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Organizational Response to the
Great Chicago Snowstorm of 1967

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an effort to restore normal community life. It was thought that the major focus of the field research would be on the Public Works Department, as this department is quite often charged with the responsibility of clearing streets in many cities. However, the tasks normally associated with Public Works departments in many small and medium size cities throughout the United States are undertaken in Chicago by three separate departments - Public Works, Water and Sewers, and Streets and Sanitation. The Public Works Department's four bureaus (Forestry and Parkways, Architecture and Building Maintenance, Engineering, and Maps and Plats) are charged with the initial construction and heavy engineering functions for the city. The Water and Sewer Department, as the name implies, is responsible for maintenance and operation of the city's water and sewer systems. Activities of the Streets and Sanitation Department include maintenance of streets, refuse collection and disposal, traffic control, and removal of snow from streets. The DRC team focused a great deal of its attention on this group.

Other organizations contacted by the DRC team were chosen on the basis of their support of the snow-clearing effort. (As it turned out, the Chicago Transit Authority - the CTA - also played a very major role in the snow removal operation.) The DRC team, during the course of five days, eventually interviewed representatives from the following organizations:

- Chicago Police Department
- Chicago Fire Department
- Chicago Civil Defense
- Streets and Sanitation Department
- Water and Sewer Department

American Red Cross
Salvation Army
One Hospital
Chicago Transit Authority
Development and Planning Commission

In this report we will first describe the situation in Chicago after the snowfall, particularly noting in what way the life of the community was disrupted and what needed to be done to restore the normal flow of community processes. This will be followed by a series of descriptions of the major organizations involved in the community restoration effort. This part will include not only an account of the activities of the involved organizations, but also a number of observations on the problems they encountered. A very brief statement on the overall implications of the findings of this study for other major community emergencies will conclude this report.

Situation in Chicago

The U. S. Weather Bureau Wednesday night, January 25, predicted a mixture of snow and rain, but no accumulation. At approximately 3:30 a. m. Thursday, the Bureau revised its previous forecast and indicated that the city could expect from four to six inches of snow. At 5:30 a. m. the snow began to fall and did not stop until 23 inches had fallen on the city 29 hours later. Near zero temperatures accompanied the heavy snows.

From 8:00 a. m. on, snow averaging an inch an hour and winds of 25 miles per hour kept traffic at a continual crawl. Roads soon became slippery and visibility was very poor. City officials described the situation as an all-day rush

hour. Because of the continuous heavy and slow moving traffic, salt spreaders and plows were not able to move rapidly and effectively on the streets. Therefore, the situation eventually deteriorated to the point that many vehicles, especially in the downtown areas could no longer move. Thousands of persons became stranded late Thursday afternoon when they attempted to return home from work via private auto or public transportation. Many spent the night in their cars, city buses, downtown hotels, airport and bus terminals, or in the homes of nearby friends.

By Friday morning, January 27, Chicago, a city of 3 1/2 million, was almost paralyzed insofar as vehicular and traffic movement was concerned - a situation the metropolis had never experienced before. Streets were clogged with an estimated 20,000 automobiles, 500 CTA buses, and numerous other assorted pieces of equipment. Expressways and tollways in the city and surrounding areas were not better off. The only pieces of equipment which could move freely were the Fire Department's helicopter and ten others, the property of the Sheriff's Department, although the city's three airports themselves were closed to plane flights. The one means of transportation that continued to function was the rapid transit system. The trains, however, fell badly behind schedule because of the intense overcrowding that occurred at stations where people flocked to find a way to get around the city.

There were few situations that day which required immediate emergency action, such as caring for injured or restoring devastating property damage, but many other potential threats did exist which necessitated quick and major

organizational involvement if the emergency was to be prevented from turning into a wholesale community disaster. Clogged streets meant more than just unexpected holidays for school children, office workers and others. For example, the Fire Department initially had difficulty dispatching equipment to the scenes of fires. Fortunately, no major blazes occurred during the first several days after the initial snowfall. Fortunately also, was the fact that only one emergency case required immediate hospitalization, and she was flown to the hospital in the Fire Department's helicopter. Likewise, the difficulty of physical movement hampered the police from moving around the city in response to both usual and storm occasioned calls for their services.

In general, these and other potential difficulties of this kind did not turn into actual serious problems. However, the potential was there and it cannot be ignored that communication via land-line and power means remained intact throughout the emergency period. If either of these had failed, even for a relatively short period of time, the potential for a major community disaster would have substantially increased.

By Sunday, January 29, at least one lane had been cleared on all main streets and expressways. Most side streets, however, remained impassable. While rapid transit operations were back on schedule, the bus service had still been restored to only eighty per cent of normal with runs being normally delayed 30 to 40 minutes. (Hundreds of the buses were still stalled in the drifts.) Even getting into Chicago continued to be a problem for the airports remained closed for the better part of three days - O'Hare, for example, remained shut down for 80 hours.

The second and third snowstorms in the 10 days afterwards did not materially increase existing difficulties, but created new ones. Thus, the eight to ten more inches of snow (the amount depending on the particular locality) that fell on Chicago, Sunday afternoon, February 5, posed no new movement problems. The city was able to keep open most of the avenues that had been cleared previously. However, most of the city's side streets had not been cleared after the first storm, and continued in a blocked state. This led to new problems. For example, with no incoming supplies, perishables in grocery stores became depleted. Persons also had started to hoard groceries, lowering stocks even further. Some homes, in addition, began to run out of fuel oil (more than 1 million Chicago area homes depend on oil heat). Although there was no shortage of oil, as such, in Chicago, there was difficulty in getting it transported to people's houses. (This was still a problem when the DRC team left the city - - access to oil tanks is generally through alleys and back lanes, and these were the last to be plowed.) Finally, garbage also started to accumulate. No garbage was picked up for nine days, until Saturday, February 4, because 400 garbage trucks were used for snow clearance.

All of these problems and difficulties -- potential and actual -- stemmed from the massive snow and the stalled vehicles in the streets. While the former was troublesome, it was the latter that especially slowed the restoration of normal community life. City officials in charge of clearing the streets felt they could have completed the spreading and plowing of most streets within 36 hours after the first storm, if it had not been for the thousands of cars and buses

stuck on them in every imaginable way. As it was, three weeks after the first snow, community organizations had not yet been able to open all thoroughfares, side streets, back lanes, and alleys.

City officials had long been aware of the extent to which automobiles could hamper snow removal activities so they had enacted the following "Winter Parking Ordinance."

AFTER A ONE INCH FALL OF SNOW, PARKING IS PROHIBITED ON ANY STREET UPON WHICH BUSES OPERATE.

THIS PARKING RESTRICTION CONTINUES FOR A PERIOD OF 8 HOURS AFTER SNOW STOPS FALLING OR UNTIL SNOW REMOVAL OPERATIONS ARE COMPLETED.

But the ordinance said nothing about not driving on streets which were covered with 23 inches of snow.

Chicago has a disaster plan (devised by Civil Defense) for dealing with natural catastrophes. It was set up, however, for sudden-impact, highly localized disasters which result in numerous casualties. It was not followed during the snow removal activities because it was inappropriate for this particular emergency.

We will now discuss the activities of five organizations which played a major role in coping with the emergency. These were the Streets and Sanitation Department, Chicago Transit Authority, Chicago Police Department, Chicago Fire Department, and Chicago Civil Defense.

Streets and Sanitation Department

Seven bureaus make up the department: Sanitation, Street Traffic, Electricity, Streets, Parking, Equipment Service, and Calumet Skyway. The Bureau of Sanitation is normally responsible for (1) snow and ice removal and (2) refuse collection and disposal. This Bureau will be the focus of our description and analysis since it had the greatest difficulties in carrying out its responsibilities.

The Bureau of Sanitation and the CTA have an agreement whereby the former is charged with salt spreading and plowing approximately two-thirds of the city's streets, while the latter is responsible for the remaining one-third. (The CTA will be discussed later.)

The meteorological service notified the Bureau of Sanitation's snow control headquarters at 2:30 a. m., January 26, that the city could expect from one to three inches of snow. The Bureau's emergency snow and ice removal plan was put into effect immediately and 85 spreaders were on the streets by 5:30 a. m., just before it started snowing. By nine o'clock, the snow was coming down so hard that garbage trucks equipped with plows, many "high-lift loaders," and other assorted private vehicles began removing snow.

Neither the snow accumulation, nor the strong 25 mile per hour wind which accompanied it initially posed any serious problems for the Bureau. But the extremely heavy traffic did. The early morning traffic rush normally lasting only a few hours, stretched out over the whole day. Many motorists, furthermore, ignored the snow emergency ordinance and parked along bus lines. Both

of these factors (the long rush hour and the illegal parking) kept plows from moving rapidly through the streets. The Bureaus of Street Traffic and Equipment using their own towing equipment, both worked closely with the Bureau of Sanitation in removing stalled cars.

As the day (the 26th) went on, the plows became less and less efficient. The supervisor at snow control headquarters called in 500 refuse trucks and cement mixers, fitted them with plows, and sent them also on to the streets. But by 4:00 in the afternoon it was evident that the situation was out of control. Too many cars had parked in violation of the snow ordinance, while many other cars and buses were stuck in the middle of streets. It became impossible to plow any of the main thoroughfares without first removing the parked and stalled vehicles. However, this took time and for every car which was towed clear, three more quickly took its place.

It was evident that the emergency plan could not continue to be used. Neither the snow plowing and ice control unit, itself, nor the Bureau of Sanitation, nor the Department of Streets and Sanitation had the capabilities of coping with the demands which it now faced. Additional equipment and personnel were needed.

About 4:00 p. m. the snow control center became the scene of greatly expanded activity. The mayor gave snow removal top priority and asked that all city departments cooperate with the Sanitation Bureau in working at this objective. He also made a public appeal for additional equipment -- especially for tow trucks, high lifts, and front-end loaders. Snow control headquarters remained the command post for the assault on the problem, with the Bureau of

Sanitation directing the city's snow removal operation. Several organizations sent personnel to the command post - Police Department, Fire Department, Chicago Transit Authority, Public Works' Forestry Bureau, and the Water and Sewers Department's Sewer Bureau. Most of the commissioners and the mayor spent considerable time at snow removal headquarters coordinating the activities of the various departments. Bell Telephone installed 20 extra phones within two hours, and the Sanitation Bureau brought in an extra radio to supplement the one already located there. For several days, the snow control headquarters, under the direction of the Bureau of Sanitation, was the sole command post.

By Friday, this headquarters became so congested with people that it was decided to split the command center into two parts. A supplementary center was set up on the 8th floor of City Hall. The original post still retained operational control of dispatching and coordinating city vehicles. The center in City Hall dealt with administrative matters and secondary problems created by the blocked streets. The latter command center was structurally very similar to the snow command headquarters. Many departments and agencies coordinated their activities there with those of the Streets and Sanitation Department.

Observations on Streets and Sanitation Department

1. Several factors compounded the problem of the Bureau of Sanitation.

Coping with heavy snow is not unusual for the Bureau. Using its emergency plan, it has had relatively few problems in the past keeping the major streets open. However, on primary arteries the plows have to maintain a speed of at

least 15-20 miles an hour to plow most efficiently. Because of the continuous heavy traffic during the early hours of the initial storm, they were unable to operate at this speed. The timing of the storm (i. e., early morning on a normal work day) and a lack of warning to motorists about how bad it was going to be, quickly created the worst traffic condition possible from the viewpoint of efficient snow clearing operations by the Bureau of Sanitation.

To this, of course, was added the failure of motorists to adhere to the snow emergency parking regulations, and the constantly increasing number of vehicles that were abandoned in the middle of streets. Any one of these factors -- slow moving traffic, disregard of parking regulations or stalled cars -- by itself would have occasioned difficulties, but all together they practically forced cessation of emergency operations by the Bureau.

Exactly what could have been done to prevent this problem from developing once it started to emerge is unclear. One official said, "It was not the failure of the plows to operate that caused difficulties once the storm hit, but the failure of motorists to get their cars off the streets. It was the abandoned cars that blocked the plows. In the future, motorists must pay more attention to warnings about big snows, and get off the streets." However, once motorists had taken to the roads early that morning to get to work, they had to do something with their cars. Yet most side streets are narrow, generally not navigable by the large city plows, and not too maneuverable once snow of any magnitude has started to accumulate. In other words, once the cars were on the roads that morning, the development of major problems for the Bureau was inevitable.

Theoretically, even if the demands in a situation cannot be controlled, there still is the possibility of increasing capability. This seems implied in criticism made of the Streets and Sanitation Department for not having large, up-to-date equipment. The reply to this vocalized by many city officials was carried in a local newspaper:

These things occur so seldom that it's nearly impossible to be prepared for them.

Modern snow-removal equipment is tremendously expensive-- particularly if it's the heavyweight type that sits around for years waiting for a snowfall dense enough to need its services.

The City of Chicago has been criticized for not having more equipment of this sort-- the high speed, V-shaped plows, for example, that scoop out snow-piled roads in Wisconsin and Minnesota. These plows toss so much snow that windows would be broken. They are not suitable for close-in residences. The plows we now have are excellent for normal city streets and normal snowfall.

(Chicago Daily News, Jan. 31, 1967, p. 3)

2. A second major problem was, in the words of one official, "what do you do with 50 million tons of snow?"

There were not enough places to stack it, and with temperatures predicted to hover around zero for several weeks, the city could not wait for it to melt. Each year there are fewer and fewer empty lots on which to dump the snow; and in many heavily built-up areas pushing the snow off the street means piling it on someone's sidewalk or against a building. One lady called the Streets and Sanitation Bureau complaining that one of the city's front-end loaders had completely covered the dog house in her front yard with her two dogs trapped inside.

In many areas, the snow was eventually pushed to the side of the street -- quite often completely covering parked cars. Where this procedure was not possible, the snow had to be removed by truck; this turned out to be a very slow and costly effort. Snow from the central area of the city was dumped into the Chicago River. Some was put on train cars which normally headed south empty. Many citizens, attempting to clear their property, shoveled the snow into sewer manholes (this bothered the Bureau of Sewers insofar as they thought such action might lead to a freezing in the sewer lines).

Even at present, city officials have no clear answer to the question. They still do not know what they would do if they were faced with another massive load of snow in the future. While not a major problem in itself, such sheer mass of "stuff" did and can hamper community recovery efforts.

3. Another problem was that the detailed weather information needed to prepare for this kind of emergency did not become available quickly enough.

The City of Chicago has felt for some time that the information provided to them by the U. S. Weather Bureau was not detailed enough for their needs. The issue is detail, not accuracy of information. The city requires quite specific, detailed information so they can determine whether or not they should undertake such actions as alerting all crews, placing crews on stand-by, preparing crews for plowing, preparing crews for spreading, watching traffic icing at intersections, watching for alternate thaw and freeze, or mounting plows. For this purpose, both the Bureau of Sanitation and the CTA have hired a private consulting firm specialized in meteorological services. This firm provides such

information as (1) source of trouble, (2) time of beginning (specific), (3) duration (specific), (4) type of snow, (5) snowfall accumulation, (6) rain/ice time-type, (7) air temperatures, (8) wind (specific), (9) comments -- i. e., no rush hour trouble, traffic icing at intersections, or icing due to cold pavement, (10) recommendations, (11) weather following storm, and (12) snowshower details. How detailed such information is can be indicated by giving a breakdown of one of the weather reporting categories -- Source of Trouble:

<u>Source of Trouble</u>	Probability (Chances out of 10)									
	1	2	3	4	5	6	7	8	9	10
1. Snow										
2. Snowstorm (Blizzard)										
3. Snowshowers (Details Sec. L.)										
4. Drifting Snow (Details Sec. H.)										
5. Glaze (Freezing Rain)										
6. Glaze (Freezing Drizzle)										
7. Sleet (Ice Pellets)										
8. Rain changing to Snow										
9. Rain changing to Glaze										
10. Glaze changing to Snow										
11. Glaze changing to Rain										
12. Snow changing to Rain										
13. Snow changing to Glaze										
14. Borderline: Snow -Rain										
15. Borderline: Glaze-Rain										
16. Borderline: Snow-Glaze										
17. Borderline: Drizzle-Freezing Drizzle										
18. No trouble										

Despite this elaborate weather warning system, the weather information obtained by city agencies was neither fast enough nor accurate enough. This was not the fault of either the personnel making the predictions nor the probability

to plan, becomes the snow and ice control unit. Operationally, this is not a difficult transition since both tasks require similar skills and the same mechanical equipment. The plan itself has three parts.

The first part is presented in a forty page manual which spells out the specific tasks of each of the approximate 300 persons in the unit assigned to snow and ice removal. The operational head, the Supervisor of Streets, is stationed at times of emergencies near the downtown area from where he can control the removal operations. Field operations are controlled from 9 snow stations, each not more than 6 miles from one of the other stations. Personnel of the unit have so often successfully utilized the plan in the past, that most of them are thoroughly familiar with all its details.

The plan also specifies the step-by-step tasks which each position, from administrative heads to truck drivers, are to carry out for each alert. For example, during the winter months, at least one person remains "on call" at each of the nine field stations and snow control headquarters. The plan contains this requirement as well as a complete up-to-date list of how many plows are at each field station.

The second portion of the plan (referred to earlier) has to do with the joint agreement between the Sanitation Bureau and the CTA. Formerly, the CTA plowed all city streets which were also bus routes. Gradually, however, the city has agreed to take on much of this task and the Bureau now plows two-thirds of the streets.

The third part of the emergency plan is called Operation "Snow Plow." It

is a "program of coordinated action between the Police Department and the Bureau of Sanitation for the removal of parked vehicles, to promote effective snow removal operations." The Deputy Commissioner of Sanitation or the General Superintendent of Sanitation initiates this part of the plan when the situation calls for it.

This three-phase plan has worked so successfully in the past that other cities in Canada, Wisconsin, Illinois, and Michigan have enlisted the services of several Sanitation Bureau personnel to help them with their own particular snow removal problems.

As mentioned before, this plan was activated as soon as the Bureau had word about the forthcoming storm. However, for reasons indicated earlier, the plan had to be relatively soon abandoned. The emergency was of such a magnitude, in the ways discussed previously, that a somewhat different course of action had to be worked out.

Chicago Transit Authority (CTA)

The CTA is a private organization providing all intra-city bus and rapid transit transportation for the public. Normally 400,000 people use the rapid transit system daily. On a typical workday, 1,300,000 persons ride the buses. In the winter months, the CTA is also responsible for plowing 914 miles of the city's streets.

1. The demands on the rapid transit service were fairly well met, although at certain points of time, delays in schedules were rather common.

The rapid transit service held up fairly well during the entire emergency

period; in fact, it was the only form of transportation available in all of Chicago for extended periods of time. On Friday, January 27, 86,000 more passengers were transported than on the same day a year previously. However, on that day the sudden influx of passengers desiring transportation also swamped the stations. As one official said, "Trains were delayed at stops when so many customers jammed into cars that the doors wouldn't close." It took the CTA 24 hours to get back on schedule through the use of additional personnel both at stations and on trains.

2. In an effort to assist the public, a major attempt was made to maintain bus service, but in part this may have created as many problems as it solved.

Bus service did not hold up nearly as well as the rapid transit system. There was an average drop of around 45% below normal in revenue passengers on city buses from January 26 to 29. The more the snow fell and cars got struck, the more people depended on public transportation to take them to home and to work (although many businesses closed down for different time periods during the emergency). Consequently, bus drivers were instructed to keep the buses on the streets as long as possible. The result was that by Friday afternoon, January 27, an estimated 1,100 of the CTA's 2,800 buses were stalled on the streets. Two days later, 500 of these buses were still stalled.

When buses get stuck, additional problems were generated both for the CTA and other organizations. The passengers had to be taken care of in one way or another. Some actually stayed overnight on buses; other passengers changed to another bus or the public transit system. Still others set out on foot for their

homes or sought other accommodations for the night (people not only stayed in hotels but several hospitals at least sheltered some people that just came in off the streets).

Most of the buses do not normally use anti-freeze. When many of them ran out of gas, the radiator frequently froze. This caused extensive damage to those vehicles and rendered them useless for days afterwards.

Finally, the stalled buses were even more of an impediment to snow removal than most other vehicles. They not only occupied more space but equally as important, their size was such as to prevent their removal by most tow trucks. Stalled buses, of course, were more likely to be on major thoroughfares than little used streets.

In comparing the rapid transit system with the surface (bus) system, the former was much less vulnerable to the effects of the snowstorm than was the latter. A word of caution should be noted, however, before one puts too much faith in the innate superiority of a rapid transit system in disasters. The subway trains are completely dependent upon electricity; the power requirement for their functioning is so great that auxiliary power (i. e., gas generators, battery, etc.) is not practical. Fortunately, Chicago had electricity throughout the emergency period; but had the city lost its power, the rapid transit system would have come to a sudden and complete halt.

3. The CTA had exactly the same problems as did the Bureau of Sanitation in their snow clearing operations.

Difficulties in snow plowing encountered by the Bureau were discussed earlier.

Personnel of the CTA responsible for clearing and spreading, etc., had, of course, the same problems. They did not differ either in quality or quantity except that the CTA had only one-third of the city streets to clear.

The Chicago Police Department

Chicago has a Police Department that employs 13,793 men who are responsible for covering some 224 square miles. In general, police operations were more or less normal until about 10:00 p. m. Thursday, January 26. More and more police cars began to be stuck in the snow at that time. This problem intensified throughout the night. By Friday morning, car crews had been augmented from the normal one and two man team to three or four man crews (the extra personnel were added to provide enough weight for traction in the deep snow, and also so enough manpower would be quickly available if a car got stuck in the snow. At this time, too, special teams were organized to rescue stranded police cars primarily but also some civilian vehicles.

Police officers volunteered the information that because of conditions associated with the maintenance of law and order, special task forces, tactical units and detective squads were sent into the districts where this situation prevailed. Police coordination with the snow removal headquarters also started Friday afternoon with the following message teletyped to all districts:

To all commanding officers
During the existing emergency, caused by weather conditions, a special acting assistant deputy superintendent will be on duty in a special city command post located at 50 E. Wacker Drive, Lower Level, telephone number 263-0954-5-6-7-8.

This special acting assistant deputy superintendent will act with the authority of the superintendent in matters relating to the coordination of the efforts of the department with those of other city agencies in the alleviation of the emergency.

(Teletype message 1516 hrs, 27 Jan 67)

This coordination was handled by a deputy chief who took requests from and made requests of other organizations for the Police Department.

The police worked at different storm related tasks for just about three days. Storm connected police activities primarily had to do with maintaining law and order, giving aid to stranded motorists, assisting firemen, etc. On the 30th of January, men on special assignment were returned to their home districts. By Wednesday, February 1, the giving of days off, which had been discontinued on Friday, was resumed. This signaled the return of relatively routine operations in the organization. The two later snows created no problems for the police that were not rather ordinary for those kinds of situations.

Observations on the Police Department

1. Newspaper reports which suggested special problems in the maintenance of law and order in some sections of the city were not borne out -- the police had no serious difficulties on that score.

Although the DRC field team members consciously and deliberately avoided raising questions about what appeared to be highly unique factors in the maintenance of law and order during this emergency, police officials continually volunteered information about the matter. In general, there was the assigning of men and equipment to certain sections of the city, when otherwise these units might have been available for other purposes. However, there is no evidence that such

assignments occasioned even difficulties, much less problems, in police activities insofar as their storm operations were concerned. The organization took the somewhat unique and relatively limited disruptive events in stride.

2. There may have been some delays in police communications, especially in calls from the public to the Police Department.

Police officers reported no communication difficulties, and this certainly appeared to be true insofar as intra-organization communication was concerned. However, there did appear to be at least delays in the processing of calls from the public to the Police Department. For example, on October 31, 1966 the organization received 6,991 calls, 169 of which were taken on overload units. There were only 4 calls that received a busy signal that day. However, on Friday, January 27, the Department got 14,939 calls, of which 1,559 had to be taken on overload units. Furthermore, 723 calls received a busy signal that day. Thus, calls doubled, and overload calls were about nine times those of a normal day (overload calls are those not answered within a set time period or transferred to auxiliary overload answering positions). Even more significant is the fact that the 65 trunk lines, the 8 communication zones (with 4 communication men per zone) and 7 auxiliary positions were so unable to answer all incoming calls that an average of about 34 calls an hour received only a busy signal.

Clearly the police lines were overloaded. However, it is quite possible, as the police reported, that such delays were not a serious matter. At least there is no evidence to suggest that they were.

3. Police were sometimes called upon to provide food and medicine to people in areas inaccessible by cars. However, it appears that the police usually routed these requests to other groups, e. g., the Fire Department, the Red Cross, the Salvation Army, etc. It is of interest, nevertheless, that some citizens thought of the Police Department as the agency to turn to for such help.

4. The major difficulty experienced by the police was lack of mobility.

For obvious reasons, police cars as other cars also became stuck in the snow. There were three kinds of organizational responses to this. The automotive maintenance division and central services (towing) units, both part of the Department, organized teams that used trucks and other heavy equipment to reach stalled, battery drained or snow blocked police cars, and put them back in service. Normally, the Chicago police are completely motorized but in this emergency men were sent to walking beats in areas inaccessible by car. The third response, already mentioned, was to load cars with added police personnel. The latter procedure proved so successful that relatively few men had to walk beats for any great length of time.

5. Absenteeism was not a problem in the Police Department.

Given the difficulty of getting around the city it might have been expected that a higher percentage of men would be absent from work during the emergency. This was not the case. While some officers had difficulty in reporting for duty on time, this only led to somewhat longer hours and few, if any, double shifts (some staff people at Police Headquarters did work around the clock for several days, but this constituted a rather small number of men).

6. No extensive overall coordination existed or was necessary as far as the police were concerned.

As indicated earlier, the police on Friday, January 27, did send a deputy chief to the snow removal headquarters. His primary function was to take any requests that came in for police service, and to transmit messages from the Police Department. On January 31, the deputy chief was replaced by a lieutenant because it was decided that the "deputy chief had more important jobs to do." From the Police Department viewpoint it is probably true that the snow removal headquarters was primarily useful as a central source of information (and probably even limited for that purpose given the extensive intra- and inter-organizational communication channels the Chicago police have). Also, some inter-organization coordination was necessary for the "Snow-Plow" operation mentioned earlier.

The Chicago Fire Department

The Fire Department became more involved in the emergency than might have been anticipated. It, of course, had some difficulties getting to fires and finding hydrants buried under the snow. However, the organization also undertook other than usual fire fighting tasks. For example, more than 300 stranded motorists were sheltered at one engine house alone on Thursday night. The Department borrowed private helicopters to supplement its own and used them for ambulance services, emergency deliveries, etc. These types of activities were carried on for about four days.

To carry out these additional as well as regular tasks, all off duty personnel

near expressways, in particular, found themselves approached by people seeking shelter. The stations involved were able to get enough food, medicine, etc., for these people, and used the Civil Defense Rescue Service to notify relatives of their location that night. Department officials noted that while some problems might have developed if stays of longer duration had been involved, no major difficulties resulted from the overnight sheltering activities.

The Chicago Civil Defense

Compared with the other organizations discussed, Civil Defense involvement in the storm emergency was relatively minimal. To a considerable extent this can be accounted for by the structure of the organization and its relationships to other city agencies. It seems doubtful that Civil Defense would play too different a role even in other kinds of natural disasters.

According to city officials the position of Civil Defense in Chicago is directly related to Section 1, Chapter 3 of the City Municipal Code and amended by Section 3-11 which reads as follows:

3-11 - The Mayor shall be ex-officio coordinator of activities in cases of emergency resulting from any explosion, fire, flood, riot, storm or other cause requiring concerted measures for the maintenance of public peace and order, the preservation of life and property and the relief of suffering, or for any of these purposes. He shall formulate, and, as occasion therefore arises, he shall execute plans for the prevention of such emergencies so far as possible and for meeting them effectively when they arise. Obedience to his orders in executing such plans and meeting such emergencies is obligatory upon all departments and heads of departments and upon all other officers and employees of the City of Chicago. The Fire Commissioner shall be Deputy Coordinator of such activities

under supervision of the Mayor as Coordinator. In the absence or inability to act of the Fire Commissioner, his powers and responsibilities shall be vested in an Acting Deputy Coordinator appointed by the Fire Commissioner.

Based on this provision, the Fire Commissioner has been appointed CD director. A retired fire chief, however, is the actual paid operations director of CD and is directly in charge of six other paid employees. In addition, there is a specific CD volunteer representative in each city department.

Interviews and documents strongly suggest that CD is visualized as a small part of the mayor's overall disaster plan with its functions limited primarily to gathering and making information available concerning disaster plans and organizational capabilities in disaster situations. Specific operations are carried out by the small volunteer group mentioned previously. (In addition, there is a Civil Defense Fire and Rescue Service which we will discuss shortly.)

The close link to the Fire Department is manifested in other ways besides those already indicated. For example, it was reported that CD communications use Fire Department channels and equipment for certain purposes, and that the major function of the volunteers in the Fire and Rescue Service is to be available and to aid (only when requested) regular firemen at major fires in the city. Some city officials clearly visualize CD as simply a paper organization within the Fire Department.

During this emergency the major activity most clearly identified as a CD operation was the work undertaken by the Chicago Civil Defense Fire and Rescue Service. This is a volunteer group that has varied from 30 to 100 men in the

A Few Overall Implications

1. In some ways, what happened in Chicago was remarkable. The complex physical and social web that makes up this metropolis and its environs, was not in one sense directly impacted by the massive snows. That is, the physical facilities, the material resources, the social organizations or the residents themselves were not destroyed or damaged by the weather conditions. The communication systems remained intact; there were no victims to speak of resulting from the event. The only thing that occurred was the blocking of all surface transportation, totally for one day in the center of the city to up to three weeks in some of the residential areas. Yet this was enough to disrupt community life quite effectively and to bring the city to the brink of having to face extremely intensive and extensive problems.

This event in Chicago suggests something of the nature of the situation that, for example, will face a metropolitan area after a devastating earthquake or nuclear attack. Of course, in the post-disaster periods in those events, there will be more than streets blocked by debris. But the Chicago example shows that the disruption of surface transportation alone has a tremendous potential for paralyzing a large community. Certainly any disaster planning that does not take into account the possible limitations on physical movement of both people and organizational personnel, will ignore a basic factor in the functioning of metropolitan areas.

2. The area affected was much larger than is normally the case in most peacetime disasters. Usually it is possible for officials to cordon off the

affected area to allow workers to carry out their activities without interference by the public. Such was not possible in Chicago. This meant, for example, that as soon as one lane was opened on a road, motorists quickly took to those streets thus considerably delaying the continuing clearing effort.

Planning would appear to have to take into account, insofar as maintenance and restoration of transportation is concerned, whether or not the disaster impact is diffuse or localized. The former kind of impact, while it may somewhat reduce the probability of convergence behavior on a specific locality, seems to generate its own kinds of movement problems.

3. Chicago has no existing communication center or facility. The city disaster plan does call for a central communication and control center to be "set up in a suitable space, conveniently near the scene of the disaster." There is no further discussion of communication facilities. Thus, when the snowstorm hit the city, the center was set up -- as mentioned earlier -- in the snow control headquarters. From an overall viewpoint, there were some difficulties in this kind of situation. Different organizations brought in their own radios to communicate with their units (they of course also used land lines). However, each organization communicated solely on its own network. After a while also, the headquarters became rather crowded as communication personnel and equipment kept being brought in.

Given that it was a somewhat ad hoc communication center, the situation was relatively well handled although as earlier noted, a secondary center eventually had to be established in City Hall. It would appear that prior existing

facilities could avoid some of the complications and difficulties that seem inherent in an ad hoc arrangement. Different communities around the country have, of course, tried to deal with this kind of situation by establishing permanent EOC's, i. e., installation with stand-by communication equipment and other related and necessary resources.

4. Finally, what happened in Chicago suggests at least two matters that ought to be considered in future studies. (1) The majority of disasters studied so far by DRC have affected only a segment of the population in a community. This event in one way or another involved all the residents of the metropolitan area; they all had an interest in the restoration of community life. To what extent and how this fact influences organizational decision-making should be examined in depth in both similar and different contexts. (2) Insofar as the impact period is concerned, most disasters are over before they can be studied. There are some exceptions to this, and DRC has done pre-impact and impact research on hurricanes and floods. But the snowstorm in Chicago further confirms the value of looking into disasters where organizational officials not only are assessing a current situation, but also where they are making predictions on the duration and full nature of the impact on their communities. More advantage ought to be taken of those potential crises where a field team can observe the developing situation.