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**BC Flood Plan**

2007 Edition

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## Foreword

Effective consequence management involves planning for, responding to and controlling an event to minimize risk and reduce the negative effects from that event.

In BC, lives, homes, businesses, property and infrastructure may be threatened by floods. Whether flooding occurs from a sudden onset event due to unpredictable rains and storms or slowly developing situations due to run-off from melting snows, being prepared to respond is critical.


This British Columbia Flood Plan (BC Flood Plan), describes the concept of operations for responding to and managing a flood hazard event and its consequences whether the flood is a single event or in conjunction with another event such as an earthquake. This plan specifically relates to flood hazard management although some of the same responses and actions may be used for various other emergency events. (See the PEP Web site for other hazard-specific plans.)

Enhanced readiness and response activities require the assistance of all partners in the BC Flood Plan. This plan is a living document that represents an agreement between various ministries and agencies of the provincial government.

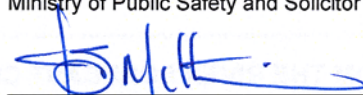
The plan, originally developed in 1992, is reviewed and revised by the Provincial Emergency Program to meet changing needs and new technologies.

This document fits as a component to the British Columbia Emergency Response Management System (BCERMS) which is a comprehensive all-hazards emergency response management structure. BCERMS provides a framework for a standardized process for organizing and managing a coordinated and integrated response to emergencies and disasters in BC.

This plan is approved for use by the four ministries responsible and replaces all previous versions, including the BC Flood Plan 2006 Edition.



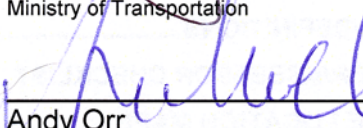
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## Preamble for Flood Hazard Consequence Management

The Province of British Columbia may experience flooding throughout the entire year, due to natural or human-made conditions and geography. Some communities are more susceptible to fall flooding due to heavy rains or rain-on-snow events, while other communities are susceptible to spring freshet flooding from rapid snow melt. The province, in general, remains susceptible to flooding by intense precipitation which may occur at any time of the year. Ice jams, reservoir releases and mechanical failure of flood protection works may also cause flooding anywhere in the province.

Freshet is the period of time in the spring, typically from April to July, where rivers swell from snowmelt. Freshet flooding may occur where atmospheric conditions lead to rapid melt and stream channels become overwhelmed. Freshet flooding can generally be forecast using information related to snow packs, predicted weather and knowledge of stream channel capacities. These forecasts generally create a foundation for an enhanced level of readiness.

Less predictable are localized weather conditions such as rain-on-snow or intense rain events. Each situation demands specialized attention and unfortunately, neither provides adequate advance warning, making response reactionary.

Localized or regional weather may cause ice jams anywhere on a stream including large rivers. Ice jams may form in intense cold where ice forms on the stream bottom becoming anchor for further ice development or reducing the ability for other floating ice to pass downstream. Where conditions persist, the ice continues to grow and will eventually dam the river. Alternatively, ice runs formed by the release of developed ice sheets flow downstream and accumulate in river sections eventually choking the river. Generally, the resulting flood occurs upstream of the ice dam until the reservoir formed behind the dam breaks through or finds an alternative path around it. River level changes may be rapid or gradual.

Mechanical failure of flood protection works or human-made dams have potential for flooding and are generally not predictable. Also difficult to predict are sudden releases by natural reservoirs formed by beavers or landslides.

The BC Flood Plan describes the methodology the British Columbia Provincial Government (the Province) will utilize for coordinating activities to manage a flood event. This includes laying the foundation for describing a flood event, the structure to be utilized, and the general expectations for roles and responsibilities of other levels of government, provincial ministries and agencies and other stakeholder groups.

Local Authorities, as described under the *Emergency Program Act*, have a legislated duty to respond first to emergency situations within their jurisdictions and to have an emergency plan in place to keep citizens, infrastructure and the community as safe as possible.

The legislation outlined below provides details on the roles, responsibilities and authority of local authorities and the Province and what they need to have in place to be prepared for emergencies. In addition to the legislation, there are a number of tools to help local authorities be disaster ready. These tools include evacuation guidelines, a community recovery guide, a hazard, risk and vulnerability analysis tool kit, a community emergency program review and the BCERMS site support level guidelines. (See the reference section of this document for Web site locations of these tools.)

## Legislation

**Emergency Program Act, 1996**, details roles and responsibilities of the Province, sets out local authority emergency organization, provides information declaring local or provincial emergencies and the extraordinary powers a declaration provides.

**Emergency Program Management Regulation, 1994**, details the responsibilities and authorities of provincial ministers, ministries, programs, and government corporations and agencies.

**Local Authority Emergency Management Regulation, 1995**, outlines what must be in a local emergency plan as well as the powers and responsibilities of a local authority.

**Compensation and Disaster Financial Assistance Regulation, 1995**, details eligibility requirements, payment limits, and payment processes for all DFA claims whether for an individual or a local authority.

**Dike Maintenance Act, 1995**, details the legislative basis for operation and maintenance of public dikes in British Columbia. Other legislation relative to diking authorities in British Columbia include the *Drainage, Ditch and Dike Act* and the *Local Government Act* which allows local governments to undertake diking and drainage through local bylaws and Improvement Districts.

**British Columbia Dam Safety Regulation, 2000**, provides guidance on the application process as well as reporting and inspection guidelines specific to dams.

## Flood Management Phases

Flood management will be undertaken in four phases. These are:

1. Planning
2. Preparedness (Readiness)
3. Response
4. Recovery



### Phase 1 – Planning and Pre-Flood Preparation

Phase 1 may be described as the normal day-to-day operations for the province to monitor river levels, provide oversight to dam and dike owners, continue efforts in planning and exercises, and provide for mitigation. The province may, from time to time, provide strategic recommendations to local authorities and engage in flood response training or exercises. The River Forecast Centre of the Ministry of Environment (MoE) provides flood forecasts and bulletins [per [Schedule 2 EPM Reg](#)] as necessary through the spring and fall flood windows.

To maximize resources and to ensure coordinated approach to potential flood events, local authorities, the Provincial Emergency Program (PEP) regional manager and representatives of MoE and the Ministry of Transportation (MoT) may begin work on an integrated Regional Flood Response Plan that details what jurisdictional activities are or will be undertaken for preparedness, response and recovery within the region by all agencies.

The Provincial Emergency Coordination Centre may activate to help coordinate planning and preparations. The Provincial Regional Emergency Operations Centres may follow suit to coordinate and integrate regional activities. The Central Coordination Group may meet to establish priorities.

In this phase, a local authority may consider identifying a flood observer/assessor to identify and monitor any sites at risk.

### ***Phase 2 – Preparedness (Readiness)***

Phase 2 occurs when flooding potential is possible. Special resources may be pre-positioned, advisories are prepared, the Central Coordination Group (CCG) meets and active communication between local authorities and the Province occurs regarding the potential for flooding.

The local authority should ensure their Emergency Operations Centres (EOCs) are ready and staff are contacted; in addition, all related plans, including recovery plans are reviewed. Local authorities should provide public information about the risks of flooding and what individual, families and businesses can do to be prepared.

Diking Authorities should actively monitor their flood protection works to ensure that such things as electrical connections are functional, and any gates or valves are operational and clear.

The PEP regional manager will ensure that Temporary Emergency Assignment Management System (TEAMS) staff and other agency representatives that will be incorporated into the structure are prepared to staff Provincial Regional Emergency Operations Centres (PREOCs) on short notice to support local authorities. PEP headquarters will also prepare to activate the Provincial Emergency Coordination Centre (PECC) to support all flood response efforts throughout the province.

The province may hold regional information meetings with local authorities to provide flood event information as possible and to ensure technical experts are available to answer questions.

### ***Phase 3 – Response***

Phase 3 is described as when flooding is imminent to occurring or when an emergency response is initiated. Generally, this will occur when river stage (water height) is expected to reach or exceed stream channel capacity resulting in water threatening or impacting any people, property, or infrastructure.

EOCs, PREOCs and the PECC will be activated commensurate to the level of response required. The response phase is broken down into stages and will generally depict the activation level required. Events may dictate a non-linear or circular path through the response stages and may move up or down as the conditions improve or deteriorate further. The response stages are defined as:

1. Flood Alert
2. Flood Order
3. All Clear

### **Stage 1 – Flood Alert**

Stage 1 is reached when the emergency response is elevated to Phase 3, Response. Local Authorities and Diking Authorities should proactively patrol river banks on a priority basis and as conditions dictate. This should include all dikes or other flood protection works and should specifically observe for the appearance of instability or deficiencies. Dam owners should increase the monitoring of their structures and ensure that spillways are clear and the structure(s) are in working order. MoE staff may assist Local Authorities with river monitoring. MoT will provide the primary monitoring where highway infrastructure may be at risk.

EOCs, PREOCs and the PECC open and operate at minimum staffing levels with flexible operational hours (Activation Level 1) to monitor status of potential flooding and perform pre-response functions. EOCs, PREOCs and the PECC may reach Activation Level 2, that is, fully staffed for extended operation.

Public information on flood proofing homes, businesses and threatened infrastructure as well as public safety advisories will be issued by the EOCs, PREOCs or PECC. EOCs should create opportunities such as public meetings, local bulletin board postings or local newsprint articles to provide flood safety awareness to citizens and explain flood response plans.

Evacuation plans should be updated by the local authority, as necessary, for potentially affected areas or initiation of voluntary evacuation.

In the event of a sudden, local flood event it may be necessary to declare a local state of emergency to exercise local extraordinary powers esignated under the *Emergency Program Act*.

### **Stage 2 – Flood Order**

Stage 2 occurs when there is a high probability of damage due to flooding. Full flood response or control programs are implemented due to severity of flooding. Mandatory evacuation is contemplated or ordered. The response structure moves to Activation Level 3 (fully staffed for 24/7 operation, where there may be a declaration of a provincial state of emergency or where large evacuations are imminent).

### **Stage 3 – All Clear**

Stage 3 is realized when the threat of continued flooding has past and evacuees may return to the flood area on a permanent basis. Outstanding issues such as building occupancy due to electrical problems or drinking water contamination may persist; however, people may proceed with cleanup activities.

This stage may also be characterized by the implementation of demobilization plans and recovery activities. EOCs, PREOCs and the PECC may reduce their Activation Levels to support recovery activities.

### ***Phase 4 – Recovery/ Disaster Financial Assistance***

Phase 4 may be described as when the threat of flooding is over and the replacement and restoration of uninsured essential property to pre-event condition commences. This may include debris and gravel removal that has not occurred under response. Incremental costs for a local authority's Recovery Centre under Community Disaster Recovery are administered under Disaster Financial Assistance (DFA) programs.

Public information from EOCs, PREOCs and the PECC should be provided through public meetings, newspaper articles, web postings, etc. to residents of impacted areas about the health risks they may encounter, how to clean up flood impacted property and structures, how and where to go to access DFA information, and other sources to assist people in need.

## Concept of Operations

The province is committed to supporting Local Authorities and effectively managing natural hazard events in the most efficient and appropriate manner. In order to achieve this goal, the province has created a concept of operations that utilizes the British Columbia Emergency Response Management System (BCERMS) as its core. BCERMS is an integrated response model with prevention, mitigation, response and recovery as its foundation to reduce risk to people and property throughout British Columbia. This system will be utilized for dealing with flood hazard management, as it is for other types of emergencies.

In responding to an event, the actions and decisions of the province for consequence management will be based on the BCERMS objectives:

1. provide for the safety and health of all responders
2. save lives
3. reduce suffering
4. protect public health
5. protect government infrastructure (roads, communications and utilities)
6. protect private property (buildings and livestock)
7. protect the environment, and
8. reduce economic and social losses.

Local Authorities have a duty to the people they represent and generally are in the best position for immediate response. BCERMS recognizes this fact and the *Emergency Program Act* indicates Local Authorities have the primary responsibility for protection and response within their boundaries. The province will support those efforts as deemed necessary.

The level of provincial support will be directly dependent upon the magnitude of the event and/or its potential for expanding and the need to support local activities. The BCERMS structure will be used at all levels of response.

### ***Emergency Response Structure***

BCERMS dictates that PEP regional boundaries will apply for the purposes of provincial emergency response management activities. The six PEP regions are shown in Figure 1.



Figure 1: Provincial Emergency Program Regions

BCERMS also sets forth the emergency response structure. It is comprised of the following:

- Site Level Response
- Emergency Operations Centre (EOC)
- Ministry Operations Centre (MOC)
- Provincial Mobile Emergency Operations Centre (PMEOC)
- Provincial Regional Emergency Operations Centre (PREOC)
- Provincial Emergency Coordination Centre (PECC), and
- Central Coordination Group (CCG).

### **Site Level Response**

Any activities or measures taken or implemented at each incident site form the basis for meeting BCERMS objectives. This level of activity is undertaken by local authorities with assistance from provincial technical specialists, if required.

### **Emergency Operations Centre**

Emergency Operation Centres (EOCs) are established by local authorities to provide support to the site level response activities. An EOC may also be established by a community group other than a local authority. For example, a search and rescue group may activate an EOC where conditions dictate. EOCs work directly with PREOCs which are opened by the Province to support local emergency response activities.

### **Ministry Operation Centres**

A Ministry Operation Centre (MOC) or Ministry Regional Operation Centre (MROC) is an operations centre established and operated by a ministry to coordinate the ministry's emergency response in that region. The structure and function is similar to a PREOC and the MOC or MROC will report through the operations section of the PREOC.

### **Provincial Regional Emergency Operations Centre**

A Provincial Regional Emergency Operations Centre (PREOC) will be activated to support any emergency response activities occurring by an EOC within a geographic area. It may also be activated to direct, control or coordinate any provincially-lead response measures.

Staffing and duties of the PREOC will be in accordance with BCERMS. Primary PREOC staffing will be provided by PEP staff and TEAMS members.

### **Provincial Emergency Coordination Centre**

The Provincial Emergency Coordination Centre (PECC) directs and coordinates the overall emergency response, recovery and support activities of the provincial government.

The PECC will be activated in support of any activated PREOC. In addition, it will be activated during any major emergency/disaster. The PECC manages provincial level resources on behalf of the CCG in response to the emergency needs of the operational area(s). It manages and coordinates mutual aid between PREOCs and at the provincial central level, and serves as the coordination and communications link with the federal disaster support structure.

Integral to the PECC is the Emergency Coordination Centre (ECC), a 24/7 emergency operations unit within the Provincial Emergency Program. The ECC provides operational communications and tasking.

Staffing and duties of the PECC will be in accordance with BCERMS. Primary PECC staffing will be provided by PEP staff and TEAMS members.

## Central Coordination Group

The Central Coordination Group (CCG) is composed of senior ministry/agency representatives and is responsible for directing the overall provincial government response province-wide. The CCG will in turn take direction from appropriate cabinet ministers and/or an ad hoc committee of Cabinet.

## Responsibilities of Structural Organizational Components

A detailed description for each response level may be found in the BCERMS manual. In addition to that manual, flood specific concepts are described in Table 1.

**Table 1 - Responsibility of Structural Organizational Components**

Site Level Response	
Phase	
3	Establish an incident command post
3	Direct all resources at the incident
3	Notify the EOC of situational awareness on a regular interval and in coordination with the EOC
3	Establish response parameters in consultation with the EOC
3	Implement emergency plans
3	Implement flood protection measures
3	Information officers will maintain media liaison; this is usually at the local level and should be in conjunction with the EOC
4	Provide post-flood information about health issues, cleanup, etc.
Emergency Operations Centre	
Phase	
2	Identify and monitor any sites at risk
2	Make any preparations necessary, including completing outstanding mitigation work
2	Establish response parameters in consultation with the site and the PREOC
2-3	Create opportunities to provide the public with flood safety information and potential local response information
2-3	Activate emergency plans
2-3	Notify the PREOC of initiation and level of readiness
2-3	Prepare a situation report (SITREP) (EOC 501 form) and distribute to PREOC and other appropriate agencies or EOCs on a regular basis
2-3	Coordinate evacuation and care of displaced residents, in conjunction with Emergency Social Services (ESS), this may also include activating reciprocal evacuation agreements with other jurisdictions
2-3	Implement flood protection measures
2-3	At the onset of any flooding, a detailed log of damages, with photographs, should be initiated; this will help to validate and maximize any financial assistance claim submissions.
2-4	Update and/or activate recovery plan and begin restoration processes
3-4	Information officers will maintain media liaison. Local call centres for public inquiries are activated as necessary
4	Provide post-flood information about health issues, cleanup, etc.

<b>Provincial Regional Emergency Operation Centres</b>	
Phase	
2	The PEP regional manager may coordinate a regional flood information meeting to provide Local Authorities with as much information as possible about potential regional flooding and to provide Local Authorities access to technical experts or specialized equipment
2-3	The PREOC director will: <ul style="list-style-type: none"> <li>• Issue a PREOC flood directive reflecting the duties and responsibilities outlined in this plan and incorporate key elements of CCG flood directives that have been issued</li> <li>• Notify the PECC/EOC/ of activation status</li> <li>• Determine PREOC staffing requirements, including TEAMS members and any field operations; and</li> <li>• Develop and maintain secondary staffing plan</li> </ul>
2-3	Operational flood response supervisors, Risk Management Officer and team leaders must ensure proper safety measures are enforced
2-3	The planning chief will ensure a situation report (SITREP) (PREOC 601 form) is submitted to the PECC not later than 1700 hours daily each day using the EM2000 database system. Whenever possible, digital photographs of the impacted areas should be included in the report
2-4	Continue regular liaison with EOC, PECC, MoT and MoE, and others such as local utility representatives and stakeholder groups as necessary
3-4	Information officers will maintain media liaison, provide local media with flood safety public information. Call centres for public inquiries may be activated
3-4	Assist and support local recovery centre operations
4	Provide public information about health issues, cleanup, DFA and other resources available to help those who have been impacted and need additional assistance
<b>Provincial Emergency Coordination Centre</b>	
Phase	
2-3	The PECC director will: <ul style="list-style-type: none"> <li>• Notify PREOCs / CCG of PECC activation status</li> <li>• Determine PECC staffing requirements, including TEAMS members</li> <li>• Develop and maintain secondary staffing plan</li> <li>• Assess the flood situation throughout the province; and</li> <li>• Liaise and request assistance with federal agencies, as necessary</li> </ul>
2-3	The PECC director will authorize, assign and deploy all critical resources to and among the regions
2-3	The PECC director will authorize deployment of TEAMS members to other regions as necessary and request TEAMS information officers from the PAB to be assigned to PREOCs/PECC or, where needed to EOCs
2-3	The Planning Chief will prepare and distribute a provincial situation report daily
3-4	Information officers will maintain media liaison, provide provincial media with flood safety public information and maintain the PEP web site with up-to-date information on the province's flood events and of safety precautions
3-4	Implement DFA programs, providing local assistance and information as necessary, including onsite DFA information sessions, and DFA representative participation in local recovery centres or town meetings
4	Support flood recovery efforts as needed

<b>Central Coordination Group</b>	
Phase	
2-3	The CCG, with representation from PEP, MoT, MoE and PAB, meets to begin advance preparation for a coordinated flood response; co-Chairs to include PEP Director and MoT representative
2-3	Provide policy and direction to the PECC for distribution or re-positioning of critical resources between regions. This includes flood fighting response teams, aviation resources, sandbags and sandbag-filling machines
2-4	Brief senior government officials on the flood threat, flood preparation, response and recovery activities on a regular basis
2-4	Provide support through direction and advice to ensure a coordinated provincial flood response and recovery

## ***Response Involving First Nations Reserves***

### **PEP/INAC Protocols**

An agreement between the Province and the federal Indian and Northern Affairs Canada (INAC) exists which acknowledges certain legal requirements concerning emergency response and recovery operations on First Nations Land(s). The Provincial Emergency Program is specifically named as the provincial agency to be involved with any requirement to respond to flood conditions on (or involving) reserve lands. As a result, the PECC must be informed as soon as reasonably possible. A separate task number will be issued for the incident to facilitate cost recovery from the federal government.

PEP will support, assist or arrange for such required emergency measures as seen under existing protocol arrangements with INAC. This may include coordinating volunteer, municipal, provincial, federal and other agency support. PEP will notify INAC as soon as practicable.

In addition, the First Nations Emergency Services Society (FNESS) should be contacted for any emergency related conduit to First Nations throughout BC, this includes response activities. The society operates under the direction of a First Nations Board of Directors but maintains links to INAC.

### **Emergency Response**

When immediate action is required to preserve life or property on First Nations Land(s), PEP will support, assist or arrange for such required emergency measures as depicted under the existing protocol arrangements with INAC. This may include coordinating volunteer, municipal, provincial, federal and other agency support. PEP will notify INAC as soon as practicable.

In less urgent situations, a request will be sought from INAC, and the concurrence of the local band council will be solicited. PEP will coordinate the provision of services and support for a response action or, as appropriate, assist INAC with the resolution of the event.

### **Recovery Operations**

Recovery efforts will be arranged by PEP on written approval from INAC. None of the above conditions should be considered as factors which will delay or impede response or recovery. The intention is to provide the same service for First Nations as is provided to all other areas and citizens of British Columbia. The protocols described are needed to facilitate prompt cost recovery by the province from the federal government.

## **Finance and Administration**

- PEP is the organization through which funding for provincial emergency response and recovery is managed. PEP is also responsible for the location and equipping of the PREOCs. Any additional costs incurred for the establishment and operation of a PREOC will be processed through PEP headquarters.
- Normal operating costs for EOCs, MROCs and MOCs are the responsibility of their respective organizations who activate them. Response costs such as overtime paid out, travel, etc. that are incremental to an EOC emergency activation and are above normal operating costs may be recoverable through the DFA program.
- Similarly, for provincial ministries/agencies offering assistance through operations or for MOCs and MROCs, costs above normal operating costs may be recoverable. Those expended costs should be sent to the Finance and Administration section of PEP HQ in Victoria, with proof of payment. PEP HQ will have the PREOC (or PEP regional office) verify that goods and services were received before payment is processed.

### **Expenditure Control**

The following will be observed with respect to expenditure management:

- All expenditures must be pre-authorized by the PEP Director, PECC Director or PREOC Director. The CCG may, as required, designate other spending authorities as deemed necessary.
- The *Emergency Program Act* Statutory Account expenses must be authorized by senior PECC staff for all agencies outside of the activated PREOCs.
- Upon PREOC activation, an initial Phase 2 expenditure fund allocation will be provided to each PREOC director for use against the assigned task numbers.
- During Phase 3 response operations, PREOC directors or designated principal PREOC staff, may authorize expenditures for flood response or support activity for up to \$100,000 per flood response site or jurisdiction to protect life, private property or local or provincial government infrastructure. Any single expenditure exceeding \$100,000 must be pre-authorized by the PECC Director, or the CCG co-chairs.
- Ministries or agencies must ensure that all expenditures that will result in journal voucher action are authorized using an expenditure authorization form completed and signed by either the PECC or PREOC director. This also applies to MoT for works off right-of-way.
- The agency initiating the expenditure is provided a copy of the authorization form, a copy is retained by the PECC or PREOC and a copy passed to PEP headquarters in Victoria.
- All Emergency Social Services (ESS) expenditures must be accompanied by a completed ESS Referral Form.

## **INVOICES OR EXPENDITURES WILL NOT BE PROCESSED UNLESS ACCOMPANIED BY COMPLETED AND AUTHORIZED SUPPORTING DOCUMENTATION**

### **Financial Assistance for Emergency Response and Recovery**

- A guide has been developed to provide local authorities and First Nations with information on the procedures required to maximize claims for financial assistance with the costs of both response and recovery. The guide may be found on the internet at URL: [http://www.pep.bc.ca/dfa\\_claims/dfa.html](http://www.pep.bc.ca/dfa_claims/dfa.html) .
- The existing provincial ministry guidelines on Disaster Financial Assistance (DFA) are currently under review. Provincial ministry recovery projects may only submit DFA claims for reimbursement when the province negotiates federal cost-sharing.

## **Inventory Control**

An inventory will be maintained to record all non-consumable<sup>1</sup> equipment and supplies purchased under a PEP task number. On demobilization, a copy of the inventory indicating current disposition will be forwarded to PEP headquarters as part of the PREOC post-operation report.

## **Workshop**

A formal or informal financial management workshop or refresher course should be conducted for ALL designated finance and administration chiefs during Phase 2, Readiness.

## **Information Technology Services**

Each PREOC and the PECC have a basic pre-established communications and computer systems network in place. Additional equipment and services may be required and will be provided by the appropriate supplier as required.

## ***Emergency Accommodation for Evacuees***

Municipal requirements and anticipated needs for Emergency Social Services are communicated from the local authority to the PREOC(s) and supported where necessary by other agencies as arranged by the PREOC(s).

## ***Provincial Roles and Responsibilities***

There are four primary ministries/agencies involved in the support and response. These are:

- Ministry of Public Safety and Solicitor General, Provincial Emergency Program (PEP) has the primary responsibility for coordinating the provincial emergency management structure. PEP will activate the PREOCs and the PECC to coordinate and direct the provincial response and provide support to local government evacuation efforts and their emergency social services. PEP will also support recovery efforts through the administration of the Disaster Financial Assistance (DFA) program. When required, PEP will activate the CCG and co-chair.
- Ministry of Environment (MoE) will provide their expertise and resources, as required. This may be in the form of flood forecasting, assessment, technical services and planning. In addition, ministry representatives may staff the PREOC, PECC or local EOC(s). MoE will participate as a member of the CCG.
- Ministry of Transportation (MoT) will provide expertise and resources, as required. MoT will also remain responsible for the safety and maintenance of road infrastructure within their jurisdiction. Ministry representatives may staff the PREOC, PECC or local EOC(s). MoT will co-chair the CCG.
- Public Affairs Bureau (PAB) has primary responsibility to implement the provincial communications strategy once the provincial emergency management structure is activated. PAB provides information officers to the PREOCs, the PECC and to local EOCs as needed to provide expertise in media relations and public information activities. PAB will participate as a member of the CCG.

Table 2 provides a partial list of roles and responsibilities for each agency and the anticipated timing (phase). A liaison officer will be arranged for each ministry or agency, as determined by the PECC or PREOC director, as required.

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<sup>1</sup> Material, such as office equipment, blankets, generators and safety equipment, that is NOT consumed.

**Table 2: Anticipated Requirements for Responding Agencies**

<b>Ministry of Environment (MoE)</b>	
<b>Phase</b>	<b>Central</b>
1-3	Conduct regular snow surveys through the River Forecast Centre (RFC).
1-3	Provide flood forecasts and bulletins (RFC).
1-3	Provide regular updates of snow conditions.
1-3	Liaise with Environment Canada regarding weather forecasts.
1-4	Liaise with dam owners and diking authorities.
1-4	Provide technical services.
2	Assign a senior representative to the CCG.
2	Provide representatives to the PECC.
	<b>Regional</b>
1-4	Provide technical services and recommend strategies to PREOC including drinking water source identification and protection.
2-3	Identify field level flood assessment service providers for the PREOC
2-3	Provide support services and staff on a 24-hour basis to PREOC, as requested.
3	Provide advice and recommend strategies to the Emergency Management Structure (Site, EOC, PREOC, and PECC) regarding orphan dikes in accordance with MoE policy
4	Provide recovery plans, as required.
<b>Ministry of Transportation (MoT)</b>	
<b>Phase</b>	<b>Central</b>
1	Assign a senior representative to the CCG.
2	Provide representatives to the PECC.
2-3	Identify and supply equipment and other resources such as riprap within the region(s).
2-3	Forward additional equipment and resource requirement requests to the PECC.
3	Issue regional flood response tasking orders based upon directives issued by the CCG.
4	Provide recovery plans, as required.
	<b>Regional</b>
1-2	Participate in the development of the Regional Flood Response Plan, a process lead by local emergency coordinators.
3	Respond to floods impacting highway infrastructure.
3	When requested by PREOC director or PECC director, supply: <ul style="list-style-type: none"> <li>• heavy equipment</li> <li>• construction materials, and/or</li> <li>• contract equipment and operators.</li> </ul>

<b>Ministry of Public Safety and Solicitor General (PSSG)</b>	
<b>Phase</b>	<b>Provincial Emergency Program - Central</b>
1	The PEP director will convene and co-chair the CCG.
1-4	Provide overall direction for finance at the PECC and PREOC level.
2	Establish and coordinate staffing and support services for the PECC.
2-3	The PECC director or PEP Operations Officer will activate the PECC.
2	Co-ordinate the preparation of provincial flood response directives.
2-3	PEP Director (or PECC Director) will approve interregional TEAMS deployments through the ECC.
2-3	In conjunction with PAB, issue public information advisories and warnings.
2-3	Provide provincial summary information to PREOC/PECC Information Officers.
	<b>Provincial Emergency Program - Regional</b>
1	Notify regional MoE Water Stewardship Division and MoT regional staff.
1	Notify potentially affected local authorities.
1	Update PEP ECC.
1	Compile site assessments and forecasts.
1-2	Liaise with local authorities, MoT and MoE representatives about potential flooding issues and support the preparation of a Regional Flood Response Plan.
1-4	Provide assistance to local authorities in the planning and operation of emergency social services.
2	Provide funding approval and obtain task number(s).
2	Provide regional summary information to PREOC/PECC Information Officers.
2	Approve tasking orders and public information advisories and warnings.
3	Coordinate response efforts at the regional level as required and verify/approve claims submissions.
3	Coordinate the provision of ESS, including the provision of food, clothing, lodging, family reunification services and other services necessary to support the immediate health and well-being of evacuees and emergency responders.
3	Track and coordinate volunteers, as required.
	<b>Other</b>
1-4	Provide legal counsel to CCG.
3	Provide coroner services.
3	Provide service to enforce law and order and security patrols in evacuated areas.
3	Provide service to enforce law and order and control traffic.
3	Manage auxiliary police personnel.
3	Arrange resources to implement evacuation plans, as required.
3	Arrange resources to conduct search and rescue for missing persons.
<b>Ministry of Finance (FIN)</b>	
<b>Phase</b>	<b>Public Affairs Bureau</b>
1-2	Prepare to implement the province's Crisis Communications Strategy for Major Provincial Emergencies and ensure readiness of TEAMS information officers.
1-4	Brief senior government officials on communications issues.
2	Assign a senior representative to the core CCG.
2-4	Assign TEAMS IOs to the PECC and each regional PREOC, as requested by the PECC, and where necessary, to EOCs.
3	Implement the BC Crisis Communications Strategy for Major Provincial Emergencies.

	<b>Other</b>
1-4	Provide risk management services (Risk Management Branch).
2-4	Provide personnel services and human resources when available.
<b>Ministry of Forests and Range (FOR)</b>	
3	Supply logistics support, including: <ul style="list-style-type: none"> <li>• air support</li> <li>• water pumps, hoses and hand tools</li> <li>• warehousing services</li> <li>• transportation of materials</li> <li>• remote camps</li> <li>• communication services, and</li> <li>• response personnel.</li> </ul>
3	Supply fire crews for flood response activities when available for deployment.
<b>Ministry of Agriculture and Lands (MAL)</b>	
Phase	
2-3	Provide coordination of the evacuation of livestock and their care, including emergency feeding.
3-4	Provide advice on the protection of livestock and the coordination for disposal of livestock carcasses.
<b>Ministry of Health (MoH)/ Health Authorities</b>	
Phase	
1-4	Provide sewage disposal expertise.
1-4	Provide drinking water quality survey services.
3	Coordinate with the local authority to evacuate any identified vulnerable populations, including Home Care patients.
<b>Ministry of Community Services (MCS)</b>	
Phase	
1-2	Provide guidance and assistance to local governments regarding infrastructure.

## Staffing

Specific staffing requirements will be sought as related to the BCERMS Overview, the EOC or PREOC Guidelines, and TEAMS staffing documents. Additional PECC authorized resources may be added as the situation dictates, but resources may be drawn from:

- TEAMS members
- other government employees
- contracted technical / engineering support
- contracted administrative support staff
- contracted security services, and
- volunteers, as needed.

Other staffing notes:

1. Costs associated with TEAMS, overtime and/or call-out of provincial staff may be authorized by the PECC/PREOC director and should be charged to the task number.
2. All personnel assigned to the CCG, PECC or a PREOC will be required to wear BCERMS identification vests in each operations centre.
3. The risk management officer is part of the management staff at the PECC, PREOCs and EOCs and has the responsibility of developing and recommending measures for assuring personnel safety and anticipating Workers' Compensation Board (WCB) hazardous and unsafe situations. The PECC/PREOC/ECC directors will correct any unsafe situations in accordance with WCB requirements.
4. Specialized staff will fulfill technical functions outlined in [Schedule 2](#) of the *Emergency Program Regulations*.
5. Training is required for any staff involved in the response. This may include, but is not limited to training specific and commensurate to the level and skill required; for:
  - sandbagging and/or the use of a sandbagging machine
  - river level monitoring
  - flood protection works monitoring
  - dam monitoring
  - financial accountability, and/or
  - response software, etc.

## Advisories and Warnings from the River Forecast Centre

The River Forecast Centre of the Ministry of Environment uses three levels of advisory or warning. They are:

- **High Streamflow Advisory** means that river levels are rising or expected to rise rapidly, but that no major flooding is expected. Minor flooding in low-lying areas is possible.
- **Flood Watch** means that river levels are rising and will approach or may exceed bankfull. Flooding of areas adjacent to affected rivers may occur.
- **Flood Warning** means that river levels have exceeded bankfull or will exceed bankfull imminently, and that flooding of areas adjacent to the rivers affected will result.

In general, for an "event", the warnings sequence through all three levels, beginning with a **High Streamflow Advisory**. On occasion, depending on the timing of the event and the reliability of weather and river level forecasts, the first notification for an event may be a **Flood Watch**. The timing of the warnings before an event can vary greatly, depending on the nature of the event, from a few hours to about 72 hours.

In addition to these event-specific warnings, the River Forecast Centre may release **Alerts** for spring flood potential for major river basins based on snow conditions. The first **Alert** is typically based on the Feb 1<sup>st</sup> snow survey, and is usually tied to a basin average snow water index of 120+ percent of normal. In years of unusually heavy snow, the first **Alert** may be based on the Jan 1<sup>st</sup> snow survey.

## Specialized Equipment

### Pre-flood Disposition of Sandbagging Machines

Region	Location	Number of Sandbagging Machines
South Coast	Chilliwack - Forestry Warehouse	2
Thompson-Okanagan	Kamloops - Argo Maintenance	1
	Osoyoos	1
	Prince George -	1
	Purchasing Commission Warehouse.	
Central-North East	Terrace - MoT	1

1. Sandbags: Sandbags have been distributed around the province to Local Authorities. Any requirements for additional sandbags should be directed towards the PEP Regional Office.

#### **Number of Sandbags estimated for 30 metres (100 Lineal Feet) of dike**

- 600-800 bags for 0.3 m (1 foot) high dike – 10 m<sup>3</sup> (12 cubic yards) sand
- 2,000 bags for 0.6 m (2 foot) high dike – 25 m<sup>3</sup> (30 cubic yards) sand
- 3,400 bags for 1 m (3 foot) high dike – 40 m<sup>3</sup> (50 cubic yards) sand
- 10,000 bags for 2 m (6 foot) high dike – 130 m<sup>3</sup> (167 cubic yards) sand

2. Aqua Dams<sup>2</sup>:

<http://www.armtec.com/>

[http://www.geomembranes.com/geo\\_con.cfm?branchID=3](http://www.geomembranes.com/geo_con.cfm?branchID=3)

<http://www.aquadam.com/>

3. Large volume siphon: Available through the Prince George MoE office.

4. Flex Mac Gabion Construction<sup>2</sup>:

Maccaferri Gabion of Canada Ltd.

736 Granville Street, Vancouver B.C. V6Z 1G3 -

Tel (604) 683-4824

Fax (604) 683-7089

## Declaration of an Emergency

Declarations of an emergency, whether local or provincial, are required when extraordinary powers are necessary to effectively respond to an emergency event. The most common reasons for an emergency declaration are:

- mandatory evacuation of people and livestock, and
- access to private property where public safety is an issue.

For more information on declaring a local emergency, refer to the Emergency Declaration Guidelines that include a sample declaration at URL:

[http://www.pep.gov.bc.ca/Community/guidelines\\_for\\_declaring\\_local\\_state\\_of\\_emergency\\_2006.pdf](http://www.pep.gov.bc.ca/Community/guidelines_for_declaring_local_state_of_emergency_2006.pdf)

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<sup>2</sup> The web sites given do not constitute a full market research. They are known providers that give general information about the product and may assist in logistics during any event.

## Evacuations

Ordering an evacuation of all or part of an emergency area requires detailed planning and support from the entire emergency management structure. The local authority is responsible for creating evacuation plans and their implementation. This includes a component to identify vulnerable populations; coordination with the Health Authority is imperative to evacuate any Home Care patients.

The British Columbia Operational Guidelines for Evacuations found at URL: [http://www.pep.bc.ca/management/Evacuation\\_Operational\\_Guidelines.pdf](http://www.pep.bc.ca/management/Evacuation_Operational_Guidelines.pdf) provides further detail for creating evacuation plans.

## Recovery

The ability to recover from the physical damage, injury, economic impairment and human suffering resulting from a disaster is a critical element of any emergency program and plan. It is essential to recognize that successful recovery planning and activities depend on the rapid start-up of a recovery task force and must begin during the emergency response phase.

Local authorities are the best equipped to provide leadership for integrated local recovery initiatives and to deal with both short- and long-term local recovery activities that may include:

- reconstruction of critical infrastructure
- re-establishment of services by local authorities (utility services, roads, buildings, dams and dikes)
- actions to limit losses, reduce suffering, and restore the psycho-social and economic viability of the community.

For more information on local infrastructure recovery, refer to the Financial Assistance Guide for Local Authorities and First Nations at URL: [http://pep.bc.ca/dfa\\_claims/dfa.html](http://pep.bc.ca/dfa_claims/dfa.html).

## References

1. Emergency Program **Act**, 1996  
[www.bclaws.ca/EPLibraries/bclaws\\_new/document/LOC/freeside/...](http://www.bclaws.ca/EPLibraries/bclaws_new/document/LOC/freeside/...)
2. A Guide to the Emergency Program Act, 2005  
[www.pep.bc.ca/management/Guide\\_to\\_New\\_Emergency\\_Program\\_Act\\_2005.pdf](http://www.pep.bc.ca/management/Guide_to_New_Emergency_Program_Act_2005.pdf)
3. Emergency Program Management **Regulation**, 1994  
[www.bclaws.ca/EPLibraries/bclaws\\_new/document/LOC/freeside/...](http://www.bclaws.ca/EPLibraries/bclaws_new/document/LOC/freeside/...)
4. British Columbia Emergency Response Management System (**BCERMS**) (2000)  
[www.pep.bc.ca/bcerms/bcerms.html](http://www.pep.bc.ca/bcerms/bcerms.html)
5. British Columbia Emergency Response Management System: Site Support Level (**EOC**) Operational Guidelines  
[www.pep.bc.ca/training/EOC\\_Level\\_2.pdf](http://www.pep.bc.ca/training/EOC_Level_2.pdf)
6. Provincial Regional Emergency Operations Centre (**PREOC**) Guidelines (2001)  
[www.pep.bc.ca/bcerms/bcerms\\_preoc-manual.pdf](http://www.pep.bc.ca/bcerms/bcerms_preoc-manual.pdf)
7. Central Coordination Group (**CCG**)/ Provincial Emergency Coordination Centre (**PECC**) Standard Operating Procedures (Draft March 1999)  
Hardcopy only, available from PEP headquarters
8. British Columbia Crisis Communications Strategy for Major Provincial Emergencies (2004)  
Available from the Public Affairs Bureau
9. **TEAMS**: Temporary Emergency Assignment Management System  
[www.pep.bc.ca/TEAMS/teams.html](http://www.pep.bc.ca/TEAMS/teams.html)
10. **Emergency Social Services (ESS)** Information  
<http://www.ess.bc.ca/index.htm>
11. **Expenditure Authorization Form (EAF)**  
<http://www.pep.bc.ca/Community/EOCForms/530.rtf>
12. Local Authority Emergency Management **Regulation**, 1995  
[www.bclaws.ca/EPLibraries/bclaws\\_new/document/LOC/freeside/...](http://www.bclaws.ca/EPLibraries/bclaws_new/document/LOC/freeside/...)
13. **Declaration** of a State of Local Emergency  
[www.pep.bc.ca/Community/Responsetk.html](http://www.pep.bc.ca/Community/Responsetk.html)
14. Compensation and **Disaster Financial Assistance** Regulation, 1995  
[www.bclaws.ca/EPLibraries/bclaws\\_new/document/LOC/freeside/...](http://www.bclaws.ca/EPLibraries/bclaws_new/document/LOC/freeside/...)
15. **Financial Assistance** for Emergency Response and Recovery Costs: A Guide for BC Local Authorities and First Nations (2008)  
[www.pep.bc.ca/dfa\\_claims/Financial\\_Assistance\\_Guide.pdf](http://www.pep.bc.ca/dfa_claims/Financial_Assistance_Guide.pdf)
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[www.pep.bc.ca/management/Evacuation\\_Operational\\_Guidelines.pdf](http://www.pep.bc.ca/management/Evacuation_Operational_Guidelines.pdf)
17. Community Emergency Program Review (**CEPR**)  
[www.pep.bc.ca/hrva/hrva.html](http://www.pep.bc.ca/hrva/hrva.html)
18. Hazard, Risk and Vulnerability Analysis (**HRVA**)  
[www.pep.bc.ca/hrva/hrva.html](http://www.pep.bc.ca/hrva/hrva.html)

## Appendix A Abbreviations/Definitions

**Agency:** An agency is a section of government with a specific function, or a non-governmental organization that offers a particular kind of assistance.

**Alert:** In addition to these event-specific warnings, the River Forecast Centre may release Alerts for spring flood potential for major river basins based on snow conditions. The first Alert is typically based on the Feb 1<sup>st</sup> snow survey, and is usually tied to a basin average snow water index of 120+ percent of normal. In years of unusually heavy snow, the first Alert may be based on the Jan 1<sup>st</sup> snow survey.

**BC Crisis Communications Strategy:** The BC Crisis Communications Strategy for Major Provincial Emergencies outlines current provincial emergency and disaster communications principals and protocols. It recognizes the importance of coordinating public communications in affected areas, and for linking up all engaged partners with the BC Emergency Management Response System.

**BCERMS** (British Columbia Emergency Response Management System): BCERMS is a comprehensive management scheme that ensures organized provincial response and recovery to all emergency incidents

**CCG** (Central Coordination Group): The CCG includes representatives from ministries with responsibility for response to certain types of emergency events, and is activated to provide overall direction to all provincial agencies and resources supporting or assisting with an emergency situation.

**Diking Authority:** A diking authority means (a) the commissioners of a district to which Part 2 of the Drainage, Ditch and Dike Act applies, (b) a person owning or controlling a dike other than a private dike, (c) a public authority designated by the minister as having any responsibility for maintenance of a dike other than a private dike, or (d) a regional district, a municipality or an improvement district;

**ECC** (Emergency Coordination Centre): The ECC is the foundation for receiving and disseminating information from multiple sources regarding emergency situations. The centre operates 24/7 and located within the Provincial Emergency Program in Victoria.

**EOC** (Emergency Operations Centre): A pre-designated facility established by a local government or jurisdiction to coordinate the overall agency or jurisdictional response and support to an emergency.

**ESS** (Emergency Social Services): ESS provides short term (generally 72 hours) emergency services help to preserve the emotional and physical well-being of evacuees and response workers in emergency situations. The ESS program resides within the Provincial Emergency Program.

**Flood Warning** means that river levels have exceeded bankfull or will exceed bankfull imminently, and that flooding of areas adjacent to the rivers affected will result.

**Flood Watch** means that river levels are rising and will approach or may exceed bankfull. Flooding of areas adjacent to affected rivers may occur.

**Freshet:** That period of each year where creeks and rivers swell as a result of snowmelt.

**High Streamflow Advisory** means that river levels are rising or expected to rise rapidly, but that no major flooding is expected. Minor flooding in low-lying areas is possible.

**IO** (Information Officer): A function within the BCERMS-based command staff that is responsible for interfacing with the public and media and other information officers.

**Local Authority:** A local authority means (a) for a municipality, the municipal council, (b) for an electoral area in a regional district, the board of the regional district, or (c) for a national park, the park superintendent or the park superintendent's delegate if an agreement has been entered into with the government of Canada under section 4(2)(e) in which it is agreed that the park superintendent is a local authority for the purposes of this Act

**Liaison Officer:** A function within the BCERMS-based command staff responsible for coordinating with representatives from cooperating and assisting agencies.

**LAB** (Ministry of Labour and Citizen's Services): One of the ministry's many responsibilities is the *Workers' Compensation Act (WCA)*, which provides a framework for promoting safe and healthy workplaces and sets out the workers' compensation system for BC. The ministry also provides all government goods and services purchasing.

**MAL** (Ministry of Agriculture and Lands): Provides programs and services that ensure responsible approaches to the public interest concerning food safety/quality, the environment, pest and disease management, and appropriate farm practices.

**MCS** (Ministry of Community Services): Provides programs and services related to local governments, women's and seniors' and community issues, including legislative, policy and governance framework for local governments.

**MOC** (Ministry Operation Centre): A facility established and operated by a regional office of a British Columbia Ministry to help manage the coordination of emergency response efforts. (Also may be referred to as an MROC, see below.)

**MOE** (Ministry of Environment): The Ministry of Environment participates in flood response through such activities as water resource information collection and management, flood and drought forecasting, and dam and dike safety.

**MOF** (Ministry of Forests and Range): Provides leadership in the protection, management and use of BC's forest and rangelands.

**MOT** (Ministry of Transportation): Plans the province's transportation networks and provides transportation services by maintaining existing highways and managing inland ferry services.

**MROC** (Ministry Regional Operations Centre): A facility established and operated by a regional office of a British Columbia Ministry to help manage the coordination of emergency response efforts. (Also may be referred to as an MOC, see above.)

**PAB** (Public Affairs Bureau), Ministry of Finance: PAB is responsible for the provincial government's public information and media relations.

**PECC** (Provincial Emergency Coordination Centre): A facility established and operated at the provincial central coordination level to help coordinate emergency response efforts at a provincial level, provides support regional emergency centres, and interfaces with the CCG for policy decisions.

**PEP** (Provincial Emergency Program), Ministry of Public Safety and Solicitor General: PEP is responsible for coordinating emergency management, helping people to prepare for, respond to and recover from emergencies and disasters.

**PREOC** (Provincial Regional Emergency Operations Centre): A facility established and operated at the regional level by the province to support local emergency response and recovery efforts and to coordinate joint emergency efforts of government and non-government agencies.

**Purchasing Services** (Ministry of Labour and Citizen's Services): Buys goods and services from suppliers for government ministries and agencies.

**RFC** (River Forecast Centre), Ministry of Environment: The River Forecast Centre analyzes snow, meteorological and hydrometric data for event warning, preparation and post analysis

**Risk Management Branch** (Ministry of Finance): This branch advises government on risk management issues, reviews and approves indemnities given by government, and assists ministries in establishing their own comprehensive risk management programs. The branch is responsible for business continuity planning within government and advises and assists ministries in developing their plans.

**Risk Management Officer:** A function within the BCERMS-based command system that identifies and analyzes loss exposures for personnel, property and liability and monitors the occupational health and safety personnel working in the emergency operations centre.

**SITREP** (Situation Report): A report used by emergency operation centres during emergency activation, to provide timely, up-to-date, accurate status information on a specific emergency situation.

**TEAMS** (Temporary Emergency Assignment Management System): A pool of employees from across government who have training and experience managing emergency operations and communications during disasters.

**Technical Specialist:** A technical specialist is a person with specific and detailed knowledge and experience about matters at hand who may be either a staff member, contracted or otherwise retained to provide focused services and or advice to an event or potential event.

**Workplace Technology Services** (WTS): Workplace Technology Services provides Information Technology infrastructure services for the BC government and the broader public sector.

**WorkSafeBC** (formerly the Workers' Compensation Board): The agency responsible for ensuring workers and workplaces are safe and secure from injury, illness, and disease.

## Appendix B Flood Observer/Assessor Checklist

This checklist is for reference only. There was an attempt to reconcile against legislation or requirements at the time this edition was created. However, the legislation or requirements may change and demand attention to specialist equipment or personal supplies. Any worker's supervisor must take appropriate precautions for their employees.

### A. Basic Personal Supplies

1. Hard Hat
2. Rain Gear - coat and pants
3. High Visibility Reflective Vest
4. Rubber boots
5. Cell phone or other communication device
6. Personal first aid kit. See page 31 of the OHS Guidelines Part 3.

### B. Specialized supplies and equipment

1. Buoyancy Equipment - (WCB section G8.26, G8.27, G8.28). Section G8.27 (a), (c), or (d) requirements.
2. Hand Held GPS - set to UTM (Albers).
3. Extendable rod (Roman Method) c/w string and weight
4. Bundle of wooden survey stakes
5. Keel (lumber crayon)
6. Survey Ribbon
7. 1 million to 15 million candle power portable light.
8. Digital camera
9. Several copies of the "Dike and River Assessment Form" found in Section 15 of the Flood Assessor Manual -preferably waterproofed.
10. Copies of pertinent maps such as Flood Plain Maps and GPS dike survey maps for each flood protection works.
11. At least two gauge plates c/w nails and hammer

### C. Vehicle Equipment

- |  |                                      |
|--|--------------------------------------|
| 1. Vehicle first aid kit meeting WCB regulations.            | 11. 2 traffic cones                  |
| 2. Flashlight  | 12. 1 fire extinguisher              |
| 3. 3 flares  | 13. 1 floating life line rope        |
| 4. Additional reflective vests for passengers (1 per person) | 14. 1 reflective warning kit         |
| 5. Blankets  | 15. 1 shovel                         |
| 6. Vehicle radio - standards seem to vary with each region   | 16. 1 tool bag c/w tools             |
| 7. Standard vehicle jack                                     | 17. 1 jack-all jack                  |
| 8. Spare mounted and inflated tire.                          | 18. 1 wheel wrench                   |
| 9. 1 set of winter tire chains                               | 19. 1 set jumper cables              |
| 10. 1 axe or sandvick  | 20. 1 package of water proof matches |
|  | 21. Candle - (emergency heat source) |

## Appendix C Producing Dike Location Maps

HOW TO USE THE "WATER RESOURCES ATLAS" TO PRODUCE DIKE LOCATION MAPS

### A. Detailed Listing

1. Visit the Website: [http://www.env.gov.bc.ca/wsd/data\\_searches/wrbc/index.html](http://www.env.gov.bc.ca/wsd/data_searches/wrbc/index.html)
2. Scroll down to:
  - [Flood Protection Structures: By Owner/Administrator](#) (PDF: 1.1 MB / 378 pages)
  - [Flood Protection Structures: By Watercourse](#) (PDF: 1.0 MB / 378 pages)
3. The location of most of these works is provided by the UTM coordinates in the database above and can be located on maps at the following links:
  - [http://www.env.gov.bc.ca/wsd/public\\_safety/flood/maps.html](http://www.env.gov.bc.ca/wsd/public_safety/flood/maps.html) for the whole province (flood protection layer); and
  - <http://wlapwww.gov.bc.ca/wat/flood/maps.html> for more detailed maps of the Lower Mainland.

### B. By Using UTM Co-ordinates

1. Visit Ministry of Environment (MoE) website [http://www.env.gov.bc.ca/wsd/public\\_safety/flood/maps.html](http://www.env.gov.bc.ca/wsd/public_safety/flood/maps.html)
2. Find the dike you are interested in. They are listed by Ministry of Environment (MoE) region number:

Region 1	Vancouver Island
Region 2	Lower Mainland
Region 3	Thompson - Okanagan
Region 4	Kootenay
Region 5	Cariboo
Region 6	Skeena
Region 7	Omenica - Peace
3. Note the UTM co-ordinates of the desired dike
4. Go to [Google](#) and type in "Water Resources Atlas" +BC then hit the search button [BC Water Resources Atlas WEB Mapping Application](#) should appear. OR:  
Type in <http://srmapps.gov.bc.ca/apps/wrbc> suggest adding this site to your bookmarks
5. Click on this site
6. Click "Start"
7. Choose "Find Location" in the banner menu across the top of the screen - pick "UTM co-ordinate"
8. Type in desired "UTM co-ordinate numbers" in the appropriate box
9. Change "Zoom map width" to "1 km" or as desired
10. Click "OK"
11. Cross at centre of map is the UTM Position you asked for.
12. Now add desired "Layers"
13. Go to "Layers"  
Choose:
  - folder labelled: **Flood Protection**: both "appurtenant works" and "structural works"
  - folder labelled: **Base Maps**: usually "Transportation" if you want roads on your map
  - folder labelled: **Imagery**: if you want orthophotograph - most of the Province is covered.

14. Refresh Map
15. Change scale to desired level
  - Press GO
16. Refresh Map
17. Go to and select Printer Icon - Top left
18. Type in desired map title in the appropriate box.
  - Press OK
19. Click "Open Map"
20. Select Print icon - second from left in the top banner menu
21. Choose your printer and desired properties
  - Press OK
22. The printer should be spewing forth your map now.

### **C. *By Using Place Name***

1. Go to : <http://srmapps.gov.bc.ca/apps/wrbc>
2. START
3. FIND LOCATION - select PLACE NAME - example: Duncan
4. Press OK
5. Choose from list - in this case "Duncan - City"
6. Change scale to 1:10,000 - this allows most desirable "Layers" to be displayed
7. Go to "Layers" in the banner across the top of the screen
8. Choose same layers as indicated in step 13 above.
9. "Refresh" display
10. Use the "HAND" icon to drag the map to the desired location/position. The dikes appear as red lines.
11. Once you are in the desired location - change the map scale to produce the desired coverage.
12. Press GO
13. Repeat steps 17 to 25 above.

## Appendix D Flooding Communications Action Plan and Messaging

### All Hazards Integrated Response Communications Action Plan FLOODING

#### **Background**

Local governments and regional districts are required to have an all-hazards emergency plan in place for their jurisdiction. This includes the ability to activate an emergency operations centre and issue evacuation orders under a declared State of Local Emergency within an all-hazards context (floods, interface fires, hazardous material spills etc.)

Local authorities will monitor weather conditions and lake and river levels and activate their local emergency plan to respond within their jurisdiction as the flood threat increases.

Under the B.C. Emergency Response Management System (BCERMS), the province supports local authorities as required, and provides additional help and leadership if local resources become overwhelmed during a large scale or serious event. The provincial role is detailed in the B.C. Flood Hazard Mitigation Plan (2006 edition).

During the response phase, the provincial emergency management structure is activated to support local government. Local authorities may request added support, in the way of provincial public information officers and/or emergency management staff in their emergency operations centres, in a command post or at site, acting on their behalf.

#### **Evacuation Alerts, Orders, Rescinds**

In an escalating emergency situation such as a flood, decisions about evacuations are generally made at the local community or incident level.

In the normal course of events, local governments and regional districts will activate a local emergency operations centre, declare a local state of emergency, and issue an evacuation alert or order based on degree of risk to the public.

RCMP and municipal police carry out evacuation orders, often with the support of Search and Rescue or other volunteers.

The evacuation process has **three key stages**. *This approach is consistent for all types of emergencies throughout the province.*

- **Evacuation Alert:** A warning is issued about an imminent threat to life and property, and people are asked to be ready to leave on short notice. When people choose to leave an area before or during the issue of an alert, this is referred to as a voluntary evacuation.
- **Evacuation Order:** When an evacuation order is issued, people must leave the area immediately due to serious public safety concerns. RCMP or municipal police carry out evacuations.
- **Evacuation Rescind:** An evacuation order or alert is rescinded when an area is determined to be safe. People under order may return. An evacuation order may be reinstated if the threat returns.

## ***Information and Communications***

In a flood event, local authorities are responsible to provide public safety information to their residents directly.

When the Provincial Regional Emergency Operations Centre (PREOC) is activated to a higher level in response to flooding threats, deployed provincial TEAMS information officers (IOs) will work in a coordinated manner with spokespeople and information officers in other involved agencies and levels of government to support their counterparts at the local authority level.

Information officers report to the information chief (or manager) of the unit, who is responsible to the PREOC Director. The section provides information and updates to the Provincial Emergency Coordination Centre (PECC) public information section.

*The British Columbia Crisis Communications Strategy for Major Provincial Emergencies* is used to guide the activities of provincial information officers. The strategy is an all-hazards approach which outlines procedures and best practices in activating public information units within the BCERMS structure.

## ***Communications Objectives***

Provincial information officers will ensure appropriate information is provided to the public and media during the response phase of a flooding event, including:

- Supporting the local authority by providing timely, accurate public safety information which could include such things as weather forecasts, stream conditions, provincial highway and road status.
- Informing the public, media, local governments and stakeholders as to what measures the Province has in place to assist communities.
- Communicating the roles and responsibilities of Emergency Social Services and its volunteers in the case of an evacuation.
- Informing on the status of any activated public information services including telephone access to the Central Registration and Inquiry Bureau (CRIB) supported by Emergency Social Services, which provides family reunification services.
- Helping the media understand the emergency management structure and operational protocols in emergency situations.

## ***Communications Strategies and Tactics***

- Coordinate all PREOC communications with local government EOCs and other ministries and provincial and federal agencies (usually through daily conference calls).
- Provide overview information (evacuation information, maps, photos) from site or local EOCs to PECC (for bulletins, web site updates etc.).
- Provide media, public and stakeholders with regular updates/overview on regional situation through appropriate spokesperson(s).
- Identify and develop recommendations/messaging to address emerging issues.
- Develop key messaging, brief spokespeople and support need for media availabilities and public meetings as required by local authorities.

- Support establishment of a media relations centre at ESS reception centres by the local team (as required.)
- Attend site or command post as directed to enhance flow of information through EOCs to PREOCs.
- Request activation of call centres for public information, as necessary. Provide messaging to call centres.
- Arrange media news conferences and VIP tours, as directed.

### ***Key Messages:***

- Local governments and regional districts are required to have an all-hazards emergency plan in place for their jurisdictions. Public safety is always the highest priority.
- Local government authorities will keep residents informed of developments in areas most likely to be affected by flooding. Regular advisories will recommend actions that people should take to limit or prevent disaster.
- When there is a potential threat to a community from flood water, the Province will monitor the situation and support local authorities in assessing the risk to the public and to local industry. Potential threats to government infrastructure, the environment, or to the provincial economy are also monitored.
- Provincial support may include providing resources for the care of evacuees, providing emergency management expertise, technical advice, public information management, equipment and supplies and the transportation of materials as requested by local authorities.
- The British Columbia Emergency Response Management System (BCERMS) is used to ensure coordinated effort when an emergency or disaster situation occurs in the province.
- Whenever a local authority activates an emergency operations centre (EOC), a Provincial Regional Emergency Operations Centre (PREOC) and the Provincial Emergency Coordination Centre (PECC) will also be activated.

### ***Tools:***

- Information bulletins and/or media releases
- PSAs
- Information-based advertising
- PEP web site
- Other government web sites
- News conferences and media availabilities
- Posters and handouts
- Town hall meetings
- One-on-one media interviews/voice clips
- Call centres
- Media information centres (reception centres/site etc.)

## ***Post-Disaster and Recovery***

As communities move into the recovery phase, the Province may again be asked by the local authority to provide support/guidance.

Local authorities may activate their Recovery Task Force or Recovery Organization, in accordance with their Community Disaster Recovery plan, to coordinate actions of multiple stakeholders to limit losses, reduce suffering, and restore the psycho-social and economic viability of the community.

Through the Provincial Integrated Recovery Council (PIRC), the province provides coordination for non-profit agencies such as The Salvation Army, Red Cross, Mennonite Disaster Services and other resources to ensure communities are best served, and that there are no gaps or duplication in efforts in the recovery process.

## ***Disaster Financial Assistance for Impacted Residents***

British Columbia has a program to help disaster victims cope with the cost of repairs and recovery from disaster-related "uninsurable" damage to property (as well as contents, personal effects, equipment etc.) The Ministry of Public Safety and Solicitor General administers the Disaster Financial Assistance program through PEP.

The impacted area has to be authorized as "eligible for DFA" before the individual application process can start.

Disaster Financial Assistance is available to help victims of a disaster with the cost of essential losses that cannot be covered by insurance or other programs.

Disaster victims will be advised through local announcements when DFA has been authorized in their area. Maximum payout for each qualified claim is \$300,000 for home owners, tenants, small businesses, farms or charitable organizations. Other items such as recreational or seasonal residences, luxury goods, recreational items, are not covered by the program.

Local government bodies are also eligible for DFA to replace essential materials, repair or restore essential infrastructures, and for incremental costs associated with the operation of their Recovery Organization or Recovery Centre to assist their community in recovering from a disaster.

Impacted residents and local authorities are notified about the program through DFA staff in the area, public meetings and advertising in local papers.