedures are also mentioned.

8. Prevention of Looting

States that protection of property in the affected area "is the responsibility of every police officer at the scene" and provides for a system of access control and checkpoints. It also suggests consideration of the special assignment of personnel to prevent looting.

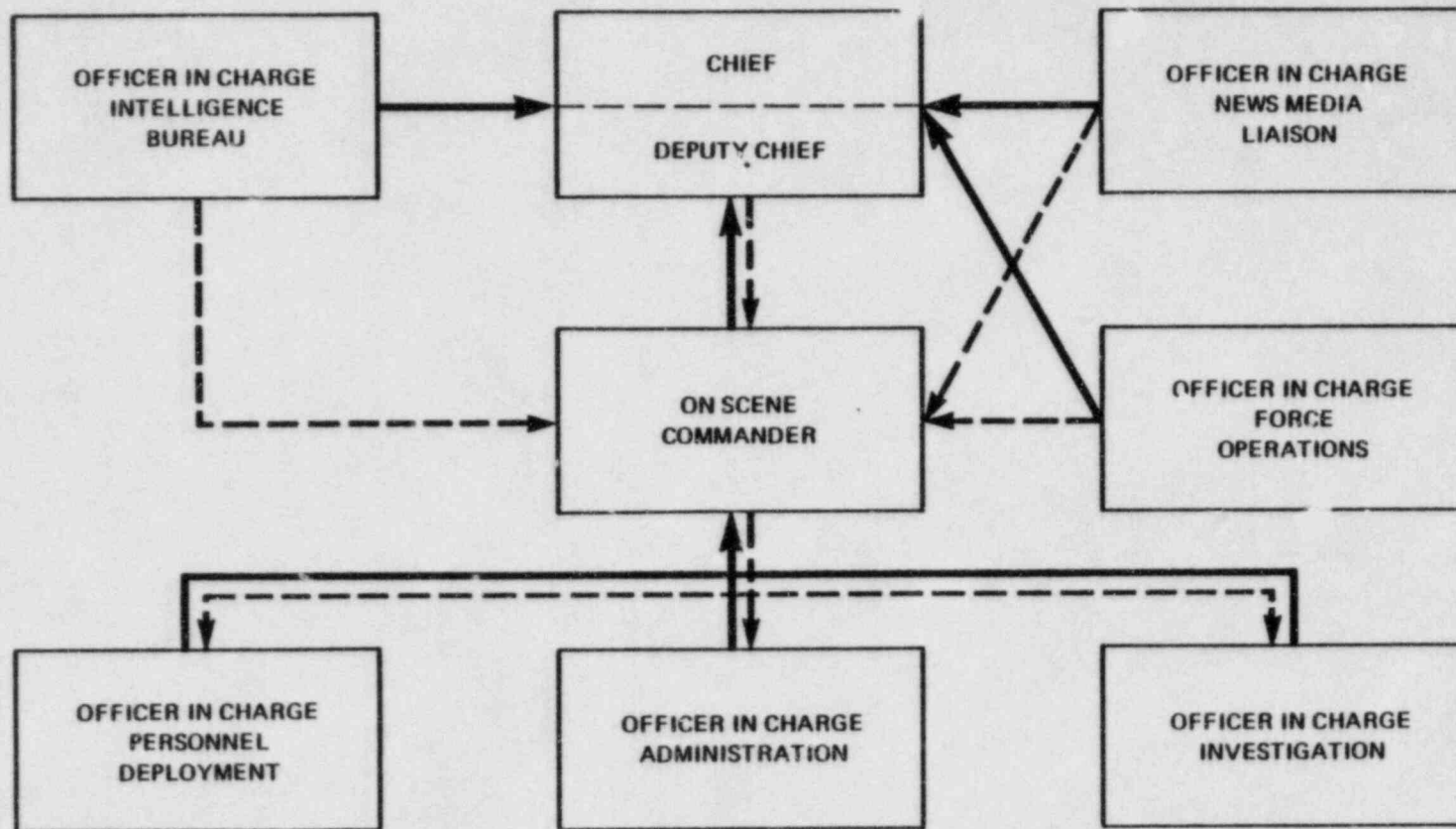
The provisions of the evacuation section of the Peel Region Police Disaster Manual are simple yet flexible and comprehensive. They do not prescribe specific actions in detail.

They do, however, direct the attention of the officer in charge to certain basic requirements of evacuation. This is in keeping with the Peel Regional Police Force's emergency action formula which assigns a central decision-making role to the on-the-scene commander.

Organization

The organizational structure of the Peel Regional Police Force emphasizes depth of command and clearly delineates lines of authority. In an emergency, the on-the-scene commander plays a central role and is given broad discretionary authority. Under the terms of the Disaster Manual, he can reasonably expect others in the police hierarchy (including the Chief) to defer to his decisions until a formal emergency command is established. Even then, the on-scene commander's role is central to police operations. This approach gives great weight to the perceptions of those most intimately involved with the source of danger and attempts to place at their disposal the resources (manpower, material, and organization) to take quick and decisive action if the situation at the scene, seems to merit it.

Figures 1-1 through 1-5 show the emergency organization structure anticipated in the Peel Regional Police Disaster Manual prior to the accident. Clearly, the "on-scene" commander plays a central role in the control of police emergency operations (see 1-1, 1-3, 1-4, and 1-5). The Chief and/or Deputy Chief retains overall authority but his role is primarily in the area of overall situation assessment and coordination of public information (see 1-1 and 1-2).



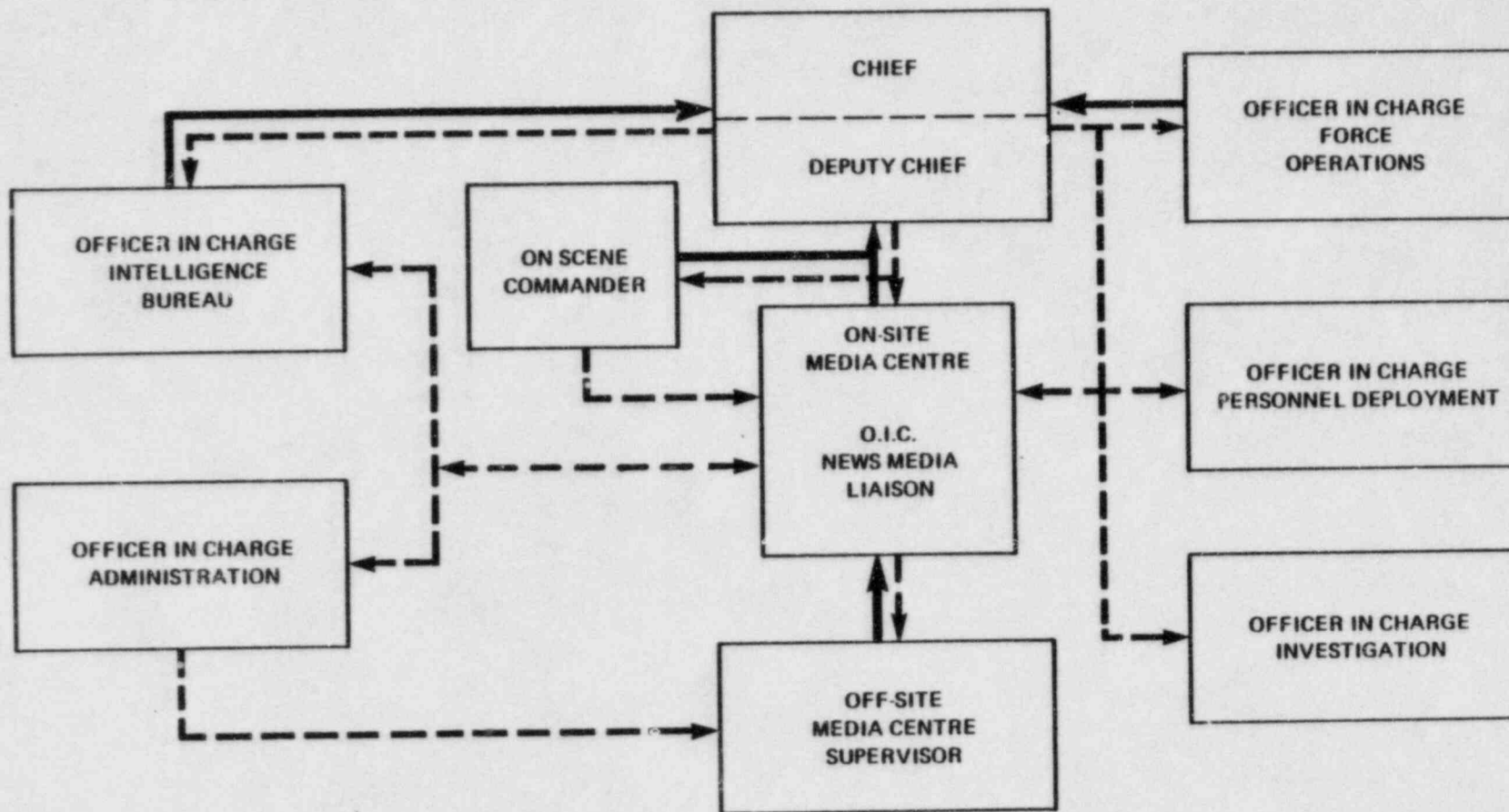
1. Staging Area
2. Traffic Control
3. Security
4. Evacuation

1. Communications
2. Volunteer Services
3. Citizen Enquiry
4. Vehicles/Equipment

1. Investigative Teams
2. Temporary Morgue
3. Property Recovery
4. Injured Persons
5. Identification

— Authority
 - - - Communication

FIGURE 1-4
PEEL REGIONAL POLICE:
OVERALL EMERGENCY COMMAND STRUCTURE



— Authority
 - - - Communication

FIGURE 1-5
PEEL REGIONAL POLICE:
ROLE OF THE POLICE CHIEF IN THE
EMERGENCY COMMAND STRUCTURE

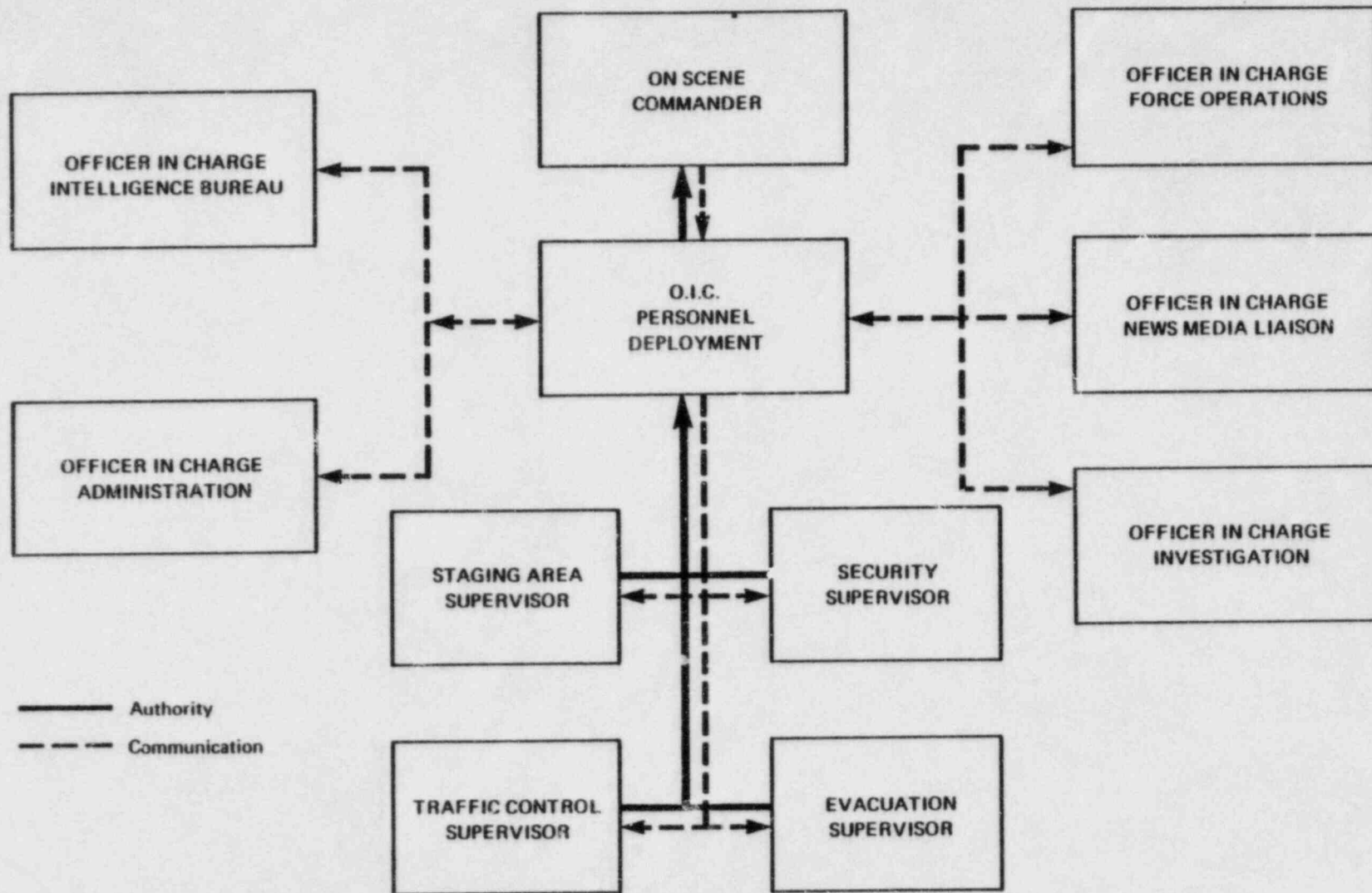


FIGURE 1-6
PERSONNEL DEPLOYMENT IN THE
EMERGENCY COMMAND STRUCTURE

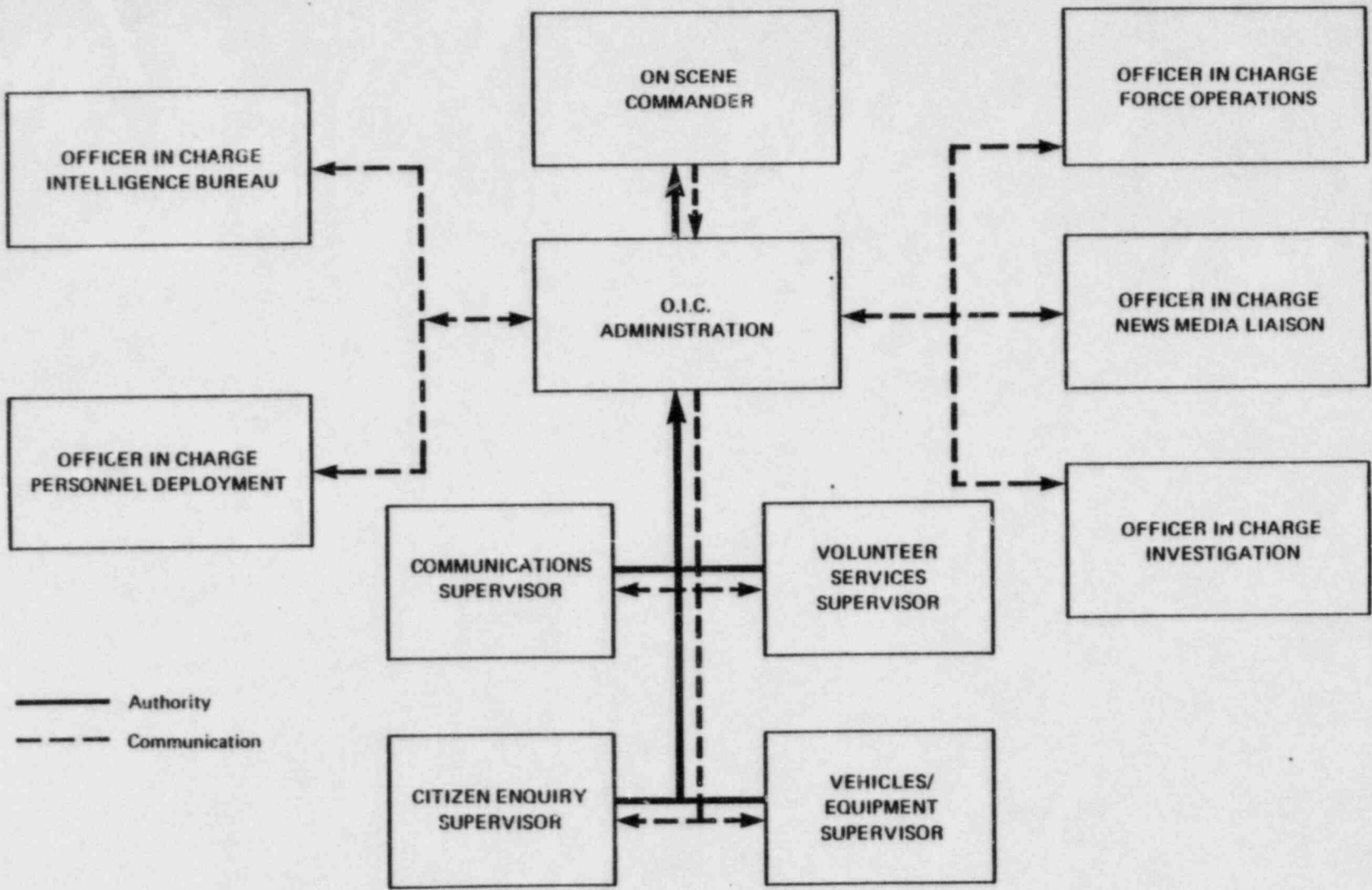
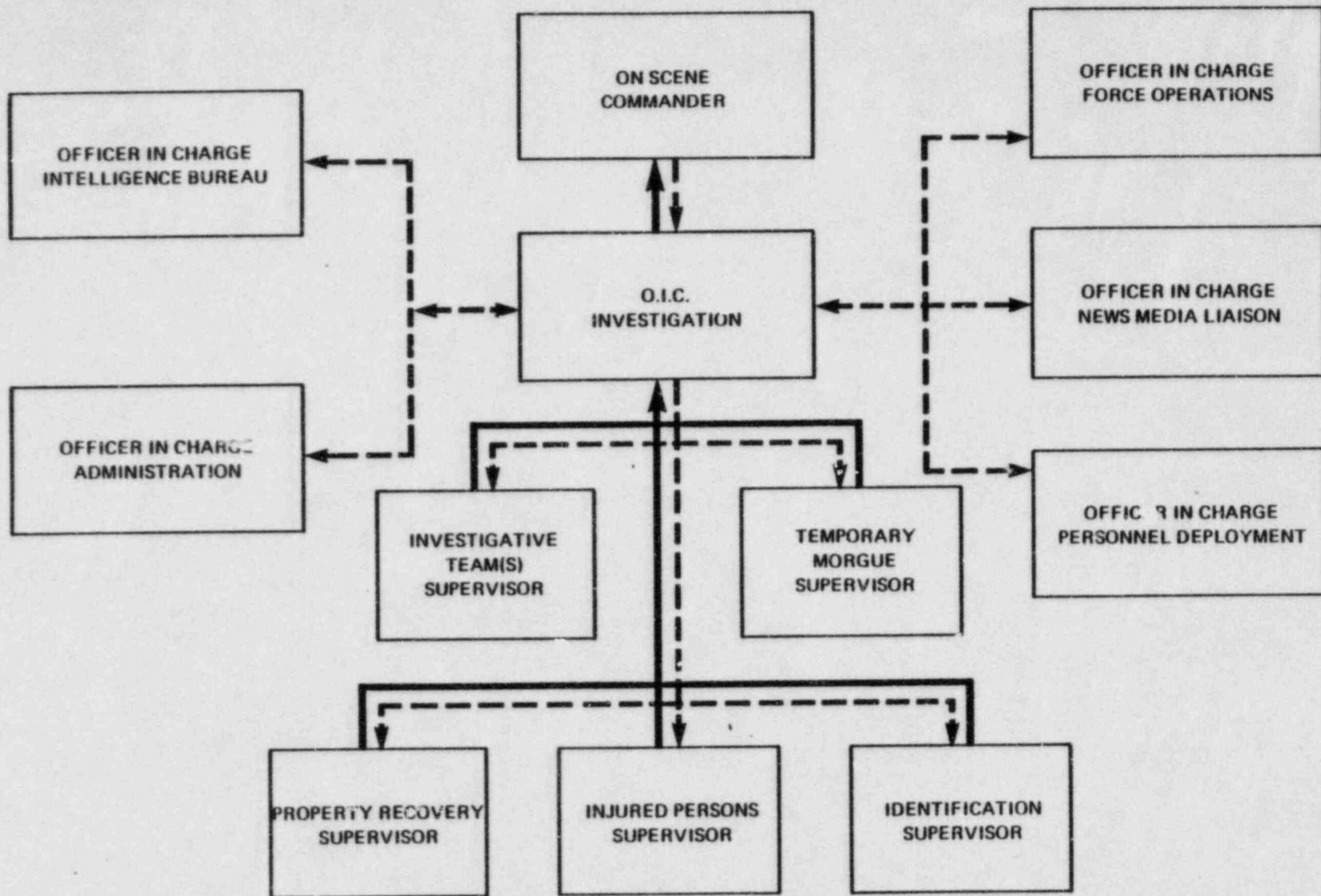


FIGURE 1-7
ADMINISTRATION IN THE EMERGENCY
COMMAND STRUCTURE



— Authority
 - - - Communication

FIGURE 1-8
PEEL REGIONAL POLICE:
INVESTIGATION IN THE EMERGENCY
COMMAND STRUCTURE

There is only one "on-scene commander." He is in charge even if the Police Chief, himself, is there. The terminology in the manual is standardized police nomenclature as used by the F.B.I. Academy and the Canadian Police College. Only officers trained at the Police College on the Special Command Course can be "on-scene commanders." The on-scene commander at Mavis Road was initially Inspector Karl Barnhardt who later was appointed Officer in charge of news media relations when the duties of on-scene commander were assumed by the Police Chief, himself. Although the Attorney General of Ontario later chaired the meetings of the Emergency Operations Control Group, Chief Burrows remained in charge of police operations.

The commander has five persons who report to him. The responsibilities of each one are defined in appendices to the manual. They are:

- a. Personnel Deployment--responsible for supplying officers to all other sections. Looks after accommodations and food for all officers assigned to accident.
- b. Traffic and Security--responsible for road blocks and security within the evacuated area. Requests personnel from a.
- c. Investigation--responsible for collecting evidence that could lead to criminal charges being laid.
- d. News Media Relations--hand picked senior officers. The importance of this job cannot be overstated. All handouts printed. All media transmissions monitored for accuracy.

- e. Administrative Services--coordinates voluntary services. Lead agencies such as the Red Cross and the Salvation Army run themselves, they do it all the time. However, many others volunteer and this help needs careful coordination to ensure optimum utilization. All offers of help need to be documented.

When Peel Regional Police activated the Manual on the night of November 10/11, 1979, this is essentially the organizational structure they assumed. The major exception was that for the crucial period between 1:30 a.m. and 9:30 a.m., Peel Regional Police Chief Burrows functioned both in his normal role and as on-scene commander. During this time, he ordered evacuation of patients from one hospital and one nursing home, and of the general population from six of the eventual thirteen evacuation zones.

Peel Region Emergency Plan

The Regional Municipality of Peel has, as part of its Policy Manual, an emergency response plan (see Appendix B). Though the plan was never formally activated, the collective response of emergency organizations follows, for the most part, the approach laid down in it.

Peel Region's Emergency Plan assigns immediate authority for response to the "affected operating authority within the Area Municipality." When an emergency is too large for a municipality to handle with its own resources, responsibility evolves to the Regional Chairman. The initiative, however, remains with the Mayor of the affected municipality who may request assistance from Regional government or, through the

Region, from Provincial and Federal authorities. The focal point of the emergency response effort remains at the lowest level. This is consistent with the approach seen in the Peel Regional Police Disaster Manual which assigns a major part of the operational control of emergency related activities to those closest to the hazard.

Since requirements, such as police and social services, are met at the Regional level, these agencies, as the lowest level operating in the area, become the recipients and coordinators of outside aid. Where more than one component municipality of the Region is involved, the Regional Chairman coordinates emergency activities of the subjurisdictions. The thrust of the plan is to provide a structure through which those at the lowest level can obtain the additional resources they need to meet the emergency; it is not a design for the Regional administration to take over a component municipality.

Organization

Even though the Peel Region Emergency Plan was not formally activated, the emergency response that evolved resembles measures described in it. The plan describes an "Emergency Operations Control Group" (EOCG) which should assemble in an emergency to oversee the response of Regional agencies. The EOCG described in the Peel Region Plan consists of the Chairman of the Regional Council and the Chief Administrative Officer plus the heads of eight Regional departments.

It also provides for the appointment of other personnel as needed. The EOCG that operated during the Mississauga train accident was smaller (five members) and of slightly different

composition: The Attorney General/Solicitor General* of the Province of Ontario; the Chairman of the Peel Regional Council; the Mayor of the City of Mississauga; the Peel Regional Police Chief; and the Fire Chief of the City of Mississauga. This was a result of three influencing factors: First, police and fire emergency plans which were activated at the beginning of the accident provided an adequate organizational framework for the first few hours. Second, Provincial authorities were involved almost from the outset and the EOCG in the plan was structured primarily for activities of Regional officials. Third, participation in all working sessions by representatives of all agencies and organizations involved in the various aspects of emergency response was judged both awkward and unnecessary (e.g., organizations serving mass-care centers had little to do with the planning of fire-fighting strategies).

Functions

Duties assigned the EOCG under the Peel Region Emergency Plan are as follows:

- o to designate in the absence of the Regional Chairman or his alternate, an "Emergency Area" (and declare an emergency);
- o to coordinate emergency services;
- o to assess service needs and allocate resources;

* At the time of the Mississauga train derailment, Mr. R. Roy McMurty held both offices. The Solicitor General, is in charge of law enforcement in the Province of Ontario, while the Attorney General, acts as the province's chief legal advisor. Mr. McMurty also held the position of Chairman of the Provincial government's cabinet committee on Energy Planning.

- o to order evacuation;
- o to order population dispersal and control of access to the Emergency Area;
- o to authorize discontinuation of services in the Emergency Area;
- o to collect information and set up an "Information Enquiry Bureau" for officials, media, and the public;
- o to report to the Province of Ontario Emergency Measures Branch;
- o to authorize necessary expenditure;
- o to request assistance from other Regions, municipalities, and organizations;
- o to procure needed resources (material and human) and designate staging areas for such aid;
- o to request Provincial assistance;
- o to provide administrative and logistical support for Provincial aid;
- o to maintain action logs; and
- o to terminate the emergency.

Even though a Regional EOCG was not formally activated, the response of the ad hoc EOCG and, earlier, of the Peel Regional Police addressed all of the functional areas described in the Peel Region Emergency Plan.

Hospital and Nursing Home Plans

Hospitals and nursing homes in Ontario are required to have institutional emergency plans. But these do not, in most cases, include provisions for the transfer en masse of patients to other institutions. Plans of this type would anticipate either an internal evacuation (e.g., one wing of a building) or a rapid movement outdoors. Basically, the plans are geared to an emergency originating within the facility (like a fire) which has a rapid onset, short duration, and localized effects.

As a class, hospital emergency plans are more elaborate than those of nursing homes since hospitals have a primary role in disasters where casualties occur.

The Disaster Plan for Queensway General Hospital (one of those which evacuated) is typical of hospital disaster plans in the area. It contains eight main topic areas:

1. An introductory section which includes the plan's aim, concept of operations, and a definition of disaster.
2. Plan initiation procedures, including steps for the set up of emergency headquarters.
3. Evacuation procedure, which focuses on internal evacuation and arrangements for discharge of patients to make way for mass casualties.

4. Reception and treatment of mass casualties, includes a triage (casualty sorting) center and description of procedures for conversion of certain areas of the hospital for mass casualty treatment.
5. Description of the emergency roles of the various hospital departments.
6. Internal casualty flow plan.
7. Road plan to allow simultaneous discharge of patients and reception of mass casualties.
8. Telephone notification list and fan-out plan for all hospital staff.

The Queensway Hospital plan does not deal specifically with the subject of total evacuation of the facility. Most of its components, however, are usable for such an operation. (Hospital response to evacuation orders is discussed in Chapter Three.)

During the Texaco oil refinery fire in Mississauga in October 1978, several nursing homes were evacuated. Lessons of that incident were not, however, incorporated into nursing home emergency plans. At the time of the train derailment emergency plans of affected nursing homes resembled the one for Queensway Hospital, except, of course, for the component on reception of mass casualties.

EVACUATION OF THE GENERAL POPULATION

A Descriptive Chronology

It was nearly midnight and sparks were flying beneath one of the propane cars of Canadian Pacific Train No. 54, a mile-long freighter traveling 80 km per hour in and out of residential areas in Ontario, November 10, 1979. At 11:56 Saturday night, a bump in the tracks at Burnhamthorpe Road, in a light-industrial area about 11 km (7 miles) from the Toronto Airport, broke the axle of the ailing propane car. The train held together and continued along its route first shedding the overheated wheels and finally derailing at the Mavis Road crossing about 1½ km down the line. The deafening squeal of iron, a series of gas explosions, and an intense fire broke the night silence. Within seconds, twenty four, 130-ton rail cars were twisting and crashing off the tracks startling hundreds of nearby residents out of their sleep. (See Figure 2-1, and 2-2 for aerial views of the derailment and Figure 2-3 for a picture of a scale model of the derailed cars.) It was only hours before they were to have awakened to another Sunday morning before starting another week of work.* Appendix G is a personal account of one family's experiences (i.e., the Randalls) from the moment the derailment occurred through their evacuation and return home, including comments on actions of police, other organizations and the public. (See Figure 2-4 for the location of their home. Figures 2-4 and 2-5 show the evacuation zones and will be explained in detail later).

* Several accounts of the accident and evacuation stress the point that it occurred on a national three-day holiday, however, this is misleading. The holiday, Remembrance Day, while observed by federal employees, is not widely observed by organizations other than the federal government. Provincial government employees as well as employees in private industry were merely waking to another normal Sunday morning. Therefore, the image of masses of residents already being out of town or of residents being packed and ready to go on an overnight trip is misleading because the percentage of federal government workers in Mississauga is low.

The bearing had been overheated for some time, long enough, in fact, for friction to wear away several inches of steel axle. Had the wheels hit a bump 60 seconds later or earlier, the contorted mass of twenty-four 130-ton cars, the explosions, and the leakage of deadly chlorine would have occurred in the midst of suburban homes.* Had it happened approximately 19 minutes later, the train would have been in the center of Metropolitan Toronto.

From a nearby fire station, a fire dispatcher on the graveyard shift saw the flames; he sent out firefighters, and alerted the ambulance corps and the Peel Regional Police. Within minutes of that alert, firefighters had arrived with equipment at the intersection of Mavis Road and the Canadian Pacific tracks.

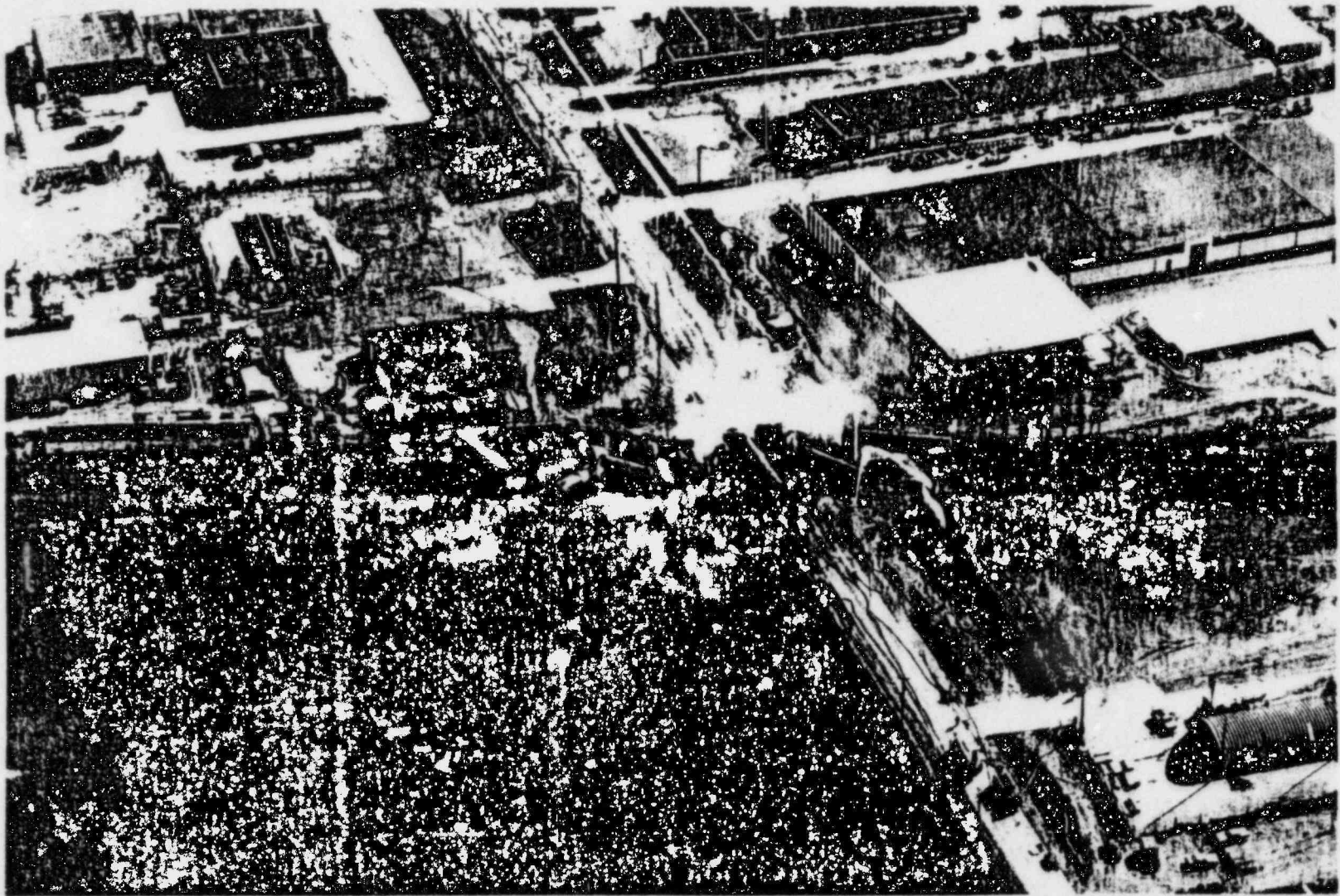
Within minutes of the accident, the police dispatcher was calling in off-duty officers, and on-duty officers were moving to set up roadblocks to protect unknowing drivers and the curious. A flexible police disaster plan devoid of complicated bureaucratic details was implemented at the police station. It clearly and quickly guided the police on-scene commander to the actions he needed to take. Initially, police used one of their police cars as a temporary onsite command post. Soon after this, "on-scene" commander Inspector Karl Barnhardt moved the onsite command post to the nearby Bell Canada Building. A mobile unit arrived later and was used as the onsite command post. Inspector Barnhardt, who later was appointed press liaison officer, ordered the opening of Square One Shopping Centre to receive evacuees and alerted the Mississauga Branch of the Red Cross to provide them with support services.

* The term hot box refers to a condition in which a train wheel's journal bearing has overheated inside its lubrication box because of a lack of grease. Once it overheats, it seizes up and can cause a derailment.



(Photo Copyright by Northway-Gestalt Corporation, Toronto, Ontario, Canada).

FIGURE 2-1
AERIAL VIEW OF THE DERAILMENT SITE
(Afternoon, November 11, 1979)



(Photo Courtesy of Ontario Ministry of Environment)

FIGURE 2-2
CLOSE UP OF DERAILMENT SITE
(Noon, November 12, 1979)

Among the 24 cars that had derailed 22 were carrying toxic, flammable, or explosive chemicals. (See Figure 2-3 for the picture model of derailed cars.) Eleven of the 22 cars carried liquid propane, 4 carried lye (caustic soda), 3 carried styrene, three carried toluene, and 1 carried chlorine, a deadly chemical that when released forms a greenish yellow cloud so heavy it often hovers close to the ground, a feature that led to its use as a weapon in World War I. Ironically, when German forces first used it along a four mile front in Europe, Canadian troops were among the 5,000 killed and 15,000 injured. In that incident, a total of 168 tons were released on two occasions. (There were ninety tons in the tank car that derailed). Once it is breathed, it saps the fluids in the linings of lungs and blood, and starts a chain reaction that ends with slow suffocation. A further irony connected with what (for the next 6 days) was to become one of the largest evacuations in North America is that Toronto, 17 miles away, is where the first gas mask was invented. (Appendix H is a discussion of the pathological effects of chlorine).

At the moment of the crash a married couple were stopped at the intersection of Mavis Road and the tracks waiting for the train to pass. Again, the timing and place of the accident proved to be generous. At another time of day, such as rush hour, there could have been a long string of cars waiting at the derailment site. As it happened, Ron and Kay Dabor were counting the cars to pass the time. Seeing the sparks and fire underneath one of the approaching tanker cars, Kay Dabor yelled for her husband to back up and get away. Hurriedly he reacted, but he backed the car into a ditch 100 yards from the crossing as tanker cars crashed off the tracks. Shock waves from the first explosion shook their heavy automobile. They

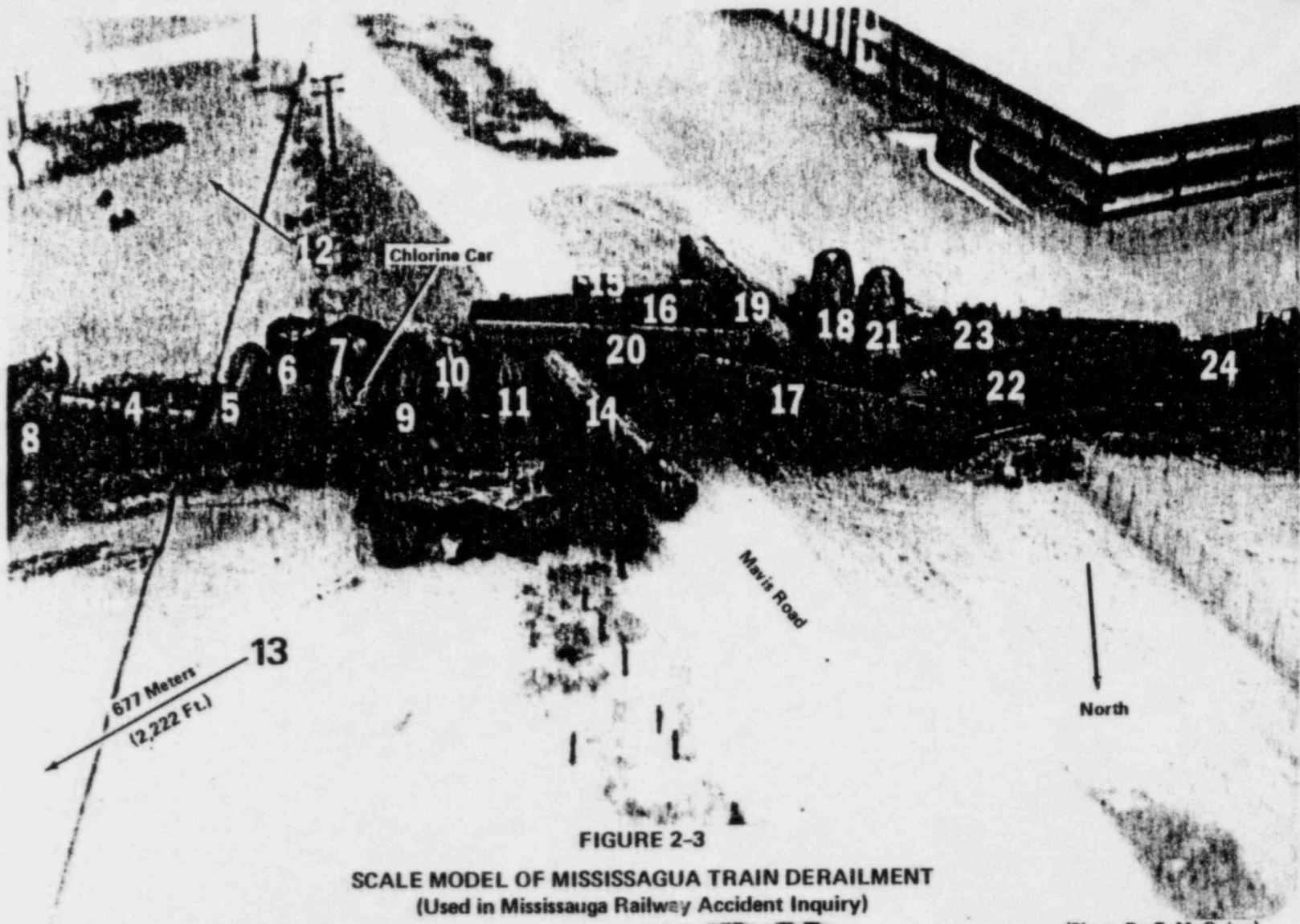


FIGURE 2-3

SCALE MODEL OF MISSISSAGUA TRAIN DERAILMENT
 (Used in Mississauga Railway Accident Inquiry)

(Photo By F. M. Quinn)

Key							
Car no.	Contents						
1*	Toluene	2	Chlorine	12	Propane	18	Propane *not shown
2*	Box Car	3	Propane	13	Propane	19	Propane
3	Caustic Soda	4	Styrene	14	Propane	20	Propane
4	Caustic Soda	5	Styrene	15	Toluene	21	Propane
5	Caustic Soda	6	Caustic Soda	16	Box Car	22	Propane
		7	Chlorine	17	Propane	23	Propane
		8	Propane			24	Toluene

got out and ran about 1.2 km (3/4 of a mile). As they started back to retrieve their car, a policeman yelled for them to leave the area. Almost at the same instant all three of them were thrown to the ground by the force of another explosion.

As 2 propane cars spewed flames thousands of feet into the air, no one at the temporary police command post knew what the train was carrying. Mississauga Fire Chief Gordon Bentley, the first ranking local official at the scene, ordered his men to retrieve the cargo manifest from the train's caboose in order to learn the contents of the rail cars. At the same time Chief Bentley ordered a copy from the Canadian Pacific train dispatch office in Toronto. Until information on the contents of the derailed cars was available, firefighters and police were unable to plan their actions with any confidence. Even though the manifest in the caboose was mostly illegible, they could see that dangerous chemicals were on the train and immediately began to consider evacuation of the surrounding area.

Less than five minutes (12:10 a.m.) after the police had set up a temporary command post, another propane car exploded, shattering windows and hurling shrapnel that started fires within 800 meters (one half mile) of the crash site at Mavis Road. To increase on-scene support, Peel Police dispatched a specially equipped command post trailer to the site. The trailer, a mobile conference room with telephone jacks, and a variety of radio equipment, was to serve as the focal point for emergency activities over the next week.

About five minutes after that explosion, another explosion shattered a propane tank car, throwing it 677 meters (2,222 feet) to the northeast, the only direction without occupied

buildings. The assistant engineer of Train No. 54, described the sailing car as "rocketing like a zeppelin." At 12:25 a fourth explosion blew a portion of a tank car 200 feet south-east, into open ground within the light industrial area. This series of explosions between 12:10 and 12:25 Sunday morning, sent out flying shrapnel that started small fires and shock waves that broke windows all around the derailment site. Neighbors were to later describe what they saw as a plane crash, as daylight in the middle of the night, as a UFO landing, as the sky on fire and as nuclear attack.* The most serious injury occurred several days after the accident when eight firefighters walked into a pocket of chlorine gas in low ground near the accident site. One of them was hospitalized for more than a week and did not report for work for more than 6 months. Mississauga Mayor Hazel McCallion was to term the accident and the evacuation "the miracle of Mississauga" because no one was killed.

Between 12:30 and 1:30 that Sunday morning the Mississauga Fire Department, under the direction of Fire Chief Gordon Bentley, adopted a controlled-burn strategy toward the fire because of the intensity of the flames and the threat of explosion. (It wasn't until early Tuesday, 48 hours after the accident, that the flames were finally extinguished). Most of the off-duty firefighters responded by 1 a.m., bringing the total to approximately 120. Most of the equipment needed for the next 48 hours also arrived. By this time the locomotives had pulled intact cars away from the wreckage. At about 12:30, a police dispatcher notified the Canadian Red Cross Emergency Services Chairman, although this notification was not part of the written police emergency disaster plan. The

* These explosions, technically called Boiling Liquid Evaporating Vapor Explosions or BLEVES, resemble the mushroom-shaped cloud characteristic of a nuclear explosion. The fire was visible in Niagara Falls, Ontario, 60 kilometers (37 miles) across Lake Ontario.

Peel Region Social Services Department was not notified until later. The Disaster Manual specified that police assist the social services department. However, because the disaster manual is only a component of the larger regional emergency plan which had not yet been applied, the Social Services Department had not been alerted. This lack of communication was later to cause criticism from the Social Services Department. In order for the regional plan to be activated, Mississauga Mayor Hazel McCallion must notify Regional Council Chairman Frank Bean or his deputy and ask for assistance. However, Mayor McCallion was not notified until 1:35.

Also, between 12:30 and 1:30, the field representatives from the Ontario Ministry of the Environment arrived onsite. The Salvation Army and other support groups such as the St. John's Ambulance Corps, a first-aid and disaster relief group, got ready to respond.

At 1:30 a.m., Mississauga Fire Chief Gordon Bentley and Peel Regional Police Chief Douglas Burrows received a legible copy of the manifest of Train No. 54 from Toronto. The manifest alerted Police Chief Burrows and Fire Chief Bentley to the chlorine tanker car. After consulting Fire Chief Bentley, Police Chief Burrows ordered an evacuation of about 900 meters (0.5 miles) around the crash site (i.e., 2.8 square kilometers, 1.2 square miles). He was still acting in accordance with the Peel Regional Police Disaster Manual. This constituted the first evacuation order, and police achieved it by cordoning off the 2.8 square kilometer (1.2 square miles) area and alerting residents and workers with loudspeakers and door-to-door notification. (All Peel Regional Police cars are equipped with loudspeakers).

According to Staff Inspector Barry King, police used a three-phase notification process: the first phase consisted of police cars travelling through an area sounding their sirens to alert or awaken residents; in the second phase police drove through the same residential area making loudspeaker announcements to evacuate; and the third phase consisted of door-to-door notification of the residents. (For a personal account of how one family in the first evacuation zone was alerted refer to Appendix G).

At the time of this first evacuation, Police Chief Burrows alerted Mississauga Mayor Hazel McCallion and appointed a press liaison officer. Burrows said he accepted the fact that the press would be involved, and that he chose to aid the press in accurate reporting of the incident from the outset. For a discussion of the lessons learned regarding press relations refer to Chapter Seven. Appendix F contains sample news releases and a news conference transcript.

Evacuees were not instructed what to do about utilities but in the rush to evacuate most left them on. Later, a decision was made to instruct evacuees to leave utilities on.

Meteorological and environmental scientists from the Ministry of the Environment supplied Police Chief Burrows with data that convinced him to expand the evacuated area. At 1:45 a.m., only about 20 minutes after police officers had cordoned off a 900 meter radius (0.5 miles) and evacuated the area within it. This evacuation order was the first in which the area was defined with geographic and street names so that the general public could easily understand the limits of the evacuated area. This approach was in accordance with the Peel Regional Police Disaster Manual.

The first evacuation zone is shown in Figure 2-4 which illustrates the first eight such zones, all of which were defined by streets and natural landmarks. The order in which the zones were evacuated is indicated by bold numbers inside each zone. Below the bold numbers the times the zones were evacuated and the number of persons evacuated are shown. In the same manner, Figure 2-5 illustrates zones 9 through 13, thus showing the nearly the whole area (approximately 130 square kilometers, 50 square miles) that was evacuated by 4:30 Monday morning.

Approximately 25 minutes after the first evacuation order was given (i.e., at 2:10 Sunday morning), additional Red Cross Branches were alerted and the Salvation Army was asked to assist with reception of evacuees at the Square One Shopping Centre (see Figure 2-4). This center is approximately 2.4 km (1.5 miles) from the site of the accident. Five minutes later (i.e., 2:15), the dispatcher at the Halton-Mississauga Ambulance Dispatch Centre, acting in response to the size of the accident and the potential for mass casualties, issued a general call for ambulances. Within the next 6 hours, 139 responded.

As first 3,500 persons evacuated, there was no panic. Families got into cars and drove in accordance with police instructions. They proceeded to the Square One Shopping Centre where they signed cards and waited to go on to stay with friends or relatives. Fire Chief Bentley, Police Chief Burrows, and officials from the Ontario Ministry of the Environment had arrived on the accident site. Technical expertise from all these departments was on hand, and attention was focused on the chlorine car. At 2:20, about 2 hours and 25 minutes into the accident, they decided that it would

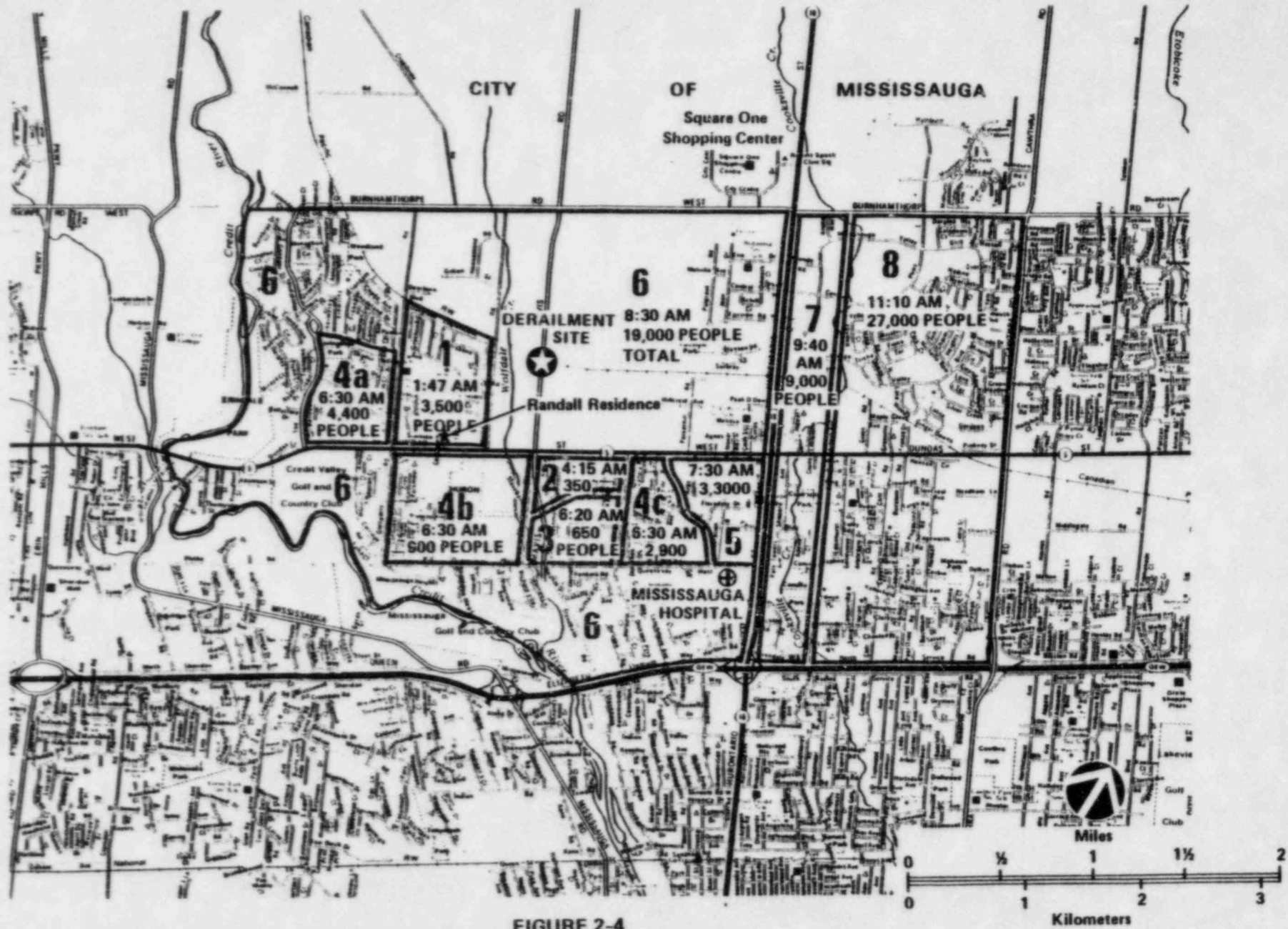


FIGURE 2-4

SUNDAY MORNING EVACUATION ZONES (11/11/79)

be futile to attempt sealing the chlorine leak until the raging fires were out; and it was too dangerous then to attempt to smother the fires.*

Almost one and one half hours later the intense fires and continued chlorine leakage convinced Chief Burrows to alert Mississauga General, Queensway and Etobicoke hospitals for possible evacuation. Chapter Four discusses the evacuation hospitals and nursing homes.

A little over 4 hours into the accident, Peel Regional Police Chief Burrows was still acting as on-scene commander. At 4:15 he ordered the evacuation of 350 more people to the south southeast. This was the second zone evacuation, and, like the first, it was defined by well-known roads. (See Figure 2-4). At this stage police officers were reporting the smell of chlorine to give the Command Post first-hand information to supplement the meteorological and environmental data. Mississauga Transit, with its 128-bus fleet, was called to aid in the evacuation of residents, and additional reception centers for the evacuees were opened. With approximately 3,850 people evacuated (zones 1 and 2) and the zones cordoned off by the police, Police Chief Burrows ordered patrols to guard against looting of the evacuated areas. Throughout the accident and evacuation, there were three persons arrested for

* Only three weeks before the accident Mississauga fire-fighters had been instructed in the current practice of containing Boiling Liquid Evaporating Vapor Explosions (BLEVE). This instruction was sponsored by the Mississauga Fire Department. Part of the instruction was a film of BLEVES that included footage taken by a cameraman assisted by a fire-fighter, both of whom were killed by one such explosion during the filming.

looting, all involved in the same incident. For the entire week, 44 charges were filed with local police (approximately the same number of charges that usually would be filed in one day).*

The fifth and sixth hours of the accident marked the time that high ranking provincial and city elected officials were briefed on the accident. Specifically, officials of the Ontario Ministry of the Environment, who had been on the scene for 3½ hours started to notify other provincial officials at 4:50 Sunday morning. By about 6:00 Ontario Deputy Solicitor General John Hilton, who serves directly under Ontario Attorney General and Solicitor General R. Roy McMurtry, was briefed by police. Roy McMurtry later said that he was told of the accident about an hour later (i.e., 7:00 a.m.). While officials of the Ontario Ministry of the Environment were notifying other provincial officials, the Peel Regional Police called the Chairman of Peel Region and the Mississauga Councilors (4:55 a.m.). Mayor Hazel McCallion had been called more than three hours earlier.

At 6:20 a.m., 650 people were given the notice to evacuate from zone 3 shown on Figure 2-4, and 10 minutes later three other areas were notified simultaneously to evacuate. The two announcements represent the third and fourth zone evacuations of the day, the fourth announcement affected 8,000 people.

* The Mississauga evacuation proved the rule rather than the exception for human behavior in evacuations. The picture of panic and lawlessness usually assumed by inexperienced observers is probably based more on the screen productions of television and movie writers and directors than careful observation of people in evacuations. Sensational press treatment of the evacuations that are exceptions to this rule probably also contribute to this misunderstanding. Further discussion of the myths of disaster behavior is contained in A Perspective on Disaster Planning, from the Disaster Research Center, Report Series No. 11, June 1972.

Thus, about 6½ hours into the accident the total number of persons directed to evacuate was 12,700, already more than were evacuated during the flood of Minot, North Dakota, in 1969. Because the fourth evacuation order applied to three areas simultaneously, the areas are designated in Figure 2-4 as 4a, 4b, 4c. At this stage of the evacuation, Police Chief Burrows also ordered his men to notify Mississauga Hospital that an evacuation might be necessary. The hospital is approximately 2.4 km (1.5 miles) from the accident site and, at the time, contained 450 patients.

By 7:30 in the morning, the management of the Mississauga evacuation took on a new administrative form. The Emergency Operations Control Group (EOCG) provided for in the Peel Regional Emergency Plan, met for the first time.* Members attending this meeting were Peel Region Council Chairman Frank Bean, Mississauga Mayor Hazel McCallion, Peel Region Police Chief Douglas Burrows, and Mississauga Fire Chief Gordon Bentley.

Attorney General and Solicitor General Roy McMurtry was not present at the first few meetings, however, he later emerged as the leading coordinator of the EOCG because of his ranking authority as a Provincial Minister. He also served as the chairman of Ontario's cabinet committee on emergency planning. In an interview after the evacuation, McMurtry stressed that his good working relationship with Peel Regional Police Chief Burrows and the good working relationships among members of the EOCG contributed much to that organization's effectiveness. Each decision to evacuate a zone after the EOCG's first

* This aspect of the emergency response appears to follow the Peel Region Peacetime Emergency Plan even though that document was never formally implemented.

met at 7:30 Sunday morning was discussed by this group. The only exception to this was the decision to evacuate part of Oakville in neighboring Halton Region, zone 13 which was made by Halton Regional officials and the Mayor of Oakville after consulting with Roy McMurtry. McMurtry attended his first EOCG meeting at approximately 9:30 Sunday morning in time to be a part of the decision to evacuate zone 7. According to McMurtry, most decision making went smoothly although he was unable to obtain federal troops to protect evacuees' property. Federal officials requested that McMurtry sign an authorization, which McMurtry thought would give too much authority to the military, possibly amounting to martial law. McMurtry did not sign the authorization and the troops never appeared. However, as already noted, criminal charges during the whole week equalled only one normal day's worth. Although breaking and entering incidents were reported police apprehended 3 suspects for all of those incidents.

As a result of the EOCG meeting, a fifth zone evacuation was ordered affecting 3,300 persons, bringing the total number of evacuees to 16,000, still 200,000 persons fewer than would be evacuated by the time the thirteenth evacuation order was given Sunday night at 10:55. This fifth evacuation order marked the end of small evacuation zones. Henceforth, the zones would cover larger areas. For instance an hour later the sixth evacuation zone an hour later included more people than the first five put together. At 8:30, the sixth zone evacuation directive was given and 19,000 people were evacuated. The northern limit of the sixth zone ran along Burnhamthorpe Road, the northern most limit of the entire evacuated area. Burnhamthorpe Road, at its closest point of approach, 1.2 km (3/4 mile) from the derailment site. This limit was based on the general direction of the light winds which shifted from a northeasterly direction to a northwesterly direction during the entire evacuation.

At 9:40, the seventh zone evacuation was ordered; it covered a section along Cooksville Creek (see Figure 2-4), about 2 km (1.2 miles) east of the accident site. The 9,000 persons in this zone brought the total to 44,000. One and one-half hours later, at 11:10, the eighth zone evacuation began. This area is home to some 27,000 persons, the largest number affected by any evacuation order to that point in the accident. The larger evacuation zones may have been due to increasing confidence of police, or better information about the hazard or both. Whatever the reason, zones of evacuation continued to be large, both in area and in the number of people affected. (Evacuation zones 9 through 13 are shown on Figure 2-5).

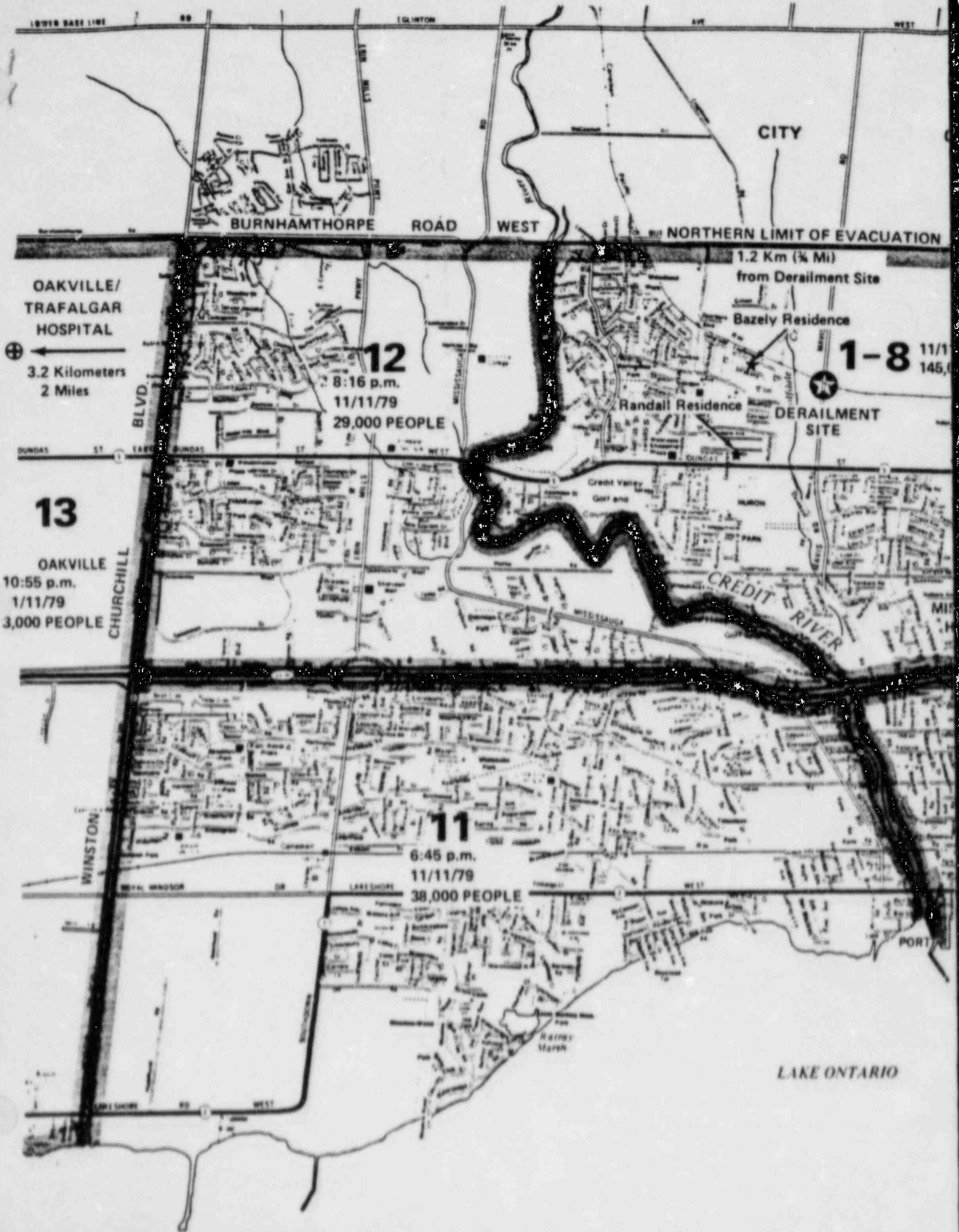
Still unaware of just how much chlorine was in the wrecked tank car 12 hours after the accident, members of the EOCG decided that the evacuation area should be expanded again. At 12:30 Sunday afternoon, 2,700 evacuated families at the Square One Shopping Centre reception area started to evacuate a second time. Officials at the Command Post had decided to move evacuees from the Square One Shopping Mall in case the wind shifted. In this way, should the winds shift, the officials would not be forced to reevacuate a large number of persons in a hurry. The Square One evacuees were sent by bus to the International Trade Centre at Toronto International Airport approximately 11 km (6.8 miles) from the Square One Shopping Centre. This move is not considered to be a zone evacuation because no other areas north of Burnhamthorpe Road were evacuated.

Use of public transport throughout the evacuation was minimal because most families left in their own cars (refer to Appendix C). Of the 128 buses in the Mississauga Transit fleet, 47 were used during the course of the evacuation.

Firefighters used two of these for shelter, and the rest were used to evacuate the general public, hospitals, and nursing homes. Buses were dispatched immediately after the accident from the Mississauga Transit garage where about 10 off-duty bus drivers were available to help. At about two o'clock Sunday morning, Mississauga Transit and police officials started to coordinate the use of buses for evacuees without personal transportation. This effort included the assignment of pick-up points to which the public was directed by police. Some people were picked up by private citizens and delivered to their destinations.

The ninth zone evacuation at 1:30 Sunday afternoon required the movement of approximately 17,000 persons from an area, southeast of the site. It was the first evacuation to affect people south of the Queen Elizabeth Way. By 3:10, the staff of Queensway General Hospital started to prepare to evacuate. Roy McMurtry then met with the hospital's administrator, and at 3:40, discussed the evacuation of Queensway General Hospital in Etobicoke, Toronto with other EOCG members. Because of high chlorine readings near the facility, he ordered the hospital to evacuate. Four hours and fifteen minutes later the hospital's 280 patients had been evacuated without any serious injuries to patients. (Refer to Chapter Four).

At 5:00, Roy McMurtry, speaking for the EOCG, ordered the evacuation of zone 10. The largest number of people in any one zone, approximately 58,000 persons, were evacuated and; the total climbed to 146,000. An hour and one-half later, the Oakville Trafalgar Hospital, which had earlier received the largest group of patients evacuated from Mississauga General Hospital, was asked to prepare for evacuation. Then at 6:45,



OAKVILLE/
TRAFALGAR
HOSPITAL

⊕ ←
3.2 Kilometers
2 Miles

13

OAKVILLE
10:55 p.m.
1/11/79
3,000 PEOPLE

12

8:16 p.m.
11/11/79
29,000 PEOPLE

11

6:45 p.m.
11/11/79
38,000 PEOPLE

CITY

1.2 Km (¾ Mi)
from Derailment Site

Bazely Residence

1-8 11/1
145,000

DERAILMENT
SITE

Randall Residence

CREDIT RIVER

LAKE ONTARIO

Also Available On
Aperture Card



FIGURE 2-5

SUNDAY MORNING EVACUATION ZONES (11/11/79)

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almost 19 hours into the accident, unpredictable winds convinced the EOCG to order the evacuation of the eleventh zone. The eleventh zone totaled 38,000 persons and boosted the total number of evacuees to 184,000. The northern boundary of the eleventh zone was the Queen Elizabeth Way. At the same time, the evacuees from the Sherway Gardens Shopping Centre were moved again by bus to the Streetsville Secondary School. Police made the decision to move these people by bus to eliminate traffic snarls. This movement constituted the second reevacuation, or third time many of these people were evacuated.

The twelfth evacuation, ordered by Roy McMurtry for the EOCG, began at 8:15 Sunday evening. This zone reached from the Credit River to Winston Churchill Boulevard and included 29,000 people (see Figure 2-5). Fifteen minutes later, the Sheridan Villa, the Pines, and Taara nursing homes began evacuating. These evacuations were completed by 11:00 Sunday evening.

At 9:10, the Oakville-Trafalgar Hospital was notified by Halton Region officials to start evacuating patients. By 9:45 ambulances and buses began to assemble near the hospital; but 35 minutes later Provincial Ministry of Health officials asked the hospital to delay the operation in order to make sure evacuation was necessary. At 10:55 Sunday night, the thirteenth zone evacuation (3,000 persons) was ordered by officials of Halton Region and the EOCG. The zone included parts of Oakville in neighboring Halton Region. At 12:20, Monday morning, November 12, Halton Region Police Chief, J. Harding, ordered the evacuation of the Oakville-Trafalgar Hospital. The Oakville Extendicare Nursing Home was also given the order. The last patients were evacuated from these institutions by 4:30 Monday morning.

TABLE 2-1

SUMMARY OF EVACUATION ORDERS, TIMES, POPULATIONS, AND ZONES

Evacuation Order No.	Time Given	People Evacuated	Total Evacuated	Evacuation Zone Boundaries	
1	1:50 a.m.	3,500	3,500	Wolfedale & Erindale Station Rd. from the railroad tracks south to Dundas St.	
2	4:15 a.m.	350	3,850	Dundas St., Stillmeadow Rd., Queensway, Mavis Rd.	
3	6:20 a.m.	650	4,500	Paisley Blvd., Stillmeadow Rd., Queensway, Mavis Rd.	
4	6:30 a.m.	(a)	900	5,400	Dundas St., Stillmeadow, Queensway, Mary Fix Creek
		(b)	4,400	9,800	Dundas St., Mavis Rd., Queensway, Glengarry Rd.
		(c)	2,900	12,700	Dundas St., Erindale Stn. Rd., The Credit Woodlands, McBride Ave.
5	7:30 a.m.	3,300	16,000	Dundas St., Mary Fix Creek, Queensway, Hurontario St.	
6	8:30 a.m.	19,000	35,000	The area around the above to Burnhamthorpe, The Credit River, Queen Elizabeth Way, Hurontario.	
7	9:40 a.m.	9,000	44,000	The above extended East to the line of Camilla Rd.	
8	11:10 a.m.	27,000	71,000	The above extended to the line of Cawthra Rd.	
9	1:10 p.m.	17,000	88,000	Queen Elizabeth Way, Cawthra Rd., The Credit River, Lake Ontario.	
10	5:00 p.m.	58,000	146,000	The above extended East to Etobicoke Creek, the boundary with Toronto.	
11	6:45 p.m.	38,000	184,000	Queen Elizabeth Way, The Credit River, Lake Ontario, Winston Churchill Blvd.	
12	8:15 p.m.	29,000	213,000	Queen Elizabeth Way, The Credit River, Burnhamthorpe, Winston Churchill Blvd.	
13	10:55 p.m.	3,000	216,000	The above extended to Maple Grove in Oakville (near the Ninth Line).	

The evacuation of the thirteenth zone and the Oakville-Trafalgar Hospital and the Oakville Extendicare Nursing Home marked the completion of evacuation operations. Chapter 7 includes some general lessons to be learned from the Mississauga evacuation.

Chapter Three

RECEPTION AND CARE OF EVACUEES

Mass Care vs. Private Arrangements

Fewer than one in twenty of those who evacuated stayed in mass care centers. (See Appendix C). While this may seem low, the reverse may, in fact, be the case. It is the same in virtually all disasters for which documentation exists. For example: It is estimated that as many as 140,000 people spontaneously evacuated from areas around the Three Mile Island nuclear facility during last year's accident there, yet only one mass care center operated throughout the crisis and it hosted fewer than 200 evacuees. Another example is the recent rail accident and toxic chemical spill in Somerville, Massachusetts (April 3, 1980). In that event more than 18,000 people fled on very short notice yet fewer than 1,000 found their way into mass care centers.

The survey of Mississauga evacuees conducted by the University of Toronto's Institute for Environmental Studies (IES) indicates that most evacuees stayed in the Toronto-Mississauga area. And further, the survey's results show that about 84% went to stay with friends or relatives when they evacuated. An additional 12% found ways to arrange their own accommodations even though mass care centers were available. (See Appendix C).

Primary activity in the area of mass care was by the Red Cross supported by the Peel Region Department of Social Services, the Salvation Army, St. John's Ambulance Corps and several other social service organizations. The Mississauga Branch Canadian Red Cross Emergency Services Chairman was notified at

about 12:30 a.m. on Sunday, November 11. By 1:30 a.m. a reception/mass care center was opened at the Square One shopping mall about a mile northeast of the accident site. About 11 hours later this center was closed again when shifting winds threatened to carry chlorine in that direction. By this time, some 7,000 people had been received there.

At about 7:30 a.m. on Sunday, November 11, the size of the evacuation zone and the number of people affected had expanded to such an extent that additional Red Cross branches were activated and new mass care centers opened. The peak number of mass care centers was 15, all but one of which were operated by the Red Cross. The other was the responsibility of St. John Ambulance.

Facilities used as mass care centers fall into the following categories:

Schools	5
Colleges	2
Shopping Malls	2
Lodge Halls	2
Sports Arena	1
Commercial Trade Center	1
Not identified	<u>2</u>
	15

Typically, evacuees did not stay long in mass care centers; only long enough to contact friends or relatives with whom they could stay. Altogether, some 13,000 households registered with the Red Cross, but fewer than 10,000 of these required even temporary space in mass care centers. (Red Cross reports registering 9,050 heads of households). This

Index to Mass Care Centers:

- a. Square One Shopping Centre
- b. Sherway Gardens Shopping Centre
- c. International Centre *DUFFERIN*
- d. Streetsville Secondary School
- e. Streetsville Moose Lodge
- f. Streetsville 101 Legion Hall
- g. Brampton Centennial School
- h. Brampton J.A. Turner School
- i. Brampton Dolphin School
- j. Sheridan College, Brampton
- k. Sheridan College, Oakville

Not Shown Vic Johnston Arena
 Not Shown Burlington M & M Robinson School

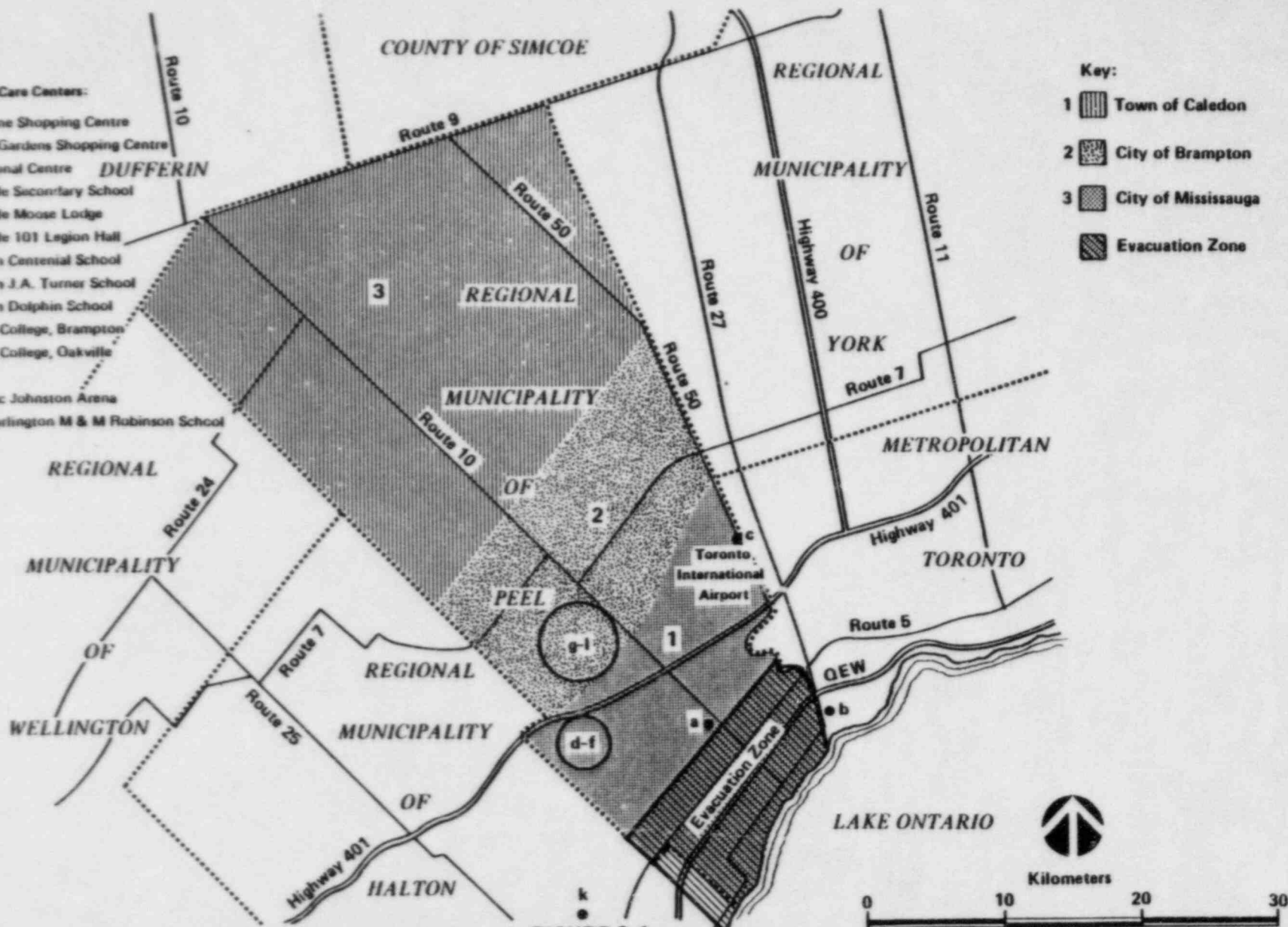


FIGURE 3-1

**MASS CARE CENTERS
 USED IN THE MISSISSAUGA EVACUATION**

figure was reached by late on Sunday, November 11. Peak mass care requirements persisted through Monday, November 12 but began to decline on Tuesday, November 13. Those leaving mass care centers went to a variety of destinations: their own homes (some evacuated areas were reopened on November 13); homes of friends or relatives; hotels or motels; homes of ordinary citizens who volunteered to take in evacuees. The Red Cross played a role in arranging accommodations of the latter two types, placing about 900 evacuees in hotels and about 1,600 in private residences. Space in thirteen hotels was paid for by the Canadian Pacific Railway and some 950 citizens offered to open their homes to evacuees.

By Monday, November 12, the number of mass care centers was reduced to five, and by Friday, November 16, the dispersal of evacuees and the reopening of evacuated areas had reduced their numbers enough so that only one mass care center remained open.

Peel Region Department of Social Services reports that 14 evacuation centers (mass care centers) were used during the week-long evacuation. This includes three facilities used exclusively for nursing home residents and Peel Memorial Hospital which was not a mass care center for the general population. It does not include two standby facilities which were alerted but not used.

Peel Social Services and the Canadian Red Cross listings for mass care centers do not match exactly with respect to either the facilities used or the length of time they were open. They do agree that most mass care centers were open for less than four days owing to the fact that evacuees were finding accommodations elsewhere (with family, friends, or in hotels).

Although the fires were extinguished on Tuesday, the leaking chlorine tank could not be sealed until Wednesday, and even then, some leakage continued. This proved to be the most difficult part of the week for the local authorities. The evacuees were becoming very uncomfortable. Most of them had left home with a minimum of clothing, if any. No one, including the local authorities, expected the evacuation to last so long. At first, it was thought that the evacuees would be returned to their homes within a matter of hours. Patients discharged from hospitals to the care of their families had only been given three days supply of medication. Doctors' having evacuated themselves, could not be reached by their patients. Everyone was tired. The excitement had dissipated and been replaced by boredom. The experts could not seal the leaking chlorine tank car.

The majority of the population who used their own resources certainly had no fewer difficulties than their neighbors who went to mass care centers but they had less in the way of organized assistance to fall back on. Evacuees who registered with the Red Cross, or one of the several other relief organizations servicing the reception and care effort, had available a broad range of resources (health care, food, shelter, and financial assistance, for example). Evacuees who did not register with the reception and care organizations had to find other ways to meet their needs. The Peel Region Department of Social Services was the major provider of service here but the low visibility and dispersal pattern of this evacuee group made the task of arranging needed assistance a far more difficult one than for their counterparts who went to mass care. Services had to be arranged through call-in or walk-in service centers. Perhaps the best organized aspect of this effort was the arrangement for

medical aid. With Mississauga General, Queensway General, and Oakville-Trafalgar Hospitals closed, most of Mississauga off-limits and doctors evacuated, health services for evacuees were limited. Those in mass care centers had medical staff available there but most other evacuees were not so lucky. To meet this need, Mississauga Hospital and the Peel Department of Social Services set up four clinics in parts of Mississauga outside the evacuated area (see Appendix F, Exhibit 2). Public announcements were made about the availability of these services and evacuees were referred to them through several public information telephone banks. While this was not done until after the first round of repatriations, the fact that it was done points out the importance of planning to meet the needs of all evacuees and not just those in mass care.

Diminution of the number of evacuees in mass care centers had, by Wednesday, November 14, eliminated the need for all but one of the facilities. It is possible that this too might have closed but Social Services personnel felt it advisable to maintain one center as a safety valve (the specific example given was people who had been out of the area). Thus, the International Centre was kept open, accommodating some 100 people on November 18.

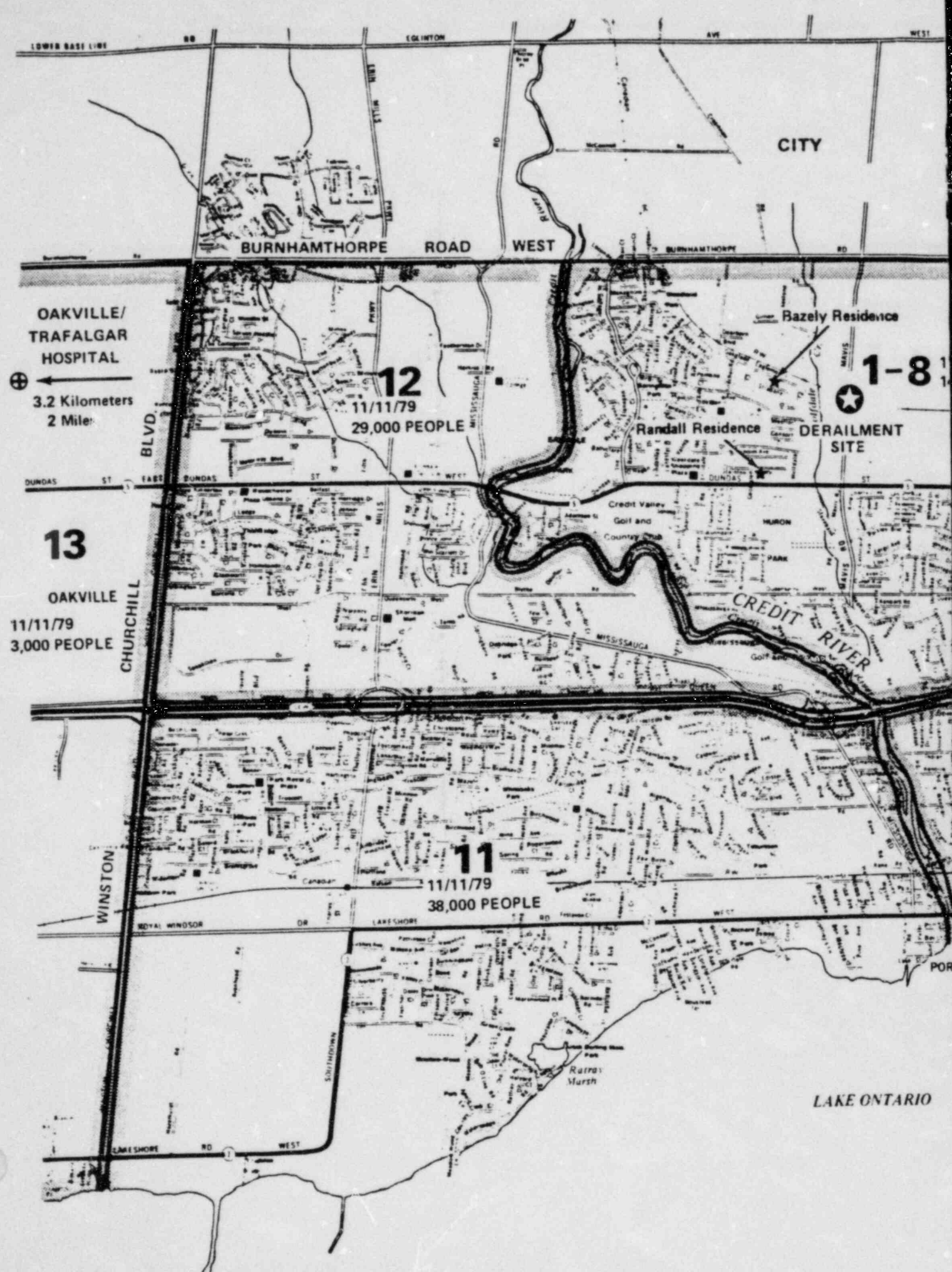
Secondary Evacuation

Two major mass care centers were ultimately evacuated. The Square One shopping mall, the first reception and mass care center opened, was emptied of evacuees beginning at about 12:30 p.m. on Sunday, November 11 (after about eleven hours in operation). The reasons are not clear but its proximity to the accident site (about 1.5 miles/2.4 km) was surely a consideration. The Square One mass care center was selected

almost immediately after the accident and before the full extent of the hazard was known. Furthermore, when westerly winds led to the evacuation of zones seven and eight (at 9:40 a.m. and 11:10 a.m. respectively on Sunday, November 11), Square One became the closest populated area to the accident site. As a result, about 3,000 people were transferred to the International Centre.

The secondary evacuation of the mass care center at the Square One shopping mall was done by bus despite the fact that many had arrived there in their own cars. From an administrative standpoint, this was desirable since it eliminated a variety of problems that would have occurred if evacuees had transported themselves. First and foremost, it allowed a quick operation by avoiding the confusion and traffic congestion that would be expected if the 3,000 or so evacuees had attempted to use their own cars. Second, it allowed easy tracking of evacuees so that they could be located quickly and avoided duplicate registrations. Third, it eliminated the administrative step of sorting evacuees into groups according to who would or would not need transportation. Fourth, it eliminated parking space as a consideration in selection of new mass care centers, thereby allowing a wider range of facilities to be considered.

On the negative side, the primary difficulty reported arose from the lack of arrangements for evacuees to return to Square One to pick up their cars. In some cases, this meant that people could not return to their homes, sometimes for several hours, after evacuation orders for their neighborhood was lifted. On balance, however, the use of buses in secondary evacuation appears the best of the alternatives, particularly when a potential threat existed.



OAKVILLE/
TRAFALGAR
HOSPITAL
←
3.2 Kilometers
2 Mile

13
OAKVILLE
11/11/79
3,000 PEOPLE

12
11/11/79
29,000 PEOPLE

11
11/11/79
38,000 PEOPLE

1-8
★
DERAILMENT
SITE

LAKE ONTARIO

Also Available On
Aperture Card

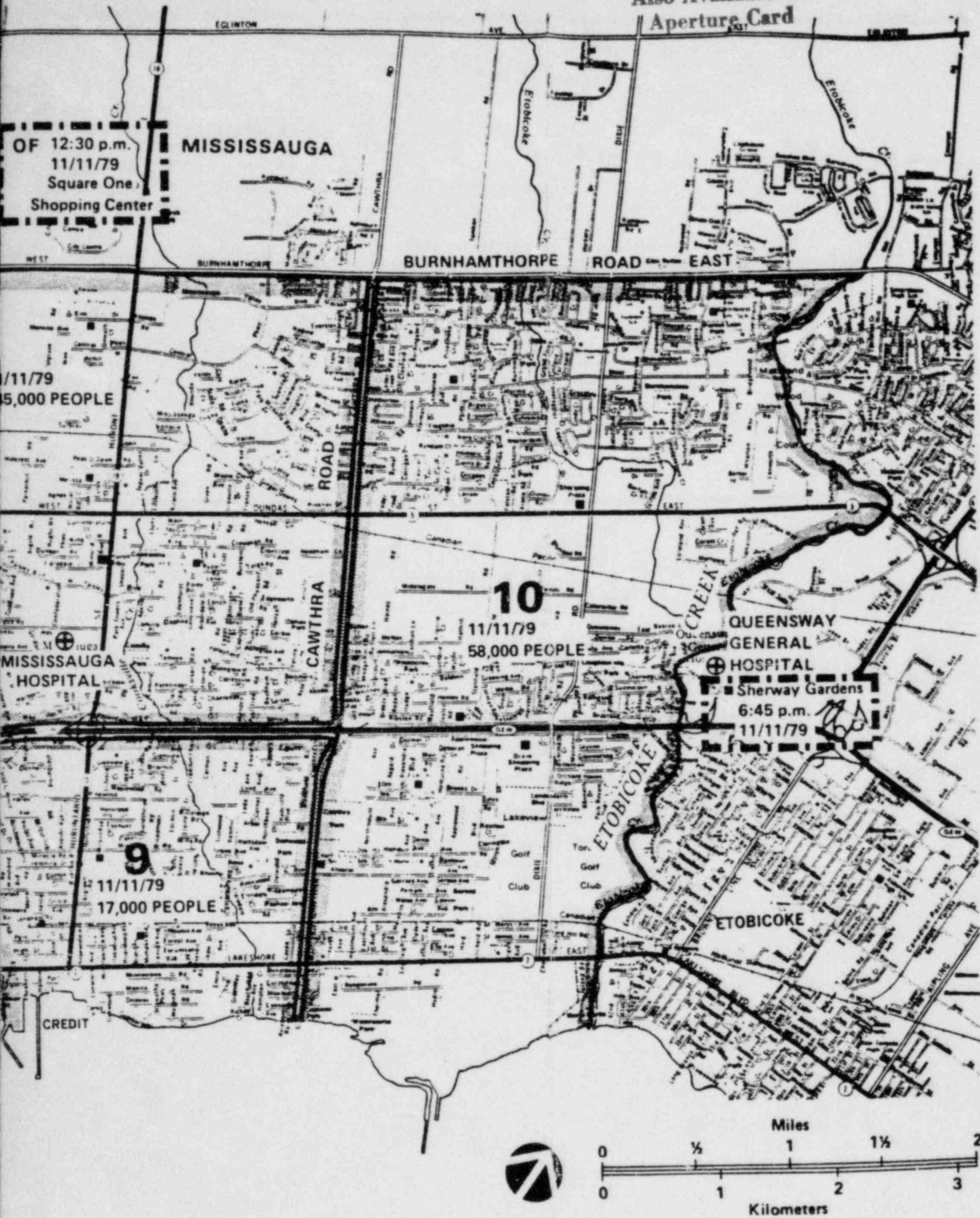


FIGURE 3-2
SECONDARY EVACUATION OF MASS CARE CENTERS

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A second mass care center, that at the Sherway Gardens shopping mall, was also emptied of evacuees. Initially opened at about 12:30 p.m. on November 11, the Sherway Gardens center remained open for slightly more than six hours. At 6:45 p.m., Attorney General/Solicitor General McMurty issued an evacuation order for this center. The order came three hours after the beginning of evacuation of Queensway General Hospital, less than 200 meters away.

The Sherway Gardens and Square One mass care centers were both outside of the area from which the general population was evacuated. They were treated in the same way as Queensway General and Oaksville-Trafalgar Hospitals (which are also located in areas which were not generally evacuated). For the purposes of emergency planning, then, they were treated as institutions.

Use of the Square One shopping mall as a mass care center was a questionable decision. Physically, it was suitable providing a large, enclosed, climate-controlled space with feeding and sanitation facilities for a large number of people. Further, it has ample parking space for evacuees' cars. However, its proximity to the accident site made it vulnerable when shifting winds threatened to carry the chlorine cloud in its direction.

Conditions of Mass Care

Upon entering a mass care center, the first step for evacuees was registration. Where the appropriate Red Cross forms were available, evacuees registered name, address, phone number, and family members. Copies of this information were filed at a central registry in Toronto. Where forms were not available, information was recorded on scratch pads by volunteers. A record was also made of the location to which

each evacuee was assigned since they were frequently sent to other facilities. This information made possible a locator service for registered evacuees (something not available to most of the 216,000 who left their homes until Monday, November 12) and allowed Red Cross officials to reach them as space was arranged in hotels or private homes.

One of the first services available to evacuees after entry into a mass care center was for food. Meals and snacks were provided by the Red Cross, Salvation Army, Peel Region Social Services Department, several area restaurants, and others, even at centers where adequate kitchen facilities were not available. The Red Cross alone estimates that it served more than 125,000 meals in addition to snacks on a virtually continuous basis. Evacuees in mass care centers did not go hungry.

Health care, like food services, was provided by several organizations: Red Cross, St. John's Ambulance Corps and the Peel Regional Health Unit. In this respect, evacuees in mass care may have been better off than their counterparts who relied on their own resources since trained medical personnel, usually Registered Nurses, were available in the centers. In the confusion of the evacuation, many people were unable to contact their own doctors. This was a problem for people with problems that required special treatment (particularly those on a regular treatment schedule) but who did not need to be hospitalized. Some notable examples would be: oncology (cancer) patients, hypertension (high blood pressure) patients, and expectant mothers whose pregnancies were at or near term. Hospital officials did, in fact, report problems with the latter category. Evacuees with medical problems who were processed through mass care centers, therefore, were several steps closer to having their needs met than their counterparts who were not.

Services to evacuees with respect to personal hygiene varied from one facility to another. However, the longest operating mass care center (the International Trade Centre at Toronto International Airport) is not equipped with showers. Moreover, at one point late in the week-long evacuation, consideration was given to adding portable toilets if a large number of evacuees were to be housed there during their return home. Toilet articles (soap, razors, towels, etc.) were furnished by the Red Cross, Peel Social Services, Peel Regional Health Unit and others, including a local racket club. Availability of at least some facilities for evacuees to look after personal hygiene was judged by Peel Social Services to play a major role in maintaining morale.

Another morale builder in the mass care centers was the availability of radio, television, and newspapers. These were provided by service organizations, police, and by the newspapers themselves. Evacuees in mass care could communicate by both radio and telephone. The primary means was, of course, the latter but traffic was often heavy, especially for the first days after the evacuation. In cases where the volume of phone traffic threatened to saturate a center's telephone capability, members of the Amateur Radio Relay League (ARRL) were available. Amateur operators were stationed at the mass care centers affording them direct contact among the centers and between centers and other locations served by ARRL volunteers (e.g., Ontario Red Cross Division Headquarters). Under the terms of a standing support agreement with the Red Cross, the Ontario Section of the ARRL provided enough sets and operators to establish seventeen static and two mobile communications centers. While not all of these were used in mass care operations, there were enough available to provide a communications set that bypassed phone lines.

Telephone service to mass care centers depended on the facility. Peel Region Department of Social Services ranked schools high on this score and pointed out that commercial facilities were not as well equipped. Early in the emergency a problem arose from the fact that phones available to evacuees were limited in number and were primarily coin operated. This quickly created a shortage of coins as evacuees tried to contact friends and relatives.

Some conditions in mass care centers can only be classed as aesthetic. They are, nonetheless, worth mentioning since they have an impact on the morale and, in some cases, the health of people who, by virtue of their status as evacuees, are already under stress. Most related in some way to the lack of privacy in large halls used for mass care. This affected people individually, as in cases where there was no place for changing of diapers or seclusion of those with communicable diseases, and generally, where factors like the noise level contributed to stress and interfere with administrative functions. The provision of items like blankets, diapers, razors, and clothing as well as organized activities like games helped but could not overcome basic limitations imposed by the facility.

Peel Region Department Social Services ranked schools, especially secondary schools, as superior for use as mass care centers. A number of factors make this so:

- o Most schools are equipped with dining halls and kitchens, and frequently have at least some stocks of food on hand.

- o Schools are equipped with toilets and washing facilities for large numbers of people. Further, secondary schools (and many lower grade institutions) also have showers, an important factor in maintaining morale and hygiene in the evacuee population.
- o School health offices provide an equipped first aid station.
- o The large number of separate rooms available in a school building affords evacuees a measure of privacy not found in large halls. It also permits isolation of evacuees with minor health problems.
- o School offices provide ready-equipped space and telephone communications for administrative staff.
- o Most schools are public facilities, easily committed for use as mass care centers.
- o Normal staff can be made available for such functions as food service, housekeeping, and office services.

Problems of privacy were generally eliminated by Wednesday the 14th through placing evacuees in hotels, motels, and private homes, and the re-opening of some evacuated areas. However, the International Trade Centre, largest of the halls used for mass care, was the facility that remained open longest, finally closing on Friday, November 16. Sources consulted give no reason for this but the number of evacuees was small by this time, hotel space was virtually exhausted between Hamilton in the west and Oshawa in the east (a radius of about

60 km) and the alternative to the Trade Centre was Streetsville Secondary School where classes had been suspended to allow accommodation of evacuees. Weighing the needs of students against those of evacuees, decision makers may have felt that they could at least remedy the problems of students in Streetsville.

There were other problems, aside from those of privacy, that could be classed as aesthetic. By comparison, they are by far less important and so will be mentioned but not discussed in detail.

Pets - many evacuees brought their pets with them to mass care centers. They were allowed to keep the animals and care for them. The only problems reported in this case were with hotels and motels which refused to allow evacuees to bring pets. The Ontario Humane Society offered evacuees the option of boarding their pets in animal shelters but this remained a matter of choice for pet owners.

Security - no service security problems were reported by the Red Cross or Peel Region Department of Social Services. Police officers were available in mass care centers and were assisted by volunteers from several organizations (Sea Cadets, Militia Cadets, Safety and Rescue Patrol). They were characterized by Social Services as "useful" but sometimes "over zealous".

Chapter Four

EVACUATION OF INSTITUTIONS

The presence of chlorine in the Mississauga train derailment led to the precautionary evacuation of three hospitals and six nursing homes. This was accomplished by means of a centrally controlled transport operation in four stages over a period of about 19 hours from beginning to end. The actual time required to move patients, however, was about 14½ hours. The operation involved 25 hospitals and nursing homes in the surrounding area, 25 ambulance services, more than 160 vehicles, and 651 people.

All three hospitals were cleared of patients, including women in labor, intensive care patients and coronary intensive care patients. None of those moved died in transit and preliminary indications are that the post-evacuation death rate was not noticeably higher than normal. (Hospital and nursing home officials and the Ontario Ministry of Health have been monitoring the status of patient evacuees but formal results are not available at this time).

The Decision to Evacuate

Evacuation orders for hospitals and nursing homes were given by three different persons according to time and location (see Figure 4-1).

The first order, involving Mississauga Hospital and two nursing homes all about 3.4 km (1.5 miles) from the wreck site was given at 8:30 a.m. on Sunday, November 11, by Peel Regional Police Chief Burrows. The hospital had been alerted earlier (once at 3:40 a.m. and again at 6:30 a.m.) and the admin-

istrator of the facility had conferred with Chief Burrows on the chlorine hazard and the need for evacuation. At this time, the Peel Regional Police Chief was in charge of emergency response measures not involving efforts to combat the fires and chemical releases.

Evacuation of Mississauga General Hospital began at about 9:25 a.m. on November 11, approximately the same time that Attorney General/Solicitor General R. Roy McMurtry arrived at the command center. When he did, authority for ordering further evacuations passed to him.

McMurtry was cautious about ordering further evacuations of hospitals and nursing homes. The evacuation of Queensway General Hospital, just across the Mississauga/Metropolitan Toronto line, was under consideration at 10:00 a.m., but he deferred a decision pending consultation with hospital officials. McMurtry visited Queensway Hospital at one point and arranged for hospital and nursing home officials to be briefed at the command center on the chlorine hazard and the possibility of evacuation. Movement of patients from Queensway General Hospital began at about 3:45 p.m. on November 11 following McMurtry's evacuation order. Roy McMurtry also ordered the evacuation of three nursing homes shortly after the last patients left Queensway General.

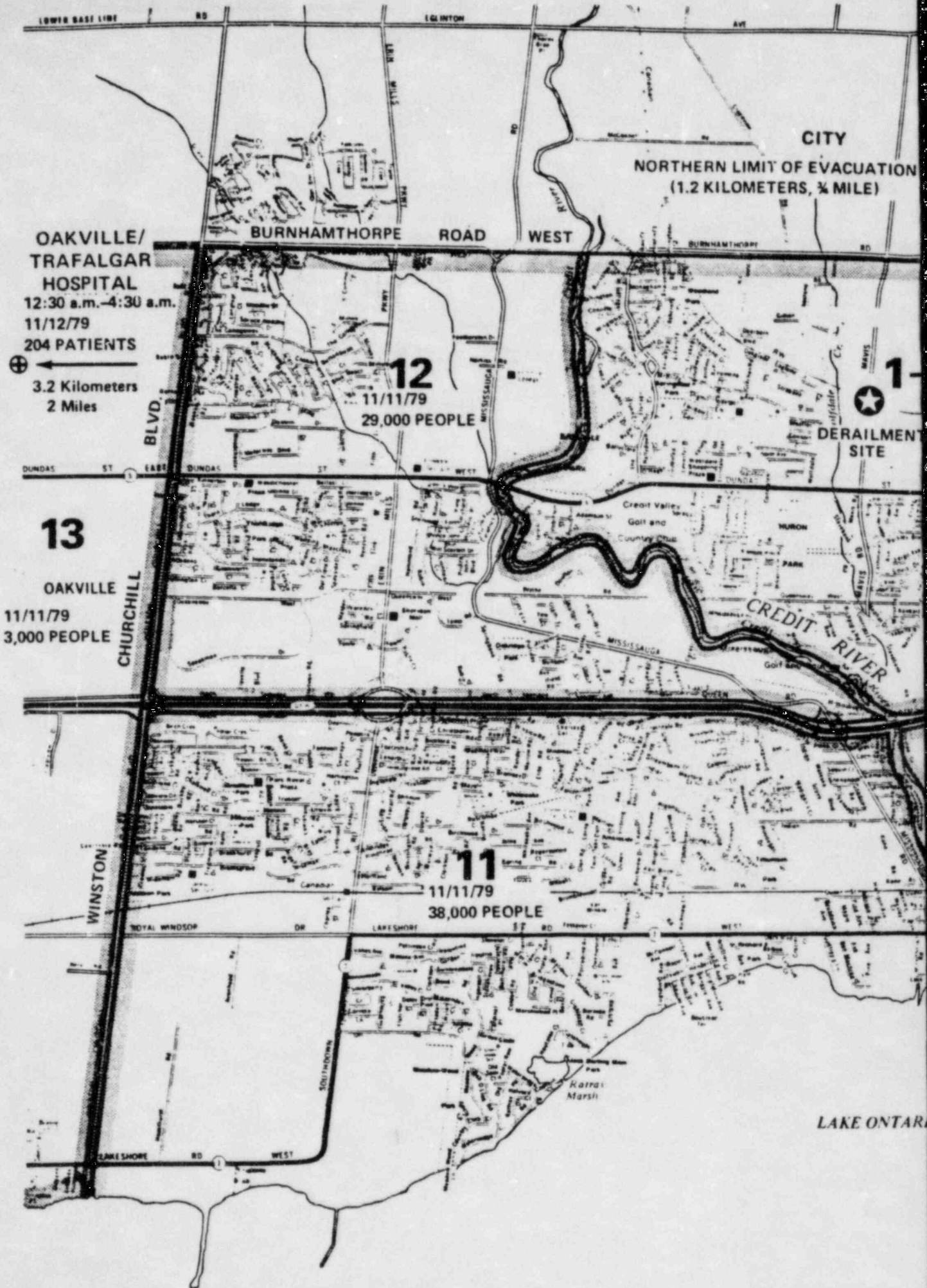
The fourth and final round of institutional evacuations took place in Oakville, Mississauga's neighboring community to the west and a part of Halton Region. In this case, Oakville-Trafalgar Memorial Hospital and one nursing home were evacuated following an order by the Halton Regional Police Chief.

TABLE 4-1

SUMMARY OF HOSPITAL AND NURSING HOME EVACUATION

<u>FACILITIES EVACUATED</u>	<u>PATIENTS IN FACILITY</u>	<u>PATIENTS DISCHARGED</u>	<u>PATIENTS EVACUATED</u>	<u>TIME TO EVACUATE</u>
<u>FIRST EVACUATION</u>				
Mississauga Hospital	450	262	188	From 0925 to 1315 hours = 3 hours 50 min. November 11, 1979
Mississauga Extencicare	202	9	193	
Chelsey Park I, Mississauga	237	45	192	
<u>SECOND EVACUATION</u>				
Queensway Hospital, Toronto	280	88	192	From 1545 to 2000 hours = 4 hours 15 min. November 11, 1979
<u>THIRD EVACUATION</u>				
Sheridan Villa Nursing Home, Mississauga	246	12	234	From 2030 to 2300 hours = 2 hours 30 min. November 11, 1979
Pines Nursing Home, Mississauga	22	0	22	
Taara Nursing Home, Mississauga	53	0	53	
<u>FOURTH EVACUATION</u>				
Oakville-Trafalgar Hospital	293	89	204	From 0030 to 0430 hours = 4 hours November 12, 1979
Oakville Extencicare	171	0	171	
TOTALS	1,954	505	1,449	

Source: Ontario Ministry of Health



Also Available On Aperture Card

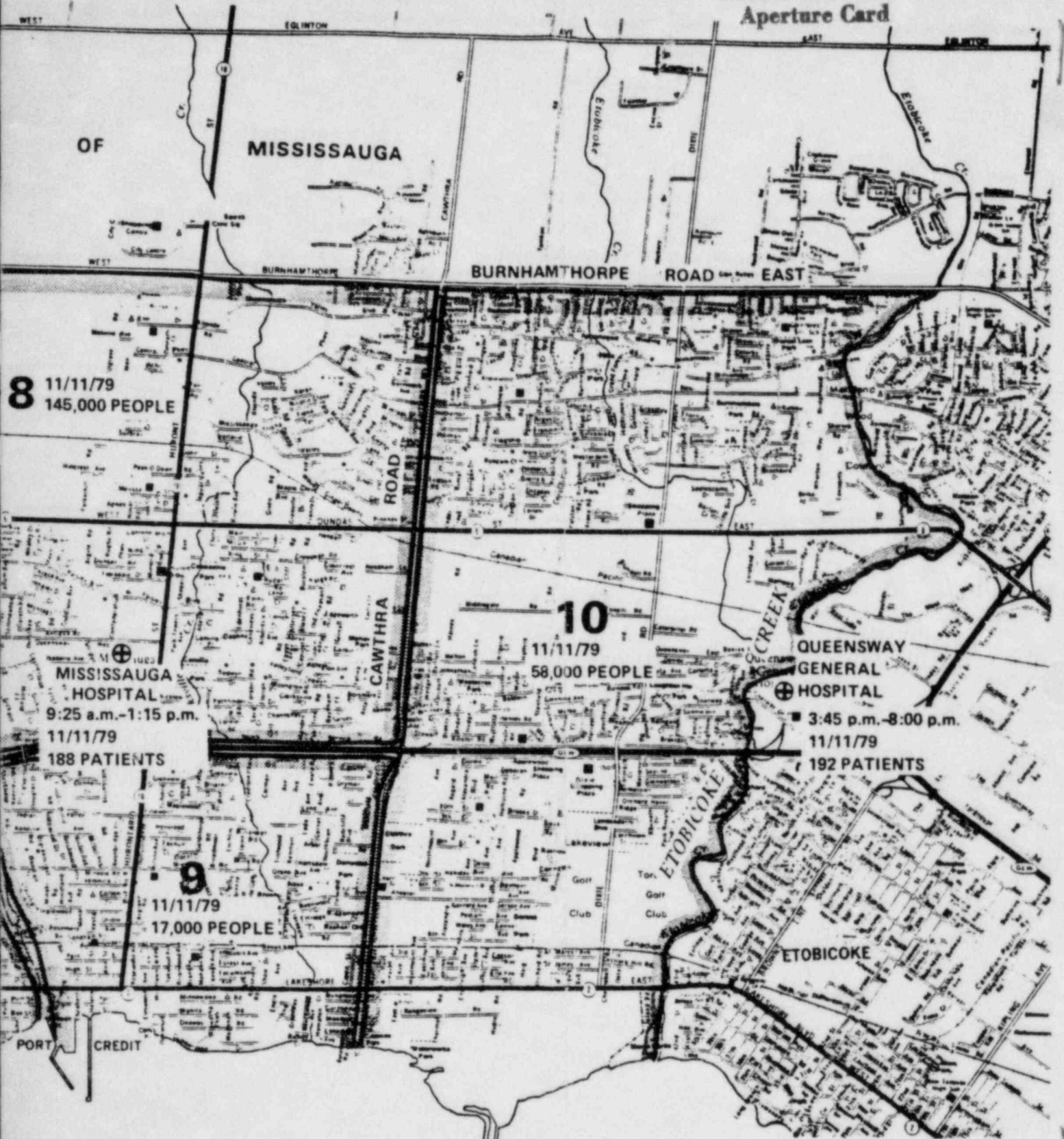


FIGURE 4-1
LOCATIONS OF HOSPITALS EVACUATED

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In no case was an evacuation order for a hospital or nursing home given easily. Emergency managers had to weigh the comparative risks of moving patients versus the risk of not moving them. The time and resources needed for evacuation of health care institutions denied authorities the luxury of waiting until the last minute before ordering their movement.

Factors affecting the decision to evacuate were:

1. The situation at the accident site: the amount of chlorine estimated as remaining, wind direction and velocity, estimates of warning time if the situation worsened.
2. Potential worse case effects versus effects of the evacuation option plus the lack of an in-place protection option.
3. Estimated time required for evacuation versus time available in a worse case situation.

On Sunday, November 11, when hospitals and nursing homes were evacuated, emergency response personnel did not know how much chlorine was left in the ruptured tank car. The controlled burn strategy being used by firefighters to avoid the risk of explosion meant that intense fires continued to burn close to the chlorine tank car, thereby preventing close inspection. Comparisons of the amount of chlorine known to be in the car when the accident occurred, compared with the levels monitored in surrounding areas suggested that most of the chlorine remained in the tank car.

Because of uncertainty about the likelihood of a major release of chlorine, the grave consequences of such an occurrence became the overriding factor in decisions on hospital and

nursing home evacuation. Patients in institutions represented a highly vulnerable population who could not be moved quickly enough in the event of a major release. Moreover, the consequences of not moving them could be catastrophic if such a release occurred. The available choices remained constant through Sunday, November 11, even though the composition and authority pattern of the EOCG changed. This may explain the remarkable similarity of the timing of the hospital and nursing home evacuations even though they were ordered by three different officials.

Each round of institutional evacuation came after a period of deliberation and preparation lasting up to about six hours.

During this time, the need for evacuation was considered at the overall command level, was discussed with hospital (or nursing home) and ambulance officials, and final preparations were completed. Evacuation orders were issued only after the equipment and personnel were in place to carry them out.

Operational Control

Management of the movement of patients from hospitals and nursing homes was handled by the Ontario Ministry of Health, specifically, the Ambulance Services Branch (ASB). The latter agency oversees ambulance service throughout the Province of Ontario. The ASB is empowered to license ambulance services and technicians, set equipment standards and staffing levels, and exercise budgetary review power over all such organizations in the province. Since its inception in 1968, the ASB has promoted uniform, integrated ambulance services throughout the province. To accomplish this it has, in addition to the regulatory and budgetary authority mentioned above, the responsibility for providing funds, vehicles, and communications equipment.

At the time of the Mississauga train derailment, the integration-of-services effort had provided the ASB with:

1. The legal authority to direct single, coordinated operation, including the transfer of ambulance resources from other areas.
2. Good communications links including special communications vans, a common radio frequency on all ambulance radios, and direct "committed" telephone lines to most hospitals in the province. (The lines are not subject to the same interruptions as normal trunk lines).
3. Records on hospitals and ambulance services throughout the province. This included information on vehicles and staff of ambulance services, as well as on the capacity of hospitals, including records of extra space (closed wings or floors) that could be used to house evacuees.
4. An administration center away from the accident site. This center is the information nexus for the Ambulance Services Branch in southern Ontario. It has redundant radio and telephone communications with 22 ambulance dispatch centers in the area.

Other less tangible but no less important ASB resources arose from prior work with hospitals and ambulance services. Most of the participants had worked together before. Further, ASB staff, particularly Regional Manager Richard Armstrong, had worked previously with the Ontario Hospital Association and its member institutions on disaster planning.

The Ambulance Services Branch was alerted to the accident almost immediately. (Ambulances from the Halton-Mississauga Ambulance Services were dispatched to the scene with fire and police equipment immediately after the accident). Shortly after midnight on Sunday, November 11, the Ontario Ambulance Coordinating Centre was alerted and the Halton-Mississauga Dispatch Centre, began mobilizing other ambulance services in southern Ontario. About 2:15 a.m. the Dispatch Centre issued a general call for ambulances. Arrangements were made with two filling stations to close to the public and reserve their fuel for ambulances. At this point, ambulance services (and hospitals) were still acting in response to a potential mass casualty situation.

When the first formal evacuation alert was issued to Mississauga General Hospital and Mississauga Extendicare nursing home at 6:30 a.m. on November 11, the ASB assumed responsibility for managing the movement of patients. In this first move and the three that followed the pattern of activities was roughly as follows:

Evacuating hospitals and nursing homes were responsible for supplying a count and breakdown of their patient population. They were also responsible for preparing patients for evacuation, preparing supplies and records that would accompany them, and notifying families and doctors of the patient's destination. They were also charged with deciding which patients were well enough to be discharged and notifying responsible persons when and where to pick them up. Finally, they were responsible for such internal operations as delivering patients to the staging area and shutting down the facility.

The Ambulance Services Branch was in charge of overall management of the operation. Included in this were: locating space in receiving institutions, setting priorities for patients according to illness, setting ambulance loading levels and routes, matching patient-evacuees with institutions able to meet their needs, and maintaining overall records on where patients were sent.

Hospitals and nursing homes receiving patient-evacuees were charged with furnishing estimates of the numbers and types of beds (or amount of space) available and for preparing to receive the numbers and types of patients assigned them. In some cases, they also arranged accommodations for staff from the evacuating institution who accompanied patient-evacuees.

Preparations

None of the hospitals and nursing homes evacuated in Mississauga had plans for total evacuation when the emergency began. (In fact, the general opinion among those involved was that it could not be done.) Neither did the Ambulance Services Branch have plans for such a large operation. This does not mean that the entire operation was improvised. Patients, even seriously ill ones, are commonly transported from one hospital to another. Health care institutions and ambulance services have standard operating procedures for moves of this kind. The difference between this and day-to-day operations, then, is mainly one of scale rather than kind. The primary problems were those of marshalling and managing the needed resources. Sufficient trained staff had to be available to prepare patients for evacuation, sufficient ambulances had to be located and brought in to move them in a reasonable time, sufficient bed space had to be found in capable institutions. Fortunately enough reserves were available to transport patient-evacuees to safe areas and, once there, to provide them adequate, if not always comfortable, care.

That hospital and nursing home emergency plans did not contain guidance on total evacuation does not mean that these plans were useless. The evacuating facilities were able to use much of the information their plans contained. Notification procedures and phone lists for staff, designation of a command center and responsible person in charge, internal movement plans, and procedures for mass discharge of patients were common elements that found use in the evacuation.

Among receiving institutions, the operation strongly resembled a mass casualty situation, something their emergency plans were designed to meet.

Typically, preparations for moving patients began with notification of the facility of possible need to evacuate and exploration of the threat. This was followed by simultaneous preparations by the evacuating facility, ambulance services, and the receiving institution:

- o A team from one of the ambulance services moved into the evacuating institution and set up a "triage" or sorting area for outbound patients.
- o An ambulance staging area was set up near the hospital or nursing home that was being evacuated.
- o Patients who could be safely discharged were sent home (transportation was provided if necessary). Elective surgery was canceled.
- o Patients were prepared for movement, and their charts and any necessary supplies were prepared to go with them.

- o Patients were brought to the staging area for allocation to a receiving institution. This was done in consultation with a physician at the hospital or nursing home and Ontario Ministry of Health officials.

- o As patients were allocated, ambulances were sent from the staging area, and patients were loaded and dispatched. The name of the patient, the patient's destination, and the number of the ambulance were recorded. This information was given to the ambulance driver, called into the receiving institution, left with the evacuating institution, and retained by ASB personnel.

Movement

Only after preparations were complete were patients moved. The most critically ill were moved first in vehicles with life support equipment. Mothers and babies were moved together, generally on the same stretcher.

The Ontario Ministry of Health and the Ambulance Services Branch placed a contingent at the command center at the accident site. This gave them direct access to expert advice on the time available for evacuation. On the basis of such information, ASB personnel felt that they had enough time for extra precautions. As a result, ambulances made more than one trip and double loading was avoided.

Richard Armstrong, Regional Manager for the Ambulance Services Branch, stated that the evacuation of hospital and nursing home patients could have been done more quickly by loading two patients per ambulance and calling in more vehicles. Allowing

for the number of patients discharged, this would have permitted any of the four rounds of hospital/nursing home evacuations to be completed in a single trip.

Fleet Capacity
Vehicles Used in Institutional Evacuations

<u>Vehicles</u>	<u>Patient Capacity</u>
134 ambulances*	x 2 stretcher + 2 seated = 536
1 ambulance bus	x 10 stretcher + 10 seated = 20
5 emergency support units	x 1 stretcher _____ = 1
15 municipal buses	x _____ 30 seated = 450
1 trailer	x _____ 41 seated = 41
	<hr/>
<u>Total</u>	1048

* This includes 21 new vehicles released from ASB stores in Toronto.

The largest number of patients moved at any one time was 573 in the first round of hospital/nursing home evacuation.

A one-trip evacuation might have been possible in this situation but it is unlikely that the time gained would have been enough to justify the added risks since other factors, such as the pace at which patients could be loaded, are not as easy to trim. Further, simultaneous evacuation of all 1,449 of the patients who were eventually moved is clearly beyond the resources available to the ASB in the Mississauga evacuation. A noteworthy difference between hospitals and nursing homes was in the use of buses versus the use of ambulances. Owing to the

TABLE 4-2

AMBULANCE SERVICES AND ORGANIZATIONS INVOLVED IN EVACUATION OF HOSPITALS AND NURSING HOMES

AMBULANCE SERVICES

Thames Valley Ambulance Limited, London
 St. Catharines Ambulance Service, Hotel Dieu Hospital, St. Catharines
 Tillsonburg General Hospital Ambulance Service, Tillsonburg
 Ajax and Pickering Ambulance Service, Ajax
 Dufferin Area Hospital Ambulance Service, Orangeville
 Cambridge Memorial Hospital Ambulance Service, Cambridge
 Woodstock Ambulance Service, Woodstock
 Royal City Ambulance Service Guelph
 Halton Hills Volunteer Ambulance Service, Georgetown
 Kitchener-Waterloo Regional Ambulance Service, Kitchener
 Lee Ambulance Service, Streetsville
 Metropolitan Toronto Ambulance Service, Toronto
 Whitby Ambulance Service, Whitby
 St. Thomas-Elgin General Hospital Ambulance Service, St. Thomas
 Niagara Falls District Ambulance Service, Niagara Falls
 Fleetwood Ambulance Service, Hamilton
 Superior Ambulance Service, Hamilton
 Brant County Ambulance Service Limited, Brantford
 West Lincoln Ambulance Service, Grimsby
 Halton-Mississauga Ambulance Service, Oakville
 Brampton Ambulance Service, Brampton
 York Ambulance Service, Oak Ridges
 J. Alexander Ambulance Service, Welland
 Oshawa and District Ambulance Service, Oshawa
 Bolton Volunteer Ambulance Service, Bolton

OTHER SERVICES

St. John Ambulance Corps	Oakville Transit
Canadian Red Cross	Ambulance Services Branch, Judson Avenue
Toronto Transit Commission	Ministry of Government Services
Mississauga Transit	

RESOURCES

134 ambulances
 1 ambulance bus
 15 municipal buses
 5 Emergency Support Units (ESU)
 2 communications vans
 2 trucks (supply delivery)

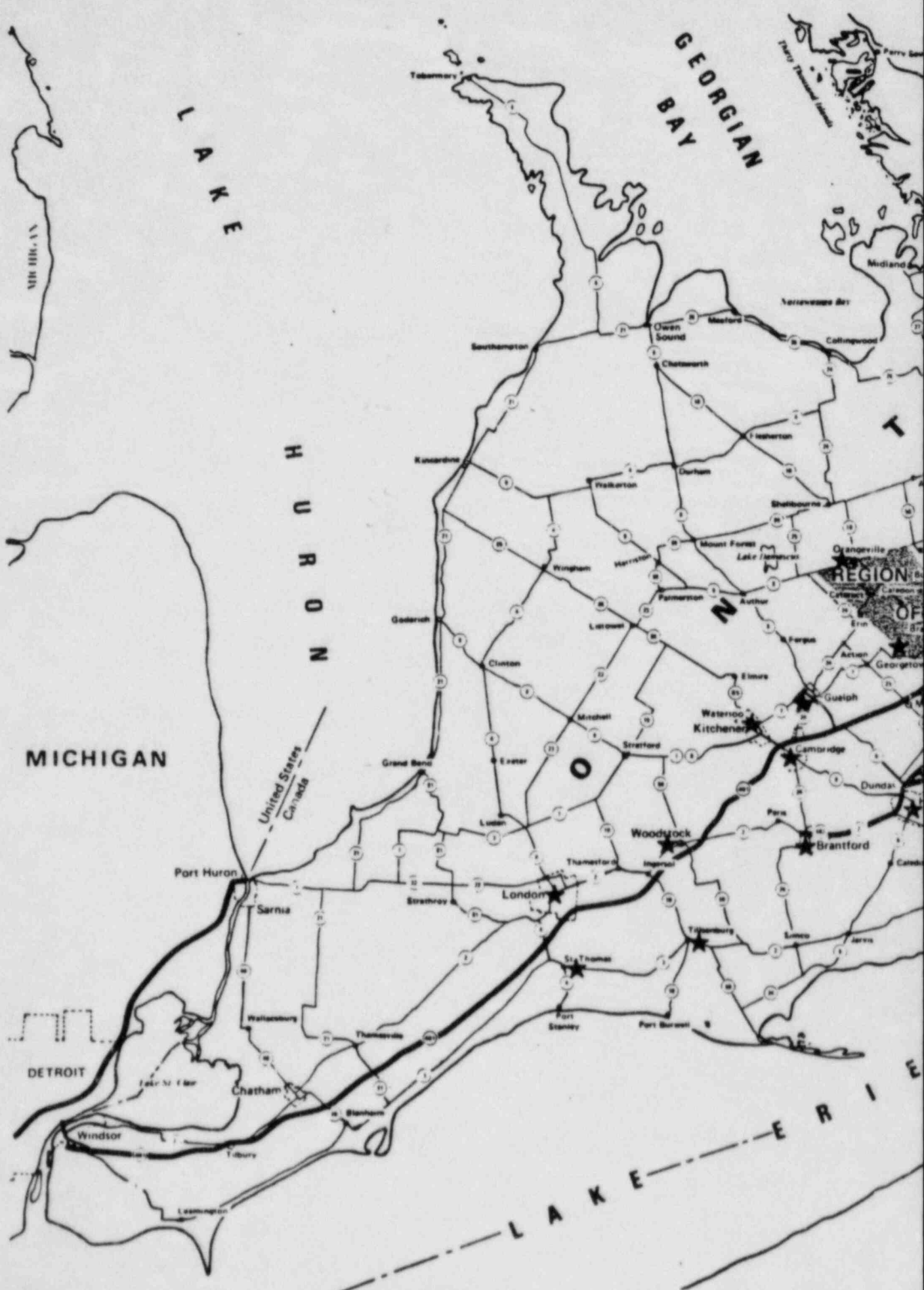
159 vehicles

1 helicopter (available but not used)

2 trucks and one trailer with 11 seats (available but not used)

651 people directly involved with the evacuation

Source: Ontario Ministry of Health





★ Ambulance Locations

Also Available On
Aperture Card

FIGURE 4-2

SOURCES OF AMBULANCES USED IN
HOSPITAL AND NURSING HOME EVACUATION

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difference in the ailments and physical needs of the two groups, hospital patients were evacuated primarily by ambulance while most nursing home patients were moved by bus. The difference, of course, is that the physical condition of nursing home patients tends to be stable while hospital patients' problems are more likely to be serious and acute. In short, nursing home patients may be aged and/or handicapped but are not generally sick.

Reception and Care

Intake of patients at receiving hospitals did not involve elaborate or extensive preparations. Hospitals were advised in advance of the numbers and kinds of patients they would receive. Appropriate staff were called in and preparations were made for admission of patient-evacuees. This was speeded by advance notice given by the ASB and by forwarding patients' charts with them when they were moved. Patient-evacuees were formally admitted to receiving hospitals and added to their patient census. Hospital privileges were extended to the patients' own physicians.

Reception of evacuees from nursing homes was not handled consistently, in part, perhaps, because nursing home evacuation was not as tightly controlled as that of hospitals. In some instances, nursing home patients were admitted as patients at receiving institutions and provided with care by the host facility's staff. In other cases, the host facility provided space, laundry and kitchen facilities and staffing for patient care was provided by employees of the evacuated institution.

Hospitals and nursing homes both reported a willingness on the part of their employees to report in despite the emergency and to work to assure patient welfare even though it entailed

Key

1. Northwestern General
2. Humber Memorial
3. Etobicoke General
4. St. Joseph's (Toronto)
5. Toronto Eastern
6. Sick Children's
7. Toronto General
8. North York General
9. Mt. Sinai
10. McMaster
11. Clednke
12. St. Joseph's (Hamilton)
13. Henderson
14. Hamilton Psychiatric
15. Toronto Western

Not Shown:

- Park West Convalescent
- Joseph Brant
- York Finch
- Queen Street Psychiatric
- Queen Elizabeth Convalescent
- Hillcrest Convalescent
- Hamilton General

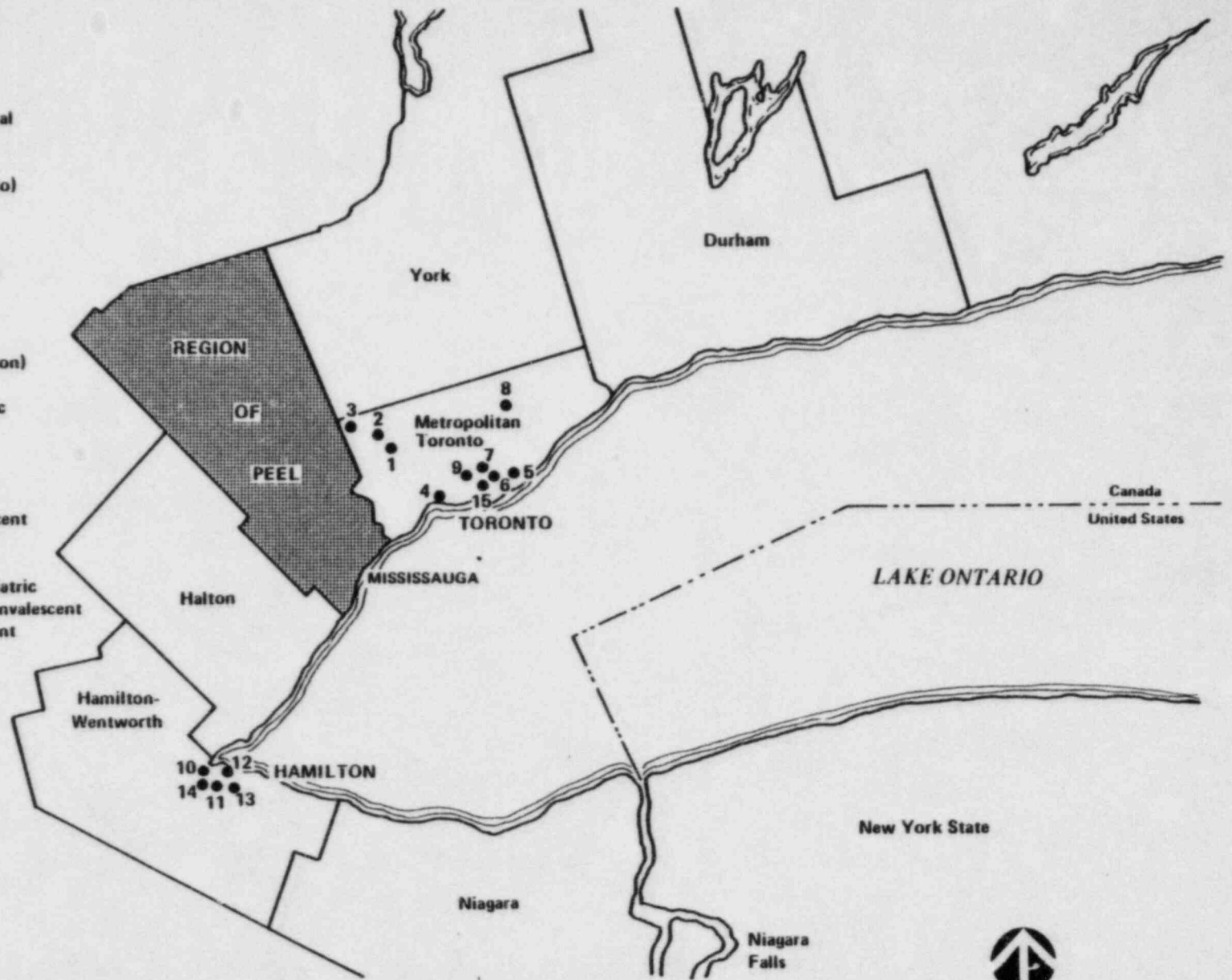


FIGURE 4-3

HOSPITALS RECEIVING PATIENT -
EVACUEES
(Partial Listing)

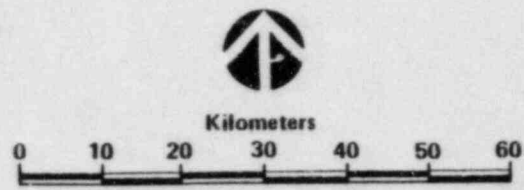


TABLE 4-3

DISTRIBUTION OF HOSPITAL AND NURSING HOME PATIENTSFIRST EVACUATIONORDERED BY PEEL REGIONAL POLICE CHIEF MR. D. K. BURROUGHS

<u>FACILITY EVACUATED</u>	<u>PATIENTS IN FACILITY</u>	<u>PATIENTS DISCHARGED</u>	<u>PATIENTS EVACUATED</u>	<u>RECEIVING FACILITY: NAME AND LOCATION</u>	<u>PATIENTS RECEIVED</u>
Mississauga General Hospital, Mississauga	450	262	188	*Queensway General Hospital, Toronto	16
				Mount Sinai Hospital, Toronto	17
				West Park Convalescent Hospital Toronto	2
				Toronto General Hospital, Toronto	20
				Toronto Western Hospital, Toronto	13
				St. Joseph's Hospital, Toronto	20
				Sick Children's Hospital, Toronto	12
				Humber Memorial Hospital, Weston	5
				Etobicoke General Hospital, Toronto	9
				Joseph Brant Memorial Hospital, Burlington	28
Mississauga Extendicare Nursing Home Mississauga	202	9	193	*Oakville-Trafalgar Hospital, Oakville	46
				E. C. Drury School for the Deaf, Milton	175
Chelsey Park I, Mississauga	237	45	192	West Park Convalescent Hospital, Toronto	18
				Tullamore Nursing Home, Brampton	68
				Chelsey Park II, Streetsville	49
				Cheltenham Willow, Toronto	69
				Branson Hospital, Toronto	6
TOTAL, EVACUATION 1	889	316	573		573

*These hospitals had to be evacuated at a later time: as a result, 61 patients were moved twice.

TABLE 4-3 (Continued)

SECOND EVACUATIONORDERED BY ATTORNEY GENERAL/SOLICITOR GENERAL ROY MCMURTRY

<u>FACILITY EVACUATED</u>	<u>PATIENTS IN FACILITY</u>	<u>PATIENTS DISCHARGED</u>	<u>PATIENTS EVACUATED</u>	<u>RECEIVING FACILITY: NAME AND LOCATION</u>	<u>PATIENTS RECEIVED</u>
Queensway General Hospital Toronto	280	88	192	St. Joseph's Hospital, Toronto	8
				Toronto General Hospital, Toronto	10
				North York General Hospital, Toronto	38
				Etobicoke General Hospital, Toronto	16
				York Finch Hospital, Toronto	24
				Toronto Western Hospital, Toronto	5
				Northwestern General Hospital, Toronto	34
				Sick Children's Hospital, Toronto	2
				Queen St. Psych. Hospital, Toronto	6
				Hillcrest Convalescent Hospital, Toronto	2
				Toronto East General Hospital, Toronto	24
				Humber Memorial Hospital, Weston	3
				Queen Elizabeth Convalescent, Toronto	20
TOTAL, EVACUATION 2	<u>280</u>	<u>88</u>	<u>192</u>		<u>192</u>

TABLE 4-3 (Continued)

THIRD EVACUATION

ORDERED BY THE ATTORNEY GENERAL/SOLICITOR GENERAL, ROY MCMURTRY

<u>FACILITY EVACUATED</u>	<u>PATIENTS IN FACILITY</u>	<u>PATIENTS DISCHARGED</u>	<u>PATIENTS EVACUATED</u>	<u>RECEIVING FACILITY: NAME AND LOCATION</u>	<u>PATIENTS RECEIVED</u>
Sheridan Villa, Mississauga	246	12	234	Peel Manor, Brampton	234
Pines Nursing Home, Mississauga	22	0	22	North Park Nursing Home, Toronto	22
Taara Nursing Home, Mississauga	53	0	53	Fudger Hourse, Toronto	7
				Castleview Wychwood Towers, Toronto	46
	—	—	—		—
TOTAL, EVACUATION 3	321	12	309		309

FOURTH EVACUATION

ORDERED BY HALTON REGIONAL POLICE CHIEF MR. J. HARDING**

<u>FACILITY EVACUATED</u>	<u>PATIENTS IN FACILITY</u>	<u>PATIENTS DISCHARGED</u>	<u>PATIENTS EVACUATED</u>	<u>RECEIVING FACILITY: NAME AND LOCATION</u>	<u>PATIENTS RECEIVED</u>
Oakville-Trafalgar Memorial Hospital, Oakville	293	89	204	McMaster University Medical Centre, Hamilton	51
				Hamilton General Hospital, Hamilton	34
				St. Joseph's Hospital, Hamilton	59
				Chedoke Hospital, Hamilton	13
				Henderson General Hospital, Hamilton	44
Oakville Extendicare, Oakville	171	0	171	Hamilton Psychiatric Hospital, Hamilton	132
				Joseph Brant Memorial Hospital, Burlington	39
	—	—	—		—
TOTAL, EVACUATION 4	464	89	375		375

**This evacuation was delayed by 1 hour and 30 minutes while the necessity for evacuation was reconsidered.

Source: Ontario Ministry of Health

personal inconvenience and separation from their families. In the case of nursing home patients, receiving care from someone familiar was a great help in maintaining morale.

Most problems that were reported in the institutional evacuation occurred in this phase. Further, most involved nursing home evacuees rather than those from hospitals. The main problem reported by hospitals was that of getting in touch with the families and doctors of patients who had been evacuated. While records were maintained on patient-evacuees, no such file was available for the general public. Patients' families or physicians were often evacuated before the patients were, making contact difficult. Families and physicians were able to locate patients through the ASB or any of several telephone information centers. This was obviously a problem but it was not a threat to the health of the patients.

More definite problems occurred in the case of nursing home patients. In at least two cases, they were sent to facilities that were not set up to care for them. One nursing home spent considerable time and effort transporting mattresses for the patients, only to find that there were about 100 new mattresses in storage at the receiving institution. In another case, nursing home patients used air mattresses on the floor (not a threat to health but it made delivery of care difficult). Altogether, though, the problems reported were not a threat to the health of the evacuees.

Return

The return phase, like the reception and care phase, was somewhat different for hospitals and nursing homes. Nursing home patients were returned to their home facilities mainly in

groups while hospital patients were transferred a few at a time. Among the latter, some were not returned at all to their original institutions. These were of two main types: those who were in high risk categories (who remained at the hospitals to which they were evacuated) and those who had recovered sufficiently to be discharged).

Hospitals and nursing homes were reopened at the same time as the areas in which they were located. Thus, Oakville-Trafalgar Hospital began taking emergency admissions on Tuesday, June 13, when the first sections of the evacuated zone were reopened and both Oakville-Trafalgar and Queensway General began returning patients the following day. Mississauga General, on the other hand, was not reopened for admissions until Friday, November 16. (Emergency Departments at all three hospitals remained open initially. Later, however, Mississauga General closed its doors leaving only one staff member and a police officer behind. At the other two hospitals, Emergency Departments remained open through the evacuation and a skeleton staff maintained the building).

The re-opening of nursing homes, like that of hospitals, was triggered by the re-opening of the areas in which they were located. However, since these facilities had been emptied and closed during the evacuation, their re-opening was different than that of hospitals. The first step, when a nursing home was to be reopened, was an inspection by a team composed of senior staff from the facility and an inspector from the Ontario Ministry of Health. The building was then aired out and prepared for patients' return. (The air in some buildings still contained noticeable levels of chlorine even though concentrations of the gas outdoors had long since dissipated).

Inspection of the buildings was necessary for reasons beyond residual chlorine. Some nursing homes had evacuated so quickly that final inspection and cleaning of the building had not been done. Food and dirty linen had been left where it was when patients and staff departed and a thorough cleaning had to be done in such cases before the Ministry of Health representative would certify it for habitation. In one case, a turkey had been left roasting in an oven. (The results, we've been told, were indescribable).

Following inspection and clearance, the return of patients began.

Chapter Five

CONTROL OF THE EVACUATED ZONE

Police Operations in the Evacuated Zone

Peel Regional Police moved early to establish control of the evacuated areas. Each new area evacuated on Sunday, November 11, abutted a zone that was already cleared. (See Chapter Two, Figures 2-4 and 2-5). Police access control points were set up before an area was to be evacuated, but the perimeter line of the previous evacuation zone was preserved until the new zone had been cleared. Eventually, this led to a perimeter of about 34 kilometers (21 miles), not counting the lakefront.

The borders selected for the full evacuated area gave police a line that was not hard to control. A cursory look at Figure 5-1 shows a limited number of cross streets entering the full evacuation area. On the east, nine bridges (two of them railroad bridges) cross Etobicoke Creek. To the north, there are, again, nine entry points, all major cross streets on Burnhamthorpe Road. On the west side, not shown in Figure 5-1, the number of streets crossing the boundary of the evacuated area is eleven in Oakville and seven at the Oakville-Mississauga line. Apart from Etobicoke Creek, the boundary lines of the full evacuated area were formed by broad, straight streets that afforded officers manning road blocks a good view of cross traffic for some distance on either side of their position. The winding bed of Etobicoke Creek may have offered some camouflage to those wishing to enter the evacuated area, but it did so only to those willing to wade through the near-freezing water.

In subsequent contractions of the evacuated area on November 13 and again on the 16th, this same ease of control is apparent. Zones 3 and 4, the two that were closed the longest again show borders that are either straight, broad streets or geographic barriers (the Credit River and Lake Ontario).

Shortly after midnight on Monday, November 12, Mayor Hazel McCallion declared Mississauga "closed". The effect of her declaration was to prevent businesses, schools, factories, etc. from opening later that morning.* The city was already essentially empty. All but about 2% of residents were gone, according to the Institute for Environmental Studies (IES) survey (See Appendix C). But Mayor McCallion's message left no doubt that, so far as the city administration (and, presumably, the Peel Police as well) were concerned, no one who did not have specific authorization had any business in the evacuated area. Superintendent Barnhardt of the Peel Regional Police issued a warning that unauthorized persons in the evacuated area would be subject to arrest.

The closing of the southern half of Mississauga meant that several major roadways were not available for use. Police issued announcements, based on decisions of the EOCG, advising the public in Southern Ontario that the Queen Elizabeth Way (QEW) and other roads through the evacuated area would be closed. They suggested alternate routes and requested that motorists avoid, if at all possible, travel between Hamilton and Toronto. (See Figure 1-1).

* The only major exceptions were an oil refinery and a petroleum distribution center in the southwest corner of Mississauga. These are major facilities, and a shutdown could have caused disruption in the area's fuel supply.

With the issue of whether the general public would be allowed into the evacuated area settled, police patrolling the empty city could feel free to stop and question anyone they saw on the street.

Several alterations were made in internal police department operations. Facilities in the evacuated zone were shut down and the staff of fringe stations not affected by the emergency was depleted. This meant that a large pool of uncommitted manpower was available for assignment to areas of greatest need. To limit chances for miscommunication, all officers going on duty were briefed together. (Normal practice of Peel Regional Police is calls for senior officers to be briefed first and to then brief the personnel under their command).

In addition to about 200 Peel Regional Police covering the city on each shift, there were some 95 Metropolitan Toronto Police, 65 Ontario Provincial Police, 52 Royal Canadian Mounted Police, and 125 Toronto Police Auxiliaries (this last is a total, not a shift count). They brought equipment with the including a floodlight equipped helicopter from the Provincial Police. Most of the borrowed personnel were assigned to control points on the perimeter of the evacuated area. Peel Regional Police still had the rest of the Region to patrol but even so, with the additional personnel and equipment, Mississauga probably had better police coverage than normal. The near total absence of people from the evacuated area combined with increased police numbers and vigilance meant that anyone moving in Mississauga stood a good chance of being seen.

The possibility of looting was the number one concern of evacuees. It was mentioned by well over half of the respondents to the IES survey (361 of a total of 586). This anxiety

proved much more of a problem than any criminal activity. There was a slight increase in the incidence of breaking-and-entering, but only one confirmed groups of looters (3 men were arrested on November 12). Overall, in fact, Peel Regional Police reported that the number of charges filed for the entire evacuation period was about the same as would normally occur in a single day.*

On the morning of Tuesday, November 13, the EOCG held a three hour meeting at which they decided to re-open part of the evacuated area. Chlorine was still leaking from the tank car at a rate of about 16 kilograms/hour and patching attempts had been unsuccessful but better information was available on the amount of the chemical still in the car. This indicated that the risk was low enough to allow people to return to certain areas (see Figure 5-1, zones 1a, 1b, and 2. Also see Chapter Six).

Passenger train services of the Government of Ontario Transit system ("Go" trains), which are easier to control than vehicular traffic, were allowed to resume service through the evacuated area on Tuesday, the 13th, well ahead of the re-opening of the QEW. They did not, however, stop at stations in areas where an evacuation order was still in effect. This eased but did not solve the problems of those who had to travel the Hamilton to Toronto corridor. Some commuters who normally used the QEW were spending considerably more time on the road each day (3 times as much in many cases) because of traffic diversion around the evacuated zone. Commercial truck traffic was also disrupted. As the week wore on, police, particularly the Ontario Provincial Police, came under

* Emergency Planning Canada, and Cahill, Hot Box. Dynes and Quarantelli, A Perspective on Disaster Planning (Ohio State University, Disaster Research Center Report No. 11) rate looting, like panic, as one of the "disaster myths". They point out that crime, and anti-social behavior in general, normally decline in communities struck by disaster. (This does not, of course, include civil disorders such as occurred the 1977 New York blackout. In these cases, there is no clearly defined threat and they cannot truly be considered disasters).



CITY
 NORTHERN LIMIT OF EVACUATION
 (1.2 KILOMETERS, ¾ MILE)

BURNHAMTHORPE ROAD

OAKVILLE/
 TRAFALGAR
 HOSPITAL
 ←
 3.2 Kilometers

DERAILMENT
 SITE

3:00 p.m.
 11/13/79
1b
 38,500 PEOPLE

3
 3:00 p.m.
 11/16/79
 37,000 PEOPLE

LAKE ONTARIO

Also Available On
Aperture Card

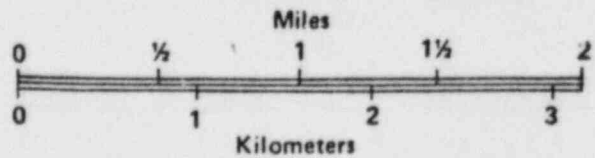
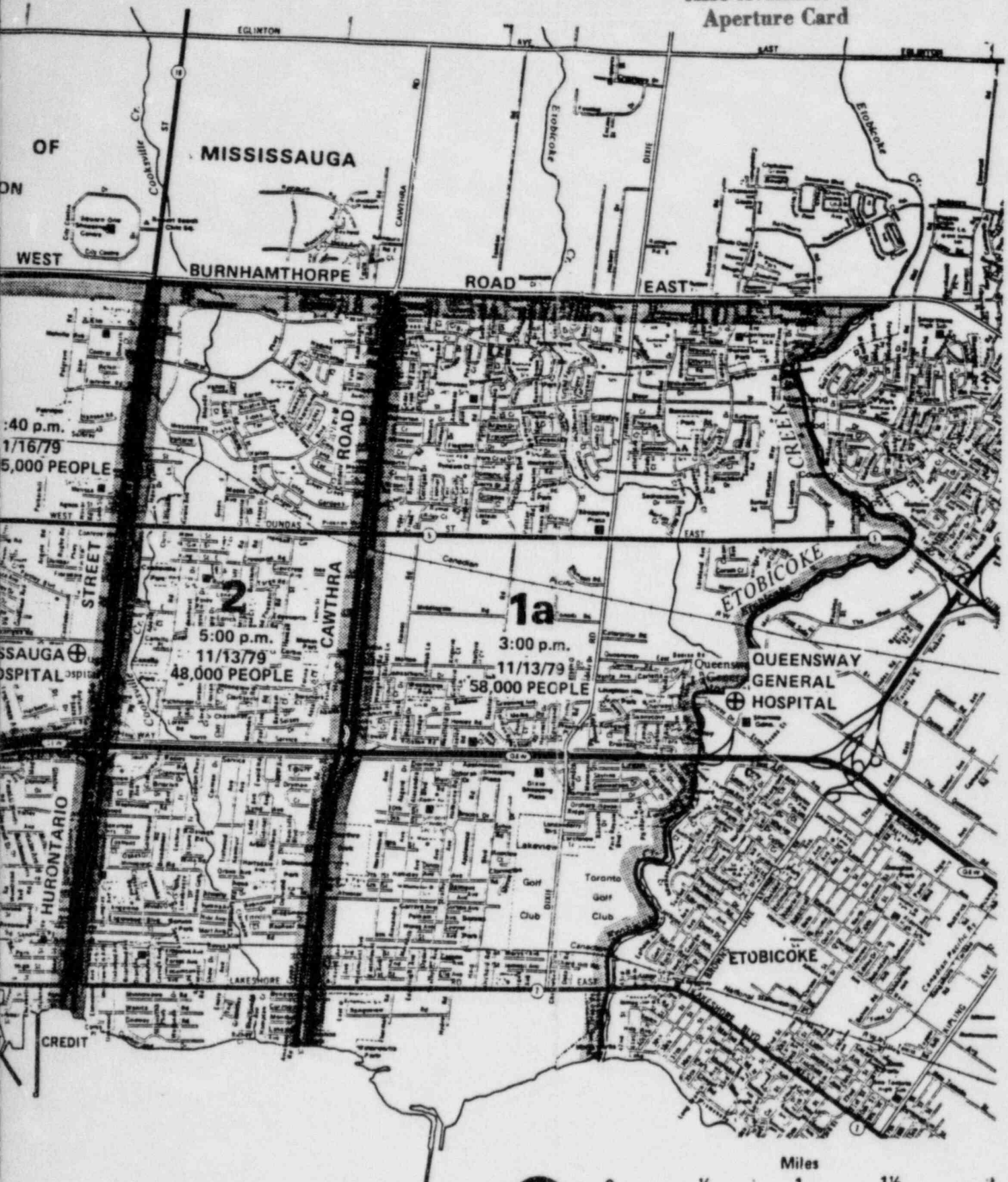


FIGURE 5-1
8411290062-06
AREAS BLOCKADED BY POLICE
(NUMBER OF RESIDENTS AND
TIME OF RE-OPENING ARE SHOWN)

increasing pressure to re-open the QEW to through traffic. The EOCG considered re-opening the highway before lifting evacuation orders for some areas it passes through but rejected the idea because it might prove confusing to evacuees from those areas.*

A major contributing factor to the decision to re-open some areas was growing pressure from evacuees who wanted to return to their homes. Most, if they had prepared at all, had made preparations only for a short stay away from home. And as the duration of their dislocation grew, so too did their frustration. By the evening of Monday, November 12, evacuees had begun to appear at police roadblocks trying to return home. Others, anxious about pets, asked to enter the evacuated area to care for them or bring them out (see below). Later in the week, police began to allow limited access to the evacuated area for those who had some immediate business in the zone.

Re-opening part of the evacuated area reduced problems primarily by reducing the number of evacuees. Police had moved back and established a new and smaller perimeter of evacuation but 32 square kilometers (13 square miles) of the city were still closed to about 72,000 residents. Among these, tension continued to build. Police began to get calls from angry residents of the still closed areas and had growing problems with harassment at perimeter checkpoints. Evacuees began to infiltrate the police lines. On Thursday, November 15, Mayor

* Transcript of Emergency Operations Control Group meeting, Thursday, November, 15, 1979.

McCallion broadcast an appeal to evacuees asking for continued patience and cooperation. And in a special news conference Roy McMurtry announced that: "The senior law officers have assured me that if police wanted to, they do have the authority to go into the houses and physically remove people if they were of the view that the nature of the emergency required that action. There is some feeling that there had to be an official proclamation issued for there to be an emergency in law. That's not the case. That's not the case. It's clear the emergency does exist. The facts speak for themselves."*

The situation reached its apex on Friday, November 16 with the arrest for assault of an evacuee who tried to run a police roadblock with his car. This was the only such incident reported but it is clear that tension and problems of control increased with each day that evacuees had to be away from their homes.

The Problem of Pets

When the people of Mississauga evacuated, many left their pets behind. Most evacuees did not anticipate being away from home for very long. They were given no instructions on what to do with pets; many took them along, but according to the Ontario Humane Society, most did not. The IES survey shows that dogs were the great exception, with 88% of dog owners taking their animals with them.

Disposition of those who took animals along when evacuating is discussed briefly in Chapter 3. Essentially, pets were treated as extensions of their owners and owners were responsible for them. The Toronto and Ontario Humane

* The Globe and Mail, Toronto, November 16, 1980.

Societies provided aid to evacuees with pets. They offered pet food in some cases and free boarding services for animals of evacuees whose conditions made keeping and carrying for pets difficult (people in mass care centers, in hotels where pets were not allowed, or with friends or whom they did not want to impose). The service was voluntary, evacuees were neither ordered nor asked to give up their animals. Rather, they were given the opportunity to place the animal temporarily in a Humane Society shelter. Many did but even in cases where evacuees kept their pets, no major problems were reported.

The 216,000 people who evacuated left behind more than 10,000 animals. As the emergency wore on, evacuees grew concerned for the welfare of their animals and the condition of their homes (most had left pets confined indoors). This gave rise to a problem for police trying to control the evacuated areas by stimulating people to ask to go in to care for their pets. When permission was refused, some tried to circumvent police lines and sneak in.

The Ontario Humane Society's pet feeding operation helped to ease the concerns of evacuees who had left animals behind. The provincial organization and the Toronto Humane Society had been involved in the emergency response effort almost from the beginning. The 33 dogs, 16 cats and 2 guinea pigs in the Peel Regional Animal Shelter, a few hundred meters north of the accident site, were among the first evacuees. Humane Society officials then turned their attention to animals taken along to mass care centers by their owners and set up a boarding service for evacuees who could not keep their pets with them.

On Monday, November 12, Ontario Humane Society Executive Director T. I. Hughes, believing that the evacuation would be a long one, requested authority to enter the evacuated areas to care for animals left there. Society representatives had already determined from talking to evacuees that a large number of animals had been left behind. They had also been contacted by several pet stores and research facilities. Their provincial headquarters received so many calls for assistance, in fact, that its telephone switchboard broke down and had to be replaced.

The presence of some animals in the evacuated area was an incentive to human risk-taking. As mentioned above, some evacuees tried to re-enter the evacuated area to care for pets, sometimes attempting to sneak in. In a few cases, people simply refused to leave the danger area out of concern for animals under their control (primary examples are a kennel and a bird sanctuary).

Peel Region Chairman Frank Bean and Peel Police agreed on Monday, November 12, to allow Humane Society staff and volunteers into the evacuated areas to provide care for animals left behind in the evacuation. Operations began the following day. At this point, about 65 people (25 from the Toronto Humane Society and 40 from the provincial office) began visiting homes to see that animals were fed and watered.

Residents/pet owners had earlier provided: permission to enter, keys, information on the animal(s) to be found, and instructions on where food could be located. Humane Society personnel travelled in their own cars or in the organization's vehicles and were escorted by police. (The police were generally either cadets or junior constables).

Vehicles used were not equipped with radios capable of receiving broadcasts on emergency channels; neither did the police officers have such equipment available. Therefore, the animal care personnel were out of reach of quick warning in the event of a sudden release. (Arthur Allibone, Manager of Operations for the Toronto Humane Society stated that he was very nearly caught in such a release and would strongly recommend radio receivers at least for such operation in the future).

Animal care teams visited 1,861 homes and fed more than 2,500 animals between Tuesday, November 13, and Friday, the 16th. Virtually all of these were one-time visits; repeat visits were unnecessary due to the stand-down from evacuation and return of people to their homes.

Few problems occurred; even where owners warned that their dogs might be vicious or guard the premises, this was not found to be the case. There were very few cases of animals running free, according to Executive Director Hughes of the Ontario Humane Society, most evacuees took their pets inside before leaving... without being told to do so.

Chapter Six

PHASED RETURN

Evacuees returned to their homes in four waves: two on Tuesday, November 13 and two on Friday, November 16 (see Figure 6-1). This was probably the most carefully planned of the steps in the evacuation. The outward movement of evacuees was planned and executed quickly owing to the limited time available. Activities in support of evacuees both those in mass care centers and those who had made their own arrangements were dictated by the locations of evacuees at the end of their initial movement. Selection of areas to be re-opened, however, could be done deliberately and could be based on reliable technical information.

Conditions at the Derailment Site and Repatriation of Evacuees

By Tuesday, November 13, both the chlorine threat and the emergency response effort had stabilized. The release had not been stopped (two unsuccessful patching attempts were made on Tuesday) but the amount of chlorine remaining was known, the rate of release was predictable, and the last propane fires had been extinguished so workers could safely approach the chlorine car. Before the re-opening of areas 1a, 1b, and 2 on the 13th, the EOCG and its supporting organizations had developed regular patterns of operation. In a sense, the emergency response effort was becoming institutionalized. Proceedings of EOCG meetings were recorded, preparation for press conferences (and press releases) had less of an ad hoc flavor. Information and advice was available for making informed judgements on the amount of chlorine, rate of release and attendant levels of risk to the evacuated areas.

The two rounds of re-openings, while based on the best available technical advice, were markedly different from one another. Areas 1a, 1b, and 2 were re-opened while chlorine was still being released. Areas 3 and 4 were re-opened only after the leak in the chlorine tanker had been patched and most of the chemical was drawn off and neutralized. The re-openings on the 13th were based on experts' judgement about reduced levels of risk, and left open the option of re-evacuating people. The re-openings of the 16th, on the other hand, were done only after the hazard had been controlled and reduced. The EOCG considered lifting restrictions on the last two areas on Wednesday, the 14th but a sudden release of chlorine caused them to delay a decision until the chemical threat could be neutralized.

TABLE 6-1

SUMMARY OF REPATRIATION ORDERS, TIMES, POPULATIONS, AND ZONES

Repatriation Zone Number	Time and Day Given	People Involved	Total Repatriated	Area Repatriated
1	3:00 p.m. 11/13/79	58,000	58,000	East of Cawthra Rd.
		38,000	96,500	West of Erin Mills Parkway/Clarkson Rd.
2	5:00 p.m. 11/13/79	48,000	144,500	East of Hurontario St.
3	3:00 p.m. 11/16/79	37,000	181,500	West of Credit River South of Queen Elizabeth Way (Q.E.W.)
4	7:40 p.m. 11/16/79	35,000	216,000	Rest of City - Burnhamthorpe Rd., Hurontario, Queen Elizabeth Way, The Credit River



OAKVILLE/
TRAFALGAR
HOSPITAL
←
3.2 Kilometers
2 Miles

CITY
NORTHERN LIMIT OF EVACUATION
(1.2 KILOMETERS, 3/4 MILE)

3:00 p.m.
11/13/79
1b
38,500 PEOPLE

3
3:00 p.m.
11/16/79
37,000 PEOPLE

LAKE ONTARIO

Also Available On
Aperture Card



FIGURE 6-1

REPATRIATION ZONES
(NUMBER OF RESIDENTS AND
TIME OF RE-OPENING ARE SHOWN)

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It is uncertain what role public pressure played in the EOCG's decisions to re-open evacuated areas but pressure was certainly there (see below pp 98, 99 and Chapter 5 pp 86, 88, 89). After the re-openings of November 13, evacuees from the areas still closed grew progressively more restive. Residents of these areas were the first evacuated and had the least time to prepare. Add to this the fact that most evacuees, not anticipating being away from home for more than 24 hours, did not take supplies for a long stay. The inconvenience of a long stay away from home combined with the re-opening of parts of the evacuated area on the 13th contributed to confusion and frustration among the remaining evacuees. Problems of control increased through the week as evacuees pressed police and other officials for permission to return home. However, the EOCG adhered to a strategy of withholding a return order for the areas of highest risk until the risk was reduced essentially to zero.

Risk assessment during the latter part of the week took on shadings on nuances not seen in the first day or two of the accident. On the 11th and 12th, the choice for civil authorities, based on the information available at the time, was one between evacuating the population, and accepting an estimable cost in money and inconvenience, or not evacuating, and risking the lives of thousands. Time and information were in too short supply to allow a wait-and-see approach and sealing the leaking chlorine tanker was not a viable option until the fires were safely brought under control. Later, however, when the fires were out and a patch fixed over the tear in the tank car's side, decision making became more rather than less difficult. The first examinations of the chlorine car showed a smaller amount of the chemical present than had previously been supposed.

The potential for harm was therefore lower and the size of the evacuated area could be decreased. But there was still some seven to ten tons of chlorine in the tankers. Its continued release was prevented only by a patch of wood, pieces of steel, and inflatable neprane bags held in place with chains. Moreover, the seal was not perfect and whenever the tanker was worked on, the rate of release increased.

EOCG Internal

By the afternoon of Wednesday, the 14th, the patch and the extinguishing of the fires had controlled the threat of a further release of chlorine but had not by any means removed it. Meetings of the EOCG on this and the succeeding day show consistencies in composition of the group and in the issues addressed. Those present represented:

1. civil authorities (elected and appointed)
2. technical experts (government environmental scientists, Chlorep team members*, rail transport experts)

Major subjects considered were:

1. current information on the hazard
2. weather, especially wind, predictions
3. options for risk reduction
4. what to tell the public.

* Chlorine Emergency Plan, a joint effort by producers of Chlorine in North America aimed at providing technical assistance in accidents involving chlorine. In this case, teams were supplied by Dow Chemical Corporation and CIL Incorporated.

A crucial meeting was held on Thursday, November 15. The session began with brief discussion of the release rate and expected changes in wind direction but quickly moved on to the subject of alternatives for removing the chlorine. Technical planners from the Chlorep team, the Canadian Transport Commission, and the Ontario Ministry of Environment discussed with civil officials the comparative risks and merits of the several options. There were two main issues--the anticipated time required for each option, and the potential of each for causing a further (perhaps major) release of chlorine. A transcript of that meeting leaves no doubt that, where ending the evacuation was concerned, the choice rested with the civic authorities.

Decisions on lifting the evacuation order for the last vacated areas of Mississauga could not be based solely on a technical assessment of the risk; nor could technical decisions regarding the best course of action in removing the chlorine be made without references to the evacuees. However, technicians on the EOCG were concerned only with the specific problem of removing the chlorine while non-technicians like Mayor McCallion, Attorney General/Solicitor General McMurtry, and Police Chief Burrows, had to deal with the social as well as technical problems.

Following a particularly detailed discussion during the November 15 EOCG session on the possibility of moving the chlorine car, Mr. McMurtry and Chief Burrows explained the problems attending continuation of the evacuation order.

Mr. McMurtry:

We balance this concern of the Ministry of Environment over wind direction with other concerns such as maintaining law and order and the police, the authority of the

police to keep people out has been an increasing challenge, and I think we have to share that with these people, Doug (Chief Burrows), in coming to any sort of decision because, we don't want to expose the public to any unnecessary risk. Again, what is an unnecessary risk? How far down the line? How do you compare that with the possibility of an outbreak of a significant public disorder, and I don't think the Environment people have had an opportunity to consider that; but this is something that concerns the police officials and myself very much.

Chief Burrows:

In other words, we want you to know that it isn't easy for us to keep these people out. It's not easy for the people, but it's very difficult for us to keep them out as well without using enforcement which the people may not think we have the authority to use, and the law is not clearly defined in that area.*

To address the problems posed by Mr. McMurtry and Chief Burrows, the EOCG drafted written materials for a "technical briefing" to explain the continuing hazards, the remedies being applied, and the reasons for continuing the evacuation order until Friday the 16th. (Materials prepared as a result of the briefing appear as Exhibit 4 in Appendix F.)

Mayor McCallion, Attorney General/Solicitor General McMurtry, Chief Burrows, and Ontario Minister of Environment Parrott held a news conference at about 3:30 p.m. on the 15th and the technical briefing session for the press was held on that

* Transcript of Emergency Operations Control Group, Thursday, November 15, 1979.

evening. The following morning another news release was issued giving a report on the effectiveness of the measures described in the technical briefing paper and promising more information that afternoon. At 2:55 p.m., the promised news conference was held and the evacuation order was lifted for area number 3. (A transcript of the news conference appears as Exhibit 8 in Appendix F.) The fourth and final zone of return was opened later that day.

Return of Evacuees

There is really very little to be said about the return of evacuees. The movement, by its very nature precluded tight control. With the exception of those who had registered at mass care centers, authorities could only guess where evacuees had gone. At the lifting of the order, however, they rapidly converged on Mississauga . . . traffic jams were the inevitable result. A good deal of this was due not to evacuees returning but to cross traffic, especially heavy trucks. Some of the latter had been waiting for the re-opening of the Queen Elizabeth Way, normally the busiest highway in Canada, which had been closed throughout the week.

Authorities instructed evacuees to air their homes since chlorine persisted in buildings long after the outdoor concentrations had disappeared. They also announced that the Ministry of Environment should be notified of any problem through a special telephone information center.

Evacuees who were in hotels or mass care centers on Friday the 16th were taken to their homes by Mississauga Transit buses. However, arrangements were made to keep the International Centre open to evacuees for one more night to cover contingencies.

Chapter Seven

LESSONS

What follows is a set of observations by the authors on some of the most salient features of the Mississauga evacuation. Other observations appear in earlier chapters, and still others do not appear at all. The Mississauga incident will, no doubt, be the subject of study and the source of valuable information for years. Our purpose at the moment, however, is to draw out some lessons that may be of use to those who may face similar problems.

Early and Decisive Action

"Plans are worthless, but planing is everything. . .keep yourself steeped in the character of the problem you may one day be called upon to solve--or to help to solve."

Dwight D. Eisenhower, 1957.

A history of experience with a variety of disasters combined with an ongoing effort to draw lessons from these accidents had led Peel Regional Police to develop a plan (Disaster Manual) that was both less and more than a paper plan. It was not specific to any one kind of hazard. It was, rather, a guide to the thoughts of the crisis decision-maker and a clear definition of his central role. It placed the resources of the whole organization at his command, even giving him greater temporary authority than the Chief of Police. It also guaranteed that a trained person would be in charge.

The main features of the Disaster Manual, then, were:

1. Simplicity - It was short and simple enough to be used in an emergency.

2. Clarity - The authority structure outlined in the Disaster Manual is wholly unambiguous (see Figures 1-1 through 1-5).
3. Vitality - The Peel Regional Police Disaster Manual is a living document, not a paper plan. It reflects a commitment to continued planning and improvement and is not, as is often the case, a document prepared merely to meet a legal requirement.

Observable weaknesses in police performance under the Manual's guidance were in the areas of coordination, early in the emergency, with other agencies, particularly the Peel Region Department of Social Services, and in the choice of an evacuee reception center (Square One) that turned out to be too close to the accident site. There was also an instance of (for lack of a better term) overpersonalization. The administrator of Mississauga General Hospital assumed on the basis of a conversation with Chief Burrows of the Peel Police that the Chief would contact him personally to confirm the need for evacuation. When ambulances arrived to remove patients, he refused to permit the operation until the need was personally confirmed by Chief Burrows. The latter was, at that time, aloft in a helicopter surveying the accident site and had to be contacted by radio. While no harm resulted, the incident pointed out a weakness. It would be interesting to see what revisions are made to the Disaster Manual as a result of the train derailment.

Decision Making

For about ten hours following the accident, emergency response efforts, other than fighting the fire and chemical hazards, were directed mainly by Peel Regional Police (see above Early

and Decisive Action). After this however, a small group, the Emergency Operations Control Group (EOCG), of people in responsible positions was assembled in a command centre close to the accident. They included:

Roy McMurtry, Attorney General and Solicitor General of Ontario

Hazel McCallion, Mayor, Mississauga

Frank Bean, Chairman, Peel Region

Douglas Burrows, Police Chief, Peel Region

Gordon Bentley, Fire Chief, Peel Region

Bob Frewin, Ministry of Environment, Ontario

The EOCG was kept as small as possible. Many more senior people were advised that their services were not required in the control group. This policy almost certainly saved a lot of time in reaching decisions.

The EOCG, then, was of manageable size, and included representation of Municipal, Regional, and Provincial government. These features not only allowed quick decision making, they also made possible quick implementation of decisions once they were reached. As the sole organization is overall command, the EOCG did not have to check with or compete with other agencies or levels of government.

Availability of the Peel Police command post trailer and two others owned by the Provincial government made it possible for the EOCG, teams of technical experts, and those fighting the hazard to have both good communications and work space for planning brought together at the accident site.

Decision makers, then, could easily meet with analysts from the Ministry of Environment, firefighters, and the Chlorep Team from Dow Chemical Company without taking any of these specialists away from their other duties for long.

EOCG decisions were based on the advice of a group of technical experts who met in an adjacent portable building. They were brought into the EOCG meetings as required and their recommendations were reviewed by a separate group of qualified experts. Both groups were insulated from each other, from the press, and from the public. A special detachment of police officers was assigned to them with orders to make sure that they were not disturbed, that their physical needs were met, that they had any working materials they needed, and that they encountered no problems in transportation.

In order to inform the EOCG of the decision options, technical experts had to translate their explanations into non-technical terms. The EOCG adopted the practice of recording all of its sessions on tape and keeping written records of diagrams used. "Flip-charts" were judged especially useful for the latter. These provided good records for immediate and long-term reference and were used in briefing other public officials and the press.

Warning and Movement

In the Mississauga accident, it was never really necessary for those in charge (either police or the EOCG) to decide whether to issue warnings or evacuation orders. That the accident was serious was apparent from the outset, information on the presence of chlorine in one of the derailed cars merely reinforced this perception in the minds of fire and police

officials. Thus, they had only to decide who to warn about the hazard, how to warn them, and what areas were threatened seriously enough to merit evacuation.

The task of issuing warnings and evacuation orders was greatly simplified by the dramatic nature of the accident itself. More than half of those who were eventually evacuated said that they either heard the initial explosion or saw the fire or both. More were alerted by the smell of chlorine. (See Appendix C).

Thus, the police warnings and evacuation orders to residents of areas adjacent to the accident site were given to a receptive population. It is doubtful that the same level of response would have occurred if the hazard had been a quiet one.

In later warnings and evacuation orders, the EOCG and police were aided by news coverage of the accident and evacuation. An air of expectation prevailed among residents of Mississauga and the communications strategy adopted by the EOCG took advantage of this to manage the evacuation. Information was rationed but enough was given out to maintain a high degree of public attention. When people in a given area were to be evacuated, instructions specific to that zone were issued. This approach appears to have been quite effective.

Public Information and Press Relations

The relationship of public officials and the press during the evacuation was a positive one. Three officials of the Ministry of the Environment had attended Three Mile Island Briefings on media relations in Pennsylvania. It appears that

the lessons they learned from the Three Mile Island press fiasco were adroitly applied. Namely, the EOCG took advantage of the fact that technical people had to explain technical and safety problems to elected officials (i.e., laymen) who did not have a technical background. Officials realized that it would be well worth the effort to take the communication process among technicians and elected officials a step further. This meant explaining technical safety issues to the press. Thus, after the technical experts had explained the safety problems in a manner that the elected officials could understand, elected officials, with technical experts and media relations staff, wrote press releases that explained developments in layman's terms. This open, studied, and informative approach let the press see that the officials were speaking with one voice. Technical information was explained and hazards to the public were pointed out. Therefore, unlike Three Mile Island, the press had clearly defined sources of information; it was not tempted or lured to pursue conflicting pieces of information from different agencies and private sources. In a speech during a seminar on Three Mile Island sponsored by the American Nuclear Society Professor David M. Rubin said, "Perhaps the most serious failure in the planning stage was that neither the utility nor the NRC made provision for getting information from the people who had it. . . to the people who needed it."* An atmosphere of cooperation was launched and it persisted for the benefit of accurate reporting; hence the health and safety of the public was reasonably well ensured.

* Professor David M. Rubin, an associate professor of journalism at New York University, chaired the Task Force on the Public's Right to Know on the President's Commission on the Accident at Three Mile Island. He made this remark at a February 1980 seminar in San Antonio, Texas, sponsored by the American Nuclear Society.

Naturally, no official relationship is without problems and there are comments on both sides which contribute to an understanding of the perspective of public officials and of the press.

For instance, while the press release approach ensured overall cooperation, it brought the newsperson's age-old complaint that press releases bury the lead or downplay the most important news angle. In an NUS interview, Rob McCormick, city editor of the Mississauga News, made this point. While burying the news angle is often the result of poor writing or what news writers call bureaucratese, editors and reporters alike see it as their duty to distinguish between bureaucratese and deliberate obscuring of important news. On the other hand, what the news media considers important news may be considered to be pure hypothetical sensationalism to public officials and technical advisors. For instance, it is clear that reporters, especially when skeptical of their sources, will ask "what if" questions that tend to lead to reporting worst case scenarios if not handled properly as they were at Mississauga. City editor McCormick made the point in this way: It is better for public officials to say "yes we have a serious problem but we don't know what it is" than to try to hide the truth. And as the experience at Three Mile Island showed, as the difficulty in getting information increases so does the number of reporters sent to get it.

The extent of cooperation that existed between officials and the press at Mississauga brought Peel Regional Police Chief Barry King to say that officials could not have reached the large numbers of residents without the help of the media.

Naturally press releases were carefully drafted and reviewed before release. In some cases, diagrams were supplied to illustrate technical points clearly. To ensure that the communication process was successful the EOCG members answered questions reporters had about the press releases. Then, to follow the process full cycle, the EOCG listened to television and radio broadcasts to ensure accuracy. Where information appeared fuzzy or misleading the EOCG issued corrections in subsequent press releases.

Phased Evacuation

The evacuation was carefully controlled and areas evacuated sequentially starting with those close to the accident. Where practicable, one evacuation sequence was completed before the next order was given.

We have tried to reconstruct these stages as shown in Chapter Two. Circular zones around the accident site, as advocated in the U.S., were not used. Areas were evacuated in blocks corresponding to well known highways and rivers. This is a simple concept but an effective one. Using highways and other terrain features to tell the public which zone is being evacuated helps avoid confusion. For example, the ninth evacuation zone was defined as the area between the Credit River in the west, Cawthra Road in the east, Queen Elizabeth Way in the south, and Burnhamthorpe Road in the north. Such a clearly defined area simplifies communication. Moreover, the use of major roads and terrain features as evacuation zone boundaries gives law enforcement personnel a perimeter that can be controlled with limited resources.

Institutional Evacuation

Evacuation of institutions is far closer to the image of evacuation as a tightly controlled operation than is the movement of the general population. In Mississauga, only hospitals and nursing homes were involved but jails and prisons and, to some extent, schools share the same problems. All represent concentrations of people who have special needs for supervision, care, and transportation. All demand a much higher level of outside support to achieve evacuation than the general population.

In the opinion of the authors, many of the lessons below can be abstracted to institutions other than hospitals and nursing homes.

Recommendations:

- o Establish a central personnel locator and information bureau for doctors, nurses, staff and families of patients.
- o Where hospitals and nursing homes are concerned, precision, reliability, and consistency in communications is essential. Provisions should be made for overload of telephone lines and measures such as capsule messages may be considered.
- o A consistent and agreed upon patient allocation scheme should (time permitting) be worked out before patients are moved. This includes outbound triage arrangements: sorting high risk patients and sending them first; discharging those who are well enough.

- o Have enough vehicles ahead of time to do the job quickly. The use of ambulance staging areas near hospitals seemed to work well and may have prevented traffic problems.
- o If staff will accompany patients, provision should be made for them to either (1) have accommodations near the receiving institution if they will be staying with patients (2) rejoin their families (the locator mentioned above could be useful here).
- o Patients' charts must be sent with them to assure consistency of care. This will also help if the patient's own physician is temporarily extended privileges at the receiving institution.
- o In a disaster like Mississauga's where there is doubt about the potential extent of the hazard, it may be wise to consider evacuation to the next to nearest institution since it could prevent the stress to patients of a second evacuation.
- o Evacuate hospitals and nursing homes ahead of the general population if possible; waiting may result in:
 - a. loss of staff who may be evacuated and unable to return
 - b. inability to discharge some patients and thereby reduce census because the patient's family may already have been evacuated

- c. time required for hospital and nursing home evacuation may be greater than those for the general population owing to their special requirements, the number of ambulances available, and the distances to be travelled.

The Need for Mass Care and Transportation Aid

Only a small minority of Mississauga evacuees required either a place to stay or transportation for evacuation. The underlying reasons, however, are quite different. Few people are totally without friends or relatives to whom they can turn for help. Further, it is a common feature of human behavior in disaster that people prefer to rely on their own resources.

More people by far passed through the reception and care structure than stayed in mass care centers. The ratio of those who passed through to those who stayed in mass care may have been as little as 3:1 or as much as 10:1. We estimate that no more than 20% of evacuees moved through reception areas and that most of these did so in the first waves of evacuation. Without diminishing the importance of mass care arrangements it is the authors' opinion that equal attention must be paid to support services for the majority of evacuees who will not seek aid through the mass care centers.

Mississauga's experience shows that even in relatively affluent communities there is a core element of the populations that will need either transportation or mass care or both. The former will vary more from community to community with the percentage of the households that have automobiles. Need for mass care, however, depends on different factors (i.e., evacuees network of friends and family).

Appendix A

EVACUATION GUIDES:
PEEL REGIONAL POLICE
DISASTER MANUAL

The following is the text of the section of the Peel Regional Police Disaster Manual pertaining to evacuations as written on November 10, 1979, when the accident occurred.

EVACUATIONS

1. Survey

- a. Because of damage caused by an Emergency or Disaster, specific buildings within an area or all buildings within an entire area, may have to be evacuated. Actual damage or potential hazards must be considered. The lack of sanitation facilities, utility services or other health hazards may necessitate evacuation.
- b. These evacuations may be ordered by authorized representatives of the Department of Health or Department of Works in liaison with the Disaster Control Officer and the representatives of the Department of Welfare, Fire, and Hospitals. However, at any time when obvious danger exists, a Police or Fire official may order evacuation of buildings.
- c. The immediate area of the emergency and the adjacent areas shall be surveyed by members of the various departments and agencies concerned to ascertain the

damage caused by the occurrence and to determine the possible hazards which may have been created by such damage. All information obtained as the result of these surveys shall be reported to the Disaster Control Officer and recorded in the Temporary Headquarters Duty Book. This information shall be used to determine the adequacy of present details and equipment, additions required, the location or relocation of police lines, whether evacuations are necessary and other problems that may be encountered.

2. Cooperation with Department of Welfare

The Disaster Control Officer, when necessary, shall designate officers to assist the Department of Welfare representatives in supervising evacuation operations, especially in specific phases such as:

- a. evacuation from buildings,
- b. transportation,
- c. shelter, and
- d. records and notifications.

3. Factors to Be Considered

Serious consideration shall be given to the following, prior to the issuing of an evacuation order:

- a. The area to be evacuated; this may include the area of actual damage and the area of potential danger due to drifting gases, radio-activity, subsequent explosions, etc.

- b. The approximate number of persons to be evacuated (consult with Department of Welfare and other agencies).
- c. The sick, aged, and infirm (consult with hospitals and Department of Welfare).
- d. The probable period of evacuation (consult with Department of Welfare and other related agencies regarding facilities available).
- e. Temporary shelter, food, and clothing if necessary (consult with Department of Welfare).
- f. Transportation if necessary (consult with Department of Welfare and transportation companies).
- g. Necessary instructions to be given evacuees on such matters as clothing to carry, securing premises, etc.

It will be noted from the aforementioned points that a great responsibility falls on the Department of Welfare at this stage; therefore, close liaison with the Agency is essential in order to complete a safe and successful evacuation.

4. Evacuated Buildings

- a. Buildings that are to be completely or partially evacuated must be thoroughly searched for persons remaining in that part of the building declared to be unsafe. Search teams consisting of detectives and uniform personnel shall be formed and assigned to search every building. An entry of the specific assignments shall be made in the Temporary Headquarters Duty Book, including the names and numbers of the members, addresses searched and whether the building was completely evacuated.
- b. A systematic search shall be made of all rooms and other areas to ensure that all persons have left the building. Special attention will be given to ensuring that children, aged, infirm, or bed-ridden persons, and/or persons living alone, do not remain in their residence.
- c.
 - i) Potential fire hazards should be eliminated in all evacuated premises by turning off all gas and appliances.
 - ii) A utility service may be shut off at the main inlet. If such action is taken, the service shall be restored by the pertinent utility company.

- d. i) Buildings found unfit for habitation shall be guarded from the outside by uniformed constables who shall prevent unauthorized entry into the buildings and prevent the removal of any property except upon the authority of a senior officer of this police force.
- ii) Such assignments shall be the responsibility of the senior officer in charge of evacuations, who will forward a list of the assignments to the Temporary Headquarters.
- e. The Disaster Control Officer may also assign personnel to assist the Department of Works Inspector in determining whether evacuated buildings are fit for habitation. It may be necessary to shut off utility services in evacuated buildings to prevent fires, floods, and other hazards. This operation should be performed by the various utility company representatives at the scene.
- f. An entry to the effect that a utility service, at any location, has been shut off, shall be made in the Temporary Headquarters Duty Book.

5. Notification

- a. Information regarding all evacuees and persons relocated shall be entered on aided index cards at the Temporary Shelter(s) listing the following data:
- i) identity of person, age, sex, etc.,
 - ii) normal address of subject (including apartment numbers, etc.),
 - iii) address of relocation, shelter, or other disposition, and
 - iv) agency involved, i.e., Salvation Army, Department of Welfare, etc.

These cards, when completed, shall be forwarded to the Temporary Headquarters for inclusion in the file, alphabetically, with the "Aided Cards" and "Persons Inquired For" cards.

- b. In addition, a list shall be prepared in duplicate containing the information shown on the cards. The original shall be forwarded to the Police Information Centre and the copy will be retained at the respective shelter.

6. Unsafe Conditions

Unsafe conditions such as holes, dangerous areas, unsafe buildings, etc., shall be safeguarded to prevent possible injuries. Barriers, ropes and/or manpower may be utilized for the purpose.

7. Valuable Property

Valuable property left unattended by the owner at the scene shall be safeguarded until removed by the owner or sent to the Police Property Bureau. Every effort should be made to have the owner safeguard his/her own property.

If the property is claimed by the owner at the scene, it will be disposed of in accordance with the policy and procedure of this police force as it relates to lost/found property. A copy of the receipt will be retained at the Temporary Headquarters.

8. Prevention of Looting

At the scene of any disaster, property and evidence may be strewn over a wide area. It must be protected and it is the responsibility of every police officer at the scene to prevent tampering with evidence and to guard against looting. This includes "Souvenir" hunters. The proper control of police lines and check points through the lines will assist in safeguarding property and evidence. It may be necessary to assign personnel to guard specific areas against the possibility of looting.

Appendix B

THE REGIONAL MUNICIPALITY OF PEEL
PEACETIME EMERGENCY PLAN*

SECTION 1

PART 1

INTRODUCTION

1. Definition of Peacetime Emergencies

Peacetime Emergencies are defined as situations or the threat of impending situations abnormally affecting the lives and property of our society which, by their nature and magnitude, require a controlled and coordinated response by a number of agencies, both governmental and private, under the direction of the appropriate elected officials, as distinct from routine operations carried out by an agency or agencies, e.g., fire-fighting, police activities, normal hospital routines.

2. Authority

- a) Emergency Measures Act. R.S.O. 1970-C145.
- b) Bill 135 Section 116.
- c) The Regional Municipality of Peel By-law Number 71-74--to establish an Emergency Measures Programme.
- d) The Regional Municipality of Peel By-law Number 55-75--to establish an Emergency Peacetime Plan, and By-law Number 3-76 to update the Plan to January, 1976, and provide for a process of reviewing and amending.

SECTION 1

PART 2

1. Aim

To lay down a plan of action for the most effective employment of all services, resources, agencies and personnel required to operate in the prevention of or the mitigation of peacetime emergencies in the Region of Peel.

* As revised October 15, 1978.

SECTION 2, PART 2 (Continued)

2. Responsibilities--Area Municipalities

Whenever an emergency occurs or threatens, the initial and primary responsibility for providing immediate assistance and control rests with the affected operating authority within the Area Municipality.

3. Responsibility--Region

Where the situation cannot be adequately dealt with under the existing division of statutory responsibilities, the Regional Chairman may, at the request of the Mayor of the affected Area Municipality, co-ordinate and control all services, both of the Region of Peel and the Area Municipality required to deal with the emergency and provide such additional Regional services to such Area Municipality as may be required. However, where police action or investigation is required, the responsibility and control in this area will remain with the Chief of Police or his designate and the police action will be coordinated with the other services.

4. Assistance--Provincial

Where the resources of the Region of Peel are insufficient to cope with the situation, assistance may be requested of the Province of Ontario. (See Section 2.)

On request of the Mayor, specific resources of the Province may be made available to an Area Municipality through the lead ministries. However, in the event that the Chairman is requested to coordinate and control all services, the lead ministry or ministries will then work through the Region to provide the necessary coordination. (1978-137-45)

5. Implementation of the Plan

This plan will be implemented when the Regional Chairman has agreed to coordinate and control all services in the affected Area Municipality or Municipalities. The Chairman or his/her alternate will arrange for notification of the decision to be passed to the Region of Peel Communications Centre directive that the Regional Emergency Alert System be activated. (See Section 3, Part 2)

SECTION 1

PART 3

EMERGENCY OPERATIONS CONTROL GROUP

1. Composition

a) All emergency operations of the Region will be directed and controlled by a group of officials responsible for providing the essential services needed to minimize the effects of the emergency on the Region.

b) This group will be known as the Emergency Operations Control Group and will be composed of persons or their alternates holding the following appointments:

The Chairman of the Regional Council
The Chief Administrative Officer
The Chief of Police
The Fire Coordinator
Commissioner of Public Works
Commissioner of Social Services
Commissioner of Finance
Medical Health Officer
Emergency Planning Office
Clerk of the Region

c) Other personnel or representatives of specialist agencies or organizations may be added to this group as the need arises.

2. Assembly

a) The Emergency Operations Control Group will assemble at the designated control facility which shall be known as the Emergency Operations Control Headquarters and shall be located at 150 Central Park Drive, 3rd Floor, unless directed otherwise.

b) The Chairman or his alternate if the Chairman is absent or incapacitated may, on the advice of the other members of the Emergency Operations Control Group, officially declare an emergency to exist and may, for the purpose of this Plan designate any area as an "Emergency Area."

SECTION 1, PART 3 (Continued)

3. Responsibilities

- a) The coordination and control of all emergency services.
- b) The assessment of request for assistance and the allocation of available services, manpower and equipment.
- c) The evacuation of buildings within the emergency area which are considered dangerous or in which the occupants are considered to be in danger.
- d) The dispersal of people not directly connected with the emergency services who are considered to be in danger, or whose presence hinders in any way the efficient functioning of the emergency services.
- e) The discontinuation of any services with references to consumers where continuation of such service constitutes a hazard to public safety.
- f) The collection of information on the emergency situations and the establishment of an Information and Enquiry Bureau at the Emergency Control Centre to provide factual information to officials involved in emergency operations, the news media and concerned individuals seeking personal information.
- g) The provision of immediate and continuing information of the emergency situation to the Province of Ontario Emergency Measures Branch.
- h) The authorization of expenditures required for the preservation of life and health, and for the meals for operation personnel.
- i) Requesting assistance from other Regions or Area Municipalities, volunteer organizations and the private sector.
- j) The selection of and notification to concerned persons of assembly area at which such additional resources of manpower and equipment will gather.
- k) Requesting assistance, if required, from the Province of Ontario. (See Section 2, Part 1.)

SECTION 1, PART 3 (Continued)

- l) The provision of administrative and logistical support for any Provincial services which may become involved.
- m) The maintenance of a log of actions taken during the emergency period.
- n) Upon the advice of the Emergency Operations Control Group, the Regional Chairman may determine and declare that the emergency has been terminated. The Emergency Operations Control Group will ensure that all emergency services chiefs are advised of the termination.

SECTION 1

PART 4

DIRECTORS OF SERVICES--RESPONSIBILITIES

1. Chief Administrative Officer

- a) The Chief Administrative Officer will be responsible for:
 - i) All over (sic) coordination of all operations concerned with the emergency.
 - ii) Release of public information and instructions to the news media through the Information Officer other than information regarding any aspect of police investigations. (See Paragraph 2b) below.)
 - iii) Approval of additions, amendments or revisions to the Plan.

2. Police Service--Regional

- a) The Regional Chief of Police will implement the "Police Disaster Plan" and will ensure provision for:
 - i) Control and, if necessary, dispersal of crowds within the emergency area.

SECTION 1, PART 4 (Continued)

- ii) Control of traffic to and from and within the emergency area to facilitate the movement of emergency vehicles.
- iii) Alerting persons endangered by the emergency and evacuating buildings or areas as authorized by the Operations Control Group.
- iv) Protection of property against looting within the emergency area.
- v) The provision of law order within welfare centres.

(Further sections not available.)

Appendix C

HIGHLIGHTS OF A SURVEY OF MISSISSAUGA EVACUEES*

On November 20, 1979, 10 days after the train derailment, the Institute for Environmental Studies (IES) at the University of Toronto, under contract to Emergency Planning Canada, mailed survey questionnaires to 1,000 randomly selected households in the areas of Mississauga that had been evacuated. A telephone follow-up began on December 15, 1979 of those who had not returned questionnaires. The sample selected constituted (by IES estimates) about 2% of the households in the evacuated area. The overall response rate was about 62%.

NUS has selected narrative portions of the final report which gives an overall picture of evacuees' responses. By and large, we have chosen not to include material drawn from questions where multiple responses were permitted because the frequency of a given response as a percentage of total responses is often reported as the frequency of that response among evacuees.

In a few cases, we have noticed what appear to be typographical errors and have included portions of the numerical report for reference. Apart from these few instances, all portions of this appendix are drawn verbatim from the text of the IES report and are referenced to the page(s) of the report on which they appear.

*"Final Report to Emergency Planning Canada on Survey of Households Evacuated During the Mississauga Chlorine Gas Emergency, November 10-16, 1979," by the Emergency Planning Project, Institute for Environmental Studies, University of Toronto, March 1980. Dr. Anne Whyte, Principal Investigator.

Characteristics of Evacuees

The people who were evacuated from their homes in Mississauga on Sunday, November 11, 1979, were predominately from the professional, managerial and skilled worker groups of Canadian society (Question 44). A significant proportion (10%) were elderly and already retired from work. Most heads of households were aged between 40 and 60 years (Question 47) and nearly half of the households had no children under 18 years living with them. Only 9% of the families interviewed had three or more children (Question 46) and 75% of the households had no more than four individuals in them. Thirty-five percent of households had only one or two members (Question 45). [p. 9]

The highest group in the sample have family incomes of over \$30,000 and approximately 70% have incomes over \$20,000 (Question 48). The mobility of the population appears comparable to that for other similar groups in urban Ontario: some 40% of the households have moved into Mississauga within the last five years. At the same time, there is a significant proportion of long time residents (38%) who have been in Mississauga for over 10 years (Question 42).

As family incomes and occupations would suggest, car ownership is very high (94%) among households interviewed (Question 43). [p. 9]

Evacuation Movements

At the time of the accident, at midnight, on Saturday, November 10, 1979, most of the people who were to be evacuated were already at home (64%). Except for 5%, the rest were in Mississauga or in the Toronto area. Most households were also all together at the time of the accident with only 16% having members separated in different locations (Question 2). [p. 12]

By the time they were told to evacuate, only 5% of the households were already away from their homes (although some tried to get back and encountered difficulties) and another 10% had left immediately before being officially advised to do so. Ninety percent of the sample had either left beforehand or were officially evacuated on Sunday, November 11, most of them in the afternoon and evening when the larger zones C, D, and E were moved out (Question 9). [p. 13]

The overwhelming majority (84%) of families left in their own cars (Question 18) for destinations outside of Mississauga, either to the Toronto area (40%) or to other places in Ontario (40%). Only 12% evacuated to a nearby destination in Mississauga and these are the unfortunate ones that had to be evacuated a second, and even a third time (Question 17). [p. 13]

Overall, 35% of the evacuees moved twice and 10% moved three times. By Wednesday, November 14, everyone interviewed had reached their final evacuation base and remained there until they were allowed to go home. [p. 14]

Re-entry was allowed on Tuesday, November 13, and on Friday, November 16, (Figure 3). After announcements on both days, a similar pattern occurred of about 70% of those permitted to, returning on the same day as the announcement and a further 25% coming home one day later. [p. 14]

As discussed above, the majority of households had their own cars and used one to leave their homes (Question 18, 19). A very few used public transit (1%) or taxi (1%). Those who were moved a second time, from a Reception Centre, went by special bus (2%) and left their cars behind (to their later regret). Most, however, still left for their second and third destinations by private car. [p. 16]

Most families went to stay with relatives and friends through private arrangements (84%). A few went to hotels (6%) and second homes (3%) and the rest (4%) [sic, should read 4%, see table below] went to the official Reception Centres (Question 16, 19). [p. 16]

Q. 16, 19. With whom did evacuees stay?

	First Move	
	Freq.	%
With relative	302	53.9
With friend	169	30.1
Hotel	33	5.8
Evacuation centre	21	3.7
Second home	14	2.5
Other	<u>21</u>	<u>3.7</u>
TOTAL MOVING	560	99.7 [p. 16]

Evacuation Behavior

For most people interviewed in Mississauga, the evacuation meant leaving their homes rather than their places of work (Question 11). Some 60% had to evacuate their homes but worked outside the evacuation zone. Another 33% were prevented from reaching either their homes or places of work [sic, homes and places of work?, see table below] once the evacuation was in force. A small number of households (about 2%) did not evacuate in addition to another 2% who were already away from their homes when the evacuation announcements were made. [p. 17]

Q.11. Did you or anyone in your house evacuate your home or work?

	Freq.	%
Yes - home	353	60.4
Yes - home and work	192	32.8
Already away from home	11	1.9
No	11	1.9
N/A	18	3.1
TOTAL	585	100.00 [p. 17]

Those households who remained in the evacuation zone did so for a range of different reasons (Question 28). Some did not believe the danger was sufficient to leave. Others did not believe they had been asked to leave, and some felt too old or infirm. One household reported that they feared looting and remained on their property to protect it. [p. 17]

Q.28. If you did not evacuate, why didn't you?

	Freq.	%
Already away from home	10	38.46
No apparent reason to	6	23.08
Not asked to leave	5	19.23
Too old or infirm	4	15.38
Fear of looting	1	3.85
TOTAL	26	100.00 [p. 17]

Most people knew where Mavis Road was and could locate the scene of the accident at the rail crossing (Question 4). It appears that, during the period between the accident occurring at midnight on Saturday and the time on Sunday when they were evacuated, at least one member from 86% of the households interviewed, tried to get closer, to the accident scene (Question 6). [p. 19]

Re-entry Behavior

Seventy-five percent of the sample report that someone in their household tried to return before they were told to, presumably many on that Tuesday afternoon and others in the intervening period before Friday afternoon (November 16) when everyone was allowed to return (Question 23). [p. 20]

Evacuation of Pets

About half of the households evacuated had pets. Dogs (24%) and cats (16%) were the most common followed by fish (6%) and birds (6%) (Question 15 a). Most pet-owning families had one or two pets only (60% and 25% respectively) (Question 15 b).

[p. 21]

Dogs were generally taken with the family when they left (88%) but cats present a different problem. Many could not be found when the family were leaving and searches had to be made. Less than half the cats were evacuated. Fish and birds are less mobile pets requiring tanks or cages and were generally deliberately left in the empty homes. Three out of five hamsters were taken together with all the reptiles (two in the sample) but none of the rodents (gerbils and mice?).

[p. 21]

Information and Communication

The dramatic nature of the accident alerted about half the evacuees to the emergency within minutes. The rest knew within hours on Sunday morning, except for the very few who were away or were otherwise immune to the information (Question 1). [p. 22]

Nearly 40% of the households interviewed received the message that they should leave from the police, either by knocking at their door or calling through a loud hailer. Others heard the evacuation message from the radio (24%) or TV (16%). Only 10% heard through personal networks of friends and relatives.

[p. 24]

The message to evacuate was enough by itself for most people to carry it out (Question 20). For others, it was reinforced by seeing neighbors leave (10%), family concern (7%) and the smell of chlorine gas (4%). [p. 25]

Risk Perception

After the accident, only 54% reported that their feelings [about hazardous rail cargoes] had changed. For the rest, the emergency had no apparent impact on their assessment of risk or concern about hazardous rail cargoes (Question 38). Those who expressed a change in attitudes argued for stricter regulations and controls (32%) and new controls including the separation of chemicals (30%). Others felt there should be better rail equipment. Relatively few (8%) demanded alternative, less residential routes - perhaps because this was a rail rather than a road accident. [p. 28]

Q.30. Do you think the evacuation was justified?

	Freq.	%
Yes	543	91.8
No	26	4.5
Don't know	10	1.7
N/A	6	1.0
TOTAL RESPONDENTS	585	100.00 [p. 32]

Problems Encountered and Lessons Learned

The major problem encountered by most people was inadequate planning and preparation (Question 13 b). Nearly 86% made no plans to be away except for immediate departure arrangements (putting family and suitcase in car and locking front door). Part of this inadequate planning derives from people's perception of the evacuation as a one-day affair. Ninety percent of respondents thought they would be back home on Sunday night (Question 13 a). [p. 33]

While they were away from their homes, many people were worried about looting (45%) and about their pets and plants left behind (27%). Others tried to contact people (10%) and worried about medicines (including birth control pills) which they had forgotten (Question 33). [p. 34]

Most people encountered no problems in returning home (85%) although 10% were delayed through traffic hold-ups. A very few had no money, or gasoline or transportation but most returned as they had left - in their own car as a family unit (Question 24). [p. 34]

On returning home, almost everyone found their house exactly as they had left it. Half the residents found no major things that they had forgotten to do (Question 26). Twenty-one percent realized they had left food out which had gone bad and 9% had left lights on or heating turned up too high. Another 9% reported inadequate attention to pets and plants left for a week and a few (2%) had forgotten to lock doors and windows. Four unfortunate people reported that they had left food cooking but suffered no more serious consequences than a messy stove. [p. 34]

Appendix D

EVACUATION OF SHERIDAN VILLA HOME FOR THE AGED: CASE STUDY*

This case study details the activities involved in the evacuation of the Homes for Senior Citizens, specifically Sheridan Villa, and the Pines. The times reported are approximate unless otherwise stated.

Sheridan Villa and Peel Manor are two homes for Senior Citizens operated by the Social Services Department of the Region of Peel. The Pines Satellite is a private residential home for senior citizens operated as a satellite of Sheridan Villa; that is, it is privately owned and operated with a purchase of service agreement with the Social Services Department of the Region of Peel. Both Sheridan Villa and the Pines are located in southwest Mississauga while Peel Manor is located in north Brampton.

One can appreciate the scale and complexity of the efforts involved in evacuating the Homes by examining the number of residents involved on November 11, 1979, both in residential care beds but particularly in extended care beds.

<u>Home</u>	<u>Residential Care Residents</u>	<u>Extended Care Residents</u>	<u>Total</u>
Sheridan Villa	155	91	246
Peel Manor	64	140	204
The Pines	42	-	42

*Peel Department of Social Services, "Department of Social Services Crisis Report, Working Paper No. 10," December 1979.

Details of the evacuation of the Homes follow.

Sunday, November 11, 1979

8:45 a.m. The Commissioner of Social Services, whole not yet informed of the overall Peel situation, determined from radio content that a major problem was underway in Peel, and established an operational centre in Sheridan Villa and alerted all Social Service staff to report as soon as possible.

10:00 a.m. Sheridan Villa was placed on alert to accept residents from Nursing Homes in Mississauga Centres. Peel Manor was also alerted to provide support service as required. At this point both Administrators reported to their respective Homes in the event it would be necessary to respond to an evacuation order. The Commissioner of Social Services and the Emergency Measures representative for the Department, (Assistant Administrator of Peel Manor) reported to Sheridan Villa to develop an action plan. Under the direction of the Commissioner of Social Services, a temporary command centre was set up in the Administrator's Office and Social Services staff reported for duties.

Action taken:

1. All supervisors were called into work

2. Extra maintenance staff were called into work
3. Dietary staff were put on alert for food preparation
4. Dr. P. Bolland was put on alert

1:00 p.m.

Information was received from Peel Halton Ambulance Services (PHAS) that Sheridan Villa would not be used as a reception centre since it was possible they would be evacuated from the area. At this point the Administrator of Peel Manor directed staff to prepare to receive some 200 residents from Sheridan Villa.

Action taken
at Peel Manor:

1. All supervisors were alerted
2. Extra maintenance man called in to work
3. Some housekeeping staff were directed to assist with preparation
4. Nurses in charge put on alert
5. All empty beds were made ready
6. B. Knight, Domestic Supervisor, reported to Peel Manor and took charge of bed preparations

7. Dietary staff put on alert for food preparation
8. Necessary registration forms prepared
9. Space availability forms prepared
10. Dr. Tracey put on alert.

9:00 p.m.

Evacuation Order received by Sheridan Villa from Peel Halton Ambulance Services. Upon receipt of evacuation order the Administrator of Peel Manor initiated the following action plan to receive residents of the Villa.

1. All supervisors were called in to coordinate their services
2. J. Simmons, District Supervisor, Social Assistance Division, was called to provide support service for reception area with her staff
3. M. McMillan, who had previously offered to assist, was called in to handle communication services
4. Maintenance men, E. Price and R. Steeves, called in to work
5. Red Cross was contacted through Ambulance dispatch service to provide an additional 150 portable cots. (100 for the Manor, 50 for Knightsbridge Senior Citizens Centre)

6. G. Tobin, R.N. called in to take charge of resident allocation to available beds
7. G. Hicks reported for duty and placed in charge of reception and registration responsibilities
8. R. Luciano, Executive Director of Peel C.A.S., offered his services and delegated in charge of traffic control with several of his staff.

9:45 -
12:10 p.m.

The first residents from Sheridan Villa arrived, registered and were given refreshments while allocation was determined. Dr. Tracey and Dr. Bolland decided the following allocation would be used:

67 residents (most fragile or frail) to
Peel Memorial Hospital
19 residents to Knightsbridge Community
Centre
122 residents (the balance) to remain at
Peel Manor
208 Total

Prior to the evacuation 38 residents were picked up by family members and taken to a safe location outside the evacuation area. Within Peel Manor it was decided to set up small lounge and service rooms as temporary dormitories instead of placing all the portable cots in the auditorium. The following allocations were established for placement of the residents:

<u>Room Space</u>	<u>Allocations</u>
Library	10 beds
Day Care Lounge	9 beds
Men's Special Care Lounge	7 beds
Ladies Special Care Lounge	11 beds
Nursing Office	4 beds
Craft Room	5 beds
Adjuvant Room	6 beds
Auditorium	28 beds
Ladies Lounge (2nd Floor)	6 beds
Main Lounge	16 beds
Various Residents' Rooms	20 beds
	<hr/>
Total	122 beds

The Pines

Two residents of the Pines were evacuated by the Peel Halton Ambulance Service to Kipling Acres in Rexdale where they remained until November 17, 1979. The remaining 22 Pines residents were picked up by family members and taken to a safe location outside the evacuated area. The Administrator of Sheridan Villa maintained telephone contact with the Pines staff at Kipling Acres throughout the full evacuation period. The Regional Generations bus was used to return these residents on November 17, 1979.

Monday, November 12, 1979

1:00 a.m. Most residents settled into a bed for the night. Dr. Bollard and Dr. Tracey had checked each resident to confirm medication or other treatment was provided, and once this was accomplished Dr. Tracey stayed at the Manor while Dr. Bollard went to the hospital and Knightsbridge to distribute medications and assess residents.

3:00 a.m. The Administrator of Sheridan Villa remained at Peel Manor as senior staff in charge while the Administrator of Peel Manor returned home for a rest.

7:00 a.m. The Administrator of Peel Manor returned to relieve the Administrator of Sheridan Villa. There were no unusual incidents during the night.

8:00 -

11:00 a.m. During this period the Administrators made the following arrangements:

1. In order to provide Sheridan Villa staff sleeping accommodation B. Adams arranged rooms at a local hotel.
2. B. Adams also arranged for the delivery of (3) three camper-trailers to Peel Manor to provide staff with a place for much needed rest.

3. Realizing that there would be a great need for clean linens B. Adams was able to make arrangements with Centennial Linen Services for priority processing of our soiled linens. During the evacuation it was necessary to have (4) four special runs to Centennial Linen Services.
4. In order to give staff a break, meals were brought into the building and this was accomplished through Mothers Pizza Parlour and Scotts Chicken Villà. B. Adams achieved this at no cost to the staff or Region.
5. Relief nursing staff was coordinated through B. O'Neil, V.O.N. who was able to provide experienced registered nurses from the V.O.N. and Public Health Nurses.

11:00 a.m.

The Administrator of Sheridan Villa went home to try and rest while the Administrator of Peel Manor remained on site as Senior staff in charge.

11:00 a.m. -
8:00 p.m.

During the day Gail Marchant and Betty Steele arranged for volunteers to come to the Manor to provide musical entertainment and personal contact with upset residents. These activities seemed to be very effective in getting residents to think a little less about their problems, relax and enjoy themselves.

The meals for the residents were prepared in the kitchen with a few extra dietary staff on duty. The most assistance necessary was in the serving of meals as a majority of Sheridan Villa residents ate in the auditorium at the same time as Peel Manor residents were being served. This area of service potentially could have been the most demanding and upsetting if it had not been carried out as a routine meal service.

A volunteer centre was established in the office and staffed by Social Service workers. This group maintained an active list of staff and volunteers who had offered their service and would match these volunteers to the demands of Supervisors. The Social Workers were also responsible for communicating information to concerned families of the residents.

Robert Oliver, Office Manager, decided to split the office staff into (2) two shifts in order to provide the essential support services to the Administrator. This ensured that experienced staff were in the office from 7:00 a.m. to 10:00 p.m., with the night hours (10:00 p.m. to 7:00 a.m.) being covered by relief staff from the Social Assistance Division.

8:00 p.m.

The Administrator of Sheridan Villa was able to gain access to the Villa in order to retrieve essential records and support equipment. Upon

his return to Peel Manor at approximately 11:00 p.m., the Administrator of Peel Manor returned home to rest. During the night of Monday, November 12, there were no unusual incidents at the Manor. However, a resident who had been evacuated to Knightsbridge had fallen and was admitted to hospital with a fractured hip.

Tuesday, November 13, 1979

1:30 p.m.

The Administrator of Peel Manor received notice from the Commissioner of Social Services to relocate all residents back to the Villa. All staff were notified and transportation was arranged with Chris Prentice, Brampton Transit Manager. Support nursing staff was obtained through Bonnie O'Neil, Coordinator of the V.O.N. services from the V.O.N. and Public Health Unit.

Arrangements were made to get as many staff and volunteers as possible to report to the Villa in order to prepare all beds and the supper meal. The supper meal was prepared at the Manor for transport to the Villa in time for supper at the regular hour.

All residents and staff had left the Manor by 4:15 p.m. and by the time they arrived at the Villa supper was ready and all beds were made up.

Wednesday, November 14, 1979

8:00 a.m.

The Administrator of Peel Manor reported to Peel Memorial Hospital in order to coordinate the transfer of the 67 residents in conjunction with Dr. Bolland. The Administrator of Sheridan Villa was stationed at the Villa in order to coordinate the transfer at the receiving end.

Support for the transfer came once again from the V.O.N. and Public Health Nurses. Several men were recruited from the Streetsville Lions Club to assist with the heavy job of lifting residents onto the buses as most of them were not ambulatory.

In addition, Salvation Army, military cadets, and volunteers from Streetsville Evacuation Centre were on hand to assist. The discharge of residents from the Hospital was complete by 11:10 a.m. with a maximum of efficiency.

2:00 p.m.

Both Administrators were given notice by the Commissioner of Social Services that the Villa was to remain on alert since the situation at the disaster site was not stabilized. This alert was maintained through until Friday evening at 8:00 p.m. when a stand down was declared. During the phase out period staff were on telephone call.

Appendix E

DRAFT CHECKLIST
MEETING OF
SAFETY COMMITTEE OF THE
ONTARIO NURSING HOMES ASSOCIATION

April 23, 1980*

Evacuating the Facility

1. Ensure that one internal person (administrator or delegate) has overall charge of the plan...control officer or marshall.
2. Designate a central area as control center (call in staff as appropriate for evacuation assistance and as necessary to report to receiving center--give location).
3. Delegate to one staff member in each area the responsibility of maintaining a resident head count.
4. Find out and arrange where evacuees are to go. Establish a liaison with administration of receiving facility.
5. Notify the ministry of Health Inspection Branch and other government departments as necessary.
6. Keep residents completely informed of the situation.

* In attendance were: Mr. Murray Diner (Committee Chairman), Administrator, Bestview Nursing Home, St. Catherines, Ontario, Canada; Mrs. Barbara McKenzie, Administrator, Mississauga Extendicare, Mississauga, Ontario, Canada; Ms. Dorothy M. Morgan, Special Writer, Dimensions in Health Service, Canadian Hospital Association; Mr. Gary Hilbert, Observer, NUS Corporation. This checklist reflects the work of Mr. Diner and Mrs. McKenzie (whose nursing home was one of those evacuated on November 11, 1979) as well as the administrators of other nursing homes that either evacuated or received evacuees. In its final version, it will be used by the Ontario Nursing Homes Association as a guide that nursing homes can use to assess their own evacuation plans.

7. Ensure those residents requiring special medical attention are designated to go to the appropriate facility. Ensure that sufficient medical documentation accompanies residents.
8. Ensure that all residents are individually tagged using ID bands and cross referenced with cardex and charts, individually identified including condition and diet.
9. Decide how individual residents are to be transported. If available use the most appropriate means of transportation (ambulances, buses, taxis, volunteers, vans, etc.).
10. Assign necessary (house) personnel to the appropriate means of transportation.
11. Assign personnel as appropriate to inform families of situation by telephone.
12. Ensure that families who decide to take responsibility for residents are properly informed as to the condition of the residents, receive the necessary medications and equipment, requested to leave a forwarding address.
13. Make a list by department of the necessary equipment to be evacuated.
14. Double check all evacuated areas to ensure they are cleared.
15. Restrict building to all unauthorized persons.

16. Assign personnel as appropriate to handle the telephone inquiries from families.
17. Ensure that families who decide to take responsibility for residents are properly informed as to the condition of the resident, receive the necessary medications and equipment, and requested to leave a forwarding address.
18. Ensure parking area is clear to allow for sufficient room for evacuating and emergency vehicles.
19. Ensure residents being evacuated are properly clothed and covered as appropriate.
20. Make final check of empty building to ensure that all appropriate equipment is turned off, heat is lowered, windows and doors closed and locked.
21. Ensure that all evacuated areas are sealed off, appropriately secured and barricaded as necessary.
22. Notify police that building is evacuated or with minimal staff on duty and vacant.
23. Post sign on door indicating whereabouts and phone number.

Returning to the Evacuated Facility

1. Facility must be inspected and approved for resident reoccupancy by appropriate individuals or authorities.
2. Notify Ministry of Health Inspection Branch about return.

3. Check all operational equipment, and air building out. If possible, arrange for a meal or snack for returning residents.
4. Notify families about time and date of return. Schedule readmission of residents who have been with families last.
5. Contact staff regarding scheduling for readmission.
6. Gather up all lists of residents and equipment to be returned.
7. Notify advisory and attending physicians of return time and date.
8. Designate a central control area for returning residents, staff, and equipment.
9. Control administrator or delegate to be responsible for returning traffic.
10. Double check and identify residents as they disembark from the various means of transportation.
11. Ensure checklists of residents and equipment are continually updated.
12. Ensure that residents and equipment are returned to appropriate areas.
13. Investigate missing items immediately.
14. Establish routine as soon as possible.

Equipment and Necessities to be Considered for Evacuation

1. Medications (carts, etc.)
2. Kardex or Resident Care Plans
3. Resident Medical Charts
4. Adequate blankets and bedding
5. Residents appliances as necessary
6. Residents personal clothing and grooming aids
7. Adequate supplies of food
8. Staff phone number lists
9. Family phone number lists
10. Adequate recreational supplies and physiotherapy equipment
11. Ensure that records and documents left behind are properly secured

Receiving the Evacuees

1. Phone all available staff and volunteers to report for duty. Plan to staff at higher ratios than normal. Do not solicit more help than required as that may lead to congestion.
2. Set up method to acquire alternate staff or volunteers, if necessary (nurses registries, Red Cross, Victorian Order of Nurses, etc.).

3. Organize the facility and equipment in preparation for the evacuees (if opportunity available).
4. Set up a central receiving desk to check in all residents and to allocate the appropriate receiving area.
5. Check in equipment received, record and allocate as necessary.
6. Ensure that all residents received are appropriately identified as to name, condition, and diet.
7. Delegate supervisory responsibilities to senior staff available.
8. Designate areas and responsibilities to all staff and volunteers.
9. Establish a care level for all residents received.
10. Notify advisory physician about the situation and quantity of temporary admissions.
11. Orient unfamiliar staff and residents to the facility and explain the necessary regulations.
12. Keep residents and staff completely informed of current status of evacuation.
13. Maintain as normal routine as is possible.

Dealing With the Media

1. Use local radio stations, community TV, and other forms of media to make announcements (inform community and obtain staff and volunteers as appropriate).
2. Designate one spokesman to deal with the media.
3. Instruct all staff to maintain complete confidentiality and refer inquiries to designated spokesperson.
4. Do not allow unauthorized persons in the building.
5. Ensure that factual statements are released to the media periodically only by the designated spokesperson.
6. Avoid irrelevant issues.

Evacuating the Facility*

1. Number of residents for stretchers--give name and room number.
2. Number of residents for wheelchairs--give name and room number.
3. Number of ambulatory residents--give name and waiting area.
4. Names of receiving facilities.
5. Number of residents they can receive.

* Sample checklist prepared by Mrs. Barbara McKenzie of Mississauga Extendicare Nursing Home and presented to the Safety Committee of the Ontario Nursing Homes Association for inclusion in the Committee's final checklist.

6. Services they can provide.
 - a. linen
 - b. laundry facilities
 - c. meals
 - d. medications
 - e. staffing requirements
 - f. nursing supplies
 - g. beds
7. Identification of residents.
8. Checklist of residents leaving building and destination.
9. Medications.
10. Charts.
11. Nursing care Kardex.
12. Physician available for medical emergency.
13. Staff planning for
 - a. evacuated area
 - b. in transit
 - c. receiving area (as required)
14. Arrange bus transportation.
15. Arrange ambulance.

16. Arrange for residents to go home to families where possible.
17. Take personal grooming aids and clothing as possible.

Appendix F

SAMPLE NEWS RELEASES

The following news releases and press conference transcripts are provided as samples of the media process at Mississauga.

<u>Exhibit Number</u>	<u>Subject and Date</u>	<u>Page No.</u>
1	Peel Regional Police (PRP) News Release No. 1: First re-opening order for the evacuated area, 11/13/79.	153
2	PRP News Release No. 3: Informational news release on the need to continue evacuation orders, for some areas, chlorine monitoring, and emergency medical centers for evacuees, 11/14/79.	155
3	PRP News Release No. 4: General information news release, 11/14/79.	157
4	PRP News Release No. 5: Technical information supplements prepared for the press, 11/15/79.	161
5	PRP News Release No. 6: Status report on removal of chlorine from the ruptured tank car, 11/16/79.	168

- 6 PRP News Release No. 7: 169
Third re-opening order and instructions
for returning evacuees, 11/16/79.
- 7 PRP News Release No. 9: 171
Status report on removal of chlorine
from the ruptured tank car, 11/16/79.
(More detailed than no. 6).
- 8 Transcript of news conference, 173
11/16/79. Speaking were: R. Roy
McMurtry, Attorney General and
Solicitor General of Ontario; Hazel
McCallion, Mayor of Mississauga; and
Douglas K. Burrows, Police Chief of
Peel Region.
- 9 Informational news release from Peel 185
Regional Health Unit, 11/15/79.



NEWS RELEASE

ORIGINATOR: (Name, Address, Phone)
Douglas K. Burrows, Chief of Police, Region of Peel,
Mobile Command Headquarters.

CONTACT: (Name, Address, Phone)
Superintendent K. Barnhart, Peel Regional Police Force
Staff Inspector B. V. King, Peel Regional Police Force
Emergency News Centre, Mavis Road.

RE: Mississauga Evacuation -
General

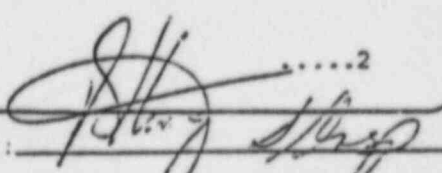
TO BE RELEASED

Date: November 13

Time: 11:15
32

A meeting was held this morning, Tuesday, November 13, at Mobile Command Headquarters, by senior officials of organizations involved in the Mississauga Train Derailment and subsequent evacuation. At a 1:15 p.m. news conference, the decision to allow some evacuated people to re-enter their homes was announced. All those residing east of Cawthra Road are being permitted to return home. All those living west of Erin Mills Parkway are being permitted to return home. Still under evacuation orders is the area bounded by Erin Mills Parkway on the west, Cawthra Road on the east, Burnhamthorpe Road on the north and Lake Ontario on the south.

Officials are hopeful that they will be able to narrow the remaining evacuation area in the near future, subject to further meetings among concerned agencies.

ORIGINATOR'S SIGNATURE: 2

The task of sealing the ruptured chlorine tank is ongoing and thus the potential escape of chlorine remains a concern. Further, officials are in the process of shifting the propane tanks. This operation involves a potential hazard because of pockets of propane which remain.

Go Transit will be operative through the Mississauga area, but WILL NOT stop in the area still under evacuation. Transit officials indicate, however, that this service will not be functioning for several hours.

The Peel Regional Police Force is appealing to members of the public returning to their homes, to do so with utmost safety and to obey all police directions.

Fire officials are advising the public to open their doors and windows for at least 15 minutes or longer, to allow possible accumulation of fumes within their premises to dissipate.

Bell Canada is advising that telephones are NOT to be used unless absolutely imperative, because overloading would severely impair emergency communication.

Officials stated that they were proud of the citizens in the affected areas, as well as all those who assisted, for their co-operation and contribution to this emergency.

- end -



NEWS RELEASE

ORIGINATOR: (Name, Address, Phone)
Douglas K. Burrows, Chief of Police, Region of Peel.
Mobile Command Centre

CONTACT: (Name, Address, Phone)
Superintendent Karl Barnhart,
Staff Inspector Barry King, Peel Regional Police Force.
Emergency News Centre, Mavis Road

RE: Mississauga Evacuation

TO BE RELEASED

Date: November 14

Time: 4:15 p.m.

Constant monitoring of air quality is continuing and extra measuring units and operators have been assigned to the populated areas.

The evacuated area bounded by Burnhamthorpe Road on the north, Highway 10 on the east, Lake Ontario on the south, and Erin Mills Parkway on the west will remain evacuated until Thursday, November 15, when the situation will be re-assessed and a decision made.

To this point, the effort to secure the chlorine tank with steel and rubber covers has not been completely successful.

A puff of vapour escaped from the Chlorine tank earlier today. From monitoring, it is apparent the vapour moved in a southerly direction from the site over the evacuated area. No change in the chlorine levels has been recorded.

ORIGINATOR'S SIGNATURE:

A handwritten signature in black ink, appearing to be "D. K. Burrows", written over a horizontal line.

Officials reiterated that the continuous air monitoring indicates there is no health risk in the populated areas.

Extra technical crews have been flown in and repair work on the chlorine tank car is being carried out continuously.

Dr. Andrew Sarne, emergency physicians director, Mississauga Hospital has established four emergency medical centres. Physicians will attend persons requiring urgent medical assistance who cannot contact family doctors living within the evacuated area.

The centres are located as follows:

- 1) Apple Hills Medical Centre, 1221 Bloor Street East, Mississauga. Telephone: 625-1241. Open 24 hours per day.
- 2) Dixie Road Medical Associates, 2200 Dixie Road, Mississauga. Telephone: 279-1700. Open 9:00 a.m. - 9:00 p.m.
- 3) Applewood Medical Associates, Applewood Village Shopping Centre, 1077 North Service Road, Mississauga. Telephone: 279-5942. Open 9:00 a.m. - 9:00 p.m.
- 4) Streetsville Medical Centre, 250 Church Street, Streetsville (Mississauga). Telephone: 826-1164. Open 9:00 a.m. - 9:00 p.m.

- end -



NEWS RELEASE

ORIGINATOR: (Name, Address, Phone)

Douglas K. Burrows, Chief of Police, Peel Regional Police Force,
Emergency Command Centre, Mavis Road.

CONTACT: (Name, Address, Phone)

Staff Inspector Barry King, Peel Regional Police Force.
Emergency News Centre.

**RE: Public Service -
Mississauga Evacuation**

TO BE RELEASED

Date: November 14 Time: 10:30 p.m.

MISSISSAUGA HYDRO

The City of Mississauga has been receiving telephone calls regarding the payment of hydro bills. Because of the evacuation, the City has granted an extension of several days on payment.

A skeleton crew is available for power-off calls; however, because of the limited number of trucks available, residents are asked to be patient. New service calls in construction and other areas will not be handled at this time because Mississauga Hydro Engineering is located in the derailment area.

CLAIMS

Concern has been shown regarding claims, predominantly involving loss of wages. Details of claimable losses have not, at this time, been determined.

ORIGINATOR'S SIGNATURE: _____

CH. 2
Barry King

FOOD AND WATER

Many citizens re-entering evacuated areas have questioned whether water and food are safe for consumption. Water is definitely safe to drink. The Poison Control Centre at the Sick Children's Hospital advises that, due to the limited concentrations of chemical pollution, it is unlikely that packaged foods have become contaminated. However, food left out should be discarded, since it is liable to be spoiled through natural processes.

COURT CASES

Court cases scheduled to be heard in Hensall Circle Provincial Court, Tuesday, November 13th, have been remanded for other dates. Information concerning the new dates can be obtained by telephoning the Provincial Courthouse on Clarence Street in the afternoons, at 451-7551.

TENDERS

Tenders due at Mississauga City City Hall this week have been extended for one week from the date due.

ANIMALS AND OTHER PETS

The City of Mississauga has one animal control truck on standby to respond 24 hours per day anywhere in Mississauga, to cases of animals struck by vehicles.

Animal Control can be reached through the main switchboard at the City of Mississauga, 279-7600. Pet injury cases can be reported either through that same number or at the Clarkson Yard, 823-6660.

Evacuees can attend at Mississauga City Hall to provide authorization to Humane Society personnel to enter their homes and feed the pets. Residents are asked to leave a key with the Humane Society for this purpose and to advise the last time their pets were fed and watered. Society members will be accompanied by a Police Officer. They will only remove an animal if it is in distress, and if removal would be in the animal's best interests. People who have left keys with the Humane Society and whose animals have already been assisted can pick up their keys from City Hall.

SCHOOLS AND LIBRARIES

All schools within the restricted area are closed. In addition, Streetsville Secondary School is closed. There are no school buses running in the City of Mississauga and residents can tune into Cable 10 TV for more information.

All public libraries within the restricted area are closed. These include the Clarkson-Lorne Park Library, Central Library, Port Credit Library and the Woodlands Library.

Public Service - Mississauga Evacuation...November 14...News Release #4

The restricted area currently is the area of the City of Mississauga bounded by Burnhamthorpe Road on the north, Highway 10 on the east, Lake Ontario on the south, and Erin Mills Parkway on the west.

ENVIRONMENT INFORMATION

Persons in the Mississauga area requesting information on environmental conditions should call 424-3000 for 24 hour information from the Provincial Ministry of the Environment.

MISCELLANEOUS INFORMATION

The following general enquiry lines are available for citizens:

City of Mississauga - 279-7600
Region of Peel - 457-9400

EVACUATION CENTRE INFORMATION

The Red Cross and Salvation Army are both providing assistance to evacuees. Information concerning clothing, food and counselling can be obtained as follows:

Red Cross - 923-6698
Salvation Army - 671-0149

- end -



NEWS RELEASE

ORIGINATOR: (Name, Address, Phone)

Douglas K. Burrows, Chief of Police, Region of Peel
Emergency Mobile Command Centre, Mavis Road

CONTACT: (Name, Address, Phone)

Superintendent K. Barnhart, Peel Regional Police Force
Staff Inspector B. King, Peel Regional Police Force
Emergency News Centre, Mavis Road

**RE: Mississauga Evacuation -
Technical**

TO BE RELEASED

Date: November 15/79 Time: 7:00 p.m.

A technical briefing was held by experts involved in the 'clean-up' of the train derailment.

Details are attached.

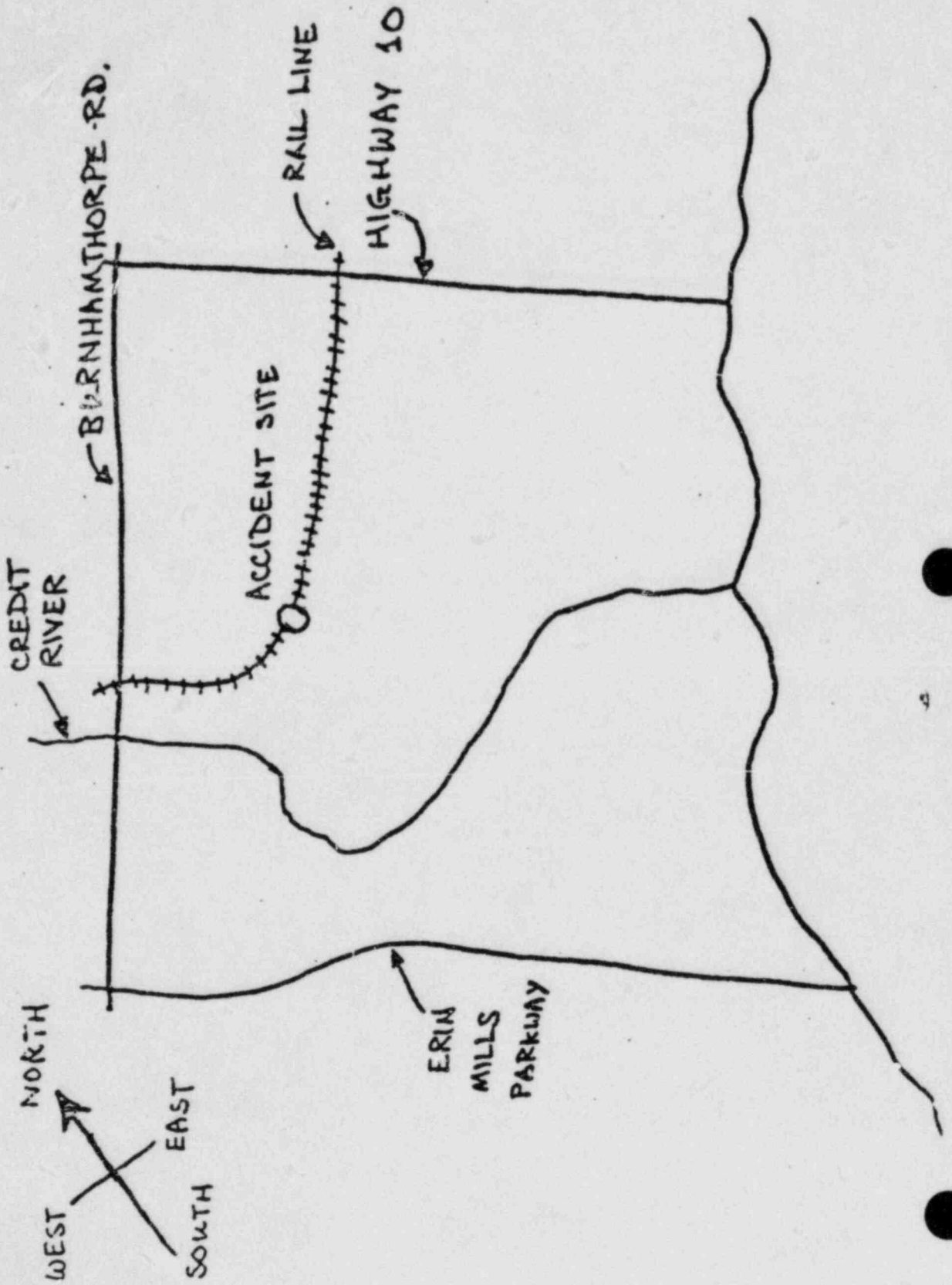
- end -

N.B. The attachments were provided to the news media at the time of the briefing.

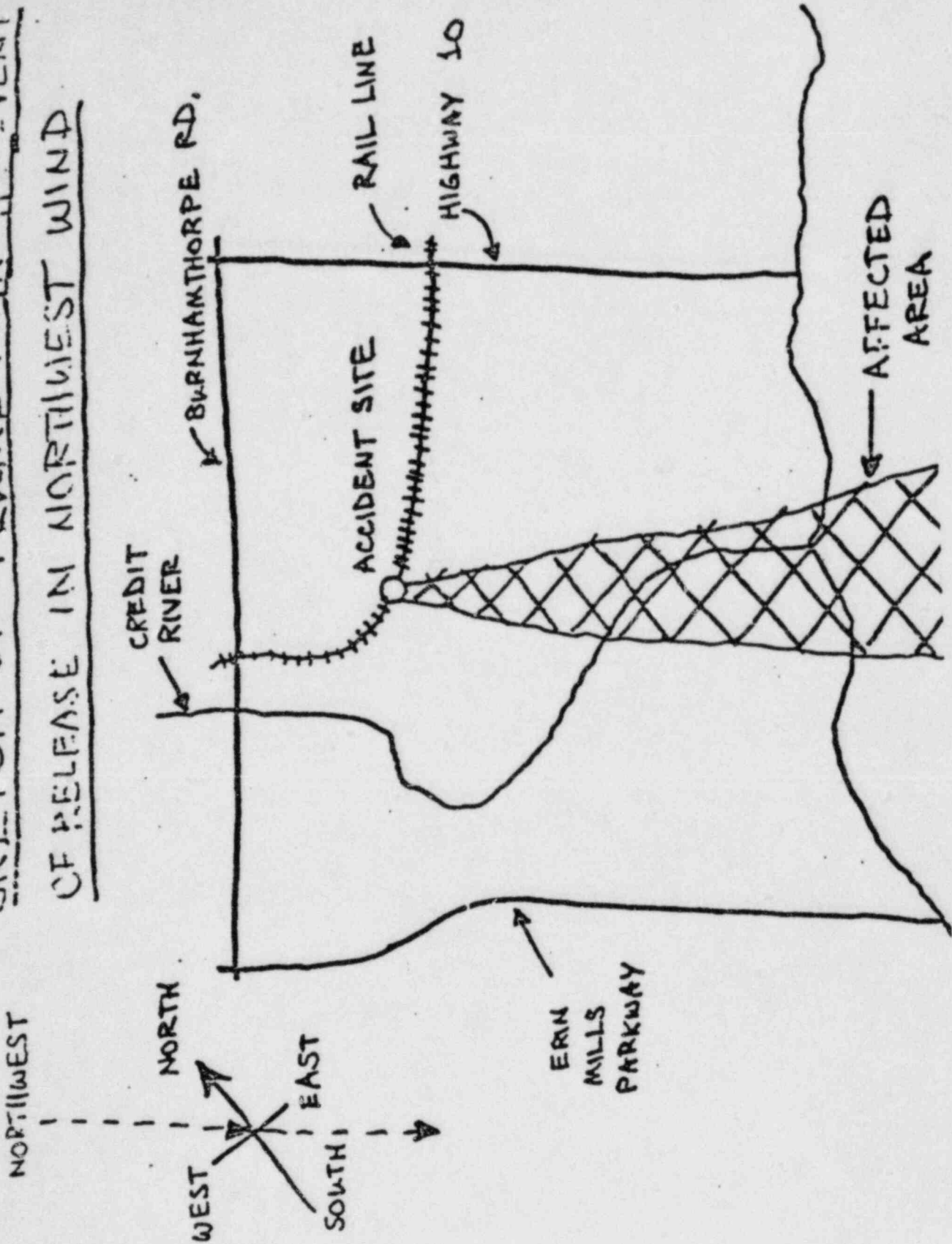
ORIGINATOR'S SIGNATURE: _____

A handwritten signature in dark ink, appearing to read "Douglas K. Burrows".

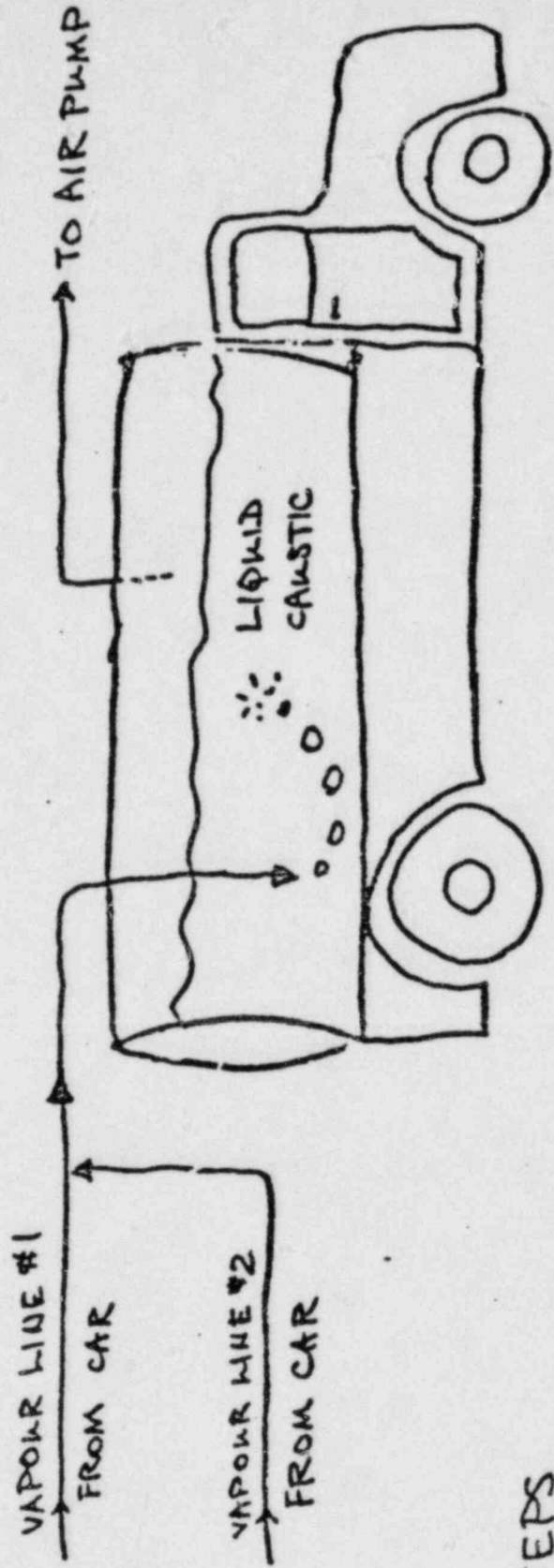
SKETCH OF EVACKATED AREA



SKETCH OF PLUME PATH IN EVENT
OF RELEASE IN NORTHWEST WIND



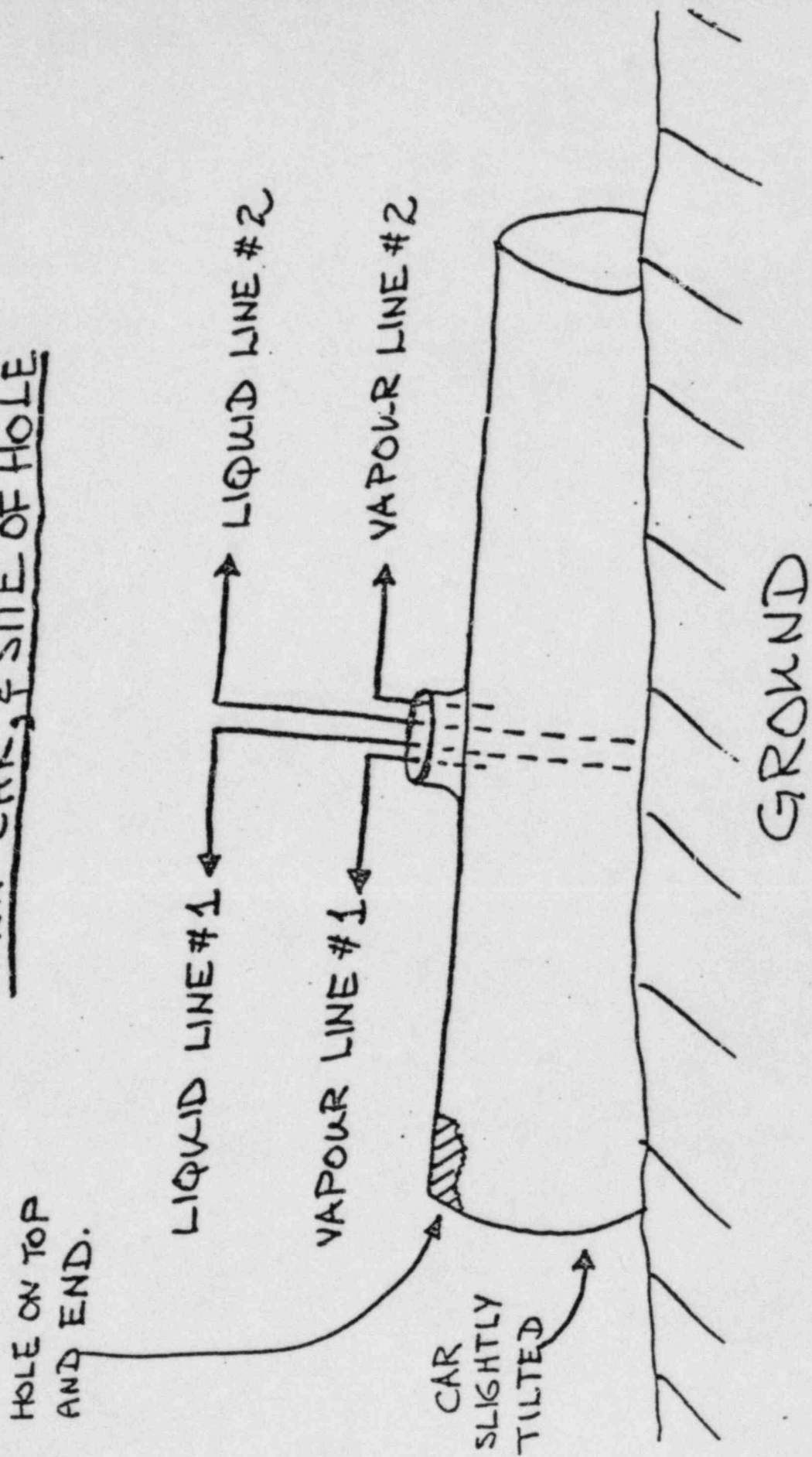
STAGE 1 EVACUATION
OF CHLORINE TANK CAR



STEPS

- 1) CHLORINE VAPOUR IS SUCKED THROUGH LINES INTO TANK TRUCK FULL OF LIQUID CAUSTIC
- 2) CHLORINE IS NEUTRALIZED BY CAUSTIC
- 3) VACUUM IS MAINTAINED BY PUMP SUCKING ON VAPOUR.

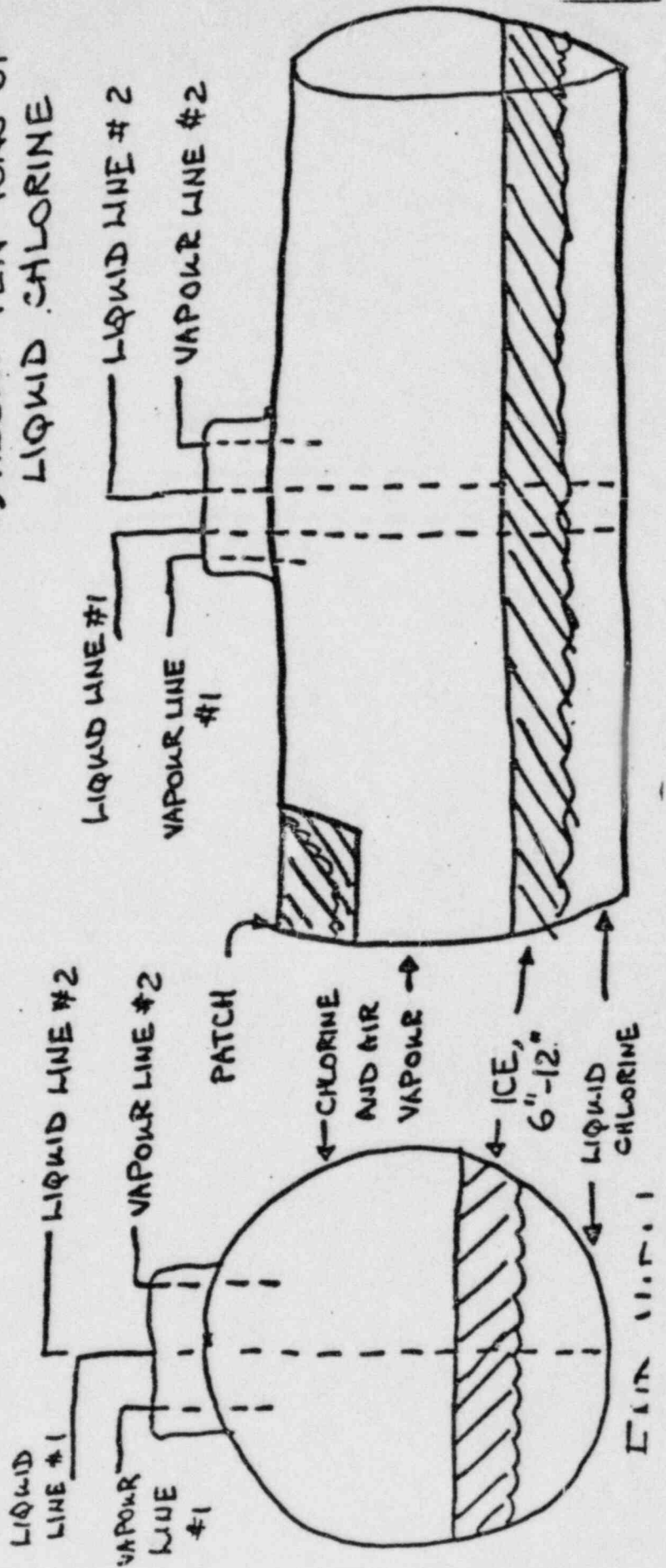
ORIENTATION OF
THE CHLORINE
TANK CAR, & SITE OF HOLE



MATERIALS IN THE
CHLORINE TANK CAR WHICH

NOW REMAIN:

- a) VAPOUR
- b) ICE, 6"-12" THICK
- c) ABOUT TEN TONS OF LIQUID CHLORINE



EFFECT OF CHLORINE RELEASES AT VARIOUS LEVELS

NORMAL BACKGROUND — LESS THAN — 0.001 P.P.M.

DISCOMFORT LEVEL — 0.01 P.P.M.

ACCEPTABLE WORKPLACE EXPOSURE — 1.0 P.P.M. FOR
8 HOURS

HEALTH THREAT THRESHOLD LEVEL — 30 P.P.M. FOR
15 MINUTES

ACUTE DANGER TO HUMAN LIFE — 900 P.P.M.



NEWS RELEASE

ORIGINATOR: (Name, Address, Phone)

Douglas K. Burrows, Chief of Police, Region of Peel,
Mobile Command Headquarters.

CONTACT: (Name, Address, Phone)

Superintendent K. Barnhart, Peel Regional Police Force
Staff Inspector B. V. King, Peel Regional Police Force
Emergency News Centre, Mavis Road.

RE: Mississauga Evacuation -
General

TO BE RELEASED

Date: November 16 Time: 11:20 a.m.

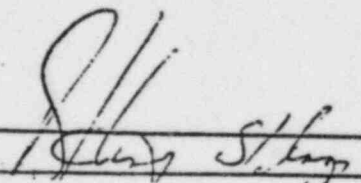
Liquid chlorine has been transferred from the railway tank car since 11:00 p.m., November 15 and is continuing.

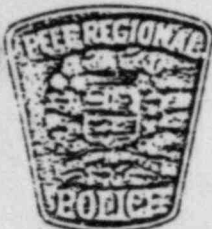
Generally, the transfer has proceeded smoothly.

X-rays of the rail car and the tank truck receiving the chlorine are being taken to determine the amount of liquid in both vehicles.

Additional transfer equipment is being put into place and an updated weather forecast is being prepared.

A full statement is expected early this afternoon.

ORIGINATOR'S SIGNATURE: 



NEWS RELEASE

ORIGINATOR: (Name, Address, Phone)

Douglas K. Burrows, Chief of Police, Region of Peel
Emergency Mobile Command Centre, Mavis Road

CONTACT: (Name, Address, Phone)

Superintendent K. Barnhart, Peel Regional Police Force
Staff Inspector B. V. King, Peel Regional Police Force
Emergency News Centre, Mavis Road

RE:

Mississauga Evacuation -
General

TO BE RELEASED

Date: November 16 Time: 2:55 p.m.

Significant progress has been made in the removal of chlorine from the damaged railway car.

The evacuated area is being substantially reduced.

Residents in the area west of the Credit River and south of the Queen Elizabeth Way may return to their homes immediately. This re-entry means that about 56,000 residents may return to their homes.

Because some chlorine remains in the tank, it is necessary to continue the evacuation of the area closest to the accident site.

The area remaining under evacuation is bounded by Burnhamthorpe Road on the north, Highway #10 on the east, the Queen Elizabeth Way on the south, and the Credit River on the west.

This means that approximately 33,000 residents will have to remain evacuated from this area of Mississauga until further notice.

...2

ORIGINATOR'S SIGNATURE

In addition to the reopened area, the Queen Elizabeth Highway east and west and Mississauga Road will be opened to traffic immediately.

The Peel Regional Police re-emphasize earlier appeals to residents to use utmost care and safety in returning to their premises, obeying police direction and to open their doors and windows for at least 15 minutes in order to allow any accumulated fumes to dissipate.

The areas to be reopened are being continuously monitored by Environment Ontario and only normal background levels have been detected overnight and today. Monitoring will continue as residents re-enter. Monitoring is also continuing in the remaining evacuated area.

Returning residents are advised to call the Ministry of the Environment at 424-3000 to report unusual odours or environmental conditions. Slight odours may be expected, the Ministry advises.

- end -



NEWS RELEASE

ORIGINATOR: (Name, Address, Phone)

Douglas K. Burrows, Chief of Police, Region of Peel
Mobile Command Headquarters

CONTACT: (Name, Address, Phone)

Superintendent K. Barnhart, Peel Regional Police Force
Staff Inspector B. V. King, Peel Regional Police Force
Emergency News Centre, Mavis Road

RE:

Mississauga Evacuation -
General

TO BE RELEASED

Date: November 16

Time: 7:40 pm

An advance in the draining of the Mississauga Chlorine Tank makes it possible for all residents in the remaining evacuated area from the Credit River to Highway #10 and south from Burnhamthorpe Road to the Queen Elizabeth Way to return to their homes immediately.

The Committee announced this long-awaited decision at 7:30 p.m. following a series of intense checks of the area.

At approximately 6:00 p.m., the vacuum pump draining the chlorine tank began drawing vapour instead of liquid chlorine from the derailed tank.

The evacuated area to the south-west of the derailed area was monitored for chlorine by the Ministry of the Environment and this check of the immediate area was completed by 7:20 p.m.

Only trace levels were detected indicating the area is virtually free of chlorine.

ORIGINATOR'S SIGNATURE: *[Signature]* ...2

Residents are advised that there is still a possibility that some minor concentrations of chlorine may escape from the tank as the pump continues to draw off vapour for safe disposal.

Environment Ontario will continue close monitoring of the area south-west and closest to the derailment site and in the direction of existing winds, in addition to its ongoing special monitoring program.

Removal of remaining chlorine from the tank will continue under strict monitoring and precautions intended to ensure continued safe operation of the final stages.

Peel Regional Police and the Ontario Provincial Police will be standing by to alert residents in the event of unusual changes in the removal work.

The Peel Regional Police re-emphasize earlier appeals to residents to use utmost care and safety in returning to their premises, obeying police direction and to open their doors and windows for at least 15 minutes in order to allow any accumulated fumes to dissipate.

Returning residents are advised to call the Ministry of the Environment at 424-3000 to report unusual odours or environmental conditions. Slight odours may be expected, the Ministry advises.

- end -

EXHIBIT 8

NEWS RELEASE

Ladies and Gentlemen:

We have some more positive news in as much as we believe that significant progress has been made with respect to the removal of chlorine from the damaged railway car and as a result the evacuated area has been substantially reduced.

The residents west of the Credit River and south of the Q.E.W. may return to their homes immediately and this re-entry means that 56,000 residents may return to their homes.

Some chlorine remains in the tank which means it will be necessary to continue the evacuation of the area closest to the accident site and I want to remind you that the area remaining under evacuation is bounded by Burnhamthorpe Road on the north, Highway #10 on the east, the Q.E.W. on the south and the Credit River on the west. This means that approximately 33,000 residents will have to remain evacuated from this area of Mississauga until further notice.

In addition to the reopened area, the Q.E.W. east and west will be open to traffic immediately (and Mississauga Road will be opened to traffic - Staff Inspector B. King).

The Peel Regional Police re-emphasize earlier appeals to residents to use utmost care and safety in returning to their premises, obeying police direction and to open their doors and windows for at least 15 minutes in order to allow any accumulated fumes to dissipate.

The areas to be reopened are being continuously monitored by Environment Ontario and only normal background levels have been detected overnight and today. Monitoring will continue as residents re-enter. Monitoring is also continuing in the remaining evacuated area.

Returning residents are advised to call the Ministry of the Environment at 424-3000 to report unusual odours or environmental conditions. Slight odours may be expected but there is no cause for alarm.

In earlier press releases we indicated that x-rays were being taken and we were waiting for the results of these x-rays. The x-rays are not as hopeful as we had hoped. There are some gamma-type x-rays that provide some assistance but what is more important than this information, and while we are disappointed that the x-rays are not of greater assistance, we can emphasize that the liquid has been flowing smoothly from the tank for some 14 hours.

Engineers and chemists report that 14 or 15 tons have been removed in that time. We are of the view that as of last night when this operation commenced in relation to removing the liquid chlorine, approximately 20 tons remaining at that time and our approximate estimate of our engineers and chemists is that some 75% of that has been removed.

We were concerned about anything that might have happened. We felt that any risk caused in relation to this could cause a commotion.

As well as the liquid chlorine being drained, we are continually vapourizing the tanks.

Following the announcement of our press conference, we will make our officials available to you for a more exacting briefage for those interested.

The tank will continue to be monitored closely. The buffer zone must be monitored. We are hoping to remove the liquid to a very low level. Four and a half inches (4 1/2") remains in the tank. We hope that within

the next seven and a half hours we will be in the last stage which will be a vacuuming of the vapour and, of course, when we reach that point we will have another announcement at 6 or 7 p.m. tonight which will mean a more positive announcement for the residents remaining in the zone.

Mayor McCallion

We will be transporting those accommodated in hotels back to the International Centre and will be taking them back to their homes by Mississauga Transit.

Those who are in homes or other accommodation in the evacuated area that remains will you please hold for further announcements until this evening.

We are arranging for the International Centre to remain open tonight so that if there is a situation that may arise with announcements later, accommodation will be provided.

Concerning the wild rumours going around that this could have been solved easier, I want to assure the residents that nothing has been withheld from them. We have done everything to advise you of the situation. City Hall will be open all night and the Ministry of the Environment will be in the area all weekend. We are doing everything possible to help you.

Chief D. K. Burrows

We have had very few problems thus far. I would like to thank the citizens of the community. Those still evacuated please cooperate and understand.

Fire Chief Bentley

The residents moving in and the rest of the residents of Mississauga, I ask that they take extreme caution as far as fire is concerned. Be fire conscious. We have all of the City covered. We have been effectively operating two fire departments for two weeks and have some very tired people and we have to be very fire conscious for a few days.

Attemen
Assistant General McMurtry

We have made very important decisions in the past few days and every decision to date has been made on a unanimous basis and this should be emphasized. I have been impressed with the effectiveness of the local authorities and the way in which they have worked with our ministries and hope this will continue.

Question and Answer Period

Question: When was this information given out?

Answer: McMurtry - When we sat down at this table.

McMurtry

Make sure that the areas are west of the Credit River, south of the Q.E.W. that may return to their homes immediately.

The area remaining under evacuation is Burnhamthorpe Road on the north, the Credit River on the west and Highway #10 on the east, and the Q.E.W. on the south.

Question and Answer Period

Question: This information has been public acknowledgement for one hour now.

Answer: McMurtry - It was not public knowledge. We gave out no information. Our senior engineers and experts on the job only left minutes before we came down to join you. We were hoping that x-rays would give more positive confirmation of the matters outlined and after reviewing it very carefully with them and with respect to the buffer zone, it was only at that time we gave it out.

We were concerned that it is still possible to cause a splash but the significance of the splash will be reduced. Cannot say precisely but approximately by 75%.

Question: Could a puff reach the evacuated areas?

Answer: McMurtry - No. The wind direction is actually east towards the northeast and the next question is "Is there a risk to the residents east of Highway #10?" The risk is very minimal but we cannot say that it does not exist and obviously we will be monitoring that area very carefully and the police as well.

Question: What happens if a puff does reach that area?

Answer: McMurtry - Police cars that are there now would be patrolling the streets with loudspeakers advising the residents immediately to close their windows and doors and stay inside.

Question: At 6 or 7 p.m. what do you expect to announce?

Answer: McMurtry - If at that time all the liquid chlorine is gone then there would be a full return of the residents at that time.

We hope to have an almost full return before the evening is out. There will be a small amount of chlorine that will remain but we think that the system which will remain at that time (vapour) will allow an almost full return.

Question: What do you mean by 'an almost full return'?

Answer: McMurtry - There is going to have to be some area that is going to have to remain evacuated within the next 2 or 3 days.

Question: Is the whole Q.E.W. going to be open?

Answer: McMurtry - Yes.

Question: If the estimate is now 5 for the chlorine in the tank, then in effect the reduction is only by 50%?

Answer: McMurtry - We did learn in the past 14 hours that there was much more chlorine in the tank but the technical people will go into this. We are in a position now to reduce the area to the point that has been announced without exposing the citizens returning to these areas to any unnecessary risk.

Question: Are you proceeding with less action than before?

Answer: McMurtry - No. It certainly is a misunderstanding of the way we have been conducting ourselves.

The early hours of the procedure was the period of time that concerned us the most. We thought if it went smoothly within that period of time there would be no threat in continuing that procedure. We felt that the first 8 or 10 hours was the most critical time and that is why we waited for that period of time.

Question: Is wind blowing into the northeast?

Answer: McMurtry - East/northeast.

Question: What do you think the Mississauga people and you have learned from this experience and what are the long term effects?

Answer: McCallion - We have learned a lot. The representatives in Ottawa, Mr. McMurtry, the Federal Government and the City of Mississauga is going to be involved in the terms of reference to be dealt with at this inquiry.

McMurtry - I want to emphasize that the Mayor has already stated no inquiry will begin until full consultation has begun.

McCallion - I sent a brief to the government in June of this year as I have been concerned for some years. There has to be more control and if the municipality is where the action takes place, if anything is going to happen, it does not happen in Ottawa or Queen's Park and, therefore, we are the ones who must face the problem. Therefore, we had better be involved. That is one thing that will come out of this incident. Municipalities will be playing a more major role in this item.

McMurtry - I want to make one more point as far as the position now of the citizens in this community east of Highway #10 when we indicated the possibility of some slight emission with the wind. With the amount of vacuum equipment now in place in the event of an emission, the amount of emission that could happen compared with yesterday is totally different. While there is still a risk of some emission, it is controlled to a very large extent by the nature of the equipment there and it will be

very slight indeed. I do not want to cause any unnecessary alarm to the citizens east of Highway #10. You will have an opportunity in a few minutes to have further briefing. I am now told that the technical briefing is scheduled for 4:00 p.m. You have the benefit of some more documents which many of you will find useful.

Question: Is one of the reasons why you are staging re-entry due to traffic problems?

Answer: McMurtry - Absolutely not. We have tried to make it clear that the re-entry is on the basis of the safety of the people who are invited to re-enter and the movement of traffic in our view is in no way affecting our decisions regarding the health of the citizens of this community. The element of risk is related to the amount of chlorine still there. It is in the interest of the health of the people in the buffer zone, the zone that is still evacuated. It is in the interest of their health and no other reason.

We do urge you to communicate our concerns and our health related concerns as far as maintaining the evacuated area that it is not to stage any orderly return because it does not happen to be related at all to our decision and it would only make them feel that they are being kept out to ease the re-entry of others and thus could create a great deal of disturbance.

Question: You said earlier the wind is now from the west. Weather office people expect winds from the southwest. How would the people be affected between Highway #5 and the buffer zone?

Answer: McMurtry - Wind is only one factor and I think it is important that some of these questions be reserved for our technical advisors.

Question: Surely the reasons have been for means of easy evacuation?

Answer: McMurtry - Obviously you have to draw the line somewhere and any time you draw a line people ask why they are being treated differently than the other site. You have to draw a line somewhere and we are drawing the best possible line given the advise.

Question: What is the crime prevention, B & E's, roadblock violence?

Answer: Burrows - As of this morning we have only had 28 reported B & E's which is significantly less than we would have in a normal five day period. As a matter of fact, in the three day period in the week previous, we had 27.

We have one criminal negligence charge; one assault - police case; numerous assaults - far too many for my liking during the period of a year. I am talking about those related to this evacuation. One charge of drunkenness, 4 B & E's - 3 charged for 5 counts. All of the charges are related to this incident.

Question: Do you expect people to report more as they come home?

Answer: Burrows - Probably but hopefully it will not be higher than normal.

Question: Was an officer hurt or was he hit by a car?

Answer: Burrows - Not hurt seriously at any rate.

Question: Was he hit by a car?

Answer: Burrows - Not going into details.

Question: Was he taken to Peel Memorial Hospital?

Answer: Burrows - Do not know.

The Mayor said that she would like more questions concerning other incidents and not to stick to the one point. Ask questions as to how we might look after them in case we cannot handle it. There are garbage pick-up problems. Stores are open and are staying open extra hours for the people. If you have left food out of the fridge, check it first or throw it out. The Ontario Humane Society has been very helpful. City Hall has been receiving calls and people have been leaving their keys for the Society. If you have a question or concern, your question will be recorded and we will have a talk with all those involved in the decision-making.

We will be discussing with legal profession regarding any advise that the citizens may ask so that they do not go out and get their own lawyer. Just another service that we are providing.

Question: Would legal services be free?

Answer: McCallion - I have confidence that it will be free of charge.

Question: Was the police authority sufficient?

Answer: Burrows - We would like more clearly defined powers. Would like to see more clearly defined laws giving the police more power. I think there will be some discussion. I was pleased with the way the evacuation went, but was disappointed that some people did not believe it to be a serious situation.

McMurtry - This is a personal observation. I think the citizens of the western world have become aware of what a fine and magnificent Police Department we have in Peel Region. I am not sure that many people are aware of the Fire Department in

Mississauga. The residents know this but personally I have been greatly impressed by the dedication of the firemen. I am proud to be associated with your forces. The dedication of the men has been absolutely remarkable.

Fire Chief Bently

Our people appreciate your kind words. On the question of the gas being shut off to certain areas. The only area ^{of gas-shutdown} ~~evacuated~~ was south of Burnhamthorpe and down to Dundas because lines had travelled ^{underneath rail lines} and we requested these be isolated. The propane that was in the buildings downstream at times did not present a very serious hazard around Mavis Road. Consumers Gas is ready as soon as it is safe to test the line. As soon as the test is completed, the buildings will have to be aired out, gas will have to be checked. Each and every building will have to be checked out before gas can be put on.

Question: Before an inquiry gets underway I am sure residents of Mississauga would be interested to see if the municipality or province has taken any action in the interim?

Answer: McMurty - We do not have anything specific to relate at the moment. Have related to my colleagues and the Government of Ontario that we have to explore the situation immediately. There are many people who feel that some changes should be made and we will be exploring ^{with} any interested ministries and the Federal Government because some of these issues obviously have to be addressed before the inquiry.

Question: Who is footing the bill?

Answer: McCallion - As far as I am concerned the taxpayers will not pay for this bill. Every investigation will be made and naturally we will have to await the outcome of the inquiry.

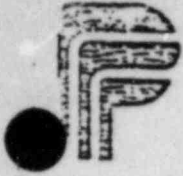
My residents, the citizens of Mississauga, are not going to pay for this incident.

McMurtry - Hopefully there may be some people who will accept liability.

Question: Do you have a ballpoint figure on what this is going to cost?

Answer: McCallion - No.

McMurtry concluded the press conference.



Peel Regional Health Unit

November 15, 1979

PRESS RELEASE

The Health Unit has received numerous calls concerning the safety of food in the areas where people have returned home and in the evacuated areas.

There is absolutely no concern for the safety of food and possible contact with chlorine gas. Residents should be advised that foods in their homes, gardens and on balconies are safe.

There is concern for perishable foods such as meat, poultry, dairy products and cream filled goods which may have been unrefrigerated. These items should be discarded.

Lillian Cherkas

Lillian M. Cherkas, M.D., D.P.H.,
Medical Officer of Health

Appendix G

A PERSONAL ACCOUNT OF THE ACCIDENT AND EVACUATION

(The Randall Family)*

Thought you would be interested in what we felt about the accident and our reactions at the start.

We had gone to bed on Saturday, early as Gray and Andrew had to go to a hockey practice at 7:45 which usually means getting up at 6:30. Must have just dropped off to sleep when I awoke to bright orange lights in our bedroom. Presumably the first explosion woke me up. Our bedroom does not face the area of the derailment, so you can imagine how bright the fire was. Then two lights died down and I thought of car lights shining in the window and then even a UFO. Sounds daft, but I did. There was a raring sound which seemed to get louder and then die down a little, and then get louder again. I said to Gray that I thought there was a plane in dreadful trouble and he thought so too. A few minutes later the orange lights started up again and the roar was louder and louder. I got up, opened the window and looked out. The whole street was orange and still the noise grew louder and the light brighter and brighter. I said, "Gray, I think the aircraft is going to crash on to Cedar Glen Gate." I convinced myself that an aircraft was coming very low over the house and that the lights were its landing lights. Then Gray left the window and started opening the bedroom door when the second explosion came. It blew the drapes up into the bedroom and the door was blown shut and Gray fell over.

* This appendix is an excerpt from a personal letter from Pam Randall (November 27th, 1979) to Frank Quinn, NUS Corporation.

After that I started shaking like a leaf and went to the other side of the house as of course there was no sign of anything crashing at the front of the house. I ran down to Dad's bedroom and told him of the plane crash and looked out to see fire leaping hundreds of feet into the sky and a ghastly cloud of black, black smoke. Dad thought we were having a severe thunderstorm and that a meteorite had struck somewhere. I went up to the living room where Gray was and he had drawn back the drapes to see the fire. Then the sky lit up again and we had the third explosion. I would say it was the loudest and the windows rattled and the house vibrated. By then I was in quite a state with my imagination running riot and with the visions of bodies and bits flying around the neighborhood!! Gray went outside and talked to neighbors. I put my head outside and noted liquid droplets falling from the sky--knew it could not be rain, and am still not sure what it was. Then I put on CFRB station and immediately heard that it was a train derailment on Mavis that propane gas tanker cars were exploding. I called out to people what it was and Gray came back in and we listened. There was no mention of a chlorine tanker car.

We listened to the radio until about 1:00 a.m. and went back to bed. Knowing that there was the possibility of evacuation of people within half a mile radius. Gray reckoned we are about that. At about 3:30 the odd siren started sounding and Gray got up and looked out of the window. Could see nothing, but we decided that maybe the police were trying to tell us something, so we dozed lightly when suddenly, about 15 minutes later, the night was just sirens and sirens and flashing lights. I got up this time and looked out and there were cruisers everywhere and cops walking around. I decided this was it, we were being asked to get out, turned on the radio to

hear we were in fact to be evacuated, got dressed. We woke up Andrew and Wendy, who I might add, slept through the lot got Dad up and dressed and we left. Gray asked the police woman what else had gone up and she told us the truth. There were cops up and down the road, banging on doors and shouting down loudspeakers that "everybody on Stainton Road must evacuate their homes immediately." We went over to Square One which was the first evacuation centre set up. We had to go an awfully long way there--out on to Dundas, right to Wolfedale down to the Queensway. Left on the Queensway to Highway 10, up Highway 10 to Burhamthorpe and into the Mall. We got there about 4:20, signed in with the Red Cross and there we stayed. In no time I found myself being interviewed by somebody from a Hamilton radio station. Everything ran smoothly at the Centre, the Mayor arrived with the people, and there was coffee, milk, juice, donuts, pablum, baby feeding boxes and loads and loads of diapers.

We asked a policeman when he thought we could go home and he said by 4:00 p.m. We left at 7:00 a.m., signed out with the Red Cross to let them know we would be leaving for Niagara Falls, and left for McDonald's for breakfast and then on to the Falls where we thought we would spend the rest of the day and then go home by nightfall. By the time we set off the radius of evacuation had widened considerably and as we drove down the "Queen E" heard that Mississauga Hospital was getting ready for evacuation. Then all the way to the Falls, we had ambulance after ambulance go by, lights flashing and sirens going. As the day went on we began to realize that we would have to stay in N. F. for at least, so we went out to buy toothbrushes. Well, that's how it went on until at least 7:45 p.m. on Friday night 17th November. Roy McMurtry, the Attorney General finally allowed all of us to come home!

We are quite amazed at how everything worked out. Of course, the secret of the success of the evacuation was the fact that it was carried out area by area. The firefighters, police, Red Cross, etc., etc. did a superb job. There were 19 agencies involved in all the decision making etc., etc., - it's very hard to be able to believe them all, but they all did a marvelous job. I might add though that had the population not cooperated in the positive fashion that it did, the job couldn't possibly have run as smoothly as it did.

Well, there's the story. It was too lengthy to tell you on the phone when you called the day after we got home.

We will not be claiming for out of pocket expenses. Would have had to buy food anyway and new toothbrushes would have soon been needed. Also, underwear, socks and pantyhose. People have claimed many hundreds of dollars and I feel a lot have just cashed in on the whole deal.

Appendix H

PATHOLOGICAL EFFECTS OF CHLORINE

"Chlorine is so toxic that its maximum allowable concentration in air for prolonged breathing is 0.35 to 1.0 parts per million (ppm). Concentrations of 40 to 60 ppm are dangerous for even short exposure, and a concentration of 1,000 ppm (0.1%) is invariably and rapidly fatal." (Source No. 1, p. 430). The effect of gaseous chlorine on the human body is that of a powerful irritant to moist tissues, notably eyes and lungs. It reacts quickly with the water in moist living tissue to produce hydrochloric acid, and nascent oxygen (O) which is far more active chemically than the molecular oxygen (O₂) in air. The result is rapid oxidation of the linings of the lungs, bronchi, and trachea. Destroyed cells are sloughed and plasma released leading to a buildup of fluid in the lungs. Some of the fluid and sloughed cells may combine to form a membrane that further interferes with lung function.

The destruction of tissues is far more a result of concentration than of duration of exposure. At high concentrations, in other words, even a brief exposure is enough to set off reactions that can, taken together, lead to death. Effects are massive: destruction of lung tissue leads to impaired O₂-CO₂ exchange and a shortage of oxygen in the blood; loss of fluid from the blood increases the blood's viscosity and puts a strain on the victim's heart; and even if heroic medical measures can compensate for loss of lung function, the victim can develop brain and kidney damage, and pneumonia.

The physical dangers of chlorine are compounded by its behavior when released. Heavy gases, like chlorine, ammonia, and natural gas, which are stored and transported as liquids will, when released, boil off even at low temperatures.

(Chlorine's boiling point is -34.4° Celsius or -30° Fahrenheit). Because its mass weight is roughly 2.5 times that of air a cloud of chlorine will "slump" following the contours of the terrain as it drifts and disperses. It was these properties, its deadly effect and its tendency to stay near the ground, that led to its use as a war gas in the First World War.

On the 22nd and 24th of April 1915, German forces released a total of about 168 tons of chlorine along a four mile front at Ypres, Belgium. This first use of a toxic gas in warfare resulted in some 20,000 casualties, including about 5,000 immediate fatalities, when the cloud fell on unprotected troops.

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