Perry Group Consulting Ltd.

Business Continuity/ Disaster Recovery Program

Disaster Recovery Impact Analysis & Invocation Guide

Town of Fort Erie
Author: Perry Group Consulting
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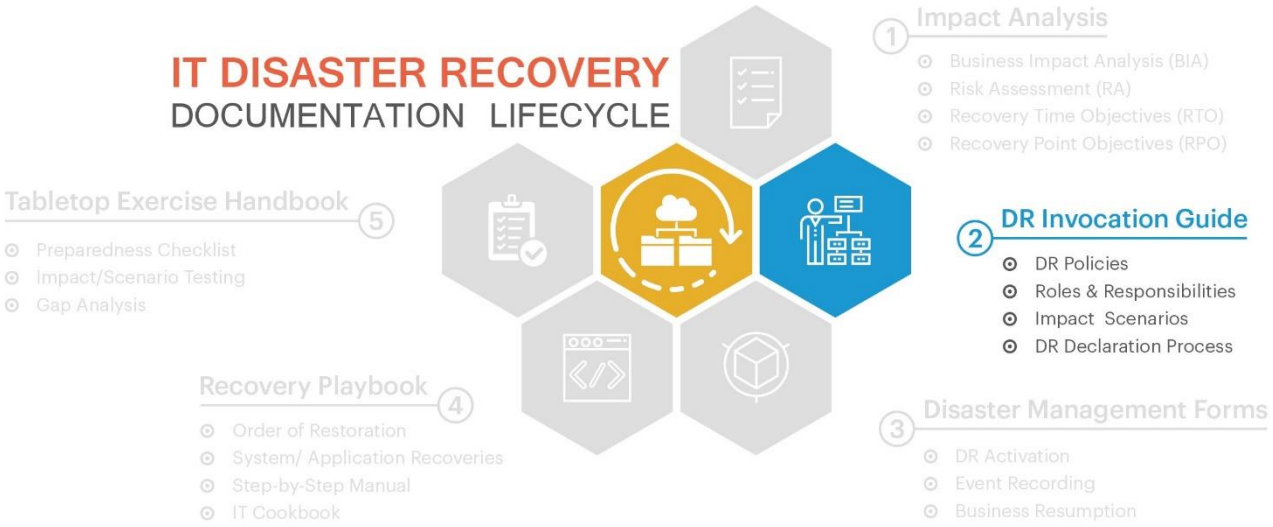
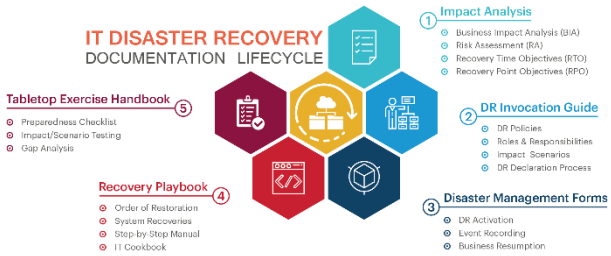
INSTRUCTIONS

The IT **DR Invocation Guide** outlines the objectives of the overarching disaster recovery strategy and includes the following:

- **Policy Statement** – approach for safeguarding the vital technology and data managed by the Town's Information Technology (IT) Department.
- **Staffing Requirements/Notification Process** – definition of Town roles and responsibilities, DR call tree, and invocation guidelines.
- **Critical Asset List/Access Control** – use this document to add details on critical technology assets and staff authorization to access Town datacenter facilities.
- **Current Posture** – Use this document to detail the Town's current DR posture including backup/recovery procedures.
- **Impact Analysis Summary** – this section includes a summary of critical services and Town response strategy.





REPORT SUMMARY

This report delineates Town of Fort Erie "Town" policies and procedures for technology disaster recovery, as well as the process-level plans for recovering critical technology platforms and the telecommunications infrastructure. This report summarizes the recommended procedures that will underpin the Town's business continuity strategy. In the event of an actual emergency situation, modifications to the processes outlined in the report may be made to ensure physical safety of our staff, systems, and digital assets.

The scope of this report includes the Town's IT service continuity strategy; a subset of business continuity management (BCM). Often referred to as Disaster Recovery "DR", IT service continuity management "ITSCM" is focused on planning for the restoration of IT-based services and technologies. ITSCM addresses the gaps in the traditional disaster recovery approach by introducing layers of resilience that provide higher levels of protection. This layering is realized by using technologies that are readily available such as virtualization and high availability fail over. This approach aligns with ITIL best practices.

Methodology

Perry Group Consulting "PGC" developed the Town's strategy using a Business Continuity Management (BCM) framework based on best practices from the Disaster Recovery Institute International (DRII). PGC places a clear distinction between IT Service Continuity Management (ITSCM), and the requirements for the Town to establish a sound BCM strategy that addresses the following key areas:

1. BCM Framework Definition – initiation, roles, policy
2. Impact Analysis & Risk Identification – Business Impact Analysis "BIA", Risk Assessment "RA", [1]Recovery Time Objectives "RTO", and [2]Recovery Point Objectives "RPO"
3. Design & Delivery – recovery, strategy, plans (crisis, emergency, communication)
4. Testing & Maintenance – plan, test, review

The project was launched in October, 2021 with the development of a BIA questionnaire that was distributed to selected departments within the Town. The questionnaire was used to identify services within each department along with the criticality of each service:

1. Building
2. Corporate Services (Finance)
3. Customer Service
4. Facilities
5. Fire
6. Operations
7. Planning
8. Water

Note: A BIA was submitted by Communications reflecting Emergency Response. This will be reviewed as part of the Town's Business Continuity strategy.

[1] RTO – defines the impact on Town services in the event of a disruption coupled with the required recovery time expectations expressed in hours/days/weeks.
[2] RPO – defines the Town's tolerance for data loss as expressed in hours/days/weeks.

The Information Technology "IT" team were engaged to help define a catalogue of IT services that were then mapped to all services defined by the business units.

Cybersecurity Maturity Assessment

A cybersecurity maturity assessment was performed to identify threats and risks that could impact the delivery of Town services. The results of the assessment were then uploaded to a risk register that will be used by the IT team to track and manage all risks identified in the report. To help the Fort Erie IT team govern IT security in the future, a draft security policy was delivered.

Online Dashboard

All components of the Town's BCP/DR strategy have been uploaded to a secure dashboard that will allow the IT team to manage the lifecycle of the BCP/DR program. All modifications to Town services, including changes in technology, will be updated in "real-time" within the dashboard.

This process will support the Town's desire to have a current, always validated BCP/DR program. Historically, BCP/DR documents can quickly become outdated and ineffective to organizations. The process adopted by the Town will mitigate the risk of stale information, streamline access to pertinent information and ensure the Town's BCP/DR posture is aligned with DRII best practices.

Program Benefits

- **Roadmap:** A well-defined business continuity plan is like a roadmap during a disruption. It allows the Town to react swiftly and effectively and maintain continuity of core services. With this Report the Town can quickly move forward with initiatives that mitigate security risks.
- **Build Confidence with the Public and Town Employees:** A great benefit of a business continuity plan is that it can give both employees and the public the needed assurance on the capability of the Town to deliver services in times of disaster.
- **Avoid Excessive Downtime:** Cyber-attacks are common within municipalities. These attacks often lead to data breaches, data loss, or infection that can cause many problems to the daily operations.

Summary

Initiating the BCP/DR program has positioned the Town as a municipal leader in business continuity disaster recovery planning. The program will support cybersecurity initiatives and risk management processes. With this report the Town has clear direction on building security foundations that support business continuity. This aligns with Fort Erie's corporate strategic initiatives and helps to organize resources, ensure efficiency.

Next steps within the BCP/DR program throughout 2022 and beyond will include:

- **Validate all Service Recovery Times:** The Town will review all services and validate recovery times.
- **Develop Tabletop Exercises:** A schedule will be developed to initiate annual tabletop exercises.
- **Develop an IT Recovery Plan:** Based on the business recovery time objectives, IT will implement a technical solution to provide redundancy in the event of a disruption in IT services.
- **Develop Recovery Playbooks:** IT will start the process of creating recovery playbooks to be used in the event of a disruption.

TERMS AND DEFINITIONS

Term	Definition
Alternate Site	A site held in readiness for use during/following an invocation of business or disaster recovery plans to continue urgent and important activities of an organization.
Application Recovery	The component of Disaster Recovery that deals specifically with the restoration of business system software and data after the processing platform has been restored or replaced.
Business Continuity	The strategic and tactical capability of the organization to plan for and respond to incidents and business disruptions in order to continue business operations at an acceptable predefined level. The capability of the organization to continue delivery of products or services at acceptable predefined levels following a disruptive incident.
Business Continuity Management (BCM)	Holistic management process that identifies potential threats to an organization and the impacts to business operations those threats, if realized, might cause, and which provides a framework for building organizational resilience with the capability of an effective response that safeguards the interests of its key stakeholders, reputation, brand and value-creating activities.
Business Continuity Plan (BCP)	Documented procedures that guide organizations to respond, recover, resume and restore to a pre-defined level of operation following disruption.
Business Impact Analysis (BIA)	Process of analyzing activities and the effect that a business disruption might have on them.
Business Interruption	Any event, whether anticipated (i.e., public service strike) or unanticipated (i.e., blackout) which disrupts the normal course of business operations at an organization's location.
Call Tree	A document that graphically depicts the calling responsibilities and the calling order used to contact management, employees, customers, vendors, and other key contacts in the event of an emergency, disaster, or severe outage situation.
Crisis Management	The overall direction of an organization's response to a disruptive event, in an effective, timely manner, with the goal of avoiding or minimizing damage to the organization's profitability, reputation, and ability to operate. Development and application of the organizational capability to deal with a crisis.
Crisis Management Team	Crisis Management will protect the Town against situations that may have a negative effect onbusiness operations and reputation (part of business continuity management). The Crisis Management Team would typically be led by senior leadership with authority to invoke theIT disaster recovery plan and/or business continuity plans.
Datacenter Recovery	The component of disaster recovery which deals with the restoration of datacenter services and computer processing capabilities at an alternate location and the migration back to the production site.

Term	Definition
Declaration (DR)	A formal announcement by pre-authorized personnel that a disaster or severe outage is predicted or has occurred and that triggers pre-arranged response and mitigating actions.
Disaster Declaration	The staff should be familiar with the list of assessment criteria of an incident versus disaster situation established by the BCM or DR Steering Committee and the notification procedure when a disaster occurs.
Disaster Recovery Plan (DRP)	The management approved document that defines the resources, actions, tasks and data required to manage the technology recovery effort.
Emergency Operations Center (EOC)	The physical location at which the coordination of information and resources to support incident management (on-scene operations) activities normally takes place. The facility used by the Incident or Crisis Management Team after the first phase of a plan invocation. An organization must have a primary and secondary location for an EOC in the event of one being unavailable. It may also serve as a reporting point for deliveries, services, press and all external contacts.
Incident	An event which is not part of standard business operations which may impact or interrupt services and, in some cases, may lead to disaster. Situation that might be, or could lead to, a disruption, loss, emergency or crisis.
Incident Management Team (IM)	Comprises management, technical and other support staff who will be responsible for notification of all relevant staff, activation of recovery services provided by third party organizations and establishing operational capability at the Town Administration building. The team is also responsible for the overall management of recovery activities.
Incident Response Team (IRT)	As it relates to technology, Incident response relies on the IT Department personnel and decisions/ classification capabilities defined by Incident Management. A decision must be made to decide if ITSCM contingencies and capabilities should be used, and when the trigger should be pulled after a disruption (based on senior management decisions).
ITIL	A set of detailed practices for IT service management that focuses on aligning IT services with the needs of business.
IT Service Continuity Management (ITSCM)	Aims to manage risks that could seriously impact IT services. This is an ITIL process that ensures the IT service provider(s) can always provide minimum agreed Service Levels, by reducing the risk from disaster events to an acceptable level and planning for the recovery of IT services. ITSCM should be designed to support Business Continuity Management.
Maximum Tolerable Downtime (MTD)	Time it would take for adverse impacts, which might arise as a result of not providing a product/service or performing an activity, to become unacceptable.
Qualitative Risk Assessment	The process for evaluating a business function based on observations and does not involve measures or numbers. Instead, it uses descriptive categories (e.g., customer service, regulatory requirements)
Quantitative Risk Assessment	The process for placing value on a business function for risk purposes. It is a systematic method that evaluates possible financial impact for losing the

Term	Definition
	ability to perform a business function. It uses numeric values to allow for prioritizations.
Recovery Point Objective	The point in time to which data is restored and/or systems are recovered after an outage. The point to which information used by an activity must be restored to enable the activity to operate on resumption.
Recovery Time Objective	The period of time within which systems, applications, or functions must be recovered after an outage. RTO includes the time required for: assessment, execution and verification. The period of time following an incident within which a product or service or an activity must be resumed, or resources must be recovered.
Risk Acceptance	A management decision to take no action to mitigate the impact of a particular risk.
Risk Analysis	The quantification of threats to an organization and the probability of them being realized.
Risk Appetite	Total amount of risk that an organization is prepared to accept, tolerate, or be exposed to at any point in time.
Risk Assessment	Overall process of risk identification, risk analysis, and risk evaluation.
Risk Mitigation	Implementation of measures to deter specific threats to the continuity of business operations, and/or respond to any occurrence of such threats in a timely and appropriate manner. Activities taken to reduce the severity or consequences of an emergency.
Risk Register	All risks of an organization, listed, ranked and categorized so that appropriate treatments can be assigned to them.
Single Point of Failure	A unique pathway or source of a service, activity, and/or process. Typically, there is no alternative, and a loss of that element could lead to a failure of a critical function. Unique (single) source or pathway of a service, activity and/or process; typically, there is no alternative, and loss of that element could lead to total failure of a mission critical activity and/or dependency.
Tabletop Exercise	Technique for rehearsing teams in which participants review and discuss the actions they would take according to their plans, but do not perform any of these actions.
Vital Records	Records essential to the continued functioning or reconstitution of an organization during and after an emergency and also those records essential to protecting the legal and financial rights of that organization and of the individuals directly affected by its activities.

INTRODUCTION

Emergency preparedness, business continuity, crisis response, disaster recovery: These and other related terms are often discussed as if they are synonyms that all refer to the process of responding to and mitigating a crisis event. However, they provide very different business functions and it's particularly important for the Town of Fort Erie "Town" to document and communicate the differences between **emergency preparedness** and **business continuity** throughout the organization in order to establish correct accountability for each discipline.

A clear distinction should be made between emergencies, crises and disasters in order to develop and provide appropriate response plans. However, what may begin as a small routine emergency may turn into a major crisis or a major disaster. Conversely, not all emergencies end up being a crisis. It would all depend on the timing, nature and surrounding context of the event.

Emergency Preparedness: typically involves directing people and resources away from danger, holding emergency drills and training sessions, evacuating facilities and working with first responders to ensure the health and safety of all stakeholders.

Business Continuity: involves protecting the business' reputation, establishing and maintaining redundant systems and support teams, restoring IT systems and ensuring employees are able to return to their daily work tasks following an emergency.

Of course, despite the differences between emergency management and business continuity, in the end these two distinct departments are both working toward the same objective: to help ensure the success of the business.

The Town has an existing **Emergency Response Plan (ERP)** supported by Community Safety who is responsible for the support of the ERP. In the ideal corporate set-up, emergency management and business continuity personnel would be completely separate entities with their own teams. The Town will need to review this further in order to determine the ideal structure.

The scope of this document pertains to the Town's IT service continuity strategy; a subset of business continuity management (BCM). Often referred to as "DR", IT service continuity management "ITSCM" is focused on planning for the restoration of IT-based services and technologies. ITSCM addresses the gaps in the traditional disaster recovery approach by introducing layers of resilience that provide higher levels of protection. This layering is realized by using technologies that are readily available such as virtualization and high availability fail over. This approach aligns with ITIL best practices.

Aligning ITIL processes to the Town's DR plan will lead to more efficient and effective use of IT infrastructure. Inadequate planning is a risk to the business and is often overlooked until it is too late, when a crisis event such as a major infrastructure outage, security or other breach results in the loss of supporting IT systems.

Recovery options need to be considered for IT systems and networks, and critical services such as telecommunications and power. The various recovery options are as follows:

- **Do nothing** - However, few organizations can afford to forgo all business activities supported by IT services and simply wait until services are restored.
- **Manual system** - For businesses without a large number of critical IT services, manual workarounds may present a feasible option until IT services can resume.

- **Reciprocal arrangement** - This option involves forming an arrangement with another company that uses similar technology.
- **Gradual recovery** - This option is often chosen by organizations that have certain business services supported by IT that are not required for 72 hours or longer.
- **Warm start** - This is an option used by organizations that need to recover IT services and facilities within a 24- to 72-hour period. To accomplish this, organizations often use commercial facilities that include operations, system management, and technical support.
- **Hot start** - This is also known as an immediate recovery. This option is used for critical services that cannot be down for any length of time. A hot start provides for immediate restoration of IT services. It is also one of the most expensive options to implement.

Common problems associated with ITSCM are issues that prevent an organization from committing to continuity management - in terms of both implementing the process and maintaining it. One example is when organizations seem unable to move out of the planning stage and into actual implementation.

Other examples are being unable to find facilities or resources, having someone unfamiliar with the business implement the process, not understanding ITSCM's role in disaster recovery, or thinking IT has already handled continuity planning.

Common costs associated with ITSCM are the expenses incurred from risk management and recovery arrangements. An example of a common cost is the investment required by the introduction of risk management.

Additional examples of common costs are returning operational costs and the hardware needed to support the ITSCM process, and fees for the recovery facility. There will always be problems and costs associated with implementing ITSCM. But the resulting benefits, especially when a disaster is prevented or quickly controlled, outweigh the associated difficulties and costs.

This document provides policies and guidance to be used by the Town's **Information Technology** group to carry out responsibilities under ITSCM for information systems security and availability regarding system contingency plans and recovery after a disruption or disaster.

This document also references departmental business continuity plans which are the responsibility of each department identified in the Business Impact Analysis (BIA). Please refer to section Departmental Business Continuity Planning for further details.

STATEMENT OF INTENT

This document delineates Town of Fort Erie "Town" policies and procedures for technology disaster recovery, as well as the process-level plans for recovering critical technology platforms and the telecommunications infrastructure. This document summarizes the recommended procedures. In the event of an actual emergency situation, modifications to this document may be made to ensure physical safety of our staff, our systems, and our data.

Our mission is to ensure information system uptime, data integrity and availability, and business continuity for the Town of Fort Erie.

POLICY STATEMENT

- Town of Fort Erie shall develop a comprehensive IT disaster recovery plan;
- An updated risk assessment shall be undertaken to determine the requirements for the disaster recovery plan;
- The disaster recovery plan should cover all essential and critical infrastructure elements, systems and networks, in accordance with key business activities;
- The disaster recovery plan should be periodically tested in a simulated environment to ensure that it can be implemented in emergency situations and that the management and staff understand how it is to be executed;
- All staff must be made aware of the disaster recovery plan and their own respective roles; and
- The disaster recovery plan is to be kept up to date to take into account changing circumstances.

Please refer to Appendix A – Sample IT Continuity, Backup and Recovery Policy for a recommended approach to IT continuity, backup, and recovery.

OBJECTIVES

The principal objective of the disaster recovery program is to develop, test and document a well-structured and easily understood plan which will help the Town recover as quickly and effectively as possible from an unforeseen disaster or emergency which interrupts information systems and business operations. Additional objectives include the following:

1. The need to ensure that all staff fully understand their duties in implementing such a plan;
2. The need to ensure that operational policies are adhered to within all planned activities;
3. The need to ensure that proposed contingency arrangements are cost-effective;
4. The need to consider implications on other Town sites; and
5. Disaster recovery capabilities as applicable to key customers, vendors and others.