THE CORPORATION OF THE TOWNSHIP OF MCGARRY
BY-LAW NUMBER 2025-08

Being a by-law to provide for the establishment of Emergency Management Program and an Emergency Response Plan

WHEREAS the Province of Ontario has passed the Emergency Management and Civil Protection Act, R.S.O., 1990, as amended;

AND WHEREAS the Act requires that municipalities develop and implement an emergency management program;

AND WHEREAS an emergency management program shall include an emergency response plan, emergency management training, emergency exercises and public education campaigns;

AND WHEREAS the Act provides that the Head of Council of a municipality may declare that an emergency exists in the municipality or in any part thereof and may take such action and make such orders as he or she considers necessary and are not contrary to law to implement the Emergency Response Plan of the municipality and to protect the property, health, safety and welfare of the inhabitants of the emergency area;

NOW THEREFORE the Council of the Corporation of the Township of McGarry enacts as follows:

1. THAT the Emergency Management Program Committee for the Township of McGarry be empowered to develop, implement and maintain an emergency management program for the Township.

2. THAT the Emergency Management Program Committee for the Township of McGarry will cause the emergency management program to be reviewed annually and to make recommended changes to the program as considered appropriate and to refer recommended changes to Council for review and approval.

3. THAT the Emergency Response Plan provides that the Head of Council be empowered to declare an emergency.

4. THAT the Emergency Response Plan provides for proper notification procedures for members of the Municipal Emergency Control Group in the event of an emergency situation and that the members of the Municipal Emergency Control Group be empowered to respond to an emergency in accordance with the municipality's Emergency Response Plan whether or not an emergency has been officially declared to exist.

5. THAT the Emergency Response Plan & Program for the Township of McGarry attached hereto as Schedule "A" is hereby adopted.

6. THAT By-Law 2020-22 is hereby repealed.

7. THAT this by-law shall come into full force and effect upon the final passage thereof.

READ A FIRST AND SECOND TIME THIS 11TH DAY OF MARCH 2025.

READ A THIRD TIME AND FINALLY PASSED THIS 11TH DAY OF MARCH 2025

Bonitta Culhane
MAYOR

(signature)
CLERK-TREASURER

SCHEDULE A TO BY-LAW NUMBER 2025-07

THE CORPORATION OF THE
TOWNSHIP OF MCGARRY

EMERGENCY RESPONSE PLAN & PROGRAM

**Appendices containing contact information are confidential and
not for public distribution**

DEFINITIONS

There is a need for common terminology that would be jointly understood by the public and private sectors. The following definitions and explanations will be helpful during the development and implementation process.

Community – A political body/organization, within a defined boundary, having authority to adopt and enforce laws and provides services and leadership to its residents. This term includes upper and lower tier municipalities.

Municipal Emergency Control Group (MECG) – The Municipal Emergency Control Group operating from the Emergency Operations Centre is responsible for coordinating municipal emergency response and recovery activities. The Municipal Emergency Control Group usually includes leading community officials, emergency management representatives and other relevant staff.

Community Emergency Management Coordinator (CEMC) – An individual officially designated by a community who is responsible and accountable for the community's emergency management program. The Community Emergency Management Coordinator must be, by definition, a municipal employee, as per the Municipal Act.

Community Emergency Response Volunteers (CERV) Ontario – The Community emergency Response Volunteers (CERV) Ontario program is a province-wide network of neighborhood-based, multi-functional teams of volunteers trained in basic emergency management principals and skills.

Critical Infrastructure – Interdependent, interactive, interconnected networks of institutions, services, systems and processes that meet vital human needs, sustain the economy, (protect public safety and security), and maintain continuity of and confidence in government.

Damage Assessment – Appraising the impact of a disaster on human, physical, economic, and natural resources.

Declared Emergency – A signed declaration made in writing by the Head of Council in accordance with the Emergency Management and Civil Protection Act. This declaration is usually based on a situation or an impending situation that threatens public safety, public health, the environment, critical infrastructure, property, and/or economic stability and exceeds the scope of routine community activity.

Disaster – A widespread or service emergency that seriously incapacitates a community and is catastrophic to operations.

Emergency – A situation or an impending situation that constitutes a danger of major proportions that could result in serious harm to persons or substantial damage to property and that is caused by the forces of nature, a disease or other health risk, an accident or an act whether intentional or otherwise.

Emergency Management – Organized and comprehensive programs and activities pursued to deal with actual or potential emergencies or disasters. These include mitigation against, preparedness for, response to and recovery from emergencies or disasters.

Emergency Management Program (Risk-Based) – A program that is based on a hazard identification and risk assessment process and leads to a comprehensive emergency management program that includes the four core components of mitigation/prevention, preparedness, response and recovery.

Emergency Management Program Committee – A management team to oversee the development, implementation and maintenance of an emergency management program.

Emergency Operations Centre (EOC) – The EOC is a facility where the Municipal Emergency Control Group assembles to manage an emergency.

Emergency Response Plan – A risk-based plan developed and maintained to respond to an emergency. This includes steps to guide the response effort, identifies persons, equipment, and resources for activation in an emergency and outlines how they will be coordinated.

Hazard – An event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, damage to the environment, interruption of business, or other types of harm or loss.

Head of Council – Mayor, or in their absence, a designated councillor.

Mitigation – Actions taken to reduce or eliminate the effects of an emergency or disaster.

Mutual Aid Agreements – An agreement developed between two or more emergency services to render aid to the parties of the agreement. These types of agreements can include the private sector emergency services when appropriate.

Mutual Assistance Agreement – An agreement developed between two or more jurisdictions to render assistance to the parties of the agreement. Jurisdictions covered with these types of agreements could include neighboring communities.

Preparedness – Actions taken to an emergency or disaster to ensure an effective response. These actions include the formulation of an emergency response plan, a business continuity plan, training, exercises, public awareness and education.

Prevention – Actions taken to prevent an emergency or disaster.

Public Awareness Program – Provides generic information to the broader public to raise awareness about emergency management and suggests ways to reduce the risk of loss of life and property damage in the event of an emergency.

Recovery – Actions taken to recover from an emergency or disaster.

Recovery Plan – A risk-based plan developed and maintained to recover from an emergency or disaster.

APPENDIX A
EMERGENCY CONTACT NUMBERS (confidential – not for public distribution)

APPENDIX B
EVACUATION PLAN

APPENDIX C
HAZARD IDENTIFICATION AND RISK ASSESSMENT (HIRA)

1.0 INTRODUCTION

The Emergency Management and Civil Protection Act establishes the province's legal basis and framework for managing emergencies. It does this by defining the authority, responsibilities and safeguards granted to provincial ministries, municipalities and specific individual appointments.

The overall legal framework for emergency management in Ontario is addressed primarily in the Act, which along with powers contained in other ministry-specific legislation allows the government to take necessary steps to deal with a provincial emergency. The purpose of the legislation is to promote the public good by protecting the health, safety and welfare of the people of Ontario in times of emergencies.

Ontario Regulation 380/04 establishes the minimum standards for emergency management programs required by municipalities and provincial ministries and supports the requirement in the Act for mandatory emergency management programs.

Such situations are extraordinary occurrences demanding extraordinary action. Thus, they are distinct from routine operations carried out by municipal departments such as public works or other agencies such as police, fire, and ambulance. The response to such emergencies often requires a coordinated effort on the part of several agencies, both public and private. This coordinated response is guided by a select group of individuals known as the Municipal Emergency Control Group. This Emergency Response Plan, which has been prepared by the Township of McGarry's Emergency Management Program Committee, identifies the members of the Municipal Emergency Control Group and their individual roles and responsibilities and certain procedures to be followed during an emergency situation.

A hazard can be defined as an "event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, damage to the environment, interruption of business or other types of harm or loss". Hazards can be categorized as natural such as ice/snow or fire, technological such as loss of electrical power, or human such as vehicle accidents. The Township's Emergency Management Program Committee has identified a set of community hazards that are most likely to result in an emergency situation for the municipality. The following community hazards are listed in order of priority:

a) Forest / wildland fire
b) Windstorm
c) Freezing rain / ice storm
d) Snowstorm / blizzard
e) Explosion / fire
f) Extreme temperatures – cold wave

While there are ways to mitigate and prevent some hazardous events, many situations occur that are difficult to avoid. Nevertheless, there are steps that we can take to lessen the impacts to our community including loss of life and property damage. This plan is intended to serve as a guide in implementing those steps necessary to lessen the impact of an emergency on the community.

2.0 AIM

The Aim of the Township's Emergency Response Plan is to make provisions for the actions and measures that may have to be taken to efficiently and effectively deploy the services necessary to address an emergency situation or event in order to safeguard the health, safety, welfare of habitants, critical infrastructure, the environment and economic vitality of the Township of McGarry.

It is the goal of the Township of McGarry to **PREPARE TODAY FOR A SAFER TOMORROW.**

In addition, it is important that residents, businesses and interested visitors be aware of the community's Emergency Response Plan. Copies of the Township of McGarry Emergency Response Plan may be viewed at the Municipal Office and online at www.mcgarry.ca - For more information, please contact:

> Community Emergency Management Coordinator
> Municipal Office
> 27 Webster Street
> McGarry, Ontario
> (705) 634-2145

3.0 LEGISLATIVE AUTHORITY

The Emergency Management and Civil Protection Act, R.S.O., 1990, is the primary enabling legislation for the formulation of this Emergency Response Plan, which will govern the provisions of necessary services during an emergency. The Emergency Management and Civil Protection Act and a by-law passed by the Council of the Corporation of the Township of McGarry will provide the legal authority for the Township's Emergency Response Plan. Once approved by Council, this Emergency Response Plan will be filed with the Ministry of Community Safety and Correctional Services through Emergency Management Ontario.

In accordance with section 3 of the Act, "every municipality shall formulate an emergency response plan governing the provisions of necessary services during an emergency and the procedures under and the manner in which employees of the municipality and other persons will respond to the emergency and the council of the municipality shall by by-law adopt the emergency plan".

Section 4 of the Act provides for the declaration of an emergency by the Head of Council and states that the "Head of Council may declare that an emergency exists in the municipality or in any part thereof and may take such action and make such orders as he or she considers necessary and are not contrary to law to implement the emergency plan of the municipality and to protect property and the health, safety and welfare of the inhabitants of the emergency area". This Plan sets out the procedures for declaring and terminating an emergency and the actions that may be taken by the municipality prior to the declaration of an emergency.

4.0 EMERGENCY MANAGEMENT PROGRAM

The Township's emergency management program includes an emergency response plan, emergency management training, emergency exercises and public education campaigns. Public education is conducted primarily via the Township's newsletter which is posted on the website and on social media. The plan and program are reviewed on an annual basis by the Emergency Management Program Committee (EMPC) and updates are made when required. The EMPC members are appointed within a council approved terms of reference which adopted by by-law. Annually, the Municipal Emergency Control Group (MECG) participates in an exercise and demonstrates an adequate level of training in each of the following areas:

- Knowledge of all the components of the municipal emergency management program, including, but not limited to the municipal HIRA and Critical Infrastructure list;
- Knowledge of their municipality's Municipal Emergency Plan, including their roles and responsibilities, and those of organizations which may have a role in response;
- Knowledge of the procedures used to activate and operate under the Municipal Emergency Plan;
- Knowledge of the notification procedures used to notify members of the MECG when the Municipal Emergency Plan is activated; and
- Knowledge of the location, communications infrastructure, and technology in their municipal Emergency Operations Centre.

5.0 PROCEDURES

5.1 Notification

Normally, fire and road departments will discover emergencies during their course of day-to-day operations. However, any member of the Township of McGarry MECG, upon receipt of a warning either real or potential, has the responsibility to ensure that the Township's emergency notification system is activated by contacting the Township's Clerk-Treasurer. It will be the responsibility of the Clerk-Treasurer to ensure that the emergency notification procedures for the Township are properly activated and that all members are contacted and advised to attend at the designated Emergency Operation Centre.

There may also be situations where the emergency notification procedures will be used to place the Municipal Emergency Control Group members on standby, to simply make them aware of a potential emergency or as part of a training exercise.

As part of the notification procedures, Ontario's Provincial Emergency Operation Centre (PEOC) will be contacted and a Duty Officer at the Provincial Emergency Operation Centre will be apprised of the emergency situation. Notifying the PEOC will be the responsibility of the Community Emergency Management Coordinator upon being notified of the emergency situation.

5.2 Action Prior to Declaration

When it appears that an emergency situation is imminent or has occurred, but an emergency has not yet been declared, Township employees may take such action as is necessary and as provided for under this emergency plan in order to protect the health, safety and welfare of the residents of the Township and to protect property.

5.3 Declaration of an Emergency

Whenever an emergency occurs or threatens to occur within the borders of the Township of McGarry it will be the responsibility of the Community Emergency Management Coordinator to notify the Head of Council.

Upon declaring an emergency, the Head of Council will ensure that the following individuals/agencies are notified:

a) Ministry of the Solicitor General by contacting Emergency Management Ontario

b) Town Council

c) Mayors/Reeves of surrounding municipalities

d) Local Member of Parliament

e) Local Member of Provincial Parliament

f) Public with the assistance of the Emergency Information Officer

5.4 **Terminating an Emergency**

At any time, Head of Council may declare that an emergency has been terminated. Once an emergency has been terminated, the Head of Council shall ensure that the following are notified of the termination.

a) Solicitor General by contacting Emergency Management Ontario, Ministry of Community Safety and Correctional Services.

b) Town Council

c) Mayors/Reeves of surrounding municipalities

d) Local Member of Parliament

e) Local Member of Provincial Parliament

f) Public with assistance of the Emergency Information Officer

6.0 **REQUESTS FOR ASSISTANCE**

Once an emergency has been declared, requests for assistance can be made to the following at any time without the Township losing authority or control over the emergency operations.

a) A neighboring municipality with whom the municipality has established Mutual Aid or Emergency Assistance Agreements.

b) The Province of Ontario by contacting Emergency Management Ontario.

6.1 **Mutual Assistance Agreements**

In order to provide effective planning for emergency situations, municipalities may enter into mutual aid agreements with neighboring municipalities. Mutual aid/assistance agreements ensure aid required to effectively manage an emergency or disaster may be provided at the time of request. Aid can include such things as services, personnel, equipment and materials.

Mutual assistance agreements enable municipalities, in advance of an emergency, to set the terms and conditions of the assistance which may be requested or provided. Municipalities requesting and providing assistance are therefore not required to negotiate the basic terms and conditions of the request at the time of an emergency and may request, offer or receive assistance according to the predetermined and mutually agreeable relationships.

Section 13 (3) of the Emergency Management and Civil Protection Act, R.S.O., 1990 as amended, provides the authority for the "council of a municipality to make an agreement with the Council of any municipality or with any person for the provision of any personnel, service, equipment or material during an emergency".

The request or response to a request of a neighboring municipality is the responsibility of the Clerk-Treasurer. The request to execute the Timiskaming District Mutual Aid Plan (fire departments) will be the responsibility of the Township of McGarry Fire Chief. The request for such assistance and the execution of a mutual assistance agreement will be made in consultation with the Township of McGarry Municipal Emergency Control Group. Alternatively, the request to

execute a mutual assistance agreement with the neighboring municipality will be made by the Clerk-Treasurer.

6.2 Request for Provincial Assistance

At its discretion, the Province may deploy a Field Officer to a local emergency to provide advice and assistance and to ensure liaison with the Provincial Emergency Operations Centre. However, when a community declares an emergency, Emergency Management Ontario will normally deploy a Field Officer to the local Emergency Operations Centre to assist the community with the emergency response. The Field Officer will be the link between the Township and the Province for both provincial and, if necessary, federal assistance.

6.3 Ontario Disaster Recovery Assistance Programs

Municipal Disaster Recovery Assistance Program

The Ontario government is committed to helping communities hit by natural disasters. The Municipal Disaster Recovery Assistance program provides financial assistance to help Ontario municipalities recover from natural disasters.

Municipal Disaster Recovery Assistance is a claims-based program that, when activated by the province, offers financial assistance to qualifying municipalities that have sustained significant extraordinary costs as a result of a natural disaster, such as a tornado or severe flooding.

The program offers assistance for extraordinary operating and capital costs arising from a natural disaster. Eligible operating costs are those incurred to protect public health, safety and access to essential services. Eligible capital costs are those to repair public infrastructure or property to pre-disaster condition. Costs that are covered by insurance or costs that would have been incurred if the disaster had not taken place are ineligible.

For the purpose of Municipal Disaster Recovery Assistance, a disaster is defined as a sudden, unexpected, extraordinary, natural event that results in eligible municipal costs At least equal to three per cent of a municipality's Own Purpose Taxation levy. In keeping with the principle of shared responsibility for disaster management, the program is based on a sliding-scale, cost-sharing formula between affected municipalities and the province.

Disaster Recovery Assistance for Ontarians

Disaster Recovery Assistance for Ontarians is designed to help people affected by natural disasters get back on their feet.

After a natural disaster, people may need help to cover the costs of cleaning, repairing and replacing essential property, so their lives can get back to normal. Disaster Recovery Assistance for Ontarians provides financial assistance to individuals, small owner-operated businesses, farmers and not-for-profit organizations. It helps cover emergency expenses, repairs, or replacement of essential property after a natural disaster.

The Ontario Minister of Municipal Affairs and Housing may activate the program in the event of a natural disaster such as a flood or a tornado. Homeowners and residential tenants, small business owners, farmers, and not-for-profit organizations can apply for assistance under the program if they are located in the defined geographical area for which the program has been activated following a natural disaster.

Disaster Recovery Assistance for Ontarians is activated for a specific period of time after a natural disaster.

Eligible applicants can receive financial assistance for emergency expenses and costs for repair or replacement of essential property. The intent of the program is to return essential property to its basic function. The program covers the cost of returning property to a basic standard and cannot be used for making improvements. Financial assistance under the program is subject to caps and deductibles.

7.0   EMERGENCY FACILITIES

7.1 Emergency Operations Centre

Upon being notified of an emergency situation, the members of the Municipal Emergency Control Group (MECG) will assemble at one of the following Township's designated Emergency Operations Centre (EOC);

a)   Community Centre

b)   Municipal Office

The Clerk-Treasurer upon receipt and consideration of the emergency situation at hand will determine the appropriate location of the Emergency Operations Centre. Members of the Municipal Emergency Control Group will be advised upon notification where to assemble.

7.2 Operating Cycle:

Upon attending at the EOC, MECG members will be briefed by the Clerk-Treasurer on the emergency situation and will make decisions with respect to the appropriate composition of the Municipal Emergency Control Group taking into consideration the emergency and the expertise required to properly manage the situation. The Clerk-Treasurer will be directed to contact those support agencies required to manage the emergency.

The MECG members will establish an operating cycle consisting of specified meeting times and length of meetings and work schedules. It shall be the responsibility of the Clerk-Treasurer to ensure adherence to the operating cycle and to convene MECG meetings and to arrange for agendas for the meetings. Meetings will be brief. The Clerk-Treasurer or assistant so designated by the Clerk-Treasurer will be responsible for maintaining status boards, maps, and information in the EOC to aid the MECG in their meetings. This information will be prominently displayed and will be kept up to date by the Clerk-Treasurer or designate.

The MECG will make a decision with respect to the appointment of an Incident Commander. The agency from which the Incident Commander is appointed will be responsible for appointing the Incident Commander.

7.3 Emergency Information Centre (EIC)

Emergency information related to routine or non-complex incidents can generally be handled from an incident site, an EOC, or other community offices. However, large-scale and/or complex incidents and emergencies may necessitate establishing an EIC. The EIC is the location from which emergency information efforts are carried out, generally under the direction of the Emergency Information Officer (EIO). When an incident is not focussed at a specific site or sites, or when access cannot be permitted for reasons of safety, it is especially important that an EIC be established as soon as possible in order to provide the media with a central point where regular briefings can be held and interviews given. Activities commonly carried out in an EIC include media check-in and credentialing, media inquiry, news conferences and briefings, media monitoring, the drafting of products for release to the media and the public, the arranging of site and facility tours and the administration of the emergency information function. The Township's designated EIC is:

a)   Community Centre

8.0 EMERGENCY ORGANIZATIONAL STRUCTURE

The Incident Management System (IMS) provides a standardized organizational structure that is distinct from individual organizations' day-to-day administrative structures. This allows for greater functional interoperability and avoids confusion over different position titles and organizational structures. Every incident, regardless of size, requires that certain management functions be performed. For example, the problem must be identified and assessed, a plan to deal with it developed and implemented, and the necessary resources procured and paid for. There are five major management functions that are the foundation upon which the IMS organization develops, regardless of what the incident is. These are: command, operations, planning, logistics, and finance & administration. Each function may be organized in a section. In some circumstances, other functions may also be recognized and staffed.

IMS Management Functions
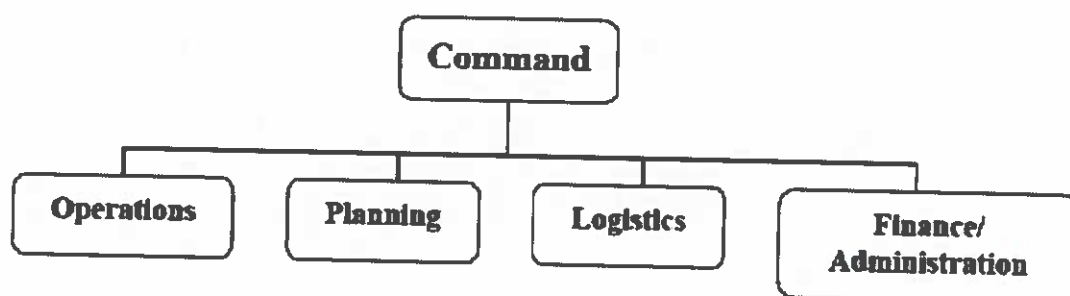
An underlying principle of IMS is the need to optimize the number of subordinates reporting to a supervisor in the interest of greater efficiency. This is known as maintaining the "span of control". A normal ratio is three to seven individuals reporting to one person. An optimum span of control consists of five individuals reporting to one. If the number of subordinates falls outside of this range, expansion or contraction of the organization may be necessary. In routine, repetitive environments with lower-risk assignments, or where resources work in very close proximity to each other, it may be acceptable to exceed the standard recommended span of control. Conversely, in complex incidents where safety is a major factor or where there is a large distance between resources, it may be advisable to lower the span of control limit.

9.0 EMERGENCY MANAGEMENT PROGRAM COMMITTEE (EMPC)

9.1   Emergency Management Program Committee Control Composition

A management team to oversee the development, implementation and maintenance of an emergency management program. The Emergency Management Program Committee will compose of the same members as the Municipal Emergency Control Group and will be made of the following:

a)   Head of Council
b)   Clerk-Treasurer
c)   Public Works Foreman
d)   Fire Chief
e)   Emergency Information Officer (EIO)
f)   Community Emergency Management Coordinator (CEMC)

The Community Emergency Management Coordinator (CEMC) is hereby appointed as Chair of the Emergency Management Committee (EMPC).

The EMPC shall advise Council on the development and implementation of the municipality's Emergency Management Program and shall review the program annually.

10.0 EMERGENCY MUNICIPAL EMERGENCY CONTROL GROUP

10.1 Municipal Emergency Control Group Composition

All emergency responses will be directed and controlled by a group of officials who will be responsible for coordinating the provision of essential services needed to minimize the effects of the emergency on the municipality. This group of officials will be known as the Municipal Emergency Control Group and will be made up of the following;

a) Head of Council
b) Clerk-Treasurer
c) Public Works Foreman
d) Fire Chief
e) Emergency Information Officer
f) Community Emergency Management Coordinator

The MECG may function with only a limited number of members depending upon the emergency situation. However, all members of the MECG shall be notified of the emergency and its consequences.

The following services or agencies may be required to attend the EOC or to provide support to the Municipal Emergency Control Group, and when required they will be responsible for their respective areas of expertise. Notification of their attendance will be through one of the members of the MECG upon consultation with the MECG.

a) Hydro One
b) Office of the Fire Marshal and Emergency Management
c) Ministry of Natural Resources and Forestry
d) Ontario Provincial Police
e) Public Health
f) First Responders
g) Wireless Telephone Companies
h) Service Clubs
i) Local Contractors
j) Local Church Groups
k) Industry
l) Campers/Seasonal Residential Areas
m) MTO
n) Hospitals
o) Any other officials or expertise from the public or private sector that may be of assistance in the particular emergency situation.

10.2 Municipal Emergency Control Group Responsibility

The following is a list of the collective responsibilities of the MECG. The individual roles of the members of the MECG will be outlined in the following sections.

a) Advise the Head of Council as to whether an emergency should be officially declared.
b) Advise as to what areas of the municipality should be designated as an emergency area.
c) Activate the Emergency Response Plan.
d) Appoint an Incident Commander.
e) Support the Incident Commander by offering equipment, staff and resources.
f) Authorize set up of Emergency Information Centre.
g) Authorize set up of reporting and inquiry center.
h) Provide Emergency Information Officer with timely and accurate information for issuance to media and general public.

i)   Authorize the expenditure of money required to deal with the emergency.
j)   Manage information, including maintenance and retention of the event logs and expenditures.
k)   Maintain a log of decisions made.
l)   Maintain a log of actions taken.
m)   Authorize the movement of equipment and resources beyond the immediate emergency site.
n)   Order and coordinate evacuations.
o)   Authorize the setup of evacuation shelters, including registration and inquiry centers.
p)   Determine and arrange for transport of evacuees.
q)   Authorize the discontinuation of utilities and services such as hydro, water and other services at both the emergency site and any other areas of the municipality to safeguard inhabitants and to reduce the potential for secondary emergencies.
r)   Authorize and direct the use of municipal resources.
s)   Determine if additional resources are required to assist with the emergency effort.
t)   Arrange for extra resources (human and equipment) to be utilized (i.e., private contractors, industry, volunteer agencies, service clubs, church groups, etc.)
u)   Request assistance from and/or liaison with various levels of government and any other public or private agency not administered by the local government.
v)   Authorize Clerk-Treasurer to activate mutual assistance agreements.
w)   Recommend the termination of an emergency to the Head of Council or Council.
x)   Implement a recovery strategy.
y)   Participate in post-emergency debriefings and assist with the preparation of reports.

10.3 Individual Roles and Responsibilities of MECG Members:

Head of Council

a)   To provide leadership in the EOC operations.
b)   To chair the MECG meetings
c)   Declares an emergency after consulting with MECG.
d)   May terminate an emergency after consulting with MECG and Council.
e)   Notify proper individuals and agencies of the declaration and termination of an emergency.
f)   Meet with Council and keep them informed of the emergency situation.
g)   Liaise with local municipal Heads of Council that may also have declared an emergency.
h)   Request assistance from neighboring municipalities or senior levels of government.
i)   Establish a communication link with Emergency Information Officer.
j)   Ensure that all inquiries regarding the MECG and the emergency operation are directed to the Emergency Information Officer.
k)   Approve news releases and public announcements issued by the Emergency Information Officer.
l)   Maintain log of actions taken and decisions made.
m)   Partake in interviews and media photograph sessions in consultation with the EIO.
n)   Establish communication links with EIO and ensure all inquiries are directed to EIO.

Clerk-Treasurer

a) Upon being notified that an emergency has occurred or a warning of a potential emergency by a member of the Township's Municipal Emergency Control Group, shall ensure that the Township of McGarry notification procedure is activated.

b) Coordinating all Emergency Operation Centre functions, such as ensuring the operating cycle is scheduled and maintained, arranging for the preparation of agendas, ensuring proper support staff are in place to effectively operate the EOC.

c) Ensure ongoing essential administrative functions of the municipality are maintained and if these are affected by the emergency situation, determine those efforts needed to restore services.

d) Arrange for additional EOC support staff as required.

e) Advise Head of Council on administrative matters, proper policies and procedures of the municipal government and laws.

f) Assist Head of Council in authorizing the dissemination of information through the Emergency Information Officer to the media and the general public.

g) Authorize implementation of Mutual Assistance Agreements in consultation with MECG.

h) Maintain log of actions taken and decisions made.

Fire Chief

a) Upon becoming aware that an emergency has occurred or is threatening to occur, shall ensure that the Clerk-Treasurer is advised to activate the EOC notification procedures.

b) If necessary establish a fire site command post with communication link to EOC.

c) If emergency is fire related, choose Incident Commander, if necessary, and seek endorsement of MECG.

d) Establish communication links with fire officials at the emergency site.

e) Advise MECG on matters relating to fire resources.

f) Determine if additional fire resources are required to aid emergency site effort.

g) Ensure equipment and manpower needs are adequate.

h) Ensure that the Timiskaming District Mutual Aid Plan (fire departments) is activated as requested by MECG.

i) Assist EMS with casualties as necessary.

j) Liaise with the Ministry of the Environment and Climate Change, Fire Marshall's Office, etc.

k) Maintain log of actions taken and decisions made.

Public Works Foreman

a) Upon becoming aware that an emergency has occurred or is threatening to occur, shall ensure that the Clerk-Treasurer is advised to activate the EOC notification procedures.

b) If necessary, establish a site command post with communication link to EOC.

c) If directed by the MECG, choose an Incident Commander.

d) Advise MECG on information pertaining to road design, resources, etc.

e) Liaise with public works officials from surrounding municipalities.

f) Liaise with Conservation Authorities on matters related to flooding.

g) Establish communication links with road officials at the site.

h) Maintain municipal services provided such services could be safely maintained.

i) Liaise with Provincial Road Authorities where these transportation corridors are affected.

j)   Contact proper agencies to have public or private utilities disconnected if public safety is affected or when directed by MECG.
k)   Liaise with utility representatives to provide alternate means of providing hydro, etc. if utilities are affected.
l)   Assist police services with obtaining and providing manpower to establish barricades and flasher equipment at proper perimeters.
m)   Ensure municipal road equipment and/or personnel is made available to the emergency site as needed and approved by the MECG.
n)   Maintain log of actions taken and decisions made.

Community Emergency Management Coordinator

a)   If necessary, upon becoming aware that an emergency has occurred or is threatening to occur, shall ensure that the Clerk-Treasurer is advised to activate the EOC notification procedures.
b)   Ensure proper communications are in place at EOC and at emergency site and that a proper link is established between the two locations.
c)   Ensure proper set-up and function of the EOC.
d)   Register MECG members at the EOC site.
e)   Ensure that proper security is in place for both the emergency site and the EOC.
f)   Provide up-to-date information on the developing emergency situation to MECG and EMO.
g)   Ensure that MECG has supplies (emergency response plan, resources, supplies, pens, maps and equipment) necessary to conduct emergency operations in the EOC.
h)   Provide advice and clarification to the MECG about the implementation of the Emergency Response Plan.
i)   Liaise with social services and community support agencies.
j)   Address any action items resulting from the activation of the Emergency Response Plan.
k)   Ensure MECG is informed of implementation needs of the Emergency Response Plan.
l)   Maintain records and files of decisions made and logs taken for the purpose of conducting a debriefing, post emergency reporting and updating the Emergency Response Plan and program.

Emergency Information Officer

a)   Ensuring the dissemination of all emergency information to the media and public.
b)   To establish a communication link with the Head of Council and any other media coordinators.
c)   Ensure proper groups are advised of the Emergency Information Centre telephone numbers such as the media, MECG and municipal staff.
d)   Coordinates all emergency information including media photograph sessions and interviews at the EOC and emergency site.
e)   Responsible for setting up and staffing the Emergency Information Centre, if required.
f)   Liaise with MECG to obtain up-to-date information for the media in order to prepare and issue press releases, arrange media briefings and may be required to post information on the internet.
g)   Ensure that the Head of Council approves all media releases prior to dissemination.
h)   Ensure copies of all media releases are provided to Emergency Information Centre staff, MECG and key media officers from other agencies.
i)   Monitor news coverage and ensure erroneous information is corrected.
j)   Maintain copies of all media information pertaining to the emergency such as media releases, newspaper articles, etc.
k)   Maintain personal log of all decisions made and actions taken.

Outside Agencies

During an emergency many agencies may be required to work with the Municipal Emergency Control Group. Some of these agencies include the Emergency Management Ontario, hospitals, conservation authorities, school boards, industries, volunteer groups, and social service organizations.

11.0 THE INCIDENT COMMANDER'S ROLE AND RESPONSIBILITY

11.1 Incident Commander

Coordination of the emergency site is essential to the emergency response. It involves the management and coordination of all responding agencies at the site with an overall command. This on-site management and coordination is the responsibility of an Incident Commander who is appointed at the onset of the emergency usually by the Municipal Emergency Control Group.

11.2 Appointment

The Municipal Emergency Control Group will appoint the Incident Commander from the lead agency involved in the specific type of emergency. Once appointed, this individual will no longer be responsible for the operations or command of their agency, but rather will be responsible for managing and coordinating the emergency situation at the site. The appointment of the Incident Commander can change throughout the course of the emergency management response depending upon the circumstances of the response. The change of the Incident Commander is usually made by the MECG.

11.3 Relationship with EOC

Once appointed, the Incident Commander shall report directly to the MECG. The Incident Commander will be the point of communication for the MECG with the emergency site; their eyes and ears. The Incident Commander will be connected to the EOC through the most reliable form of communication available.

The Incident Commander is responsible for keeping the MECG advised and updated about the emergency situation, for maintaining the site response to the emergency at hand, and for coordinating the emergency response at the site. Once assigned, the Incident Commander will convey emergency management needs such as staffing, equipment, communication and other resources to the MECG who will respond by procuring these and providing them to the site.

The MECG will be responsible for providing the Incident Commander with the aid required and requested at the emergency site and to maintain public safety and order to the rest of the community.

11.4 Incident Commander's Responsibilities

The Incident Commander will be responsible for many of the following duties:

a)   Establish a command post
b)   Establish an appropriate chain of command
c)   Determine the representatives of emergency services attending at the emergency site.
d)   Arrange and conduct site meetings with other emergency representatives at the site and consult with them in order to maintain a coordinated approach to the emergency response.

e) Maintain knowledge of resources (human and equipment) available at the emergency site.
f) Manage the personnel at the site.
g) Provide for the needs of those attending to the emergency situation, including meals, water, fuel, special equipment, etc.
h) Obtain ongoing vital information about the emergency situation.
i) Establish and maintain a good communication system with the EOC and those at the site.

12.0 COMMUNICATIONS PLAN

12.1 Telecommunications

A vital and integral part of any emergency management operation is communication, particularly between the Emergency Operation Centre and the Incident Commander. This necessary communication requires a reliable and secure means of relaying information between the two emergency management locations. In order to ensure timely information for the benefit of the decision-making process, it is essential to maintain reliable systems of communication between the emergency site and the EOC.

With respect to telephone communications, essential telephone numbers, including those of the Municipal Emergency Control Group, are attached to this Emergency Response Plan as an Appendix (confidential – not available for public distribution).

Cell phones are not recommended as a form of emergency communication. However, if cell sites are operating and functional this form of communications may be used to enhance emergency operations. It should be noted that this form of communication is not very secure.

13.0 PLAN MAINTENANCE AND REVIEW

13.1 Internal Procedures

Each service or agency involved or identified in this Plan shall be responsible for preparing their own emergency operating procedures and shall be responsible for training their staff on the emergency procedures and expectations during an emergency.

13.2 Annual Review

At a minimum, this plan will be reviewed annually through the use of appropriate and planned emergency exercises. Following the exercises, appropriate debriefing sessions will be held followed by the completion of debriefing reports, which will be utilized by the Emergency Management Program Committee and the Community Emergency Management Coordinator to make appropriate changes to the Plan.

13.3 Amendments

Amendments to the Plan require formal Council approval. Formal Council approval is not required for the following: changes or revisions to the appendices, or for minor editorial changes such as editorial changes to the text including page numbering, section numbering, reference changes or changes to references to provincial status.

13.4 **Flexibility**

No Emergency Response Plan can anticipate all of the varied emergency situations that may arise in a changing community. During the course of the implementation of this plan in an emergency situation, members of the Municipal Emergency Control Group in the course of conducting their assigned roles and responsibilities may exercise flexibility. To ensure that the public health, safety, and welfare of the community are paramount in the emergency response, minor deviations from the emergency response plan may be permitted.

APPENDIX A

EMERGENCY CONTACT NUMBERS

This appendix is confidential and not for public distribution

APPENDIX B

EVACUATION PLAN

If the MECG decides to evacuate residents from their home and to activate an evacuation shelter, then the primary facility would be the Community Centre. The MECG may appoint an Evacuation Manager while Police and Fire would go door to door in order to provide notice to affected residents, and messages would be posted online and on social media. Personal vehicles and school buses would be used for transportation. Arrangements would be made on a case-by-case basis to transport those with special needs.

APPENDIX C

EMERGENCY RESPONSE PLAN: HAZARD IDENTICATION AND RISK ASSESSMENT (HIRA)

Emergency Response Plan: Hazard Identification and Risk Assessment (HIRA)

Emergency Preparedness Department

January 2025

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HAZARD IDENTIFICATION AND RISK ASSESSMENT

INTRODUCTION

Guided by the Emergency Management and Civil Protection Act, all communities within Ontario operate using a risk-based approach to emergency management. This paradigm has proven to be a highly successful method for minimizing loss of life and property in emergency situations, and has been adopted by many public and private organizations. Further, this risk-based approach has become part of both general and industry-specific best practice, as outlined by the Canadian Standards Association in guidelines such as the Z1600 (Emergency Management and Business Continuity Programs) and the Z8000 (Canadian Health Care Facilities).

With the importance of risk-based emergency management now well-recognized throughout the healthcare industry, provisions for such programs have also become a critical part of accreditation guidelines:

> The organization's leaders develop and implement plans for preventing and mitigating potential disaster and emergencies. Prevention refers to measures taken to avoid an incident or stop an emergency or disaster from occurring. Mitigation refers to actions taken to reduce the risks and impacts posed by hazards. Prevention and mitigation plans should be based on information obtained from hazard identification, risk assessment, and business impact analysis (Section 14.1, Leadership, Qmentum Standards).

An important step in emergency preparedness is to identify all hazards that may affect Halton Healthcare Services (HHS) and assess their associated risks to determine which hazards are most likely to result in an emergency. This approach both satisfies accreditation requirements and also allows for a systematic, targeted approach to emergency preparedness. The results of a risk assessment can be used to guide an annual or multi-year emergency management cycle.

In addition to identifying high-priority hazards, this proactive approach to emergency management can result in a more disaster-resilient environment. Success in meeting this challenge can be found by answering the following questions:

• What hazards exist within or surrounding each HHS site?

• How frequently do they occur?

• How severe can their impact be on the township staff, residents, infrastructure, finances, and reputation?

• Which hazards pose the overall greatest threat to the organization?

To address these questions, a comprehensive hazard identification and risk assessment (HIRA) is required. This guide was designed to allow for efficient annual renewal, using minimal time and financial resources.

METHODOLOGY

There are a number of different methods for conducting an organizational risk assessment. The methods used for this document are a combination of the following strategies, which comprise a collection of government and industry-recommended best practices:

• Ontario's Hazard Identification and Risk Assessment

• British Columbia's Hazard, Risk, and Vulnerability Analysis

• Kaiser Permanente's Hospital Hazard and Vulnerability Assessment

The first step in this process was to identify all possible hazards – no matter how unlikely, provided a greater than zero chance. A full list of hazards, and their definitions, can be found in **Appendix A**.

Second, each hazard was scored based on the relative risk it posed. The risk score was a combination of two dimensions: likelihood and consequence. Consequence was further broken down into the potential impacts on people, property, finances, and reputation. The goal was not to obtain exact measures of risk, but rather to outline a relative ranking to guide future priorities. The parameters of the scoring system follow:

> **Risk = Likelihood x Sum of Consequences**

Likelihood:

Likelihood provides a standardized view of how often a given hazard event may occur, in the community. The ranking scale is from 1-5, with 1 being the lowest possible rank and 5 being the highest. Likelihood is based on a combination of history and best estimates of future frequency of events.

> 0- Never
> 1- Unlikely (but not impossible to occur within a 100-year period in the community.
> 2- May occur every 100 years in the community.
> 3- May occur every 10 years in the community.
> 4- May occur every year in the community.
> 5- Multiple occurrences per year in the community

Consequence: For the purpose of this document, consequence is defined as the anticipated impact from a given event in a worst-case scenario. This measure is based upon the logic that it is always preferable to over-respond to an emergency. Consequence can be broken down into four components, each of which is of critical concern to a hospital. These four aspects are human, physical/infrastructure impact, financial impact, and damage to reputation.

Human Impact: The cost of a given event in human terms; lives lost, and people injured. This impact is ranked for each event on a scale of 1 to 5, with 1 being the lowest possible score and 5 being the highest.

1 – Injury or illness unlikely

2 – Low probability of injuries or illness

3 – High probability of injuries or illness

4 – High probability of injuries or illness and low probability of death

5 – High probability of injuries or illness and high probability of death

Physical Impact: The cost of a given event in terms of loss of the use of hospital property or equipment, whether destroyed, damaged, or requiring clean-up. This impact is ranked for each event on a scale of 1-5, with 1 being the lowest possible score and 5 being the highest.

1 – Property damage or loss of access unlikely

2 – Minor clean-up or recovery time

3 – Minor damage, temporary loss of access

4 – Major damage, prolonged loss of access

5 – Indefinite loss of access to the affected area; complete rebuild

Financial Impact: The cost of the impact of a given event in terms of dollar cost, whether for repair/replacement or for unbudgeted incident response costs. This also includes insurance claims, where appropriate. This impact is ranked for each event on a scale of 1-5, with 1 being the lowest possible score and 5 being the highest.

1 – Negligible

2 - Generates expenditures or an insurance claim under $100 000

3 – Generates expenditures or an insurance claim of under $1 million

4 – Generates expenditures or an insurance claim of under $10 million

5 – Generates expenditures or an insurance claim over $10 million

Reputation Damage: The cost of the impact of a given event in terms of damage to corporate or facility reputation. While often overlooked in such exercises, the impacts can affect patient census, staff recruitment, funding, and fundraising efforts. This impact is ranked for each event on a scale of 1-5, with 1 being the lowest possible score and 5 being the highest.

1 – Reputation unlikely to be affected

2 – Limited negative local media coverage and/or public stigma

3 – Negative regional media coverage and strong public stigma

4 – Negative national media coverage, fundraising and/or recruitment affected

5 – Permanent association of adverse event with hospital, large affect on fundraising and/or recruitment

This scoring system yields a minimum total risk score of 4, and a maximum of 100.

RESULTS

The full rankings of each hazard by both likelihood and consequence can be found in **Appendix B**. The results have been summarized in the following tables according to three different risk classifications: High, Moderate, and Low Preparedness Priorities. In general, infrastructure failure is the most likely hazard while technological hazards pose the highest consequences.

High Preparedness Priorities (Top 10; scores 36 – 100): with both a high likelihood of occurrence and high potential impact on the community. High preparedness priorities are hazards that are candidates for immediate mitigation and preparedness efforts to reduce the likelihood or consequences of occurrence. Possible risk reduction measures include physical fortification, redundant pathways, staff training, and acquisition of response resources.

Moderate Preparedness Priorities (scores 26 – 35): Events with either a high likelihood of occurrence and low magnitude of impact, or low likelihood but high consequence. Such potential risk exposures should be addressed in terms of mitigation and preparedness activities, after high priority events, as time and resources become available.

Low Preparedness Priorities (scores 4 – 25): Events with a low incidence of occurrence and low potential impact, or events which have already received substantial mitigation and preparedness efforts. These events should be monitored for changes in frequency or consequence, but do not require immediate action otherwise.

It should be noted that these results do not necessarily take into account mitigation and preparedness efforts that are already underway. In some cases, sufficient measures may already be in place. This should be considered when interpreting results.

High Preparedness Priorities			
Pandemic / Epidemic – External	60	Contamination – Food	36
Infectious Disease – Internal)	44	Hazardous Materials – External	36
Electrical Failure – Primary	40	HVAC Failure	36
Contamination – Water	39	IT Failure	36
Computer Virus / Cyber Attack	36	Water Supply Disruption	36

Moderate Preparedness Priorities			
Extreme heat	35	Medical Gas Failure	30
Flood – Internal	33	Missing Patient	30
Fuel Supply Failure	33	Transportation Accident	30
Serious Adverse Event	33	Violent Behavior – Patient	30
Ice Storm / Freezing Rain	32	Blizzard / Snowstorm	28
Fire / Explosion – Internal	32	Severe Summer Storm	28
Supply Chain Disruption	32	Tornado	28
Child Abduction	30	Workplace Injury	28

Electrical Failure – Total	30	Fire Incident – Minor	28
Extreme Cold	30	Fire System Failure	28
Hazardous Materials – Internal	30	Telecommunications Failure	27
Mass Casualty Incident	30	Sewer Failure	26

Low Preparedness Priorities			
Electrical Failure – Secondary	24	Air / Space Object Crash	19
Severe Winds	24	Civil Disorder	18
Violent Person – Non-Patient	24	Hurricane	18
Violent Person – Active Shooter	24	Steam Failure	18
Fire / Explosion – External	22	Geomagnetic Storm	16
Flood – External	22	Structural Collapse	16
Hostage Incident	22	Nuclear Plant Fallout	13
Labour Disruption	22	Soil Subsidence	12
Bomb Threat	20	Earthquake	10
Pipeline Explosion	20	War	5
Terrorism	19		

RECOMMENDATIONS FOR ACTION

The purpose of this risk assessment was to identify mitigation and preparedness priorities based on the relative threat each hazard poses. This prioritized list should help to guide and support an annual cycle of emergency management activities. Prior to progressing, however, each hazard should be assessed for pre-existing risk management strategies already in place. In some cases, risk control measures may already be adequate. In others, residual risk may still require further efforts to be taken. Interviews with subject matter experts and review of existing emergency plans is an effective way to make this assessment.

Where it is deemed that new risk management strategies are required, it is recommended that actions be taken to reduce risk working from hazards of highest priority to lowest priority. Where possible, however, an all-hazards approach to mitigation and preparedness should be taken, where the relative risk of multiple hazards can be reduced by a single measure (for example, an extreme weather plan could cover tornados, hurricanes, and severe storms).

There are two ways of decreasing risk: reducing the likelihood and reducing the consequences. Both likelihood and consequence reduction can be achieved through mitigation measures (such as redundancies in case of failure or built-in physical resistance to prevent damage). Consequences can further be reduced through preparedness measures that allow for a more efficient response (such as written plans to guide response, staff training to ensure response is executed effectively, and resource acquisition to support response).

The Township of McGarry has already undertaken a number of preparedness activities to reduce risk. It is recommended that actions be taken to first address areas where gaps remain between relative risk and mitigation efforts. After high priority hazards have been reviewed and mitigated, focus can be shifted to moderate priority hazards as allowed by current resources. In general, assessment should proceed from the highest ranked risks to the lowest.

It should be emphasized that measures taken to reduce likelihood or consequences of hazard events may fall under the scope of a variety of groups, such as Emergency Preparedness, Maintenance, Security, Occupational Health and Safety, or any other department, as applicable. For each risk reduction measure, one department or position should be given primary accountability. Progress should be reviewed at monthly intervals and this risk assessment should be updated annually to reflect changes in risk.

The HIRA should be updated annually as part of a recurring cycle, with the results serving to assist in the identification of future priorities for emergency preparedness activities.

APPENDIX A – HAZARD DESCRIPTIONS

NATURAL HAZARDS

Blizzard/Snowstorm

During the winter, McGarry Township commonly experiences blizzards and snowstorms. These events are often characterized by periods of heavy snowfall, cold temperatures, and high winds. Winter storm warnings are often issued hours in advance of such events. Injuries may occur related to reduced visibility and dangerous ground conditions. Infrastructure may also be impacted due to snow and ice accumulation.

Contamination – Food

Food may be contaminated by a biological, chemical, or physical agent. This contamination is more likely to occur as the food source or processing centre, but contamination within the community is also possible. When Recall Notifications are issued by the Canadian Food Inspection Agency affected products will be removed from circulation and alternate suppliers will be used. However, in some cases staff and patients eating from a contaminated source will be exposed to a pathogen prior to its identification. Effects will vary by agent, but death of susceptible patients and illness is likely.

Contamination – Water

Drinking water may be contaminated by a biological, chemical, or physical agent. This type of event differs from disrupted water supply by the actual ingestion of contaminated water. It is likely that the majority of staff and residents drinking from a contaminated source will be exposed to the pathogen prior to its identification. Effects will vary by agent, but death of susceptible patients and widespread illness is likely. Significant damage to the community would follow.

Earthquake

Earthquakes can occur at any time or location but are most common along active fault lines. Southern Ontario frequently experiences low magnitude earthquakes which go unnoticed, but a small risk of a moderate earthquake does exist. In the event of a larger magnitude event, sudden, brief shaking may cause damage to infrastructure. Injuries may also occur, with the most vulnerable being residents with mobilityissues.

Extreme Cold

Environment Canada issues Cold Alerts in Northen Ontario in anticipation of temperatures or wind chill of -30⁰C or below. These alerts occur multiple times each year and may last for days at a time. Health impacts are minimized by residential heating and environmental control systems; however, extreme municipal power demand may lead to electrical failures which could exacerbate existing medical conditions if residents lose warmth. Infrastructure damage due to 8 thermal contraction is also possible in cases of rapid temperature drop. The community may experience an increase in residents seeking warmth if municipal power fails.

Extreme Heat

Environment Canada issues Heat Alerts in anticipation of temperatures or humidex values of 40°C or above. These alerts occur multiple times a year in McGarry Township and the area and can last for days at a time. Health impacts are minimized by residential cooling and environmental control systems; however, extreme municipal power demand may lead to electrical failures which could exacerbate existing medical conditions if residents cannot be cooled. Physical damage is rare, but high temperatures may affect some equipment and power infrastructure. The community may experience an increase in resident visits due to heat-related illness.

Flood – External

External flooding can stem from a number of sources, including overflow from nearby water sources, heavy rains, or significant snow melts. None of the community sites are located within a 100-year flood plain, but the potential remains due to extreme weather events. In the case of external floodwater breach, damage could occur to the hospital as well as its infrastructure and equipment. Reconstruction or cleanup should be anticipated. Resident injuries may also occur, particularly if residents must be evacuated. The most likely impact would be loss of access to the community due to washed out roads near McGary.

Geomagnetic Storm

With the continued evolution of technology, solar activity represents a threat to electronics and communications systems. Large ejections of solar mass can disturb the Earth's atmosphere, resulting in widespread infrastructure failure. Events of this nature are very rare and impacts are not well understood. Electrical and communication systems may fail, with recovery time unknown. Community consequences are similarly difficult to predict, but residents that rely on certain medical devices may be vulnerable.

Hurricane

Hurricanes are tropical cyclones with heavy rain and winds reaching at least 118 km/hr. In the summer, hurricanes are common along the Atlantic corridor. While direct impact is unlikely, Northern Ontario can be affected by large storms depending on the storm track, though typically hurricanes are downgraded to Tropical Storms by the time they reach Ontario. Resident injuries and building/infrastructure damage may be caused by heavy winds and flash flooding.

Ice Storm/Freezing Rain

Ice storms are prolonged periods of freezing rain. Both events are characterized by temperatures at or below zero degrees, and mixed precipitation consisting of sleet, rain, or snow. Ice accumulation may be rapid or gradual, affecting roads, buildings, and any other external surface. Minor injuries to staff, residents, or visitors may occur due to slips and falls outside of the municipal office. Buildings can suffer damage due to ice accumulation and water seepage, and interruption of electrical or water infrastructure is common. Access to the municipal office due to downed trees and obstructed roads is possible.

Infectious Disease – Internal

Hospital-acquired infectious diseases are a common complication of medical care. Causes may include poor hand hygiene, non-sterile equipment, or failure to follow proper quarantine procedures. Even with strict adherence to protocol, however, having a high concentration of infected patients within a small area can lead to rapid spread of disease. Severity will based on the pathogen, widespread illness is likely, with the possibility of patient deaths as well. Spread of disease within the hospital, particularly if related to negligence, may be devastating to the public reputation of the hospital.

Pandemic/Epidemic – External

A human health emergency caused by infectious disease is a leading public health concern in Ontario. An epidemic represents an illness within a limited region, whereas a pandemic refers to a worldwide event. The disease may be spread by direct or indirect contact, through droplets, airborne, blood-borne, or vector-borne. Health impacts will vary based on the nature of the infecting agent, and effects are more likely to be severe in those with weaker immune systems (such as the elderly, the very young, or those with immune deficiencies). Health care providers are also vulnerable, and there is a high potential for the disease to spread within the hospital. Infrastructure impacts are unlikely, but quarantine measures may cause disruptions to certain hospital processes or departments.

Severe Summer Storm

Environment Canada issues multiple Severe Thunderstorm warnings each year in the McGarry Township. These severe summer storms are often characterized by lightning, hail or heavy rainfall, and winds above 90 km/hr. Injury to residents within the municipal building is highly unlikely; however, severe winds can cause damage near windows. Lightning, winds, and precipitation have the ability to damage infrastructure. In rare cases, severe storms can develop into a more damaging tornado.

Severe Winds

Environment Canada issues Wind Alerts in anticipation of sustained winds of 60 km/hr or for gusts up to 90 km/hr. in the absence of a tornado or thunderstorm. Injury to residents or staff may occur outside of the municipal office or near windows due to high winds or blown objects. Damage to buildings is possible, but the largest concern is damage to municipal electricity infrastructure.

Soil Subsidence

Land subsidence is the downward sinking of land caused by loss of support below the surface. Possible causes include earthquakes, removal of groundwater, and the effect of seasonal temperatures on soil. None of the McGarry Township sites are located on high-risk land, but land subsidence is unpredictable. While the sudden formation of sinkholes is rare, gradual subsidence can damage the foundation of buildings and disrupt gas, water, and electrical lines. Repairs and reconstruction would have a large financial impact.

Tornado

Often formed as part of a severe thunderstorm, tornados are defined by a violently rotating column of air in contact with the ground. Tornado intensity varies, with wind speeds ranging from 60 to 500 km/hr. A major tornado would cause significant structural damage and multiple injuries or fatalities, though

Northern Ontario rarely sees this magnitude of event. Weak tornadoes are more likely and have more moderate effects; patients outdoors or near windows may suffer injuries, and infrastructure may suffer mild damage. However, even a weaker tornado making direct contact with the municipal office could be catastrophic.

<u>HUMAN-CAUSED HAZARDS</u>

Bomb Threat

A bomb threat is the reported presence or threat of placement of an explosive device within the community or on municipal property. In the absence of an actual explosive device there is low risk to resident health or physical property. However, until security or Ontario Provincial Police clears the matter, access to certain areas may be lost and some operations may be suspended. In case of evacuation, minor injuries may occur. Depending on how far the event escalates, widespread media coverage and negative public reaction may occur.

Child Abduction

Child abduction is the illegal removal of an infant or child from the facility or department. This is a very focused event with little chance of harm to residents or staff beyond the individual victim. Exceptions may exist if the assailant is confronted and turns violent, though this is rare. Infant abductions from Canadian hospitals are featured prominently in national media, with acute negative impacts on hospital reputation.

Civil Disorder

Civil disorder is the breach of law or general rule by a group of people and may take many different forms. Disorder may be non-violent (e.g., blocked access to particular routes or buildings), or violent (e.g., acts of aggression towards people or physical property. Civil disorder is typically centered in large, dense populations, but may occur in smaller communities such as those in McGarry Township. Possible results include minor injuries or property damage.

Computer Virus/Cyber Attack

As the McGarry Township network increasingly integrates technology into daily processes we become more vulnerable to harm through our computer systems. Computer viruses often enter systems and propagate unknown to users. Common sources include external tools such as USB storage devices, malignant e-mail attachments, and downloads from external websites. Viruses may also breach the system as part of a malevolent act aimed at damaging municipal infrastructure. Cyber-attacks in isolation of viruses may include intentional hacking of the system network to obtain or modify sensitive information. These incidents are typically localized, with 11 consequences dependent on the scope of the event. A significant breach may lead to loss of access of critical information, altered function of some systems and devices, and damaged reputation in the event of leaked municipal information.

Hostage Incident

A hostage incident develops when a group or individual holds another group or individual against their will. Motivations may vary and targets may include residents, staff, or visitors. There is a localized event, with high risk of harm to hostages and intervening staff. Loss of access to affected areas will occur, with

duration depending on the duration of the event. Hostage events will feature prominently in national media.

Labour Disruption

Labour disruptions are often the result of organized, legal job action. Groups involved may involve internal staff from various departments and external contract staff. Direct impacts on patients are rare, but staff shortages may lead to reduced capacity to conduct regular municipal operations, and loss to some areas or services may occur. Financial costs may accumulate in prolonged disruptions, and reputation may be impacted if events are isolated to McGarry Township.

Mass Casualty Incident

A mass casualty incident is any event in which medical resources such as personnel and equipment are overwhelmed by the number and severity of casualties. A mass casualty incident may be medical (e.g. disease, chemical exposure) or traumatic (e.g. explosion, transportation accident) in nature. Mass casualty incidents may be triggered by any number of external hazards, including, but not limited to: HAZMAT events, pandemics, intentional violence, and extreme weather. Likelihood of these events increases with mass gatherings of people, such as during community festivals, sporting events, and concerts. Mass casualty incidents will rarely impact the community directly.

Terrorism

Terrorism is an act conducted with the intention to harm people, property, businesses, or the environment. Like HAZMAT accidents, terrorist acts are typically of CBRNE nature, with explosive devices the most common. Terrorism may also take the form of cyber-attacks or intentional sabotage, and can be conducted by a group or individual, including past or current employees. Targeted attacks against the community will vary based on the nature of the event, but results likely include severe injuries, extensive damage to community property, prolonged loss of services, and loss of public confidence in safety.

Violent Person

Violent people are individuals receiving medical treatment, voluntarily or involuntarily, that are actively displaying physical aggression, or represent a threat of aggression or violence towards themselves, others, or their surroundings. These situations have the potential to lead to injury to those involved (including both the aggressor and those responding to the situation). Damage to infrastructure is common, and temporary loss of access to the isolated area may occur.

Violent Person – Active Shooter

In very rare situations, a violent person or hostage incident may escalate to an active shooter. An active shooter may be a past or present resident, past or present employee, or an individual with no connection to the community. Active shooting events are characterized by intent to injure Due to this focus; these events are typically more severe but less frequent. Weapons may be involved, and incidents can lead to injuries and loss of access to affected areas, with a chance to progress to a hostage situation.

War

International conflict involving armed combat has the ability to affect Canada at any time. However, given the political state of the world in the early 21st century, it is extremely unlikely any combat would take place in Northern Ontario.

Workplace Injury

Serious injuries may occur, resulting in more than one day of lost time as well as associated costs and medical treatment. These events are related to performance of regular duties in isolation of other risk categories such as hazardous materials exposure or violent individuals. Occupational Health and Safety definitions within this category include bodily reaction/exertion, contacts with objects/equipment, and falls.

TECHNOLOGICAL HAZARDS

Air/Space Object Crash

While exceptionally rare, any location on earth can be struck by an air or space object. This includes air transportation accidents such as malfunctioning planes, natural space objects such as meteorites, and man-made space objects such as satellites. None of the municipal sites lie within a heavy air traffic corridor making this type of event highly unlikely. Consequences would be related to the size of the object making impact, but in most cases the event would lead to multiple fatalities and catastrophic damage.

Fire Incident – Minor

Small fire incidents are those that originate within the community but are isolated events and can be easily controlled by Residents. These fires are commonly started due to failure of small electronics or medical device malfunctions. Occasionally these fires are intentionally started by residents. Human impacts are generally limited to smoke inhalation or patient movement due to residual smells. Damage is typically limited, and costs are minimal unless the event progresses to a working fire stage.

Fire/Explosion – Internal

Internal fires or explosions are those that are located within the community itself, regardless of whether the fire originated internally or externally. These events are extremely unlikely but much more damaging and harmful than external fires or explosions. The majority of internal fires are small, localized events, but the situation may progress to a working fire where intervention by the fire department is required. Unless a fire is controlled quickly and patients evacuated, there is a significant risk of injury and death to residents and staff. Damage to property will be extensive, with considerable reconstruction required. Access to affected areas may be lost indefinitely. Associated costs of recovery will be significant.

Fire/Explosion – External

Fires are events of destructive burning caused by the ignition of a fuel/material, combined with oxygen, which produces heat and often open flame. Fires lead to or are caused by explosions, which is the sudden, violent release of energy caused by gases under pressure. Triggers of both fires and explosions

may include intense heat, electricity, or chemical reactions. The events leading to an external fire or explosion or unpredictable, but events near the hospital may result in damage to infrastructure, injuries to residents and staff, and influx of new residents injured in the event. The most common injuries include burns and complications due to smoke inhalation or carbon monoxide poisoning.

Hazardous Materials – Internal

The municipal office is at relatively high risk of HAZMAT accidents due to the high concentration of CBRNE materials on site. The effects of a HAZMAT incident may be immediate or delayed. External HAZMAT events are impossible to predict and are often the result of transportation or industrial accidents. Events in close proximity to the hospital may lead to evacuation, a shelter-in-place directive, decontamination, or injury/illness to staff, patients, and the public.

Hazardous Materials – External

A hazardous materials (HAZMAT) incident is the unintentional release of material capable of causing harm to humans or the environment. These incidents are often characterized by the acronym CBRNE, which describes the material's properties as one or more of: chemical, biological, radiological, nuclear, or explosive. The effects of a HAZMAT incident may be immediate or delayed. External HAZMAT events are impossible to predict and are often the result of transportation or industrial accidents. Events in close proximity it may lead to evacuation, a shelter-in-place directive, decontamination, or injury/illness to staff, patients, and the public.

Pipeline Explosion

A pipeline explosion refers to the rupture of a pipeline, valve component, or pumping station, triggered by damage, failure, or operator error. These explosions may be particularly violent due to the fuel (commonly oil or natural gas) passing through the system. Impacts may be felt both due to the explosion and due to energy supply failure. Consequences are unlikely, but include damage to physical infrastructure, injuries to patients and the public, loss of services related to fuel disruption, forced evacuation, or a shelter-in-place directive from McGarry Township.

Structural Collapse

The loss of structural integrity in a building or structure that results in the structure losing shape, caving in, flattened or reduced to debris. Damage leading to collapse may occur gradually over time, or suddenly in a result to a specific triggering incident. A high probability of injury or death exists, with extensive reconstruction and prolonged or indefinite loss of access expected.

Transportation Accident

A transportation accident may result from a large-scale collision between vehicles on a roadway, train derailment, or a marine accident. Accidents are more likely during periods of inclement weather but otherwise difficult to predict. Due to the proximity of all McGarry Township to major highways and

railways, transportation accidents may impact any of the sites. If HAZMAT materials are involved, the event should be considered a hazardous materials incident. Non-HAZMAT transportation accidents may result in secondary fires or explosions and may cause damage to infrastructure or trigger a mass casualty incident.

INFRASTRUCTURE FAILURE

Electrical Failure - Primary

Disruption of electrical supply may affect the entire community or just select locations within some buildings. This can be triggered by external events such as severe weather or municipal power outages or may stem from internal failure. Consequences should be limited by emergency generator back-ups feeding power to critical life safety equipment. Non-emergency areas and equipment will be powered down and remain off-line until the disruption is resolved, causing loss of access to some facilities and interventions. Without proper lighting, patients with decreased mobility who are alone at the time of failure may suffer minor injuries from falls.

Electrical Failure – Secondary (Generator)

In addition to loss of fuel supply, emergency generators may fail due to improper maintenance or prolonged periods of time without use. Generator failure may go unnoticed without consequence if regular electrical supply is functioning correctly. However, some equipment relies primarily on emergency power; these devices will have to be switched over to the main grid. Public awareness of generator failure will likely lead to damaged reputation.

Electrical Failure – Total

A worst-case scenario for any hospital is loss of both primary and backup power. If generators fail during a primary electrical failure access will be lost to critical medical equipment. Many interventions may become impossible, and patients relying on devices for life-sustaining therapies may have to be evacuated. Drugs, food, and medical devices that require careful temperature control may have to be replaced, and reputational damage may be extensive.

Fire System Failure

The fire system can fail due to problems with detectors, alarms, fire doors, sprinkler systems, and water supply. Unless systems fail during an active fire, effects on patients will be negligible; however some costs and loss of access may occur during repairs.

Flood - Internal

An internal flood refers to a flood event that originates within the community facility itself. Causes may include ruptured pipes, damaged water tanks, or sewage failure. The most probable consequence is damage to physical infrastructure and equipment within the municipality. Extensive cleanup or minor reconstruction may be required, shutting off access to isolated areas. If residents are affected and evacuation required, minor injuries may occur.

Fuel Supply Failure

Interruption of supply is often due to problems with fuel transport infrastructure but may also be a result of regional fuel shortages. Emergency power generators rely on diesel fuel to function, with several days of reserve kept on site. Boilers rely on natural gas for heating, but diesel can be used as a redundancy. If these supplies are interrupted, loss of heating, hot water, and sterilization equipment will occur, with impacts most severe in the winter.

HVAC Failure

Heating, ventilation, and air conditioning systems play a critical role in controlling the environment within the hospital. Temperature control failure in concert with extreme external weather can lead to acute illness in patients with difficulty thermoregulating. Ventilation controls tightly regulate airflow, and failure would increase the chance of transmission of airborne illness. Portable ventilation systems exist as back-ups, but until they are in place disruption to the system may result in redistribution or evacuation of high-risk patients on a case by case basis. Limited downtime of some areas may occur depending on the nature of the failure, though HVAC failures are typically brief in duration.

IT Failure

Information technology services have become critical to numerous administrative processes within the municipal system. The most common cause of failure is unauthorized system changes without proper oversight, leading to inadvertent problems. In most cases of disruption, disaster recovery processes would return service within 72 hours. While direct effects on patient or staff health are unlikely, failure of IT services would disrupt a number of processes and business activities, and have moderate financial impact. Communication and documentation systems may be impacted.

Sewage Failure

Sewage failure is the inability of the sewer system to carry water away from the residents, either due to internal or external blockage, or external failure or over-capacity. Failure to remove excess water may lead to localized discharge of water into the homes. Depending on the source of this water, it may contain biological or chemical waste that can cause illness, either through direct contact or contamination of food, water, or sterile medical equipment. In severe cases of sewage failure, internal flooding may result, causing further damage.

Telecommunications Failure

Telecommunications include internal and external phone systems, radios, and switchboard. These systems may fail due to operator error, IT failures, extremely high volume, or an external disruption. Without functioning telecommunications systems there is an increased likelihood of medical errors. There may be financial costs related to repair and downtime, and inability for the public to reach the residents may result in negative publicity.

Water Supply Failure

Water supply is essential for drinking, food preparation, air conditioning, humidification, hygiene, and plumbing. Disruption may occur if the municipal supply is lost or contaminated, or if an internal issue (such as a leak) forces a localized shutdown. Prolonged absence of water may lead to illness or death,

with impacts more severe in the winter. Without a constant water source certain procedures will be cancelled, triggering loss of access to some facilities. Lack of water will also impair response to other hazards, such as HAZMAT decontamination or fire suppression. The cost of alternative water attainment may be significant.

APPENDIX B – RISK SCORES

Risk assessments are not a precise science – rather, they are an estimation of the probability of future events and their impacts. The data in the following tables should be interpreted as best estimates rather than absolutes. Furthermore, as the assessment is based in part on the organization's hazard history, it is often impossible to separate the original risk from the residual risk left after existent mitigation efforts are considered. As a result, some hazards may reflect an already-mitigated risk level while others represent the true, original risk. Similarly, in some cases the consequences may actually be related to response rather than the initial hazard.

In order to ensure as much accuracy as possible within this document, comprehensive research was conducted using a number of resources. For a full list of sources see Appendix C

Natural hazards	Likelihood Score	Consequence Components				Total Risk
		Human	Physical	Financial	Reputation	
Blizzard / Snowstorm	4	2	2	2	1	28
Contamination – Food	3	4	2	3	3	36
Contamination – Water	3	5	2	3	3	39
Earthquake	1	2	3	3	2	10
Extreme Cold	5	3	1	1	1	30
Extreme Heat	5	3	1	2	1	35
Flood- External	2	2	3	3	3	22
Geomagnetic Storm	2	1	2	3	2	16
Hurricane	2	2	3	3	1	18
Ice Storm	4	2	3	2	1	32
Infectious Disease – Internal	4	4	1	3	3	44
Pandemic/Epidemic - External	4	5	2	4	4	60
Severe Summer Storm	4	2	2	2	1	28
Severe Winds	3	2	3	2	1	24
Soil Subsidence	1	1	4	4	3	12
Tornado	2	4	4	4	2	28
Technological Hazards	Likelihood Score	Consequence Components				Total Risk
		Human	Physical	Financial	Reputation	

	Likelihood Score	Human	Physical	Financial	Reputation	Total Risk
Air/Space Object Crash	1	5	5	5	4	19
Fire / Explosion – External	2	2	3	3	3	22
Hazardous Materials External	3	3	3	3	3	36
Hazardous Materials – Internal	3	2	4	2	2	30
Nuclear Plant Fallout	1	3	3	4	3	13
Pipeline Explosion	2	2	3	3	2	20
Fire Incident – Minor	4	2	2	1	2	28
Structural Collapse	1	4	4	4	4	16
Transportation Accident	3	3	3	2	2	30
Fire/Explosion – Internal	2	5	4	4	3	32
		Consequence Components				
Human Caused Hazards	Likelihood Score	Human	Physical	Financial	Reputation	Total Risk
Bomb Threat	2	2	3	2	3	20
Child Abduction	3	2	2	2	4	30
Civil Disorder	2	2	2	2	3	18
Computer Virus/Cyber Attack	3	1	3	4	4	36
Hostage Incident	2	3	3	2	3	22
Labour Disruption	2	2	2	3	4	22
Mass Casualty incident	3	4	1	3	2	30
Missing Patient	5	2	1	1	2	30
Serious Adverse Event	3	3	1	3	4	33
Terrorism	1	5	5	5	4	19
Violence – Patient	5	2	1	2	1	30
Violence – Non-Patient	3	3	2	1	2	24
Violence – Active Shooter	2	5	2	1	4	24
War	1	2	1	1	1	5
Workplace Injury	4	2	1	2	2	28
		Consequence Components				
Infrastructure Hazards	Likelihood Score	Human	Physical	Financial	Reputation	Total Risk
Electrical failure – Primary	5	2	3	2	1	40

Electrical Failure – Secondary	3	2	2	3	1	24
Electrical Failure – Total	2	4	4	3	4	30
Fire System failure	4	1	2	2	2	28
Flood - Internal	3	2	4	3	2	33
Fuel Supply Failure	3	2	3	3	3	33
HVAC Failure	4	2	2	2	3	36
IT Failure	4	2	3	2	2	36
Medical Gas Failure	3	3	3	2	2	30
Sewer Failure	2	3	4	3	3	26
Steam Failure	2	2	3	2	2	18
Supply Chain Disruption	4	2	2	2	2	32
Telecommunication Failure	3	2	2	2	3	27
Water Supply Disruption	3	3	3	3	3	36

APPENDIX C – HAZARD ASSESSMENT TEMPLATE

Hazard:_____   Date:_____

Name:_____

Position:_____

Likelihood:

- ☐ 1 = Unlikely to occur within a 100-year period (or a rating of 2 in nearby municipalities)
- ☐ 2 = May occur once in a 100-year period (or a rating of 3 in nearby municipalities)
- ☐ 3 = May occur once in a 10-year period (or a rating of 4 in nearby municipalities)
- ☐ 4 = May occur once in a 1-year period (or a rating of 5 in nearby municipalities)
- ☐ 5 = May occur multiple times in a 1-year period

Human Impact:

- ☐ 1 = Injury or illness to patients/staff unlikely
- ☐ 2 = Low probability of injuries or illness
- ☐ 3 = High probability of injuries or illness
- ☐ 4 = High probability of injuries or illness and low probability of death
- ☐ 5 = High probability of injuries or illness and high probability of death

Physical Impact:

- ☐ 1 = Property damage or loss of access unlikely
- ☐ 2 = Minor clean-up or recovery time
- ☐ 3 = Minor damage or temporary loss of access
- ☐ 4 = Major damage or prolonged loss of access
- ☐ 5 = Indefinite loss of access or rebuild required

Financial Impact:

- ☐ 1 = Negligible financial impact
- ☐ 2 = Expenditures or insurance claims under $ 100 000
- ☐ 3 = Expenditures or insurance claims under $ 1 million
- ☐ 4 = Expenditures or insurance claims under $ 10 million
- ☐ 5 = Expenditures or insurance claims over $ 10 million

Reputation Impact:

- ☐ 1 = Reputation unlikely to be affected
- ☐ 2 = Limited negative local media coverage or public stigma
- ☐ 3 = Negative regional media coverage and strong public stigma
- ☐ 4 = Negative national media coverage, fundraising or recruitment affected
- ☐ 5 = Long-term negative association with hospital, large fund
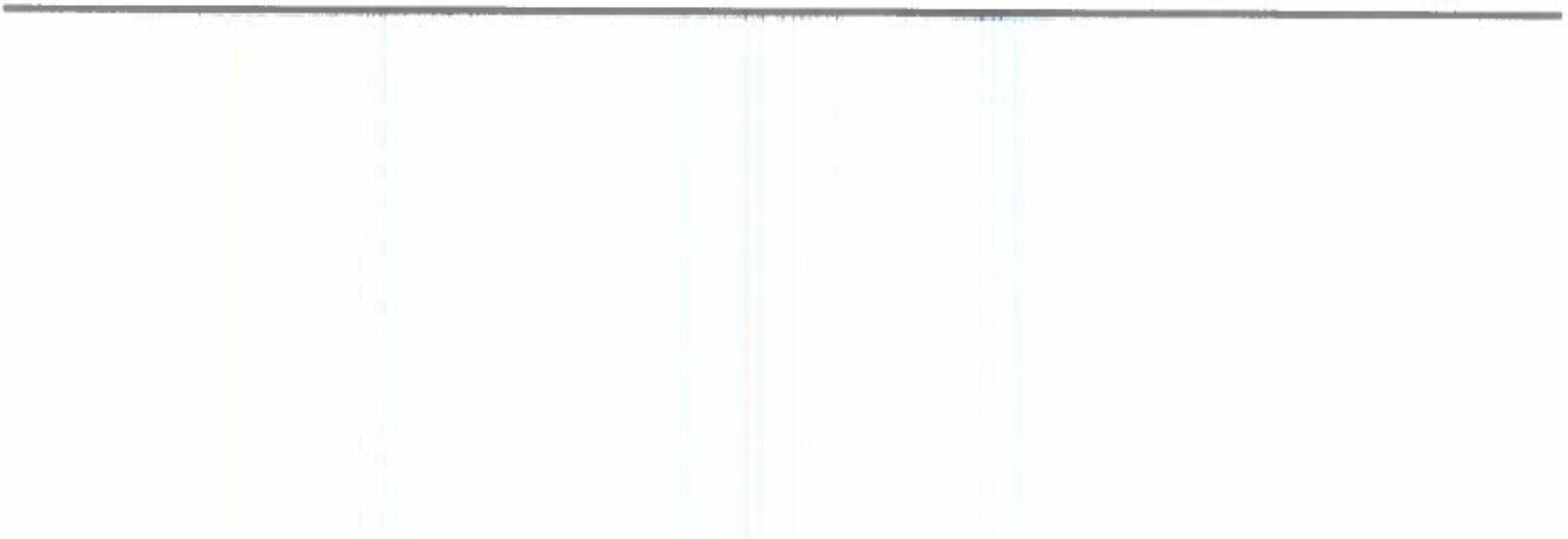
Hazard Identification and Risk Assessment Ranking

Hazard	Frequency	Frequency category	Consequence	Consequence Description	Changing Risk	RISK TOTAL: (Frequency X Consequence X Changing Risk)	Level of Risk
Earthquake	5	Almost Certain	1	Minor	3		Low
Farm Animal Disease	1	Rare	1	Minor	2		Very Low
Drought / Low Water	1	Rare	1	Minor	2		Very Low
Food Emergency	1	Rare	1	Minor	2		Very Low
Plant Disease and Pest Infestation	5	Likely	1	Minor	2		Very Low
Drinking Water Emergency	4	Probable	3	Moderate	2		Very Low
Erosion	2	Very Likely	1	Minor	2		Very Low
Extreme Temperature – Heat Wave	5	Almost Certain	1	Minor	3		Low
Extreme Temperatures – Cold Wave	5	Likely	1	Minor	2		Very Low

Hazard		Likelihood		Consequence		Risk
Flood - Riverine	5	Almost Certain	1	Minor	3	Low
Flood - Seiche	1	Rare	3	Minor	2	Very Low
Flood – Storm Suge	4	Likely	3	Moderate	2	Moderate
Flood - Urban	1	Rare	1	Moderate	2	Very Low
Fog	5	Almost Certain	5	Minor	3	Low
Forest / Wildland Fire	4	Probable	3	Catastrophic	3	Extreme
Freezing Rain / Ice Storm	5	Almost Certain	1	Moderate	3	Extreme
Geomagnetic Storm	3	Unlikely	1	Minor	2	Very Low
Hail	5	Almost Certain	2	Minor	2	Low
Human Health Emergency – Epidemic	5	Almost Certain	3	Slight	2	Moderate
Human Health Emergency – Pandemic	2	Very Unlikely	1	Moderate	4	Moderate
Hurricane	1	Rare	1	Minor	2	Very Low
Land Subsidence	3	Unlikely	1	Minor	2	Very Low
Landslide	3	Unlikely	1	Minor	2	Very Low
Lightning	5	Almost Certain	1	Minor	2	Low
Natural Space Object Crash	0	Rare	4	Minor	2	Very Low

Hazard						Risk
Snowstorm / Blizzard	4	Probable	5	Severe	3	High
Tornado	1	Rare	2	Very Severe	2	Very Low
Windstorm	4	Probable	2	Slight	3	High
Building / Structure Collapse	2	Very Unlikely	5	Slight	4	Very Low
Critical Infrastructure Failure	4	Probable	1	Very Severe	2	Extreme
Dam failure	1	Rare	2	Minor	3	Very Low
Energy Emergency (Supply)	5	Almost Certain	2	Slight	2	High
Explosion / Fire	4	Probable	2	Slight	3	Moderate
Hazardous Materials Incident / Spills – Fixed Site Incident	3	Unlikely	5	Slight	3	Low
Hazardous Materials incident / spills – transportation Incident	5	Likely	1	Catastrophic	2	Extreme
Human-Made Space Object Crash	1	Rare	2	Minor	4	Very Low

Hazard		Likelihood		Consequence			Risk Rating
Mine Emergency	4	Probable	1	Slight	2		Low
Nuclear Facility Emergency	0	Rare	3	Minor	2		Very Low
Oil / Natural Gas Emergency	4	Probable	1	Moderate	2		Moderate
Radiological Emergency	0	Rare	1	Minor	2		Very Low
Transportation Emergency – Air	5	Almost Certain	1	Moderate	4		Moderate
Transportation Emergency – Marine	0	Rare	5	Minor	2		Very Low
Transportation Emergency – Rail	4	Probable	1	Catastrophic	3		Extreme
Transportation Emergency – Road	3	Unlikely	1	Minor	4		Low
Civil Disorder	1	Rare	1	Minor	2		Very Low
Cyber Attack	5	Likely	1	Minor	4		Low
Sabotage	2	Very Unlikely	1	Minor	2		Very Low
Special Event	5	Almost Certain	1	Minor	2		Low
Terrorism / CBRNE	1	Rare	1	Minor	2		Very Low

War & International Emergency	0	Rare	1	Minor	2		Very Low