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## ARCHIVÉE - Contenu archivé

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Emergency Preparedness  
Canada

Protection civile  
Canada

1979 WOODSTOCK TORNADO

Emergency Communications Research Unit  
Carleton University  
Ottawa

QC  
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.C2  
A15  
1979

Canada

1979 WOODSTOCK TORNADO

Emergency Communications Research Unit  
Carleton University  
Ottawa

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## Preface

Since 1973, the Emergency Communications Research Unit (ECRU) at Carleton University has been involved in the study of human behavior in various kinds of crisis situations. Its studies, most of which have been published, have covered everything from murders and hostage incidents, fires and snow storms to a cyclone, a flood, a strike, a building explosion, a mudslide, a chemical accident and a windstorm.

Usually, it has been ECRU's custom to arrive in the affected area immediately after the crisis (or even while it was still going on). The data would then be gathered both through interviews with persons actually affected (gathered through a sample) and with officials. Occasionally - as was the case this time - the data has been gathered some time after the event and sampling techniques have not been used.

Whichever method was followed, ECRU has, over the years, gathered a fair amount of data about Canadian community emergencies and has, inevitably, reached certain conclusions about the meaning of that data. One of those conclusions is that the ability of a community to respond effectively to an emergency will be improved with planning.

As the readers of this report will discover, many of the people in Woodstock, Ontario, a community which experienced a major emergency in the summer of 1979, do not share ECRU's view about emergency planning. Woodstock has no general emergency plan and many felt this was as it should be:

...no planning can be done. You have to take it as it comes.

..every emergency is different. I'm not convinced we could have done any better if we had had a plan.

...everything went off so darned good, something had to be right.

We worked together but there was no official co-ordination. It worked out good.

Those attitudes explain why Woodstock had no formal plan or emergency planner before the summer emergency and why not too much has been done about overall community emergency planning since the summer experience.

In an attempt to give those views a fair hearing and to provide an accurate basis for discussion, this report first outlines the background to the Woodstock situation, then the events as they occurred. It also tried to assess the reasons why, on the whole, those in the community had reason to be satisfied with the way things went. Then, in a final section, ECRU tries to make the case for planning, a case that things would have gone better with a plan no matter how well they went without one.

Before this material is presented, the reader should accept one word of caution. That is that crises and disasters inevitably bring some degree of chaos, disorder and confusion. That will always be true whether there is or is not a plan.

The tornado that hit Woodstock in August, 1979, would have caused massive destruction if there had been a plan - just as it did when there was not. It also would have left behind a great deal of confusion if there had been a plan - just as it did when there was not.

The argument for a plan, therefore, must be based on clear cut evidence that the ability to deal with that inevitable disorder and confusion would have been higher given a plan. It is that argument that is made in the final section of this report.

Four other comments need to be made.

First, the conclusions stated in this report are the opinion of the authors and should not be blamed on anyone else, certainly not on the government agency which assisted with the distribution of this report.

Second, as always, the material contained in this report could have been collected only with a great deal of assistance from many, many of the people involved. Everyone reading it owes them thanks.

Third, the description of what happened depends, to a considerable extent, on the ability of the authors and on their interpretation of events. A first draft of this report, for example, implied that the control or lead agency was the police and that this was true throughout the incident. This did not hold up under close examination. The present version states that leadership shifted to the Public Utilities Commission. The facts available did not change; the way they were seen and interpreted did.

(There are two other publications about the incident: TORNADO, a 48-page illustrated publication by the London Free Press; and '79 TORNADO, an eight-page commemorative edition of the Daily Sentinel-Review of Woodstock.) (Neither gets into analysis).

Fourth, this report is not complete. Although the authors conducted more than 100 interviews it is inevitable that some aspects of what happened were missed, some key persons overlooked. There are, also no doubt, some errors. In addition, the report deals somewhat scantily with the vast outpouring of generosity that followed the incident - donations of food, clothing, meals, sundries came from everywhere. It omits mention of most of the firms that acted in whatever way was necessary to see that Woodstock had needed supplies - power equipment, blood, flares, generators. (One firm even sent a man down

to work in a power stores section just to make sure anything needed could be secured immediately.) And it omits almost entirely the fund-raising efforts including such things as a special network-style radio program with the CTV news personality, Harvey Kirck, as host.

The authors hope that, despite these limitations, this report will be useful to persons in Woodstock and to others interested in the problems of community response to unexpected emergencies.

### Introduction

During the years following World War II, the city of Woodstock, like many Ontario cities, developed emergency plans to deal with the possibility of nuclear war and, to some extent, other types of emergencies. But, as the years passed and war - or other emergencies - did not come, Woodstock's interest in emergency planning gradually faded.

Around 1965, when the second of Woodstock's two civil defence coordinators moved on to another job, (the title reflects the war-oriented nature of the post) he was not replaced. The plans he and his predecessor had prepared were allowed to lapse. In fact local lore had it that the mayor at that time commented:

Emergency planning has been a successful venture in the past few years as far as Woodstock is concerned because not once in the past few years have the Russians bombed us.

During the winter of 1978-79, when Woodstock finally did face an emergency, (a severe snow storm), the city fathers decided after it was over that they had coped rather well. The main problem had been to deal with motorists stranded in the city. City administrators, at a meeting to review what had happened, were inclined to see that as the one problem that might arise should future snow emergency occur. No other types of emergency were envisaged.

That meeting therefore, concluded that:

- . The fair board or YMCA be approached to see if their building could be used in an emergency;
- . two snowmobiles be purchased for the police department;
- . arrangements be made with volunteer services (the Red Cross was named) to take charge of people brought to a specific shelter; and
- . a portable two-way radio be provided to the county engineer in an emergency.

The meeting also suggested (the date was February 9, 1979) that the city engineer draft a by-law to cover a peacetime emergency plan but the matter was clearly not considered as urgent. By late summer 1979, six months after that decision, such a plan had not been started.

This was still the case a year later.

It is, perhaps, also worth noting that those at the particular meeting did not represent all possible emergency agencies. They included only the police, (city and provincial), the fire department and the city engineer. Among the missing were the hospital, the ambulance service, the medical officer of health, all the volunteer agencies, public utilities, gas and telephone.

If some sort of formal planning is required to deal with a local emergency then, clearly, by mid-summer, 1979, Woodstock was ill prepared for any such event. Its last plan had been drafted approximately 15 years earlier and that plan, even if it could have been found, dealt with preparations for a nuclear attack. In August, 1979, Woodstock had no disaster plan. It also had very little experience in dealing with disaster.

No Warning

About 6.50 in the evening of August 7th, 1979, a number of people in Woodstock saw a sight they will probably never forget - the sight of a tornado slicing across their city. The ones who did see that sight - and there were quite a few - were the only ones in Woodstock who had any warning disaster was about to strike.

Earlier that day there had been some hints of potential problems; but, as far as is known, these did not reach the public or any emergency agencies.

At 3.30 p.m. , for example, Environment Canada issued its regular forecast calling for a "chance of a thunderstorm" but at 3.40 p.m., 10 minutes later, it updated that forecast with something called a "severe weather watch." That advisory told those receiving it that "severe thunderstorms with large hail and damaging winds" were possible and it included Woodstock in the potentially threatened area. (The advisory did not mention Woodstock specifically or focus on the area around Woodstock.)

But when that severe weather warning reached CKDK-AM, Woodstock's only community radio station, at 3.56 p.m. it also contained the following note:

This is not a warning of immediate danger but rather an alert of potential development of severe local storms. Persons in these areas should be on the lookout for threatening weather conditions and listen for later statements and possible warnings.

The message concluded with a note stating it would be updated or cancelled by 7 p.m. Eastern Daylight Time (in other words within three hours.) Not surprisingly, CKDK put it aside did not broadcast it.

Later that day, Environment Canada did issue another warning - this time at 6.15 p.m. - but this one not only did not get broadcast, it never even reached Woodstock or, apparently, the basic Canadian radio news wire service, Broadcast News. And when Environment Canada tried to phone both the Ontario Provincial Police at Woodstock and CKDK both calls came up as busy.

In retrospect it appears that the calls did not get through to Woodstock not because the lines were being used but because the storms had begun. Just about 6.30 p.m. - almost precisely when Environment Canada was trying to phone Woodstock - another tornado had hit nearby Hickson, damaging telephone lines. That damage probably affected the long distance service to the Woodstock area.

(The damage in Hickson also meant that several agencies in Woodstock first responded not to the needs of their own community but to damage nearby. Telephone crews were despatched to Hickson before the tornado hit Woodstock. The provincial police at Woodstock responded as well. And one of Woodstock's few ambulances was sent to Hickson after the ambulance office received a report of a house collapsed from the provincial police. The call came in just minutes before the storm struck the city.)

Though the formal warnings did not work, the visual warnings to some extent did. A number of people who saw the storm actually coming did what they were supposed to do: sought cover or headed for the basement:

I could hear the noise. I looked up and to my right.  
All I could see was a cloud going 'round in circles  
with black specks. I thought the specks were birds. Then  
I could see roofs of houses going up and disintegrating...  
All of a sudden there was dead silence. Then things  
started falling and hitting me....

I yelled to my wife to grab the other child and I grabbed him and we went down to the basement... like a low flying jet or train coming through your window.

I looked up towards the cemetery and looked at the clouds and that sucker ran over the hill and my blood went cold. I grabbed the dog and my wife grabbed the boy....I went upstairs, opened all the windows and doors, and when I got to my oldest boy's room there was a tree going into the pool.

My wife went around shutting the windows and she looked out the front door and a small tree blew by and we have a 20 foot tree in the front yard that was bent right over dancing around the yard. She realized it was more than a thunderstorm:

A loud rumbling like a train building up steam nearby....The next thing we knew all the kitchen windows were shattered...We scrambled up and went down to the basement where we really cowered.....

Others, especially those further away, just stood and watched, usually in awe. At the local radio station, for example, the on air person called the reporter on duty then both watched.

At the fairgrounds the first person to spot the storm called out to others and all watched.

Although it's not completely clear from the evidence available it seems that Woodstock was first exposed to a violent thunderstorm with repeated flashes of lightening, to very heavy rain and then

to several tornados, one or more of which caused the bulk of the damage.

Most of the emergency services got their news that a tornado had struck first hand, A fire truck, out answering another call, was barely missed by debris and radioed in it had spotted the storm. The radio station staff, as mentioned, saw the storm going by. Public utilities had already reacted to the power problems: they saw the tornado first hand. An ambulance driver was among the group that had been able to see the tornado from the fairgrounds. The driver had already heard the first damage reports coming in from the ambulance en route to Hickson. He managed to reach London-ambulances operate on the same radio channel - and request assistance. Then he headed to the part of Woodstock that had also been hit. And a police officer had spotted it from his patrol car and radioed in the news to police headquarters:

I looked to the west and observed a very large funnel cloud which appeared obviously to be a tornado....I saw large pieces of plywood, limbs and leafs flying about the funnel...I got back into the cruiser and felt the tornado was moving eastward and could see a pile of building material flying around in it.....

Tornados are highly visible and easily recognized even by those seeing them for the first time. Most emergency agencies knew very quickly that a tornado had struck.

#### The Damage

For various reasons (usually a high death toll) some disasters seem to catch the public's imagination becoming a part of the living memory of those who experienced them and those who hear and re-hear

the stories about what happen. Thus, it seems likely many Canadians have heard of the Frank slide, the Regina tornado, the Noronic fire, the Sarnia tornado, the Winnipeg flood, the Springhill mine disasters, Hurricane Hazel, the Mississauga evacuation or the Chapais fire.

For whatever reasons, the Woodstock tornado does not seem to be in that category. Yet, in many ways, it was <sup>one</sup> of the most severe natural disasters since the <sup>S</sup> <sup>W</sup> <sup>W</sup> <sup>W</sup> Second World War.

Although precise figures are not available (the hospital lost count) it's estimated 220 casualties were treated at the city's general hospital during the 24 hours after the storms. Most of these - an estimated 180 - were brought in that night. Another 40 or 50 - some of them injured during the clean-up - came in the following day.

(It's also clear that Red Cross, St. John Ambulance personnel, ambulance staff and private citizens rendered first aid on the spot. Some of those given immediate treatment then carried on to hospital - some of the casualties arriving at the hospital had bandages on - but most did not. It's estimated there were about 50 to 100 casualties, all minor, treated on site who did not go to hospital.)

Most of the casualties - again accurate records are not available - appear to have been various kinds of lacerations caused by flying debris. A few (many of them <sup>↑</sup> <sup>↑</sup> during the clean-up) were severe:

- . a woman lost a limb;
- . an elderly lady, admitted to hospital with lacerations the night of the storm, died some months later without leaving hospital;
- . A man had his face cut when a chain saw slipped;
- . a hydro worker received severe burns when he was electrocuted while doing repair work (he has substantially

recovered); and

. a youth with a Mennonite disaster group broke his back from a fall and will probably never walk again.

Not only that, the incident left its immediate and later emotional scar on those who were affected:

...a lot of people were really distraught.  
...breaking down, crying in the street....

...many people just standing around their houses, keeping guard over them. A lot of them appeared to be in a state of shock.

...everyone around here is preoccupied with death. They have dreams of death.

At one school, children have started breaking into tear or trembling or asking to go home when a thunderstorm strikes. The school has had to bring in a psychologist to help develop programs to assist the children, the teachers and the children's parents. (Actual physical injuries are not the only injuries sustained during disaster).

(Some children had started breaking into tears or trembling or asking to go home when there was a thunderstorm.) The school instituted a "buddy" system to help children help each other. A federally-funded project is studying the long-term emotional effects of the storm on selected persons.

And the night the tornado struck agencies reported staff having difficulty working:

...one girl's roof was practically off her house....said, "okay, I'll come in." Others were crying.

Some of them who had homes damaged were losing their patience....He came to work the next day. I saw fit to send him home.

...a friend of mine. I said, "I heard you had some damage at your home?" She said, "yes." I said, "do you want to go home?" She said, "no."

In one case an agency told a caller an employee had gone "home" only to be told that employee (who had carried out normal duties) had no home remaining.

The scars to property, while obviously less important, were of equal magnitude and, sometimes, equally sobering:

.356 homes were damaged, 66 of them virtually destroyed, damage totalling something like \$8.5 million;

.three schools were hit, one of them literally blown away, one so badly damaged it has taken months to repair;

.two churches were damaged, one, like one of the schools, literally blown away.

.13 industries and businesses were hit, some severely. Four have not re-opened;

(The final damage figures to industry are still not compiled although several firms estimated damages at near the million dollar mark.

(One firm kept operating in a tent after their plant was devastated. A grain and feed company kept all its staff employed for some time although eventually it made some layoffs; it is not yet in full production. A truck firm kept on going under emergency flood lighting without actually losing any person days. One firm managed to get all its staff to help in the clean up operation, an operation made necessary because 25 feet of its plant was destroyed and the entire building twisted.

A foundry lost power and water (the water problems are discussed later) and was forced to scramble for an emergency generator and a deisel tractor to stop molten metal from solidifying.)

In addition, there were power and telephone lines and trees down throughout the affected area. The battered people, homes and buildings were surrounded by trees uprooted, trees with their tops torn off, crumpled hydro towers and bits of debris - broken glass, shingles, pieces of clothing, parts of furniture, vehicles - scattered about the landscape. One swamp, a rather attractive place filled with cedar trees, now resembles a city dump.

There was also severe damage at what was once a rather picturesque hillside cemetery. Gravestones were overturned, graves torn apart and most of the trees uprooted or damaged.

These things - the downed power lines, the debris - affected the city's ability to respond.

The power outages included many of the buildings housing the various emergency services. The police station, the public utility, city hall, city engineering, the fire department, the telephone office, the gas company, public utilities - all lost power for a while. That meant working in the dark to some extent and it meant some communications systems - the fire department's general alarm, the gas company's beepers - simply stopped functioning properly.

When I arrived back at the office I found a complete lack of power. It had to be around seven. We only had the lighting of our emergency spotlights. One of the officer's wives was helping answer the phones and the phones would work for a few minutes and then go dead and at no time could you tell what lines were ringing. The lights on the buttons were out.

The ambulance service and the hospital were hit as well. That knocked the ambulance radio off the air and meant the ambulance building - part of the city's hot line system - was out of action. (Police, ambulance, fire, hospital are connected by direct lines.) The hospital had emergency power but it wasn't entirely satisfactory. The supply area, for example, did not have adequate emergency lighting.

The police ran two other power-related communications problem. The police radio system - six radio - equipped vehicles and 20 portables - did not seem to be working properly. It turned out none had activated the repeater which allows those transmitting to hear each other and thus have unit to unit communications. And the portables - which are usually recharged after each shift - were steadily running down. They were all in use and there was no way to recharge them.

The power outages also knocked out part of the sewer system immediately sending raw sewage into the Thames river. It also knocked out the pumps which bring in city water threatening the city's water supply and raising the spectre of an uncontrollable fire.

The storm also broke off gas connections at private homes sometimes inside the meter sometimes between the meter and the valve. (There were no actual breaks in the main lines.)

You could hear it. It's really got a whistle to it.  
You can hear it...forever..until someone stops it.

The leaking gas - there were leaks from propane tanks as well -  
made residents and others extremely aware of the danger of fire.

The only reasons for the lack of explosion and fire  
was that people were scared of the strong odors....  
People were afraid to light cigarettes, therefore  
no fires....

We were fortunate there was no fire....the hydro  
was knocked down first....there were no fires at  
all....

The tornado tore buildings down and in the process gas  
lines broke. People called to report that they were  
smelling gas or that there were gas leakages.

Because of the damage the response to the storm was also to be  
hampered. Streets in the devastated area were locked with downed  
trees and power lines and other forms of debris. Emergency or other  
vehicles could not easily get through. And it was pitch black  
and wet.

there was so much traffic we found we couldn't get  
into the area...so many wires and things down...it was  
pitch black you couldn't see anything....

trying to communicate in the dark without proper  
equipment was quite a problem....

the street that impressed me the most....I don't think  
it was badly hit....When we were driving down the  
street it looked like a scene I envisaged from an  
air raid...trees down, wires down, poles with them,

criss-crossing the road, glass all over the place, vehicles obviously turned around by the windstorm

three trucks, one of which was blown right across the street onto the front lawn...the gas line was leaking flowing down the street

..sightseers were a problem. There was difficulty in getting to the areas, people were tiresome.

There was also the rain, rain which came down incredibly heavily minutes after the tornado passed.

It was really raining. You couldn't see through it.

It was just like a wall...never seen it rain so hard.

It rained really heavy...right after the tornado.  
It rained real hard for 20 minutes then it subsided.  
It really came down right after the tornado.

The first response - the building up of staff - proved to be complicated. The hospital, for example, tried to operate a fan out system but found that lines were often either busy or down. It also discovered emergency lighting in the switchboard area was not satisfactory making the calling process even more difficult. The fire department - using a carefully designed voice alarm (it sounds in every home) - thought it had done all right: it was some time before the department established the alarm had only worked in homes with power. The gas company had the most difficulty of all: it discovered its beeper system - the system it uses to alert staff - does not work given a power failure.

(Company staff were finally alerted when a staff member in London used the regular telephone to call a staff member near Woodstock whose home had not been hit by the tornado.)

These problems, however, were fairly readily overcome: in fact sometimes the dilemma was the reverse:

...we practised the wrong system. It wasn't the call system...operation snowball...that needed practice  
Everyone showed up. We needed someone...to answer calls...emergency pool or something.....

Staff - called or not - poured in, in some cases so quickly that agencies found they had more people than they needed. Red Cross headquarters, for example, was simply flooded with volunteers, so many that the scene was one of chaos. People were pouring in asking what they could do to help. (One agency was forced to figure out things for volunteers to do.) Phone calls also poured in: although no specific figures on local calls are available, telephone company records suggest a huge climb in calls that evening.

Given the fast response, many agencies were able, almost immediately, to carry out some emergency tasks. The fire department started to respond to the fire calls - there were quite a few - and to deal with the broken gas lines:

...they were just going down street after street  
shutting off gas....One would normally shut if off  
at the meter.

Most of the fire calls turned out to be for non-existent fires or minor problems - puffs of smoke created by a power break. But the fire department did deal with most of the gas breaks.

The hospital, in its turn, was dealing with the flood of injured that began to arrive first at emergency then, as the disaster plan went into effect, at physiotherapy.

Most of the patients, even some of them most seriously injured, arrived at the hospital in private cars. A few were transported by ambulance. (The woman who had to be moved to London for treatment arrived at Woodstock hospital in a station wagon.)

The fact that casualties arrived in this way meant that the hospital had no idea who was coming, when they were coming or how many were likely to come.

As soon as it was apparent the disaster was building up, the hospital shifted its emergency receiving area to physiotherapy. This caused two problems. First it meant that the one surviving communications system - the ambulance radio (the base station was out but the hospital could hear vehicle-to-vehicle traffic) was now on the other side of the hospital. Second, the staff could not find the key to open the physio doors.

I pulled up to emergency and the security guard told me to go to physio. I went around to physio ....people standing inside the door, "we don't have a key."....went back around to emergency.

The flow of casualties all received treatment quickly - there were more than a dozen physicians and 127 other staff on hand - but the planned triage (sorting) system did not function. Casualties were treated as they arrived. Many left without being properly tagged and/or counted.

City works began its response by taking portable pumps to the sewer line and starting to pump raw sewage into the Thames river.

(The sewage disposal plant was doing the same.) The works department knew it would be a matter of hours before its equipment could not handle the sewer problem and sewers would start to overflow.

Finally the police department - acting as the main search and rescue unit - sent officers into the affected area to search door to door for persons badly needing help or those who might have been trapped in damaged buildings.

The search actually went in two stages. First, the officers responding immediately and officers living in the area - some went to work without reporting in - did a more or less informal search, informal in the sense it was not directed. (One officer took two civilian volunteers and searched an area with their help.) Second, a senior non-commissioned officer directed a second and more systematic search from a car which acted as mobile headquarters. The officer at first tried to record the order in which the search was conducted but, partly because the rain made note-taking difficult, gave up and kept track in his head. His and other reports to police headquarters were simply listened to and noted in the same way. The police did not make any attempt at mapping. Some of the officers on the spot were also doing their best to reduce casual access to their area. Seizing any barricades available they tried to cordon off streets. Using public address systems they asked then told non-residents to leave.

Unknown to the police this effort was being duplicated by at least two other agencies. Some St. John Ambulance personnel - in some cases caught in the area - were also going door to door offering assistance. And Red Cross volunteers - dispatched from the headquarters downtown - were also doing a door to door canvas and in many cases taking the injured to hospital. (Some of these volunteers lacked identification and ran into problems with police barricades.)

The police had one advantage over the other two agencies. Because their radio system stayed operative and their operation was directed on the spot by an experienced non-commissioned officer, reports on their activities were being sent regularly to police headquarters, evaluated and shared with other agencies. The Red Cross, though it used CB radios and teams of individuals, did not have as effective communications. It did, however, manage to map the damaged areas in Woodstock and elsewhere well enough to plan the relief response it would undertake for the next 10 days.

They had people out scouting. They plotted it on a map as the reports came in....a county map and a city map spread over a table..plotting the course of the tornado.

When I got there and offered my services..... I don't think we were there half an hour when we were dispatched in teams.....three or four to a truck...CB radios....

In addition to this separate and uncoordinated response, the various agencies started - in some cases very quickly - to work together and seek each other's help. The works department, as well as dealing with the sewer problem, provided help to the police in the form of barricades. (The two agencies have a standing arrangement for a shared radio system: the police can easily call the works department on a works radio which is automatically left at the police station.) Public utilities, instead of worrying about its problems with water - the damage to power lines was too severe to be fixed that night - decided to give first priority to restoring power to the police, second to dealing with the power needs of the works department. (The decision to provide the police with power resulted from PUC's view that the police power system was necessary to maintain the police radio system, the critical communications link.)

Next, in the damaged area itself, the ambulance crews, as they arrived, were working in cohesion with police.

There were officers all over the place....a whole lot of off duty officers helping..... They could give you an idea of where was someone in that area that needed help.

Some came in without calling. Some went direct to where they thought they were needed....They didn't have a radio.

This guy had a bad gash in his big toe.. He thought he'd be okay. We convinced him he needed to be stitched up at the hospital....He went in the ambulance.

There was a lady....I had her fold her arm back in order to close the wound. The ambulance came...removed her to hospital.

...a girl I took out of the school had a small gash on her forehead. She walked over to the ambulance herself.

But these people represented a small proportion of those who were injured and those who went to hospital.

The first couple of ambulance runs involved two persons each time- neither badly hurt. The search and rescue operation turned up only a handful of serious injuries. Most of the injured had already gone.

You expected to have a lot of serious injuries. The serious injuries weren't there.

What had happened was that even before the first emergency help arrived people were helping themselves and each other.

As soon as they realized everyone in their home was okay, they would be going to their neighbors. They (people themselves) would be the most active.

The first organization took place on site.

Within a short time, therefore, the city's response, though not formally co-ordinated, had assumed a semi-formal structure; and there was contact between the various emergency agencies at the scene and elsewhere.

In addition, however, there was a certain amount of confusion.

A couple of agencies - St. John Ambulance and the Salvation Army - were not officially involved in the initial response. The St. John Ambulance did respond on its own - its volunteers administered first aid to a number of people - but its skills were never officially activated. The Salvation Army got involved in a more formal way later.

In addition to its scouting and mapping procedures, which went extremely well, the Red Cross took another a number of other responsibilities that first night. It collected information about billets for persons left homeless. It tried to organize volunteers to collect food and clothing. It attempted to organize a morgue.

In some cases these activities went off quite well. In others they had to be left for a few hours. In one case - the idea of setting up a morgue - they were persuaded they need not worry. (The mayor and others were constantly walking back and forth between police headquarters and the Red Cross trying to maintain a liasion

between the two.)

The billeting process was extremely hard to document. It seems absolutely clear that many people phoned in to offer billets and that a number of billets were ready very quickly. It also seems clear that hardly anyone accepted accommodation either at public expense or from persons not known to them. Some just camped out. Others went to neighbors or friends. Others went to motels or hotels.

...a friend pitched a tent. I didn't want to leave the house. I was afraid of looters.

We had people phoning in offering accommodation. We didn't have anyone wanting anything.

...until we ran things like blankets, there were people like sleeping in tents or trailers or what was left of a house....

They were beggins people: "can we please put you up?" We were just too proud. To have to go there and ask for favors, it was just humiliating. They were begging us to accept accommodation and we wouldn't.

...20 beds...they were all ready...food, sandwiches, coffee, juice, milk...bandages, first aid kit...nobody came....we were prepared and nobody came.....

There might have been....if there was a dozen...maybe that. Nobody wanted to take advantage of it. They went to friends and relatives.

### An Emergent Leader

As the response developed, it became clear that one agency - the city police - and one person - the deputy chief of police - had assumed a leadership role in the community's response to disaster. This did not mean so much that orders were coming from the police department as it did that a sense of priority was coming from the department and the deputy and that others were accepting that leadership.

(The actual structure was, of course, somewhat more complicated than this suggests. Police operations were being co-ordinated in the deputy chief's office: that was where the relationship with most other agencies and officials took place. But police operations in the disaster area - as mentioned earlier - were being directed by another police officer. Information was being passed back and forth via the police radio. The two key men had gone out together about 20 minutes after the incident but returned quickly to headquarters when they saw how difficult it was to move around.)

Earlier that evening, city council had been having a special and open meeting at city hall, a meeting attended by the mayor, members of council, the city clerk, the city engineer. The meeting had actually started after power had gone off and the storm had struck but it continued for some time despite continuing interruptions.

Eventually, after a reporter from the newspaper had left and after the city engineer had left - both were called out - the mayor, following a whispered conference with the clerk, decided to leave too. She headed over to the police station to find out what was happening. The meeting continued for a while but when the mayor did not return it finally broke up.

At the police station, the mayor found herself among a number of others in the deputy chief's office. Since no records were kept and no formal meetings held it's not precisely clear who was in the office when. What is clear is that the mayor, the head of the ambulance service, the city engineer, the acting head of public utilities, a number of aldermen, the city clerk and senior police officers were all in that office at various times. What is also clear is that the mayor - and the others - did not, on the whole, participate in any decision making process but, instead, accepted the leadership role of the deputy and the police. This tacit acceptance made it clear that leadership lay with the police.

One of the things I felt was I sure was glad the police knew what they were doing....The deputy chief....in my opinion was the key to the whole situation....We were sort of a back-up doing what he needed.

The police station...They were our contact. They were telling us what was necessary. They were our contact.

What was going on...The place to find out was the police station.

How did the police exercise this leadership role?

First, they set priorities for their own staff in the disaster area and elsewhere. Second, those priorities were accepted by others. Third, they became the centre of communications, collecting information and passing it on to others, including the media and, through the media, the public.

The first priority was, of course, search and rescue and removal of the casualties to hospital. The police carried out that role and - with the help of the ambulance service - saw that the injured were

treated. The second priority was control of the area. While perimeter control was not tightly enforced that night (or for some time) the police with the help of public works did establish perimeters and did exercise some control. (The Red Cross problems in passing those barricades indicate their authority was used.) One officer used a public address system to advise all non-residents to leave the area. Later, more forcefully, he told some persons to, "get the hell out." The advice was generally accepted.

The third priority was, of course, restoration of police services - in toher words power to the police station. Public utilities made this their first priority and restored power later that evening.

But the most important police role was to act as a communications centre. Disaster research has shown that the centre of communications is the centre of authority. The police by taking over the central role in communications left no doubt as to their authority.

The first step towards communications control was taken by the dispatcher calling other key agenciew telling them a tornado had struck. Using the direct or hot lines in the headquarters, the dispatcher called the ambulance, the fire department and the hospital.

(The hospital later complained no call had been made. What happened was that the officer - when he made the call - discovered casualties were already arriving. He saw no need to continue the conversation. The person receiving it never mentioned it; so the hospital senior staff assumed no formal notification had been received.)

Later, the police dominated communications by collecting information and passing it on. Their reports from the damaged area established there had been no fatalities. Their phone calls to the hospital were the means whereby others were informed the extent of the

casualties. And this information was constantly passed on not only to the mayor and city officials but to the media. In fact, faced with the breakdown at the radio station - the problems with the transmitter were not fixed in time for CKDK to broadcast at all that night - the police made calls to other nearby stations. They hoped to reduce the flood of incoming calls by stressing that there had been no fatalities.

...phones were just....Calls came in from all over. The phones were lit up all the time.

...tried to call London, Kitchener, Waterloo, Tillsonburg radio and TV...have them broadcast.. no fatalities...a lot of damage....try to make people aware it was unnecessary to call us to find out if their mother had died.....

The police were not only acting as an information centre: a rough sketch of the communications system that night shows the police as central to what went on. (See: Figure 1)

They were tied to the ambulance service by radio to the scene and by direct contact at the scene. They were tied to the hospital by telephone (the deputy chief and the mayor both talked to the hospital regularly). They were tied to public works by radio (they had a works radio at headquarters) and through the city engineer. They were tied to public utilities by telephone and by direct contact (the acting PUC head came to the station). They were tied to the Red Cross through the mayor (who left the station and walked to the Red Cross headquarters several times during the evening).

They had a direct link to the fire department - though it was seldom used that evening - and they had frequent contact with the media. Although it was not known to them, they were also getting special service from the telephone company. In response to the emergency situation, the company had instituted a form of line load control - a system where some customers are given preferential service. The list include some physicians, the ambulance service, the gas company, the hospital, the fire department and the police.

The final role played by the police that night was to advise those who needed help they could get it from the Red Cross. That message was given to those in the area and to those who called at the station.

One thing the police did not do, however, was keep records of what happened, what sort of decisions were made and who was involved. For one thing they have no capacity to tape radio messages or phone calls. For another they had no system of scribes or recorders to keep track of what went on.

(The Woodstock police department is handicapped by the lack of a tape system. This is not just needed in disasters. It can be vital in emergencies - persons calling in are often upset hard to understand; by replaying a tape their exact words can often be made out. It can be useful in evidence. And it is vital for analyzing precisely what happened in a specific instance. The fire department - which has tape - also uses the playbacks for instructional purposes. Such a tape system, of course, needs to be tied to an improved emergency power system.)

The two agencies with tape systems lost them the night of the tornado. The fire department's tape system simply wasn't working. The ambulance-system broke down when the ambulance office lost power.

The End of Day One

...it was pitch black...people were trying to get there....  
They were coming in droves. There was so much traffic. We  
found we couldn't get near the area.

...streets covered with roofing nails...glass...eight tires  
ruined...any number of nail holes plugged....

...no problem with equipment...couldn't get through...hydro  
lines and trees....

There were trees, wire, telephones, debris, the roads were  
just impassible.

For some agencies, the end of the first day marked, in many ways, the end  
of the crisis. For others, it was a time to plan for the problems that  
lay ahead. For the victims, it was a time to talk, a time to attempt to sort  
out what had happened. For a few people in Woodstock it was the beginning  
of a new crisis -- the crisis over water.

At the fire department, the final disaster-related calls came in about  
10.30 p.m. There had been no serious fires all evening and firemen -- after  
turning off the gas lines and handling some fuel spills -- had gradually  
reduced the problems in their area of concern. By 11.30 p.m., after a final  
tour of the stricken area, they released their off-duty crews and settled  
down to normal activity.

Some firemen had stood by all evening waiting for a fire emergency  
(or other emergency).

At the hospital too there was a sense of the crisis being somewhat  
at an end. The hospital had treated something like 180 casualties  
that night and admitted 27. That had required a massive build-up  
of staff and some discharge of other patients. But the job had been  
done and Wednesday's casualty load of 40 to 50 patients would seem  
small by comparison.

At the radio station, after a frustrating evening, things were brought to a halt as well. With power back on at the station and emergency power at the transmitter the station was ready to resume normal broadcasting early Wednesday morning. The staff had spent the evening providing news for sister stations and providing regular voice reports for Broadcast News (BN), the Canadian radio news service.

For the ambulance service as well, the disaster was mainly over. Most of the casualties had been taken to hospital. The ones that remained were not serious and would get there on their own.

For a number of other agencies, there were remaining problems but the pressure was off. Power was back in the sewage disposal plant and the sewer system by about 2.30 a.m. Wednesday. That reduced the strain on public works. Public works would still get involved in providing barricades and clean-up crews but that would be done at a more leisurely pace. The gas company -- now aware there had been no major line breaks -- was over its main pressure period. (Connections would be made as repairs to houses were made.)

For the telephone company the end of day one was just the beginning of a period of tense activity. The phone company and the utility had summoned help from neighboring communities and that help began to arrive late that night and early the following morning. To prepare to use it properly the company had to plan its own priorities and see to it that the outside crews were integrated into its own operations. (For the telephone company there were some special problems: the disaster had occurred during a strike and it was far from clear whether the returning crews would perform everything asked of them and whether they would continue at work if they felt non-disaster activity was involved.)

In the stricken area, the scene had stopped being one of total chaos -- many of the streets were now at least partially clear -- and had become one of orderly but eerie appearance. Police cars with flashers

and spotlights on were partolling the area. Residents were moving about, talking, even trying to clear up.

You could see groups of people here and there. There were chain saws going even at that point. They seemed to be huddled about....I guess comparing their stories...There were lots of other groups huddled around working on something.

There was a small group sat up all night long. There was coffee and doughnuts...There was quite a camaraderie among the people affected.

A few of the victims went off to stay with neighbors, friends or relatives. One or two found trailers or motel accommodation. Most stayed around, perhaps reluctant to believe what had happened.

Some stayed up all night, talking, trying to wind up, watching the endless stream of cars passing by.

...until five o'clock...I have never seen so many cars in a place....People must have driven all night just to come and see that....the next day the same.

But while many of the agencies and the victims were winding down, one agency -- public utilities -- was heading into a crisis. One of the major problems of the storm was the loss of power service to the city's wells at Sweaburg, three miles to the south. PUC immediately activated another well -- a somewhat foul tasting one -- elsewhere (and got some complaints about water taste), but quickly realized that would not do the job. It would be hours before the normal water supply was restored and the back-up pumps and wells could not do the job.

Late that night, a PUC official visited a number of industries asking them to use restraint in their use of water. At PUC request, a police officer went to other firms. (Many of the firms work around the clock.) Plans were also made for a public appeal the following morning.

In addition, the senior PUC officer - the accountant - had started making calls to help to other companies, part of the standing arrangement through which power companies stand by ready to help each other in time of need.

When you call and say you're in trouble, right away they start looking for men and equipment.

The response would be quick and elaborate. It would include supplies and equipment. But it would not disguise the fact that Woodstock was a badly battered city. There was a real possibility of fire. And there might easily be no water.

While the PUC tried to figure out how to deal with this problem, one last set of calls started coming into the city. The city's provincial legislator, to a member of the Ontario cabinet, put a call through to his wife, to the mayor, to the city police, the provincial police and others. He was calling from Toronto, the provincial capital, where he was to attend cabinet the following morning.

When he heard what they all had to say (his wife alone convinced him the situation was serious) he became convinced some sort of immediate provincial response was necessary. Within hours he and a neighboring legislator (politicians tend to work together when there is a public need) would urge the province to act.

#### Power to The PUC

At five o'clock in the morning when it first broke daylight, I went up on Mill Street hill. It was just hard to believe.

It was pretty eerie...trees torn apart, houses completely demolished, hydro lines down all over the roads, hydro poles down....

During the pitch darkness of night it was difficult to see the extent of the wreckage but, at dawn, the width and breadth of the disaster was apparent. And it was apparent as well that Woodstock faced a major crisis created by the storm: the city's water supply was, as feared, slowly running out.

As the city's residents arose from sleep they were greeted by the return of the radio station and by an appeal over that station for restraint in the use of water. City industries were now dealt with even more bluntly: they were told they would have to stop using water.

As the day wore on, the problems increased. Hour by hour the level in the reservoir dropped. By mid-afternoon, it was down from four to 1.2 million gallons. At that point it was decided the drain must end. If a major fire occurred, the city would not be able to cope. The reservoir would no longer be available as a source of water.

For a number of firms, that was it: they were forced to shut down.

In one case this meant that 600 employees lost a full day's work. In another 500 were affected. Both firms must have water for their production process. The shut down - made voluntarily - led to a complaint by one of the union's involved. It argued that the shutdown should lead to employees being paid compensation, what is known as the "short week benefit." The company argued that while the shutdown was voluntary it had been the result of an act of God. The matter went to arbitration and the company won its case.

At the hospital, the announcement of the water shortage -- the hospital got a warning call from PUC -- meant a switch to paper plates, turning off water fountains, and other adjustments. It also meant desperate looks at the two hot water tanks and at the water stored in the hospital pool.

You can do without heat. You can do without hydro but for drinking water you are going to go somewhere and get it.

We raced through the hospital making sure there were no dripping taps. We turned off water fountains, used paper plates, no dishwashing unless necessary. Lost pressure, little water, no cold water for three to three and one-half hours.

The problem, of course, was not the availability of water. There was lots of water available in the wells at Sweaburg three miles to the south. The problem was power - electrical power had to be restored if pumps were to wrk to provide the water.

This focus on water and power - both under the control of the public utilities commission - shifted the leadership role on Wednesday from the police (who had taken the responsibility the first night) to the accountant at PUC who now had the major responsibilities. Aided by his own foremen and crews and by a host of crews from neighboring municipalities, the PUC official defined the priorities - water came first - and crews were assigned to deal with them. Others agencies assisted as necessary.

Visiting power crews found that as soon as they had a problem, others would pitch in to help. The telephone company crews, for example, automatically worked hand-in-hand with power crews where they shared facilities.

...came to an agreement...talked to Bell...We went down the street. If they wanted to go in on the poles, they would go along with us.

The gas company would do the same though this was seldom necessary. Public works would provide barricades or other assistance, such as assistance in removing debris. And the police were always ready to help by blocking off traffic or cordoning off an area.

Although there was no formal structure for control of the power - police, fire, ambulance, hospital, gas, telephone, public works, PUC held no formal or even informal meetings Wednesday or Thursday - the co-operation on an informal basis was quite regular and quite effective.

The police would block off the road for us or do whatever they had to do.

That's the best bunch of cops I've seen....if traffic piled up, we'd just go on the wrong side of the road. The police would help you.

If I called to them we needed assistance blocking a street...soon they would be there to help.

It got so bad in one area I went to them...we would have to wait traffic stopped....They didn't know if they could block a highway.... within half an hour they had.

By late Wednesday the power crews had restored sufficient power so that the pumps could start working. Early Thursday morning a PUC spokesperson went on local radio and stated everyone could head back to work. A normal water supply was once again available.

Some visitors, like the power crews, were most welcome. Others were not.

Among the welcome were the telephone crews who began to restore phone service, first to industrial customers, then to residences.

The telephone response was being directed from a storm centre complete with maps showing the problem areas. The whole operation was also being co-ordinated by constant contact with the provincial hydro and the local PUC. The actual supply of materials was controlled from Brantford, a nearby city.

Welcome too were some tractors and heavy equipment to clear away the debris.

And welcome as well were members of a Mennonite disaster group who came to assist with the clean-up and rebuilding operation.

The Mennonite church has a special organization dedicated to assisting those who have been hit by a disaster. Starting on Wednesday they formally established themselves at one of the damaged schools and, making their presence known through the media, offered to help anyone needing assistance with the clean-up.

This Mennonite guy was so organized he made me sick. He came in and did his job and did it just super...

...better than the army. They just came out of nowhere...

(They offered help in other ways as well. The Mennonites traditionally bring with them some good listeners, persons perhaps not physically able to assist but more than capable of providing a shoulder for others to lean on when they are depressed and want someone to hear their problems.)

The Mennonites, surprisingly, though welcome, did not get a lot of requests for help. People were concerned lest a first rate clean-up of the damage alter their insurance claims.

The Mennonites did however pitch in to clean up the debris at the once beautiful cemetery. They also overwhelmed local works crews when, at lunch time, they refused to let the men eat their own lunch. A bus rolled up and out came more Mennonites, mainly females, loaded down with hot food for everyone.

Also welcome were two cabinet ministers, one the local provincial member, who had left a cabinet meeting at Queen's Park in Toronto to fly by helicopter to survey the damage. (They made the trip so quickly and were so upset by what they saw that they managed to get back to brief cabinet before the morning meeting ended. Right after that meeting the province announced dollar-for-dollar support for relief to the stricken area.)

But Wednesday saw other visitors as well.

There were the media. Some of them had arrived just after the storm hit, others during the night. During the day there were so many that the mayor -- who kept up to date by talking to the police -- spent virtually the whole day talking to visiting reporters. (She was briefed regularly by the deputy chief of police).

And there were the curious.

Policemen at the barricades controlling access to the damaged area found themselves constantly involved in arguments with people who wanted to see what had happened. Some wanted to snap pictures. Others said they wanted to help. Still others proclaimed they had relatives who had been affected.

I never knew there were 50,000 mothers in that area or fathers or brothers or uncles.

....abandoned cars all over the place...they would just abandon their cars in the middle of the road and they would just leave them.

They can stand there and take pictures but they won't help.

At one point, because of the problems along the major east-west 401 highway the police were routing traffic in such a way that drivers heading south from Woodstock found themselves making about a 10-mile detour. (When they got onto the 401 east of Woodstock they found themselves heading way to the west before they could get off again.) There were angry confrontations between police and some motorists.

...there was so many people it was almost unreal...they just kept coming...at one point they all tried Parkinson Road... some of them were very upset because we had to cut traffic off...

CB radio types, who tend to talk to each other a lot about what's going on, were constantly on the air talking about Woodstock and its problems.

Can we get to a certain place? Can we get out of the city?

Can we get into the city?

Some local CB operators eventually became exasperated with the enquiries.

There was also a build-up of a different kind of traffic. Some of the curious decided the way to see what had happened was by air. Woodstock became a target for curious pilots, including some from local air strips. The city finally had to appeal to the nearest tower at London to ask pilots to stay away.

...number of aircraft flying over....some were very low... got in touch with the control tower in London.

advise some of the pilots to watch it.....

because of the traffic...a lot of it was media

...They were 300 feet off the ground.

I was over Oxford Centre at 500...one below and two above. I believe at one time there were seven or eight over the city of Woodstock.

People were noise shocked as it was. They were phoning in complaining about the number of small airplanes. The noise scared them.

Visitors may have been the major problem but there were lots of minor ones as well.

The radio station -- though it was back on the air -- was still using a generator to keep its antenna working. The generator had a limited capacity. The station was forced to fill a car with gas, drive the car to the transmitter site, siphon off the gas, then repeat the process to stay on the air. The procedure continued for several days.

The telephone company repair crews trying to clean up the debris, found itself still overloaded with calls. Long distance assistance heading out from Woodstock jumped from a normal 2200 to 3800 on Wednesday, not quite twice normal; and that was with a good many homes without telephones and a number of businesses all or partially closed down.

The medical officer of health, though he had not been called by anyone -- he is not on an emergency list -- began to check for possible post-disaster sanitation and/or health problems. There was concern lest sewage seep into broken water pipes and contaminate the water supply. And there was concern that some broken transformers might have dispersed PCBs. The checks were carried out and no problems were discovered.

There was one other thing happening in Woodstock that day as well, something that at first may have seemed helpful but eventually would create problems.

People anxious to help were beginning to donate food, clothing, supplies, equipment, anything they thought would aid the stricken area. Some of these donations were helpful. One firm donated 25,000 square yards of plastic suitable for covering gaping holes in roofs until better repairs could be made. But some would turn out to be a nuisance, too much to handle. Clothing supplies were starting to pour in. There were soon so many the Red Cross had to ask people to curb their generosity.

The appeal for clothing and the subsequent overload also led to some post-disaster criticisms. The Salvation Army already had on hand sufficient clothing supplies to deal with those who needed help. No appeal had really been necessary.

Why they picked the Red Cross I don't know. The Red Cross were being used for a program for which they were not trained...shouldn't have been there...a lot of strains were put on the situation since people put ads on the radio and paper for emergency clothing.

But if clothing was a problem, food was not.

Starting on Wednesday, the Red Cross began sending volunteers out to the stricken areas carrying such vital supplies as blankets and food. The volunteers would service both those who were affected and those providing emergency help. These supplies both being prepared by volunteer groups - such as union wives, church groups - and by business firms. Stores and food outlets were constantly donating all kinds of food supplies and, in some cases, hot meals.

...coffee and soft drinks and sandwiches  
...Some of the department stores just  
donated fantastic amounts of meat....

We lived for a couple of weeks right in the street. The Red Cross was there with hot meals...at five in the morning with coffee and doughnuts.

The funny thing is everyone is very proud. No one wanted to come in and get things.

Their friends have just brought them more than they can ever use...a lot of people, it happened that way.....

...new bedding...towels...The important thing was clothing for the kids....  
The kids were in their pajamas.

We went to the Red Cross store....just browsed around...picked up a tie, a belt, a few things.....

We picked up a vase. We used to have one of those...and some cookie tins...little thing that went on top of your mop to hang it up.

A great deal, therefore, was going on that was welcome, most of it very welcome indeed.

But because of all the activity, the police and others were becoming increasingly concerned. There were long lines of traffic in and around the affected areas. Power crews sometimes found themselves helpless to carry on. Trucks might be stuck for as much as an hour. There was no disagreement as to what should be done - but there was no formal structure helping it get done.

### Formalities

By Thursday, the tornado was less of an unbelievable nightmare and more of an accepted fact. It was starting to be dealt with in more formal ways.

The school board held an emergency session to discuss the problems created by the storm. Although there were no final decisions about what should be done -- should children be moved, portables put in or could repairs be made in time? -- responsibilities were assigned.

The premier of the province arrived (as did the leader of the opposition). The premier's coming brought with it creation of a formal disaster committee to handle funds being donated to assist Woodstock and the surrounding area. The province guaranteed that all donations would go directly to relief by announcing it would pick up all administrative costs.

(The formal creation of the fund included announcement of those who would direct it and those who would serve as administrative staff. The formal financial response was now well underway.)

Later that day, city council held its first regular meeting since the tornado.

Council was mainly involved in other business but two items dealt with the aftermath of the storm. One involved a waiver of building permit fees for those restoring damaged property. The other was to be more controversial.

Some months before the storm, local merchants and the local chamber of commerce had arranged with council for a three-day shutdown of the city's main street, Dundas street, so that merchants could move their goods onto the street creating a temporary mall. The days set for the 1979 sale were August 9th, 10th and 11th, two, three and four days after the storm.

When it became evident that the main trans-Ontario highway 401 would be blocked temporarily because of storm damage and response (telephone and power crews had to string lines across the highway) the mayor, after consulting others, had ruled that the sale could not be held. The main alternative artery was Dundas street: with 401 closed it had to be kept open.

By Thursday evening when council was in session, however, the problem with 401 was about over. The hydro crews had developed some ingenious methods for stringing lines across the highway and traffic problems had been kept to a minimum. The merchants, anxious to go ahead with the sale, were putting pressure on for the sale to start one day late.

The formal council minutes show only that the city engineer was authorized to enforce the street closing sale by law "at an appropriate time". The fact is pressure from council made it politically necessary that the sale go on starting Friday morning.

Work crews were, therefore, instructed to set up the appropriate barricades and merchants were told they could put up their displays and their stalls. On Friday morning, "Sidewalk Days" began.

As it turned out, that sale was to have a very short life.

Late Friday morning, shortly after a meeting at the police station, the PUC man discovered he was besieged by complaints. Visiting power crews forced to constantly cross Dundas street found the sale made their operations extremely complicated. They demanded the street be opened.

The PUC man made a hasty call to the city engineer and the engineer, after consulting the clerk, decided action would have to be taken. The merchants were informed the off-again, on-again sale was off, this time for good. Many of the merchants were angry and the works crews, trying to clear the street, had to get a police car with a loud hailer to broadcast an appeal to people to move.

There were other less drastic activities on Thursday and Friday as well.

Telephone calls continued 50 per cent above normal as persons began to phone for news of missing relatives. The Red Cross handled those enquiries.

Power crews were running into a new and disconcerting problem -- terminology. It seems that many of the items used in hydro repair are called different things by different crews. Needed parts were sometimes hard to locate because of the language problem. (The various companies had been working on the problem before the tornado: the experience added a further incentive for co-ordination.)

Thursday as well there were several other formal developments.

The post office - after a dispute with Ottawa - got permission to open a special postal station in a trailer parked beside one of the damaged schools. The post master got the idea on Wednesday but was rebuffed by federal headquarters. Later, with the support of regional postal officials, he was told to go ahead. He used his trailer as the post office and kept it open until normal service could be restored. The station opened Friday.

The builders of Woodstock and the city building inspector got together to discuss the danger of residents using fly-by-night firms to do repairs. (There had been stories of persons cruising the area offering to fix roofs at prices well beyond those charged by most reputable firms.)

I've had these people...they'll put a roof on for  
X dollars...maybe two or three times the price  
it should have been...

...a lot of people we didn't know...in town.  
...cruising the streets...looking for work...

The meeting - it consisted of a formal session involving the local executive of the Housing and Urban Development Association of Canada (HUDAC) - agreed to have the building inspector keep a list of registered builders. It also notified the media what was going on and publicized its fears about improper repairs and unscrupulous firms.

Some insurance companies brought in outside appraisers and announced they were working together to deal with claims.

### The Police Again

There was a fair amount of contact between the various emergency agencies on Wednesday and Thursday, the first two days after the tornado. The power crews - who had taken the leadership role - were receiving constant assistance (on demand) from public works and the police. Telephone crews were working on their own or, where appropriate, in cohesion with power crews, often sharing jobs.

It might take only an extra minute or two to do a job for them. We would do it.

Other agencies - ambulance, fire - were standing by, ready to assist if needed.

There were also a fair amount of control of access to the damaged area. Police, supported by provincial police auxiliaries, were still on perimeter patrol. They would give ready access to the power crews, telephone, public works and local residents, the media; but they were stricter with others. However it was difficult to maintain consistency.

Despite the co-operative atmosphere there were some concerns. The visitors had continued to come and there were rumors of tours

coming to Woodstock on the weekend. The small planes had continued to fly over the stricken area often swooping below the legal ceilings.

...on the ninth (Thursday) it was hairy....  
It was just airplanes all over....everybody  
had to see.

There was a concern about looting. Most residents had remained with their homes so the homes were protected; but there were two incidents of looting. One involved Woodstock residents outside of Woodstock; the other concerned an outsider looting in Woodstock. Both cases led to arrests and convictions.

There was also concern lest an incident occur which might require a quick response by the ambulance service or the fire department. Not only were streets constantly blocked the streets that were open were constantly changing. Fire vehicles would not have been able to automatically follow the best route.

Finally, there was a growing awareness that there was no systematic co-ordination among the various involved agencies. The disaster was now more than two days past and no formal meetings had been held. Each agency was setting its own priorities. Co-operation was good but co-ordination - in the sense of shared information about priorities - was non-existent.

On Friday morning, therefore, the police decided to call a meeting of the agencies they saw as critical: fire, gas, ambulance, city works and engineering, public utilities, the Red Cross. Also present were the mayor and, of course, the chairman, the deputy chief of police.

After a brief discussion, all present agreed there needed to be better co-ordination and some form of controlled access to the damaged areas. It was decided the police would issue and control a set of passes, passes marked by a distinctive "H & R " (hit and run) police stamp. The passes would go into effect that afternoon. In addition, it was decided that the number of access routes would be cut down and controlled. Other streets would be blocked by snow fences.

The use of snow fences had one other advantage. It reduced the number of police needed to man the perimeter. The snow fences could be manned by volunteers who could call for police help when someone tried to crash the barricade.

...some of the places where the snow fences were...  
people would be going up over curbs and between  
poles...across people's lawns...Most of them  
were in the early hours of the morning....

Sometimes you'd let a car through that was  
supposed to be through...right behind them  
they'd be some sightseers. They wouldn't  
stop.

Public works moved very quickly and by mid-afternoon Friday the new system was in effect. It wasn't a very tight system -- all emergency agencies and the press could move freely. Residents and relatives could get in as well. But it did establish an appearance of control and force people to head to the police station to establish their credentials. It also enabled police to phone to places such as Niagara Falls (it was rumored some tours were being planned for that weekend) to warn that organized visits would not be welcome.

The system was to remain in operation over the next few days, winding down as operations ended in each area. It was generally agreed it worked quite well.

### Follow-Up

The weekend - Saturday and Sunday - marked the beginning of the end of the immediate post-disaster period.

On those two days, power crews from London used tension machines to string power lines over the 401 highway. The machines which allow power wires to be held high above the ground at high tension meant that the main east-west highway was blocked, each time, only for a few minutes.

(The provincial police had a problem Saturday when they merely tried to stop traffic. Sunday, things went more smoothly when the station cars and motorcycles to the east and west then on command brought them slowly together slowing down the traffic behind. By the time they reached the crossing point the lines had been put across.)

On Saturday as well other agencies began to wind down some of their operations and the residents - perhaps because disaster week was over - started to react differently to persons coming to see them.

You could feel the change in attitude. They didn't want to talk anymore. By Saturday, "if you are here to work, you're welcome. If you are here to talk, we don't need you."

The following Wednesday - eight days after the tornado - Transport Canada decided the aerial situation around Woodstock called for formal action. It issued a "NOTAM" - notice to airmen - cautioning them about flights into the affected area:

Pilots conducting flights of a sightseeing nature are to remain clear of that area within a 5 nautical mile radius of Woodstock, Ontario....

The order remained in force until August 31st.

That action, of course, was one of many that grew out of the tornado in the days, weeks, and months that followed. (Many of the effects of the tornado - damaged houses, torn down trees etc. - will be seen for years.) But the initial response period has passed and it was becoming time to examine what had happened.

Four weeks after the incident, therefore, the mayor got together a group of representatives of emergency agencies to discuss the tornado.

Those present included the deputy chief of police, the city engineer, the fire chief (who had been away when the tornado struck), a representative of the gas company, the hospital, the manager of the PUC (who had also been away.)

The meeting produced a general feeling that everyone had done an outstanding job; but there were some concerns.

City engineering wanted back-up-power to pumps to eliminate the sewer problems. The police felt a need for emergency power at the police station. The gas company wanted to be tied in to an emergency call-up system.

The hospital had the most to say. There was a need for an official notification (it had actually taken place) and for some consultation as to priority...perhaps a radio system.

PUC wanted standby power to activate the pumps for city water. The mayor suggested there was need for a temporary morgue and once again... a holding area.

There was to be a later meeting with voluntary agencies.

What did not emerge from that meeting was any sort of recommendation for a general emergency plan and for some sort of emergency director. The nearest approach to that was a call from the hospital for establishment of priorities. A careful reading of the minutes suggests no apparent concern about emergency planning, certainly not any urgency.

The reaction did not stop the mayor from taking a further post-disaster initiative.

She has circulated among officials and the media a copy of the London, Ontario, disaster plan asking for their comments and suggestions. (The plan was sent to a number of agencies not officially involved in the response to the tornado.) She had also asked another city, St. Thomas, to provide its plan for a similar review.

(The intent is not to have Woodstock adopt another city's disaster plan but to get a start toward creating a suitable disaster plan for Woodstock.)

#### Evaluation

There seems to be a general feeling among community leaders in Woodstock that, on the whole, the response to the August tornado went quite well. Although many agencies responded to their individual perception of what was needed their activities tended to complement each other. No real conflict emerged. What co-ordination was necessary did develop through the police and general acceptance of the original unofficial emergency director, the deputy chief, and later the PUC.

There are a number of reasons for this generally smooth response.

First, Woodstock is not a large city, certainly not large enough to be impersonal. The various officials know each other well, are familiar with each other's strengths and weaknesses. (Many of them attend the same social functions -- even go off together for an annual ice-fishing expedition.)

...the sports club helped...people knew who I was...we should go out together just to know each other...

This familiarity extends down the line to the actual working personnel. It meant that police on perimeter control usually knew the local people and were familiar with their role.

Second, in Woodstock, the key agencies are, in many cases, close to each other geographically. City Hall is next door to the police station. The telephone company and public utilities are just two blocks away. The newspaper is three blocks away, the Red Cross a block away, the Salvation Army two blocks away. All, in short, are within walking distance of each other and people did, in fact, walk from place to place the night of the storm.

Third, though it is not laid down in any plan, various persons and agencies did take a leadership role and this leadership was accepted. On Tuesday night, for example, leadership rested with the police (tacitly supported by the mayor and council) and others followed this lead. On Wednesday and Thursday, public utilities took the lead and this, too, was accepted. On Friday, the police assumed the lead again and there was complete agreement as to what should have been done.

(The extent of the co-operation and trust is even more worth noting when it is pointed out that the chief of police, the fire chief, the executive director of the hospital, and the top two persons at the PUC were all away when the storm stuck.)

Fourth, assistance was available from nearby communities, often before it was asked for. Blood came from London. Hydro crews came from Ingersoll and a host of other communities. Ambulances came from seven other communities. Provincial police auxiliaries helped man the barricades. The Mennonite disaster group helped, among other things, clean up the cemetery. Plastic covering for roofs was donated by a firm in Brantford. Power supplies were rushed in by companies and suppliers in the area.

Fifth, the weather immediately after the storm remained comfortably warm and dry. People were able to carry out clean-up activities without worrying too much about shelter and without being hindered by weather. One company carried on its business in a tent.

Sixth, the damage, even though severe, did not actually physically affect any of the major emergency agencies. The PUC, the gas company, the telephone company, police, fire, ambulance, the hospital, Red Cross, the Salvation Army, city engineering all escaped without serious damage to their main plant.

Seventh, the city was not hit by a number of potentially major problems. No major gas lines were ruptured. No underground sewers or water pipes were damaged. There were no major fires. And there were no fatalities. (And as it was August there were several weeks available for the planning needed to make arrangements for adequate school accommodation.)

Eight, it was clear to those affected that an outside response at the provincial level was to be quick in coming. The announcement of provincial emergency aid took place within 18 hours after the storm had struck. A provincially supported response group was active in the community 48 hours after the storm hit. And by that time the premier had already made a personal visit.

Given all these things, it's understandable why so many officials are convinced that an emergency plan is not necessary or why they point out that any plan -- no matter how well developed -- cannot conceivably fit all possible emergencies. (Some of the needs in a snow emergency, for example, did not fit into the post-disaster needs of a tornado emergency.)

This reaction, of course, has not stopped individual agencies from changing their emergency planning. The police, working through the police commission, have established guidelines for emergency warning. The guidelines call for the officer receiving the warning to immediately notify the officer in charge. He is then to evaluate the warning. If he decides it is to be taken seriously then the police are to notify the radio station, the fire department, the hospital, the ambulance service, the mayor.

The hospital has adjusted its emergency power system and improved its processes for tagging. The gas company has provided the PUC with a list of equipment.

The ambulance has a new emergency generator one that will guarantee its radios keep working and that its tape system stays in operation. (The system, though, has a flaw. It needs to be hand started; one of the operators, a paraplegic, could not activate it.)

The Red Cross had made plans to share welfare response with the United Auto Workers (food) and the Salvation Army (clothing). The Red Cross would retain responsibility for identification and inquiry, first aid and short term accommodation. (St. John Ambulance are still not incorporated into the emergency response system.)

In addition, the city police and provincial police at St. Thomas, a nearby city, have prepared a slide tape presentation telling about tornados and telling what to do when a tornado strikes home, school, workplace or farm. The presentation was in its final stage of preparation when this report was written. Woodstock police have screened it and are considering purchasing it for local educational use.

The system does have one or two problems. It tells people to stay tuned to their local radio station: Woodstock residents could not do that the night of the tornado. It also gives some advice about what to do that - in retrospect - might be generally appropriate but was not especially appropriate in Woodstock on the night the tornado struck.

In short, Woodstock's emergency response agencies are now somewhat more co-ordinated than they were prior to the tornado despite the fact there is still no overall emergency plan and no designated emergency co-ordinator.

### Conclusions

Obviously, the city of Woodstock had a number of problems relating to its ability to prepare for and respond to disaster.

The warning system did not function properly. Even if it had -- if warning messages had reached the police and the local radio station -- there were no plans for systematic public warnings. And there had been no system of public education as to what to do given a tornado.

When disaster did occur, the local radio station was knocked off the air. There were communications problems among the various agencies. The mapping process - though carried out by the Red Cross - was not shared. There was a lack of tight, immediate perimeter control.

A system of at least semi-formal consultation on a regular basis was not developed.

There was a failure to maintain records. Many of the agencies have no recording systems attached to radios. Many others failed to maintain detailed logs. None appointed specific persons to record what decisions were reached when.

When problems did occur -- the water problems, the "Sidewalk Days" situation -- they were resolved on an ad hoc basis, usually by communication among one or two affected people. Only on Friday, when the problem of control of the entire affected area became critical, was there any attempt at overall co-ordination.

All of these things have, of course, happened before.

Warning systems have failed time and time again. Indeed, an efficient warning system would be a phenomenon rather than a common occurrence. Breakdowns in communication after a disaster are also all too common. Loss of local media systems has been observed elsewhere in Canada. (In some cases media have not existed.) Tight perimeter control has been spotty elsewhere. The record keeping function has often been absent. And tape failure, as a result of power outages, is extremely common.

In short, the problems experienced by Woodstock are not that different from those experienced by many other Canadian communities. Would any difference, therefore, have been created by the existence of a first-rate emergency plan?

In the view of the authors, yes.

A carefully developed disaster plan involves a number of stages of preparation. First, potential dangers to the community are identified. Then it is determined how the community will be alerted to those dangers. Then it is determined what should happen should those warnings be received. Next those plans -- the ones to be implemented in the event of a warning -- are tested, usually in a simulation. After the test the whole process is reviewed.

Once the official planning is over steps must then be taken to educate the public. The public must know what potential hazards exist. They must know what to do should these hazards occur. They must know how they will receive warnings should disaster threaten and where they should go for help should disaster actually strike.

If Woodstock had gone through these procedures -- and followed them properly -- then presumably one of the potential dangers would have been severe weather -- heavy snow, heavy rain, high winds, possibly tornados. (Tornados have hit communities as close as Sarnia and Windsor, Ontario with fatal results.)

Once that potential had been identified, then the kind of educational system now being developed by a number of area police departments (including Woodstock) would have been created. Persons in the community would have known what to do in the event of a tornado.

(The evidence appears to be that such knowledge is fairly widespread. A lot of people seem to have reacted quite sensibly -- in many cases taking to their basements.)

Second, if the problems of warning had been identified, it would have been recognized that any warning system must have a number of back-ups. There is usually very little time for warnings when tornados are involved. It would have been logical to suggest to Environment Canada that the police telex (CPIC) network be used and that calls be sent to Broadcast News with an urgent priority. (Both suggestions would have allowed the weather service to reach people in Toronto where the main weather office is located.)

An alternative would be to use the police radio system either point to point through the provincial police or through the general provincial channel used by most municipal forces.

Third, there would have been a check list of community agencies listing their key personnel and their role in an emergency. The police or some other agency could have been designated as responsible for notifying these agencies what was going on. This would have eliminated the complaints from the hospital and guaranteed an agency such as St. John Ambulance (surely appropriate given the number of minor casualties) would have been called.

Fourth, such a plan would have identified two common problems to small or large towns, especially towns in a widely built-up area. One is that people are often away. (The fire chief, police chief, senior public utilities officers, hospital head were all away when the storm hit.) The other is that many people don't live in Woodstock itself. A contact list could have been established of people actually located in Woodstock.

Fifth, an evaluation of the effectiveness of the emergency communications might have spotted the likelihood of radio station failure given power problems. Either the station could have been pressured to put in emergency power at its transmitter or the community could have considered spending money on such a vital service.

(A check of emergency power problems would have shown that a great many agencies -- police, works, public utilities, gas company, radio station -- did not have adequate emergency power facilities.)

Sixth, the need for a more elaborate emergency communications system would have been recognized. This might have led to expansion of the direct line system. It might have led to co-operation with a selected group of CB radio or perhaps ham radio operators. A number of possibilities exist.

(It was quite clear that a number of agencies were not tied into the communications system the night of the storm.)

Seventh, a plan would have identified the need for mapping and, as a result, for identification of all of the problems created by the storm. The various agency heads could then have discussed their needs in relation to these problems, establishing integrated priorities. Police perimeter control would have been much easier if the police had known precisely who was intended to go where to do what when.

Eighth, a plan would have called, presumably, for some sort of record-keeping function. This probably would have led to some sort of adequate taping system, especially of police calls. It also would have seen some secretaries brought in as part of the first reponse so that records (some informal minutes) could have been kept about what happened and how decisions were made. Merely by passing these minutes around to key agencies, the word about what was happening would have improved.

Ninth, a plan would have called for some sort of formal emergency structure. A number of emergency headquarters would have been designated. Emergency response agencies would have known they were to establish a liaison with that headquarters. Persons with senior emergency responsibilities would have been designated. Others would have known of and accepted those designations.

These arrangements would have meant that both the night of the storm and on the days immediately afterwards there would have been regular consultation about who was doing what and why. The agencies could have planned their co-operation.

(If, for example, power had outlined early Wednesday morning precisely where its crews had to go to restore the water system police and public works then could have established plans to cover that key area. If necessary traffic could have been controlled way back from the problem spots given the urgency of that priority.

No plan, however competent, would replace the need for informal co-operation (something that existed in large measure in Woodstock.) But it seems to us that, with planning, that good will could have been used in a more co-ordinated and, therefore, more effective way.

INFORMAL COMMUNICATIONS

- Woodstock, August 7, 1979





