

# **DETAILED EXERCISE INFORMATION**

for

## **GTIME #1**

**October 29, 2009**

**Toronto, Ontario**

*an exercise of the*

## **Greater Toronto Incident Management Exchange**

*in partnership with*

Building Owners and Managers Association of Toronto  
City of Toronto Office of Emergency Management  
Disaster Recovery Information Exchange Toronto

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# GTIME#1 – DETAILED EXERCISE INFORMATION

## INTRODUCTION

Here is a detailed history of the exercise as well as observations from the participants. This will assist those who might wish to develop an exercise of their own or review their preparedness plans in light of this information.

## GOALS

The Greater Toronto Incident Management Exercise (GTIME#1) was developed with four goals in mind:

1. To bring together landlords, facilities management personnel, emergency management professionals, first responders and business continuity planners together in a single exercise
2. To exchange general information, methodologies and operational systems between various groups, many of whom did not have close working relationships with each other
3. To have individual practitioners meet, work and develop relationships with those whom they would interact with during a disaster
4. To lay the foundation for ongoing process increasing both the rigor and number of groups involved in further exercises.

We feel the exercise achieved all its goals. There was significant attendance — more than 200 participants included landlords, facilities managers, and disaster response professionals. Useful information was exchanged, both informally during the exercise and through this white paper. People who will have to work together during a disaster made contacts amongst themselves. Participants, organizers and sponsors all felt that expanded versions of GTIME#1 should be held in the future.

## OBJECTIVES

The exercise was designed to test responsiveness and contingency operations:

- By DRIE and BOMA members
- In the event of an infrastructure disruption
- Using their existing plans

The exercise was designed to generate discussion regarding actions taken. It focused on the ability of businesses to continue operating in spite of disruptions to services within their buildings.

The format was a tabletop exercise. The scenario evolved over a 24-hour period, represented by updates or 'injects' provided to participants in accelerated time. The incident that was chosen equally affected all players over a wide geographic region.

GTIME#1 was designed to stimulate thinking and discussion in an environment that allowed participants to collaborate.

## DETAILED METHODOLOGY

This exercise was designed to appeal to a wide audience, with varying backgrounds and experiences. It was based on an extreme heat weather condition affecting Southern Ontario. With temperatures ranging from 30-35 C and a humidex of 40- 45 C, advisory warnings were issued by Environment Canada. Further reports stated these current conditions, including humidity, would continue for at least the next 5 days with a no possibility of precipitation. Scenario injects or updates can be in Appendix 2 as well as in the PowerPoint presentation.

The scenario was designed:

- To eliminate misconceptions
- To help participants understand the role of various municipal, provincial, and federal government services and critical infrastructure providers
- To bridge the gap between the private and public sector
- To allow different business sectors to exchange experiences

This enabled the participants to gain valuable information from each other and understand each others response to a situation

The majority of participants were:

- Emergency planners
- Risk or loss prevention planners
- Disaster and emergency managers
- Government services
- Building owners/managers and building operators
- First responders
- Business continuity professionals

An IBM dynamic voting system was used:

- To gather responses to key questions
- To gain overall participant reaction
- To share information.

This would help participants identify procedures that may be missing from their plans. Questions provided were directed at prompting discussion regarding communications plans and emergency preparedness.

The exercise used a ballroom setup in which participants were free to sit where they liked. This allowed individuals from different backgrounds and levels of experience to work together to deal with the simulated emergency. A representative from the Office of Emergency Management for the city of Toronto moderated the exercise. Volunteers from BOMA's Emergency Management

Committee, GTIME, and members of DRIE's Toronto Chapter were interspersed at the tables to observe participant response and promote constructive cross-functional discussion. Their facilitation and hard work contributed a considerable amount of the input to this white paper.

Participants, prompted by 'injects' presented by the moderator, provided responses via a dynamic voting system provided by IBM. This tabulated responses, generated graphs, and displayed results in real time. This allowed participants to identify procedures missing from their plans and discuss their communication strategies, plans and emergency preparedness.

## **THE EXERCISE DEVELOPMENT JOURNEY**

### **INTRODUCTION**

Three organizations developed and administered this exercise:

- BOMA (Building Owners and Managers Association)
- OEM (City of Toronto Office of Emergency Management)
- GTIME (Greater Toronto Incident Management Exchange).

All three groups had different journeys to bridge silos and expand vision. Extensive development, far-reaching collaboration, and good old fashioned hard work ensured the success of this exercise.

### **THE BOMA STORY**

BOMA is a 93-year-old organization that represents and serves the commercial real estate industry of most of Ontario. With its national association BOMA Canada and as a part of BOMA International, BOMA advocates to provincial and municipal governments, usually through collaboration with other real estate organizations, and promotes information-sharing and professional development of building owners and property managers. From this comes the hosting of emergency management forums to increase the ability of landlords to respond to a disaster.

One year after the 9-11 disaster, the first emergency management forum was created to protect lives and comply with building codes. Prior to this, BOMA's emergency management was done on a building by building basis. Under older systems, landlords simply evacuated the building, locked it down, and left the city in charge.

However, BOMA noticed that the urban landscape had changed and that here was a need for an urban systems or holistic approach. They perceived a need to become more sophisticated on how landlords approached and managed emergencies. New concepts, such as shelter in place, became standard practice. There was a new awareness that there is more to handling emergencies than merely leaving the building. Thus emergency management for buildings became more in line with some of the theories and pillars of general emergency management.

To develop and disseminate this new information, BOMA developed emergency management forums. Held at yearly intervals, the first and second forums presented subjects in a lecture format. Beginning with the third forum, full scale exercises with increasing sophistication were developed. The third forum involved enactments of events and their consequences, including a post event trial. The fourth one involved a wide scale disaster.

Realizing that landlords did not exist in a vacuum and had to interact with civic authorities, BOMA chose to hold forums in concert with the City Of Toronto Office Of Emergency Management. This successful collaboration led to the further observation that the business continuity plans of tenants had to be integrated and synchronized with emergency plans of the buildings they were in. To do this, BOMA reached out to other organizations sharing information and addressing issues from different viewpoints. The reality was that the tenant and landlord may have different methods of relating to a disaster.

To address these needs, BOMA leveraged their common membership with DRIE to develop contacts in the business continuity community, leading to BOMA's participation in GTIME's trial exercise in 2007. With this solid foundation, BOMA and DRIE began to meet, along with the City Of Toronto Office Of Emergency Management in 2008, to prepare a common exercise.

## **THE CITY OF TORONTO OFFICE OF EMERGENCY MANAGEMENT STORY**

The City of Toronto Office of Emergency Management became involved through outreach efforts to bona fide community and business groups such as BOMA, GTIME and DRIE amongst many others. From the beginning, it was perceived that for plans and procedures to succeed both the public and private sectors had to be involved. Municipal governments had to be concerned about the services they provided in emergency situations, understanding that their citizens and the businesses in their cities were effectively customers.

Disasters can have a ripple effect, well over and above the areas and people directly affected. Communication and evaluation become important, as there have been increased demands for municipal involvement to provide levels of support not necessarily contemplated at the time of the disaster. The disaster management pillars of response and recovery now tend to blend together for the city. These diverse interdependencies and interrelationships need effective strategies for efficient emergency management. Thus, community education and exercises were needed at all levels for government, private enterprise and the community at large.

This collaboration and outreach works both ways, with the city learning from various groups, organizations and companies involved in all aspects of the community, including infrastructure. Many of these organizations now sit on the city's Emergency Management advisory panel, a group officially recognized in the City of Toronto Emergency Plan.

The City of Toronto Office of Emergency Management has long been involved with private building management, holding municipal level exercises on private property. Formal involvement with BOMA began with a chemical, biological and nuclear exercise and grew from

there. After the joint 2008 exercise, both groups agreed that the business continuity discipline should actively be included in future exercises. GTIME had made contact with both BOMA and the City of Toronto Office Of Emergency Management, and all concurred that a common exercise should be developed for the fall of 2009.

## THE DRIE TORONTO STORY

The Disaster Recovery Information Exchange (DRIE) Toronto is a non-profit association of professionals dedicated to the exchange of information on all aspects of planning for an emergency or a disruption to normal operations. DRIE's goal is to provide an accessible, informal, open forum for the exchange of information and knowledge related to the many variations of emergency preparedness.

In September 2006, members of DRIE expressed the concern that there was a need to integrate business continuity planning with the methodologies and plans of other groups who would be affected by large scale events and disasters in the Greater Toronto Area (GTA). This integration would maximize the effectiveness of plans produced through the business continuity process. To accomplish this DRIE — by-and-large business continuity planners — had to formally identify what other groups shared this vision and how best to engage with them. A committee was struck by DRIE Toronto to investigate this potential, with the GTIME exercise growing from this committee.

The committee then embarked on a program to contact groups interested in collaboration. They also developed a research group to determine best practices for public/private cooperation and discover what had been done before. This would maximize the use of limited resources and prevent the need to reinvent the wheel.

Using contacts in both the public and private sector, meetings were held with organizations and companies. DRIE Toronto and GTIME would like to thank MARSH Canada for its help in sponsoring some of these meetings. Through them, it was determined that there was significant support for a combined exercise addressing the needs of various groups and disciplines.

In addition, the research group found there were similar organizations facilitating such collaborative efforts worldwide. Among them:

- ChicagoFirst in the United States, which developed exercises and procedures to handle disasters for the Chicago financial community
- Tripartite Authority in the United Kingdom, which had developed various exercises for their financial community in the United Kingdom
- Australian Convergence Convention, which brought together first responders, emergency managers, business continuity professionals and various other groups

As these contacts were made, all influenced the development of the GTIME vision.

With this input, a trial exercise was developed to determine the feasibility of a full scale integrated program. A simple scenario for panel discussion, involving the disruption of the downtown Toronto core, was presented at the September 2007 quarterly meeting of DRIE. Panelists from various groups including government, infrastructure, and BOMA presented their responses to the scenario. The membership of DRIE felt this exercise challenged their planning assumptions and was extremely useful. They wanted the GTIME committee to continue and develop such a program on behalf of DRIE.

DRIE's GTIME committee, BOMA and the City of Toronto Office of Emergency Management began to meet to determine the nature of a major exercise comprising those groups that would have to respond to a disaster in Toronto. GTIME, the committee became part of GTIME#1, the Greater Toronto Incident Management Exercise which culminated in the November 2009 event.

## CONVERGENCE

At this time, the three stories converged. All groups had met with each other and recognized similar histories and common interests. Individual plans and methodologies had led to the common realization that all had to reach out to one another.

Simple exercises had to increase in size and complexity. Diverse groups needed to link their planning, close gaps, and take a holistic approach to increase the effectiveness of disaster response.

In the end, we were all bound together. The challenge now was how to develop a single exercise of significant interest for all participants.

At joint meetings, it quickly became clear that while our overall goals were similar, there were differences in methodologies, terminologies and concepts. At the same time there was strong agreement for the critical need for interaction, collaboration and communication to discover and bridge those differences.

In the meetings that followed, differences were bridged with research and thought, open and frank discussion, goodwill, and the desire to provide the very best response to any emergency.

We quickly decided that the exercise would concentrate on areas where the City Of Toronto Office Of Emergency Management and first responders, business continuity planners and landlords, would interact and need the help of each other.

Differences in terminology between the various groups were carefully examined in order to prevent confusion. Other areas scrutinized involved similarities and differences in methodology, as well as the differences in overall outlook and attitude between emergency managers, business continuity planners and landlords.

While there were differences in concept, we were gratified to learn that all wished to discover where we were similar and to develop an exercise to bridge these issues, developing methods to counter what would confuse and divide us an emergency.

This was not an easy process. It involved much hard work and the open and frank sharing of views. However, the end result was an exercise that was well planned, smoothly executed and one that provided relevant information and experience to all who attended. All were able to benefit from the information from others who had different viewpoints but similar goals.

BOMA, the City of Toronto Office Of Emergency Management and DRIE are now looking forward to a second exercise. We hope to develop an expanded event that fosters even further integration between the organizations dedicated to protecting the citizens and businesses of Toronto from disaster.

The author would like to thank Douglas Macy of BOMA, Greg Stasyna of the City of Toronto Office of Emergency Management as well as Ann Wyganowski and Todd Bardes of DRIE for their kind help in the preparation of this history.

## **DETAILED FINDINGS OF THE EXERCISE INJECTS**

### **Scenario Inject #1**

[scenario time – Monday 0900 hrs or 9:00 AM – elapsed time 0 hrs 0 min]

Questions posed to the players to generate discussion on general preparedness were:

1. What are some of the things that you are going to consider doing?

Responses indicated there is considerable reliance on property managers and landlords for updates on impacts of weather-related situations that may impact the availability of the facility.

Some organizations would tell staff to go home; others would post warnings and information about the possibility of disruption. Other strategies included reduction of lighting, raising building temperatures with a view to careful management of sensitive areas such as data centres or computer rooms with increased ventilation such as standing fans. Some equipment identified could be put on auto sleep mode.

Participants indicated extra bottled water should be made available on site and generators should be tested.

In general, strategies put forward were a result of team brainstorming and did not indicate that these potential actions are fully documented in plan procedures and checklists.

2. Does your organization have an emergency procedure for heat alerts? and
3. Would you discuss anything or communicate anything special within your organization?

Only 16 percent of participants had a set of rules in place to manage heat alerts. The need to provide health alert guidance to employees to stay cool was well understood, but it needs to be documented as part of a formal procedure that is routinely followed.

Some organizations expressed their concern to support the GTA emergency responders with cooling services for the homeless, such as providing water or shelter from the sun. This latter finding was a great example of how organizations like GTIME can increase the communications flow and incident management coordination between emergency management and continuity planners to increase community resilience.

At this stage test developers expected that various groups would consider whether their emergency plans supported such a situation to protect people, property and assets. Providing some leadership to employees on health impacting situations they should be alerted to should also be a key consideration.

Many employers do not have a full set of emergency procedures to address many hazards, nor do they educate staff and contractors on appropriate personal safety measures beyond the typical building and fire evacuation plan.

Activation of the emergency management process is often the front end activation of the business continuity plan (BCP). The importance of a comprehensive set of emergency procedures that is integrated with the BCP is often overlooked.

## **Scenario Inject #2**

[scenario time – Monday 0910 hrs or 9:10 AM – elapsed time 0 hrs 10 min]

Additional scenario details were provided to the exercise participants to assist them in understanding the response from a municipal standpoint. The City of Toronto developed its heat alert system in 2001, before being crippled by a major heat wave, and based it on past disastrous heat wave experiences in Chicago (1995) and in Philadelphia (1993). Those two serious heat waves killed hundreds of urban residents and were an impetus for implementing the Toronto Heat-Health Alert. Heat and cold weather alert plans are designed to protect the City's most vulnerable populations—the elderly, children, medically at-risk persons, and the homeless—from extremes of heat and cold.

It was evident that not all plans include the many sources of information that may need to be assessed to understand the full implications of any emergency situation.

Emergency procedures for extreme weather conditions and Business Continuity Plans should include details for monitoring the situation, web links, and details for where reliable information may be obtained from local authorities.

The implications of Heat Alerts and requirements for associated Emergency Procedures was understood to some extent by the participants, but the need to document the plan

was even greater.

Emergency plans are often geared towards building evacuations due to fire, not towards a shelter-in-place response or other types of situations that may either cause loss of access to the building or create a need to remain in the building for safety reasons.

*“Typical summer daytime temperatures in Toronto vary between 17 and 20°C, though temperatures often can exceed 26°C. Between May and September, Toronto experiences on average 9.5 days over 30°C (averaged from 1961-1990). However, between 1995 and 2005, Toronto experienced an average of 16.1 days per year above 30°C. Some global climate change models estimate that temperatures in the Toronto area will rise between 2 and 5°C in the next 100 years. This implies that Toronto will experience more frequent heat waves.*

*“Before the Heat-Health Alert system was introduced, Heat Warnings were issued using one-day forecasts of a humidex of over 40°C. The City identified a need to improve on this system, and developed the Heat-Health Alert system in partnership with the Toronto Atmospheric Fund and the University of Delaware. Using 46 years of meteorological data provided by Environment Canada and 17 years of mortality data, researchers identified which meteorological conditions coincide with an increase in the number of excess deaths. The Heat-Health Alert system relies on computer modelling of various weather factors, including humidex, apparent temperature (a measure of human discomfort due to combined heat and humidity), cloud cover, wind direction and speed, and air mass. Simply described, this method looks at the relationship between different air masses and climate conditions, and health (in the form of mortality).*

*“The model predicts when the probability of excess mortality due to certain oppressive air masses rises above expected thresholds. When the conditions are such that it could potentially rise above 65 per cent, the Toronto Medical Officer of Health issues a Heat Alert. When the probability rises above 90 per cent, an Extreme-Heat Alert is issued. The variables associated with the oppressive air masses are tracked by the Heat-Health System, which is able to predict a heat alert or extreme-heat alert up to 48 hours before the event is expected. The City of Montreal is implementing a similar extreme heat alert plan. Heat alerts are issued when the temperature rises to 33°C for three or more consecutive days, or when temperatures remain above 25°C for two consecutive nights. Alerts are issued through the media and various community agencies, and response measures undertaken are similar to Toronto’s.”<sup>1</sup>*

Nearly all participants lacked procedures specific to heat alerts and how employees should be managed during such a situation. This is a clearly identified gap that needs to be addressed in every organization’s emergency procedures.

Based on our analysis of the participant responses and discussions, there is considerable variance in the types of actions that might be taken based upon the impacted facilities. A leading theme was the need for leadership from those most familiar with building functionality as part of the strategy in developing such procedures. Some of

the questions posed to the participants follow, with a summary of their response:

1. What building systems are operating that you would shut down first?

Some teams indicated actions might include reducing various services such as escalators, external lighting, closing outside dampers, room by room shut downs, reduction in lighting, turning off corporate signage, unplugging non-essential equipment, lowering blinds, and raising temperatures on air conditioning. Numerous preparation actions to ensure emergency generator electrical support were also put forward. It was noted that some buildings, such as bank branches, may not be able to close blinds for security reasons.

Large institutional tenants, such as banks, appeared to be well connected with property managers to coordinate on such efforts. For other types of organizations, there was certainly a need to coordinate some form of landlord / tenant meeting to target areas for power reduction and reach general agreement. This would require leadership from the property manager and should be part of their procedure. Tenant business continuity procedures should specify how they will work with the property manager and ensure the communication points are clearly established as such an incident escalates.

2. Who would shut it down? and

3. What is the impact?

Participants quickly identified that the challenges and impacts would vary, building by building. This clearly highlighted the importance of the data gathered during the risk analysis and business impact analysis phase of business continuity.

Not only should business processes and a measure of how critical they are be associated with the facilities they use, but risks associated with the facility need to be understood in relation to the resident services and processes. Landlords feel that tenants should take responsibility for management of the impacts, yet judging tenant-type responses, the actual physical building failure impacts are not always understood by the responding continuity team. In particular, the computer rooms within a tenant area were highlighted as a risk they needed to manage internally.

At this point there were also many discussions related to management of human resources and their availability. The fact that daycare centers may need to close and that employees would need to leave the office to attend to family needs was noted. The impact of sending all employees home at once was also considered, given the havoc that occurred in the August 2003 North East Blackout, due to massive crowds attempting to evacuate from the downtown core at the same time. Concern was also expressed that the power company transformers could start overloading.

The possibility that chilled water might be on a separate system that might not be impacted, and that this might provide additional ability to keep things cool, was also raised.

4. Is the start-up time different/longer?

Again, the group readily identified that this will depend upon the age and complexity of the building and how automated the facility support systems are. Whether the teams developing continuity plans fully understood building start up lead times was not at all clear. This area may need further exploration during the Business Continuity Plan or Emergency Management Plan risk assessment process.

5. Are you going to communicate with the tenants?

Some landlords indicated that they will send emails to tenants. Generally this could be considered a benign form of response, since it lacks person-to-person contact to properly activate incident management procedures. It could be argued that the facilities team would be busy managing building systems, however three considerations arise:

- a) The need to automate the emergency contact or call tree process to speed incident notification
- b) The customer service aspect of such communications in an email-overwhelmed business world; and
- c) The need to establish an ongoing dialogue regarding facilities status for effective management of the BCP or Emergency Management Plan activation and management of the actual tenants

6. Will you contact them (Business Unit Managers/Tenants/IT departments) before you initiate a power reduction program?

Banks were well prepared to coordinate with property managers and their landlords. However, other organizations were less ready to coordinate. It is possible that this relationship exists as financial institutions have invested more heavily in backup generator power, subsequently working more closely with the landlord to manage power interruptions and switchovers.

Some participants noted that the blackouts would be rotational and power authorities might need to increase communications as to where those might occur, so teams on site could be on alert for unexpected failures.

Concern was expressed by landlords for small and mid-size tenants who did not have continuity plans. The threat of losing voice communications systems surfaced in a few discussions.

There is considerable reliance on floor wardens for building evacuations. It did not appear that there has been great evolution in approaching building evacuations in local emergency plans since the August 2003 blackout. Organizations have simply not adjusted their evacuation plans to consider staged evacuations to avoid flooding the streets and train stations with people. Testing these different types of evacuations is also a gap.

7. What computer rooms or data centres are in the building?

There was a general view that tenants are responsible for their own computing facilities, but little discussion emerged on best practices for working together to manage risk as partners. Larger financial institutions were better prepared and worked closely with the facilities management teams. Often in large companies, entire floors or a considerable area of a floor might be designated as a computer room or data centre. Some property managers knew the data centres existed but were not sure how long they could be sustained under the scenario conditions. Special rooms such as labs, in addition to building management systems, were identified as another worry for damage and unique management.

8. What is running in the computer rooms and how will this be managed?

The need to shut down equipment which is not critical was readily identified by some of the participants. However, others had absolutely no idea what critical systems and software applications were housed in the computer rooms in their facility, or whether there was a backup system for the software application and/or data. It is extremely important to understand exactly where critical software applications are housed as part of any continuity plan.

Table monitors did *not* get the sense that the structured shutdown of the computer rooms was clearly documented in many information technology Disaster Recovery Plans (DRPs).

9. Are there joint occupational health and safety meetings that need to take place? Is union consultation required?

Many participants reported very good relations with joint occupational health and safety committees and emergency management teams within their buildings, while others reported spotty communications. Property managers and landlords indicated they would make themselves available to join meetings. But would this really be

practicable during such an emergency?

10. What will you communicate to employees and contractors on site?

Teams indicated they would ask tenants to prepare for rolling blackouts, or to consider working outside of normal working hours. It was considered important at this point to ensure that all emergency systems should be tested, in some cases with certification by the local authorities (such as TSSA, the Technical Safety Standards and Authority).

It was noted that landlords could not force tenants to leave at this point in the scenario. Things would have to become worse. Therefore, building support would have to be either maintained at status quo or increased, depending upon building complexity and the strategies chosen to reduce power.

### **Scenario Inject #3**

[scenario time – Monday 1300 hrs or 1:00 PM – elapsed time 4 hrs 0 min]

As in all worsening situations, the exercise development team provided some further challenges to the players. At this point, if the business continuity plan had not been pre-activated to manage an evolving situation, the circumstances dictate some form of action. Some anticipated impacts begin to occur.

Appropriate advisories were prepared and released based on past experience for the purposes of exercise simulation.

Exercise designers anticipated that, following these injects, continuity planners would adjust service levels and prioritize business. Manufacturing would need to restrict output and reduce or stop non-essential processes.

Additional Alert messages were provided to the exercise participants based on those which were provided during the August 2003 power outage.

The Independent Electricity System Operator (IESO) manages Ontario's electricity system and operates the wholesale electricity market. It forecasts the demand for electricity and ensures that there are available supplies to meet that demand.

Some questions posed to the exercise participants were designed to understand their depth of knowledge in the area of how power works in their facilities and whether or not the risks have been fully explored and understood as part of their plan development process. Exercise designers expected that the topic would be well understood by facilities managers, but not necessarily by the continuity and emergency planners. Many participants noted a lack of corporate buy-in and support for preparing detailed plans for the management of power risks.

Considerable concern and frustration was expressed with the lack of tenant continuity plans for small- and medium-size business. Although facilities management has in many cases promoted and encouraged small- and medium-size tenants to prepare plans, little progress has been made in this area.

2. What steps would you take and in what order would you take them to reduce power consumption.

This question was explored earlier in Inject #2, but further discussion took place as participants came to accept that there would be unavoidable impacts to their business. In many exercises it is typical for participants to exhibit some degree of denial in the initial stages of the scenario. This is why exercise design should include a repeat of some questions to see how participant thinking has evolved during the simulation.

There was good cooperation and agreement on the need to shut down non-essential systems and prioritize the use of available power. Lighting reductions and raising office temperatures were popular choices. Property management leadership for this initiative was well recognized by exercise participants.

3. What is supported by the emergency generator?

The large institutions, as usual, had a good understanding of what (if anything) was supported by emergency power within their buildings. Others, however, did not realize that typically only life safety services would be supported for a short period of time to allow for building evacuation.

Considerable discussion ensued as to the need for regular testing of emergency generators at full load and the need to coordinate between landlords and tenants on any power risks.

4. What is the effect on business operations?

Facilities managers noted that there are always some tenants who refuse to leave, which impedes their ability to manage the incident. In a multi-tenant building, the tenants cannot be forced to leave without intervention by local authorities.

Continuity planners again noted that personnel would be concerned with picking up their children should daycare facilities be closed and attending to other family matters. Much like an infectious disease outbreak, this would cause considerable loss of personnel. Not all companies and organizations offer their employees the option or provide the means to telecommute. In some cases the type of work their staff performs requires onsite presence.

5. Are you aware of your backup operations?

There was good awareness of data backup procedures, but not necessarily a good understanding of the power back up capabilities on the part of the continuity planners. Although great strides have been made in the business continuity field to bring IT disaster recovery plans in line with business requirements, there is still room for improvement in the understanding of how technology supports the business.

6. Has your Crisis Management Team been activated yet?

It was widely agreed that the information technology incident management operations would have been activated through the IT Disaster Recovery Plan. However, it was much less clear as to whether the business operations had activated plans. Some teams indicated that the Crisis Management Team would definitely have been activated.

Emergency procedures for utilities outages should include a clear set of steps to escalate the incident, examine the impact of the situation, and call for a clear decision to activate *both* Business Continuity and IT Disaster Recovery Plans. IT Disaster Recovery plans should also include clear triggers to escalate the IT impacts to the Crisis Management Team that governs business continuity.

Ideally, the business continuity plans for facilities should be integrated with tenant continuity plans and impacts to the business understood.

#### Scenario Inject #4

[scenario time – Monday 1330 hrs or 1:30 PM – elapsed time 4 hrs 30 min]

There are voltage fluctuations (brown outs) and dirty power. Assume that UPS are impacted and at least one is damaged.

1. What are the effects on Data Centre Operations?

Some participants felt that computer rooms and data centres were well protected and would continue to operate at the usual level of service. Others noted that some organizations had to revert to paper-based operations following a five hour power interruption. Another organization noted that they had faced challenges with staff being unable to implement the manual workarounds in their BCPs once the information technology was unavailable.

As reliance on information technology continues to increase across many types of businesses and organizations, the need to fully understand how well the computing environment is supported and to test manual workarounds becomes even more critical.

2. With a voltage reduction (brown out) would your peripheral equipment be damaged?

Facilities managers readily pointed out that controllers, elevators, chillers, and other equipment could be impacted by the power fluctuations. UPS units supporting data centres could also be damaged, but this was not widely known. Pumps and HVAC could also be impacted, thereby causing issues for the IT computer rooms and data centres. Participants indicated that desktop computers and laptops could also be damaged.

A good IT disaster recovery plan should include a component to allow for quick recovery of end user computing environments. Other types of equipment which could be impacted were not widely known or identified by participants in the discussions.

Again the business knowledge depended on the maturity of business continuity within the organization. Critical infrastructure providers such as telecommunications were very much aware of power needs and management. Others were not as aware of the potential influence such fluctuations could have upon their operations.

Whether the loss of some of the equipment at risk is incorporated into plans is not really known, but the understanding of the risks associated with power fluctuations was greatly enhanced as a result of the exercise.

### 3. What is impacted by the power fluctuations?

Some participants had no idea what could be impacted, but others had very high awareness. When asked whether they understood exactly what the emergency generators supported, 64 percent said yes, but 36 percent said no.

### 4. Are the UPS units in your data centre still operational?

Some participants had recently experienced power outages at their data centres, but the amount of time the actual units supporting the computing equipment would last was not widely understood. Load balance changes were raised as an issue, as well as the need to have the IT team monitor the UPS units closely.

Even though the level of knowledge was very low on the risks associated with UPS life, the lesser understood issue of gradually declining battery life was not raised. As a result, those who *thought* they knew how long their UPS would last could have had false expectations.

## Scenario Inject #5

[scenario time – Monday 1500 hrs or 3:00 PM – elapsed time 6 hrs 0 min]

Exercise designers expected that preparedness for power outages had improved following the August 14, 2003 North East blackout, which included the Greater Toronto Area. Emergency Managers in the GTA have improved their plans based on real life lessons. However, the *post mortem* response from a business continuity standpoint was largely unknown. Had businesses

and organizations taken more steps to better protect their continuity? Or did they continue to rely on critical infrastructure providers to improve their plans so the incident would not be repeated?

At this point in the exercise, property managers provided participants with an enormous amount of detail related to facilities issues and impacts which had not been considered by continuity planners.

Very few participants had a full understanding of the implications of loss of domestic water in their facility. Loss of domestic water can require a full evacuation of the facility and have other cascading impacts, some due to sanitary conditions. A number of discussion points were posed to the participants:

1. How will you respond to complaints regarding emission levels due to excessive traffic exiting the parking garage with reduction of power to garage ventilation fans?
2. What are the impacts to building security and safety systems such as electronic/magnetic locks?
3. Are you going to communicate with your tenants? If so, what are you communicating and by which means?
4. Are there effects on your communications (cell phone, land line, VOIP, satellite)?
5. Is there an impact on your water supply system?
6. How is the facility going to be kept secure? Who can access it?
7. What time sensitive and confidential documents are on site?
8. What is the impact to the telecommunications systems? (PBX on site? Do telephones still function without electricity? Do you still have VoIP? etc.)

Participants indicated some of the questions were addressed in their Business Continuity Plans. However, results indicated there was considerable room for improvement — 28 percent didn't address any of the eight questions, addressed less than four, or didn't know whether their plans included them. Of note, physical security plans appeared to be in place and were quite sound.

By this point in the scenario, exercise planners expected there would be no excuse to have delayed implementation of crisis management procedures, emergency management plans, BCP teams, and IT disaster recovery procedures. While 93 percent of participants said their Crisis Management Teams were activated, seven percent still held out on plan activation.

The level of IT Disaster Recovery Plan activation was an interesting point addressed in Inject #6. Only 55 percent of participants said they would have activated their plan. Comments from table monitors indicated that experiencing short power disruptions would delay decisions to activate plans. Others indicated the management team was not very familiar with activation of the IT Disaster Recovery Plans or how they would be notified if the plan was activated.

Although 84 percent of participants indicated they had activated their Business Continuity Plans, a surprising 16 percent were still holding out. The dollar values associated with the resulting business impacts from plan inactivation could be an interesting point for those participants to examine more closely.

It is not known whether plans were not activated due to inherent business resilience or lack of clear activation procedures. Some participants had no idea how they would find out if any of the plans had been activated.

Regardless of the organization, there is a need to ensure that multiple plan activations are aligned. These may include: Crisis Management, Emergency Procedures, IT Disaster Recovery, Crisis Communications, and Business Continuity, to name a few.

The impacts associated with the scenario would be extremely different in nature for many participants and some excellent discussions took place as tenants tried to understand how their landlord would respond.

Many new risks were identified by the continuity planners. For example, quite a few had not addressed the issues associated with hard copy documents on site. Participants from the legal industry had a good awareness of what was on site, but others did not.

Many of the facilities managers felt that comprehension of facilities issues and impacts was very poor amongst their tenants. The ability to monitor the building for issues, manage the issues, and communicate was much easier for organizations with larger teams. Single tenant buildings also had a much easier time, as their communications plan was simpler.

One of the main issues in the August 2003 North East Blackout was the failure of voice communications. Typically PBXs and VOiP supports are located on site with the business team. Businesses and organizations understand little about which telecommunications supports are impacted by power outages. Many blindly rely on the presumed robust plan of their telecommunications provider to support the continuity of their communications.

The back-up power generation plan for a telecommunications company is often well thought out and robust. On the other hand, the provider may be dealing with their own continuity plan activation or managing a serious increase in landline traffic on their network as cellular network capacity reaches its limits. Multiple forms of communication may need to be deployed to effectively manage a wide scale incident.

Voice over IP (VOIP) is becoming increasingly popular, however many organizations have implemented this new form of telephony without comprehensive IT Disaster Recovery Plans and other workarounds. Many participants indicated that their phones would not function without electricity. Many continuity plans do not include the identification of which phones in a given facility will operate without electricity, or they may not have addressed the failure of the PBX or internet gateway on site. This would be a logical addition to continuity plans.

Communications supported by emergency generators are often limited to building public announcement systems.

1. Where does your Crisis Management Team meet? and
2. Where is your Emergency Operations Centre or Incident Command Centre?  
The Emergency Operations Centres (EOCs) referred to were often physical locations. Many participants who had identified such a location noted it was in the same building impacted by the incident. Faced with a major disruption to transportation and the need to address issues at home, the ability of some EOC participants to attend at a physical location needed further consideration. The need to understand and use virtual incident command is an opportunity for many companies and organizations.

It is extremely important to have plans in place to assist employees faced with the challenge of a wide scale incident. The sooner the employee is able to deal with the emergency on a personal scale, the sooner they will be ready to assist with business resumption and recovery. As expected, large banks and insurance companies seemed to be well prepared to look after employees, while small and medium business would be greatly challenged.

3. Has your BCP or Emergency Management Plan been activated? To what extent has it been activated?

Refer to the above analysis of the results in conjunction with other plan activations for comments regarding this question.

4. Do you have arrangements for emergency fuel delivery? and
5. How much fuel do you have?

Generally, participating facilities teams knew the answers to these questions but the continuity planners did not. This was another plan integration point that both continuity and disaster recovery planners should address with the facilities team.

Not many participants included multiple fuel suppliers in their plans. This was surprising, as many suppliers quickly ran out of fuel during the 2003 North East Blackout and were not able to deliver to all of their customers. The fact that continuity plans have not addressed the need for multiple suppliers indicates a serious gap.

6. When have you last checked your building's generator?

Some understood that the fuel could age and needed to be checked. Others indicated that partial load testing took place quite regularly, but full load testing did not. Overall, the need to test generators was understood, but the reality of implementation was not. Some participants had no idea how long fuel supplies would last or when the generator

was last tested. There was an opportunity to add more detail to plans on alternate sources of fuel and energy.

7. What is supported by the emergency generator?

The large institutions, as usual, had a good understanding of what (if anything) was supported by emergency power within their buildings. Others, however, did not realize that typically only life safety services would be supported for a short period of time to allow for building evacuation. Considerable discussion ensued as to the need for regular testing of emergency generators at full load and the need to coordinate between landlords and tenants on any power risks.

8. What is the effect on business operations?

Facilities managers noted that there are always some tenants which refuse to leave, which impedes their ability to manage the incident. In a multi-tenant building the tenants cannot be forced to leave without intervention by local authorities.

9. Are you aware of your backup operations?

There was good awareness of data backup procedures, but not necessarily a good understanding of the power back up capabilities on the part of the continuity planners. Facilities managers readily pointed out that controllers, elevators, chillers, and other equipment could be impacted by the power fluctuations. UPS units supporting data centres could also be damaged, but this was not widely known. Pumps and HVAC could also be impacted, thereby causing issues for the IT computer rooms and data centres. Some participants indicated that computers and laptops could also be damaged. Again, business knowledge depended on the maturity of business continuity within the organization. Critical infrastructure providers such as Telco's were very much aware of power needs and management, but others were not as aware of the potential such fluctuations could have upon their operations.

### Scenario Inject #6

[scenario time – Monday 1730 hrs or 5:30 PM – elapsed time 8 hrs 30 min]

1. What would prevent power (electricity) from coming back on in your building?

There were several answers to this question. They ranged from a short in the system, to tripped breakers, to improper installation of breakers causing damage to the system.

2. Who will you contact to advise that your power is not back on? What would prevent power (electricity) from coming back on in your building?

The answers to this question varied greatly depending upon whether the respondent was a BCP specialist or a landlord as well as if the organizations representative owned the building or was a tenant.

Those who were landlords or property managers would call their own facilities departmental specialist staff, tenant representatives or, if they were strictly property managers, the property owners. Most would also call Toronto Hydro.

Business Continuity Planners (BCP) of tenants would call the facilities management of landlords or the landlord's property managers. BCP of organizations who owned the building would call their own facility management and sometimes Toronto Hydro.

Specific information was brought up. According to some property managers: "property management staff would remain until power restored, as power restoration has to be done slowly, with system checks to ensure there are no issues before going to full power." — "There would have to be significant testing before full power restoration." — "A further controlled shut down and restart may be necessary to ensure didn't overload (as based on 2003 experience)." — "Washrooms are a problem; sensor failure can lead to flooding, continual flushing. These issues were seen at Union Station which had issues with flooding."

3. Do you have a third party contractor and specialists (high voltage, UPS, IT-DR), and are they available?

Most participants understood there are dangers, in some cases to human life, in having untrained people attempt to deal in specialist areas, especially with electricity. Examples were given, such as flipping breakers after an outage causing panels to blow off the wall, with the possibility of injuries. The consensus was that trained professionals should deal with power restoration.

Most landlords and property managers stated that they had specialist third party contractors either on staff or on contract. However, many business continuity planners were unaware of this. In general, landlords and property managers had these specialists in place for more facility-related matters such as electricity, while business continuity planners might have IT related contractors in place.

4. Has the IT Disaster Recovery Plan been activated yet? This question was explored above (under Scenario Inject #5) in order to compare the responses to activation of the Crisis Management Team, the IT Disaster Recovery Team, and the BCP Team.

Many participants from landlords/property managers, business continuity planners and disaster managers/first responders had activated plans at this point. However, some had not, as data centers may be in a separate location, running under a different power grid. In these cases the IT disaster recovery plan was not been activated, as it is unlikely two

separate locations would face the same problem. Disaster recovery plan responders may have been activated and sent to help with IT-related issues at the main site.

In a couple of cases, management had no experience activating the IT disaster recovery plan, but much experience in dealing with short-lived power outages onsite. They may have hoped the power would come back on shortly, so they could deal with it in situ. Since the DR plan had never been activated, the representative was unsure how quickly management would be able to agree that this merited invoking the plan.

It was found that most organizations had separate IT plans, though not all.

The overall level of understanding of landlords and property managers about building operations and their impacts upon the IT environment were good. However the knowledge of the other participants varied greatly — from equal to poor.

In general there were lots of surprises regarding building operation impacts in leased buildings, with those in corporate owned buildings perhaps experiencing the least impact, as they could develop plans from end to end.

To summarize this inject, there was a significant difference in the level of knowledge between the various participants. Those whose area of expertise was directly impacted had the greatest level of knowledge.

Therefore, landlords/property managers, business continuity planners and first responders have a relatively detailed understanding of each others plans and issues in terms of IT, power and other facility management restoration issues on a building-by-building and event-by-event basis. Individual actions and small details may greatly impact the efficiency and safety of a restoration. Everyone's plans must take this into account and extensive communications are critical both before and during an event.

### **Scenario Inject #7**

[scenario time – Monday 1800 hrs or 6:00 PM – elapsed time 9 hrs 0 min]

This inject was modeled on a real event that took place on King Street in Toronto's downtown core. An early morning explosion and fire in an electrical transformer vault that serviced a major office complex required several days to restore full electrical service to the building. The transformers had suffered extreme fire damage and all cabling needed to be replaced. Also, some smoke and soot had infiltrated the building's HVAC system.

Questions posed for discussion:

1. What are your contingency plans?
2. Have you conducted a damage assessment?
3. Tenant communications – what are you saying at this point?
4. How does your building staff deal with internal incidents such as this?
5. Do you have appropriate response equipment in your organization?
6. What process is in place to mitigate the impact of this incident on internal systems (i.e. HVAC)?
7. Are there implications regarding the HAZMAT?

In this scenario, the whole area surrounding the transformer vault showed evidence of fire, smoke, black soot, and unknown powder residue. There was also no comment nor denial regarding the presence of PCBs in the transformers. An inspection of the area was ordered by building maintenance, to include the local utility and any experts as required. Building management ordered the evacuation of tenants until the air quality could be determined. The big question: “Who has the authority to issue evacuation orders and close the site?” The first comments provided by the participants related to action points in the business continuity plan or emergency management plan that provided a course of action in the event of a failure of a major building infrastructure component. Whose responsibility will the recovery tasks fall to with respect to a critical part of the building’s electrical system? Many BCP/emergency management plan documents revealed that the supply of critical utilities had not been addressed and risk criticality had never been assessed. So most of the companies were not prepared for the issues in this scenario. Most participants agreed that the BCP/emergency management plan should be activated, but no one was willing to suggest who should take that action. Very few plans had a predetermined trigger point.

Finally, the building managers arranged to have a full electrical examination of impacted areas and a damage assessment. Even before the analysis could be started, a full inspection by the local HAZMAT team and Occupational Health and Safety officials would be required. Afterwards, it was confirmed that the transformers did not contain PCBs. Examination by the local utility, electrical contractors and the building managers revealed extensive damage to the electrical transformer chamber, the transformers, and all major service wiring to the building — the transformers were “toast”.

The Building Managers informed tenants that a week or more might be required to source the parts, equipment and skilled staff needed to restore full service to the building.

Additional questions posed here were:

8. Which other emergency procedures should now be activated, in addition to the BCP or Emergency Management Plan?
9. How, what and when are employee, supplier, and client communications enacted?
10. What role will the Joint Occupational Health and Safety Committee play?
11. Where is the Crisis Management Team meeting?
12. Which staff members have respiratory health challenges?

Although there were many continuity specialists at the table, not many considered using the human resources team to assess the vulnerability of the employee population. This was an important gap in many plans.

13. Are the specialist support providers in place and how reliable are they?

While Business Continuity Plans had provided for a worst-case scenario, planned expectations were not as bad as reality, and plans were not as detailed as would be required. Everyone was learning a whole new set of acronyms. Business tenants had

not been previously concerned with HVAC, OHSC, HAZMAT. Now these ‘things’ were having a major impact on their bottom line.

The crisis management team from each tenant now had to review alternative options that might not have been included in their BCP. These would be required to support the tenant’s corporate operations until the building’s managers/owners were able to rebuild the building’s electrical system and restore power. Only some of the tenants had a secondary recovery site that could be activated within the next twelve hours.

In addition to the obvious, we had to address a whole set of environmental/health issues that had not been included in the pre-planning. Which staff members had been exposed to the fire, and had there been any respiratory health challenges?

There was a long debate regarding payment for the recovery costs resulting from the electrical fire and replacement of the transformers. Would it be a cost that was covered by insurance and, if so, by whose policy? Or was it the responsibility of the electrical utility? Or would the owner or building management or tenants need to share the cost? The major issues in this Inject were not so much the impact of the actual fire and loss of electrical power, but the need for:

- Depth in our BCP/emergency management plans, longer term ‘Plan B’ options
- A better understanding of the infrastructure surrounding our corporate environment
- Better ongoing communication between building managers and tenants
- A better understanding of the role insurance might play in the recovery process
- The ability to adjust recovery timelines when the recovery process is unpredictable

### **Scenario Inject #8**

[scenario time – Monday 1930 hrs or 7:30 PM – elapsed time 10 hrs 30 min]

The importance of pre-defined and formal damage assessment procedures cannot be understated. It provides structure and discipline in assessing and reporting the physical impacts to the facility and/or computing environment. Although a slight majority indicated they had formal damage assessment procedures, 46 percent did not. This indicates considerable opportunity for addition to continuity plans.

It was also interesting to see the wide range of responses in identifying decision makers for building closures. Although a large number indicated that all of the roles on the list should be involved, it is questionable whether this list of decision makers is clearly identified in any of the emergency procedures or business continuity plans. Furthermore, there needs to be a clearly defined group which discusses and decides upon building closure.

Often these types of plans and procedures exist in companies and organizations which have offices in zones subject to severe weather, such as hurricanes or major winter storms. The Greater Toronto Area has recently begun to experience an increase in severe weather

conditions, such as wind storms.

Although many organizations in the GTA do not currently have such procedures, it could form an important addition to their emergency procedures. Activation of building closure procedures might trigger a continuity plan pre-activation or activation.

Responses indicated that 82 percent of participants would have contacted their risk manager or insurer at this late stage in the scenario. In reality, they should be notified as soon as it is evident that a business-impacting incident is occurring.

The fact that 18 percent of the participants had still not made this important notification is a call to action to ensure that the step exists early on in the response phase of continuity plans.

### **Scenario Inject #9**

[scenario time – Tuesday 0800 hrs or 8:00 AM – elapsed time 23 hrs 0 min]

The next business day, customers are asking about contracts, goods and services. Will you be able to meet deadlines? What is affected and for how long? Your employees are asking where they should report or what they should be doing. Electrical contractors say it will take six weeks to repair the transformer vault. A temporary electrical supply from an outside generator can be established within a week. However, it will only provide half the power needed for your normal load. Meanwhile, the heat wave continues unabated.

## **OBSERVATIONS, CONCLUSIONS, AND RECOMMENDATIONS**

### **KEY OBSERVATIONS**

- Business continuity teams do not have plans which are well integrated with their buildings
- Property Managers are frustrated by the lack of business continuity planning amongst small and medium size tenants
  - As they attempt to manage the demands of unprepared tenants, this greatly hampers their ability to respond to a widespread outage
- Some business sectors are heavily regulated, and so are better prepared than others

As indicated throughout this detailed analysis, numerous opportunities to update both Emergency Procedures and Business Continuity Plans were identified. Awareness of the impacts to people was very high during the exercise, possibly supported by the recent focus on pandemic planning.

- Sources of information from local authorities are key to effective plan activation and understanding the impacts to the organization
- Procedures for reviewing relevant communiqués and websites need to be added to both Emergency Procedures and Business Continuity Plans

As our climate continues to change, we need to be ever aware of the need to update our plans. The first GTIME exercise was a first step in plan integration. It highlighted the fact that there is still much to learn and that development of sound continuity plans cannot take place within silos.

## **NEXT STEPS FOR GTIME**

The Greater Toronto Incident Management Exchange will continue to work with participating associations to prepare for the G20 summit scheduled in Toronto this year.

The ability to communicate and support the GTA's Emergency Managers and effect cohesive continuity plans remains a key issue and a challenge that a committed team will continue to address.

A future exercise is planned for 2011, and the planning team hopes to build upon the initial foundation to increase the level of integration in planning and general level of understanding of how a wide scale emergency will be managed in the GTA.

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