



City of Richmond

Report to Committee

To: Community Safety Committee **Date:** December 11, 2008
From: Phyllis L. Carlyle **File:** 09-5125-03-01/2008-Vol 01
 General Manager, Law & Community Safety
Re: Evacuation Plan

Staff Recommendation

That the "Evacuation Plan" (as referenced in the report dated December 11, 2008 from the General Manager, Law and Community Safety) be approved.

Phyllis L. Carlyle
General Manager, Law & Community Safety
(604-276-4104)

Att. 1

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ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER	
Fire Rescue	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
R.C.M.P.	Y <input checked="" type="checkbox"/> N <input type="checkbox"/>		
REVIEWED BY TAG	YES <input checked="" type="checkbox"/> <i>GS</i> NO <input type="checkbox"/>	REVIEWED BY CAO	YES <input checked="" type="checkbox"/> <i>GS</i> NO <input type="checkbox"/>

Staff Report

Origin

This report introduces a new Evacuation Plan (attached in a binder) to ensure the coordinated, safe and efficient evacuation of the community during an emergency.

Analysis

As exemplified by the City of New Orleans in response to Hurricane Katrina, evacuating large numbers of people is challenging and time consuming. Pre-planning and establishing a methodology in advance will assist in the smooth implementation of an incident evacuation.

This plan addresses evacuations from a localized perspective, for example, due to a chemical spill, as well as widespread evacuation such as that due to a major flood. The plan is scalable from a relatively small incident that affects a small portion of the City's population to an incident that affects a large percentage of the community. Furthermore, it takes the incident commander through the decision-making process of whether the affected community should shelter in place or evacuate, given the hazard and its risk and assists the incident commander by providing a methodology for estimating the population of an at risk area, the numbers of citizens that might have transportation requirements, and the length of time that evacuation might take.

The Evacuation Plan considers all aspects of evacuation, from legislative requirements, to communications, to addressing populations with special needs, to providing a transportation plan for those without their own means of transportation, to addressing pet and livestock concerns, and to the practicalities of establishing teams to go door to door to evacuate citizens.

The development of this plan involved many City departments to ensure a clear, well-structured, organized methodology of evacuating the residents of Richmond. Incorporating that knowledge and integration into the overall plan ensures that at the time of an evacuation, emergency responders already have an agreed upon framework to follow, allowing them to focus their energies on the residents and their needs. Additionally, lessons learned from documented evacuations worldwide were incorporated into the development of this plan to ensure best practices will be used in any potential evacuation.

Having these processes, checklists and guidelines in place will be immensely valuable to the City by ensuring emergency responders have tools to carry out all aspects of response to an emergency. An approved copy of the Plan will be provided to the Superintendent of Schools so that their evacuation plans will coordinate with those of the City.

Financial Impact

There is no financial impact to this report.

Conclusion

This is an effective tool to assist emergency responders in the evacuation of neighbourhoods or larger parts of our community. Having an evacuation plan for the City that provides a methodology for safe evacuation will benefit the City should it ever be required.



Deborah Procter
Manager, Emergency Programs
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DP:dp

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Executive Summary

Evacuation is the process of removing persons and/or domestic animals from an area of risk to an area of safety. Depending on the nature and the scope of the event, evacuations may be either local, affecting a single building or group of buildings, or widespread, affecting the whole community.

The City of Richmond Evacuation Plan will follow basic protocols to determine who is responsible for an evacuation effort and how resources will be requested and coordinated. The overall objectives of evacuation notifications and operations are to:

- Expedite the movement of persons from hazardous areas;
- Institute access control measures to prevent unauthorized persons from entering evacuated or partially evacuated areas;
- Provide for evacuation to appropriate Assembly Points, Evacuation Points or Reception Centres;
- Provide adequate means of transportation for special needs groups;
- Provide for the procurement, allocation, and use of necessary transportation and law enforcement resources by means of mutual aid or other agreements;
- Control traffic;
- Account for the needs of individuals with domestic pets and livestock prior to, during, and following a major disaster or emergency;
- Provide initial notification, ongoing and re-entry communications to the public through the Senior Information Officer and/or City of Richmond's Media Centre; and
- Assure the safe re-entry of evacuated persons.

This Evacuation Plan provides the framework for the City of Richmond to coordinate and respond to an evacuation situation.

For this plan, Emergency Management Office (EMO) staff met with project consultants and representatives of Richmond RCMP, Richmond Fire Rescue and B.C. Ambulance Service, and other key City staff to discuss all issues pertaining to any possible evacuation in the City of Richmond.

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1.0 Concept of Operations

1.1 Plan Activation

The decision to evacuate and therefore, activate this plan, will depend on the nature, scope and severity of the emergency, the number of people affected, and what other supporting actions are necessary to protect the citizens of Richmond.

The City of Richmond Evacuation Plan should be utilized and activated when an incident occurs and requires an evacuation. The activation and termination of this plan shall be at the direction of the:

- Site Incident Commander; and/or
- EOC Director.

The decision on whether to evacuate or shelter-in-place must be carefully considered with the timing and the nature of the incident. An evacuation effort involves an organized and supervised plan to relocate people from an area of danger to a safe location.

The Incident Commander will most likely call for an evacuation depending on the circumstances that present itself at the site.

The Manager, Emergency Programs shall be notified whenever an evacuation action is implemented or anticipated.

If sheltering is required, the Emergency Social Services Coordinator will coordinate the activation of the Reception Centres and/or Group Lodging facilities.

1.2 Authority to Order an Evacuation

To order a mandatory evacuation, the City of Richmond must “Declare a State of Local Emergency” as enabled under the Emergency Program Act.

In the event of an unplanned evacuation, the documentation for the “Declaration of a State of Local Emergency” may be completed while the evacuation is in progress in order to adhere to the BCERMS Response Goals 1 and 2, “provide for the safety and health of all responders and to save lives”.

1.3 Declaration of a State of Local Emergency

A “*State of Local Emergency*” is declared only when it is necessary to exercise one or more of the powers available to local authorities under the B.C. Emergency Program Act.

Note: Refer to City’s Emergency Management Plan: Appendix 6 (AP6-1) for detailed information pertaining to Declarations of a State of Local Emergency and the applicable documentation including:

- *Delegation of Powers Matrix*
- *Declaration of a State of Local Emergency*
- *Public Notification: Declaration of a State of Local Emergency*
- *Declaration of State of Local Emergency: CANCELLED*
- *Extension of Approval for State of Local Emergency*

1.4 Command and Control

The City of Richmond has the primary responsibility for emergency/disaster response activities, including an evacuation. The response will be coordinated between the site and the City’s Emergency Operations Centre. If the response escalates beyond the capabilities of the City, the City may request provincial assistance from the Provincial Emergency Program (PEP).

- The Incident Commander is responsible for all operations at the site. A Unified Command structure may be formed where multiple agencies respond with one Incident Commander designated with the overall authority.
- The City of Richmond may activate the City’s Emergency Operations Centre (EOC) to support operations during the evacuation process. This may include evacuation planning during pre-planned/notice evacuations.
- An Incident Action Plan (IAP) should be compiled for each operational period at the site. The IAP should contain the objectives reflecting the overall strategy and action plans for that specific operational period. Details of the evacuation process at the site should be included in the IAP. Once complete, the IAP should be forwarded to the City’s Emergency Operations Centre, if activated, in order to provide any additional support including personnel and resources to the site.

1.5 Communications

1.5.1 Communicating with the Public

Initial Messaging

Key messaging for the public should be developed concurrent with evacuation planning or as soon as possible. Messaging should be concise yet include enough information to enable the public to understand the situation/risk and what activities they are advised or required to carry-out.

The initial messaging to those in the risk area must provide basic information including:

- Whether to evacuate or shelter-in-place;
- Whether an Evacuation Alert or Evacuation Order is in place;
- The areas that need to be evacuated, with reference to perimeters including street names and addresses;
- Why and when to evacuate;
- If an Evacuation Alert, then the public must be prepared to evacuate at a moment's notice. If an Evacuation Order, then the public must evacuate immediately;
- The designated evacuation routes, including road conditions;
- What to do if one's vehicle breaks down;
- A request of families to utilize only one vehicle, if necessary;
- To buddy up with neighbours to fill a vehicle, if necessary;
- To offer to take neighbours without their own transportation;
- What residents should take with them;
- The designated Assembly Points for those without a mode of transportation;
- The designated Reception Centre or Evacuation Point locations;
- Available transportation options;
- How long the evacuation from their residence is expected to last;
- How pets are to be accommodated;
- Security plans that will be in place to protect property in evacuated areas;
- When and how information updates will be made available;

- Contact number for those requiring assistance, and
- Other information deemed appropriate and important to the situation at hand.

It is important to ensure that all communication plans include methods of informing special needs groups. Methods include:

- Telephone calls;
- Auto-dialled TTY (teletypewriter) messages;
- Text messaging;
- City website;
- E-mails;
- Direct door-to-door contact; and
- Media, utilizing close captioning and sign language interpreters.

For those evacuees without a mode of transportation, it is important that they are provided with the following additional information including:

- What transportation services will be made available;
- Where the Assembly Points will be located; and
- Frequency of the pick-ups from the Assembly Points.

Situation Updates

The ability to provide consistent and accurate updates to all those affected in an emergency is critical. Real-time updates must also be communicated to evacuees that include:

- Current status of emergency situation or hazard that has caused the evacuation;
- Evacuation routes;
- Road and area closures;
- Location of Assembly Points;
- Location of Reception Centres and Group Lodging facilities (Evacuation Points, if applicable)
- Hotel availability as well as the availability of food, gas, medical and other essential services; and
- Traffic conditions.

2.0 Special Population Considerations

2.1 Special Needs

Special needs groups may include children, individuals with disabilities, those with English as a second language, institutionalized and incarcerated individuals, the transient population (tourists, business travellers, commuters and seasonal workers), the homeless and those with livestock.

With over half of the population in Richmond with English as a second language, it is important that all communications pertaining to an emergency situation take place in commonly spoken languages. This includes translation services for all emergency facilities and the release of public information in these languages.

2.1.1 Special Needs Planning

For any evacuation to be successful, one must take into consideration special needs groups during every planning step. Factors that may have the greatest impact in an evacuation situation include:

- Public notification, especially messaging for those with special needs;
- Access to transportation including specially equipped vehicles for mobility equipment;
- Access to Reception Centre and Group Lodging facilities equipped for those with special needs;
- Access to medication, equipment and supplies including power and back-up power for their operation. Evacuees may not bring their medications with them during the evacuation and therefore, will need to be able to obtain new prescriptions;
- Access to facilities for service animals;
- Access to mobility equipment and service animals while in transit and at the designated Reception Centre and Group Lodging facility;
- Access to information including regular updates;
- Provisions must include the ability for those special needs individuals to have access to community based organizations who will continue to provide essential services to their clients; and
- A wide range of medical support services and supplies may be required once the evacuees arrive at the Reception Centre and/or Group Lodging facility.

Note: For additional information regarding special needs groups in Richmond, refer to Appendix 5.

2.1.2 Special Needs Facilities in Richmond

Special needs facilities such as health care and childcare facilities, schools, daycares, shelters, and subsidized housing may require assistance from the City during an evacuation. The majority of these facilities house or serve individuals that may be unable to care for themselves in an emergency and/or require additional support.

Note: A list of health care facilities, schools, childcare facilities, subsidized housing, livestock owners and community facilities, sorted by planning zone, map section, and alphabetically, is located in Appendix 5.

The following is a summary of the special needs facilities located within the City of Richmond:

Hospitals and Licensed Health Care

There are a total of 34 health care facilities with an approximate total of 669 clients. Facilities range from a community hospital, nursing homes and extended care facilities, of which some are owned and operated by Vancouver Coastal Health while others are privately run.¹

An evacuation of the city or part of the city could have a massive impact on health care facilities within the area. Evacuation and relocation of health care clients is extremely complex and can be dangerous. When advised of a threat, Vancouver Coastal Health will conduct a risk assessment to determine if sheltering-in-place is a viable and safe alternative to evacuation. Individual clients would also need to be assessed to enable proper care and transportation to alternate hospitals and care facilities.

Appropriate levels of care must be maintained at all times and receiving facilities must be equipped and properly staffed to accommodate the extra patient load. Logistically, evacuation and relocation of health care clients is a major challenge. Medical equipment (ventilators, oxygen, dialysis machines, wheelchairs, beds, medication) must accompany the patient as receiving facilities generally do not have the surplus equipment and supplies needed to maintain

¹ Vancouver Coastal Health – CCFL Listings, 2008

appropriate care. This will require a substantial amount of coordination and support among the Health Authority(s), local governments, and other agencies including B.C. Ambulance Service.

Elementary and Secondary Schools

There are a total of 38 elementary schools with a total population of approximately 12,300 students. A total of approximately 10,400 students are registered at the 10 secondary schools located in Richmond. There is also one alternate school.

The Richmond School District has an emergency program (*Emergency Preparedness Program*, December 2006) in place to address all issues pertaining to an emergency. This includes provisions for an evacuation of a school including instructions for staff members and the responsibility for the safety and care of students.

Post-Secondary Schools

Kwantlen University College is the only post-secondary institution in the City of Richmond and the average daily number of students and faculty on campus per day is approximately 2,000.

Independent Schools

There are a total of 8 independent schools in Richmond.

Subsidized Housing

B.C. Housing provides subsidized housing for disabled, elderly and families in the City of Richmond. There are 41 housing facilities and all are operated by private or non-profit housing providers except for one which is operated by B.C. Housing staff. All facilities have managers on site and are required to have an emergency plan in place for its tenants.

Childcare

There are approximately 200 licensed childcare facilities in the City of Richmond with a maximum capacity of approximately 3,900 children.² They are divided into the following categories:

Family Childcare: Provision of care in the licensee's own home to children aged from birth to 12 years old. A maximum of 7 children are permitted in Family Childcare, including the licensee's own children less than 12 years of age.

Group Day Care: Provision of care in a group day care setting for children aged from birth to 36 months old or from 30 months to the age they enter school.

Preschool: Provision of care to children aged from 30 months to school age, not more than 4 hours per day.

Out of School Care: Provision of care to school aged children before and after school hours and during school holidays.

Child Minding: Provision of care to children who are at least 18 months of age and who have not entered Grade 1, not more than 3 hours per day, not more than 2 days per week.

Emergency Day Care: Provision of care to children who have not entered Grade 1, on a short term basis (i.e. not more than 72 hours per month).

Holding Cells

There are currently 2 facilities that can accommodate up to 40 incarcerated individuals on a short-term basis.

- Richmond RCMP Detachment Holding Cells
- Richmond Provincial Courthouse Holding Cells

Responsibility lies with the Richmond RCMP and B.C. Sheriffs to evacuate any individuals in their custody to a facility in a safe location..

² Vancouver Coastal Health – CCFL Listings, 2008

Men's and Women's Shelters

Two shelters are located in the City of Richmond of which one is designated as a men's shelter and one as a women's safe house.

2.1.3 Evacuation Considerations for Special Needs Facilities

Coordination and communication must occur between the Emergency Operations Centre and the applicable special needs facility representatives in order to ensure a seamless evacuation of special needs facilities from the risk area. Hospitals, other health care facilities, schools, childcare facilities, subsidized housing, and jails are responsible for having their own evacuation plans in place for such an event. However, there must be dialogue between all parties to avoid confusion, miscommunication and duplication of any response efforts.

A representative from key special needs facilities (i.e. Vancouver Coastal Health, Richmond School District) should be requested to attend the City's EOC to ensure the lines of communication are kept open. These designated representatives must report to the EOC Liaison Officer upon their arrival to the EOC.

Additional transportation resources may be required for specific special needs facilities in which the Logistics Section of the City's EOC may assist with the procurement of such resources.

2.2 Persons with Disabilities

The Urban Poverty Project³ states that approximately 15% of the total population, (approximately 12,500 people based on the City population of 188,000) has a type of disability. This information was obtained from the 2001 Census.

In addition, statistics on the disability community in Canada show that one in five persons may have a disability. As the population ages and lives longer, the chance of having a disability increases. Disability affects people of all ages, but after the age of 65 about one in three Canadians have developed a disability, and that likelihood continues to increase as one grows older.⁴

³ Urban Poverty Project, www.ccsd.ca

⁴ Public Safety Education Advisory – Public Safety Education Plan for Vulnerable, At-risk and Multi-cultural Populations, May 2008

2.2.1 Evacuation Considerations for Persons with Disabilities

Persons with disabilities will face a variety of challenges when evacuating depending on the nature of the emergency situation. Persons with a mobility disability and visual impairment may require assistance leaving a building or navigating over areas covered with debris.

Persons with disabilities may also have additional requirements including alternate modes of transportation such as HandyDART vehicles, lift-equipped vans and buses, wheelchairs and/or scooters. First responders must be aware of these evacuee needs and be able to respond accordingly.

2.3 Domestic Animals and Livestock

Past evacuations in North America have proven the need for proper evacuation planning for domestic animals and livestock. Hurricane Katrina provided countless examples of how stressful and distracting it was for both pet and livestock owners and rescue workers to deal with animal welfare concerns during both the disaster and recovery stages. If plans are not already in place, the response efforts may be delayed or compromised.

The Emergency Management Office through the ESS Coordinator, or the EOC through the ESS Branch Coordinator, can facilitate the care of animals by working with organizations such as Richmond Animal Protection Services (RAPS) and local veterinarians. A responsible owner however, should have an emergency plan in place for all animals including an animal emergency kit, immunization records and arrangements for boarding and veterinary care.

2.3.1 Evacuation Considerations for Animals

Providing for the transportation, care and sheltering of pets is an important factor in evacuation planning. Many people will refuse to leave their homes if they cannot take their pets with them.

It is assumed that the majority of the City's residents will have their own means of transportation and will evacuate themselves along with their pets. Evacuees who go to the homes of relatives or friends with their pets do not normally pose problems during an evacuation. It is those residents with no means of transportation and without a place to stay that can create potential problems when it comes to the care of their pets.

Depending on the situation and availability of facilities, one or more of the following approaches should be used to handle evacuees arriving with pets:

- Providing information pertaining to pets and livestock through public messaging will enhance any evacuation effort including information on nearby kennels, animal shelters and veterinarians that may have agreed or could become temporary animal shelters;
- Directing pet owners to the designated Reception Centre and Group Lodging facility that will accommodate pets (those with a covered exterior and adjacent room or building where pets on leash and in carriers can be temporarily housed), and/or
- Setting up separate pet shelter/s to house pets.

One of the greatest concerns and controversial issues is the evacuation of people with animals.

- Rapid evacuation is intended to provide maximum safety for people. Animals are seen as a hindrance.
- Many people view their animals as family members and expect them to be cared for as if they were their children.
- Most evidence indicates that people who evacuate without their animals will create more problems for responders than those that evacuate with them. Animal owners should be advised to evacuate with their animals as long as it does not create a safety risk.
- Unnecessary exposure of persons with animal allergies should be avoided. For this reason and food hygiene and other public health concerns, animals (unless a companion/service animal) must not be permitted into a Reception Centre or Group Lodging facility.
- Public messaging and awareness should take place before any disaster strikes to ensure that all pet owners are familiar with their responsibilities.

The City of Richmond has approximately 6,000 licensed dogs with another 20 to 50% unlicensed. The City does not license any other types of domestic animals such as cats, rabbits, horses, ferrets, snakes, birds, etc. and therefore, these additional figures are not available.

2.3.2 Health Regulations

Provincial health regulations prohibit animals within public facilities that serve food with the exception of service/companion animals. The following is the applicable health regulation pertaining to animals in a public facility: The B.C. Health Act (Division 7, Section 25) states:

1. Subject to subsection (2), an operator of food premises must not permit live animals to be on the premises.
2. An operator of food premises may permit the following animals on the premises:
 - a. A guide animal but not in any area of the premises in which food is prepared, processed or stored;
 - b. Live fish in an aquarium;
 - c. Any other animal that a health official determines will not pose a risk of a health hazard occurring on the premises.

Public facilities include Reception Centres, Group Lodging facilities and hotels. (Note: Some hotels may have designated “pet-friendly” rooms.) However, if the designated Reception Centre has a room or building with a separate entrance for pets, they may be permitted to be sheltered in a crate or restrained in a safe, appropriate manner.

2.3.3 Livestock

One of the emergency powers available to a local authority when a “Declaration of a State of Local Emergency” is issued is “cause the evacuation of persons and the removal of livestock, animals and personal property from any area designated in the declaration within the local authority's jurisdiction that is or may be affected by an emergency or a disaster and make arrangements for the adequate care and protection of those persons, livestock, animals and personal property.” Even though it is the responsibility of livestock owners to ensure that they have an evacuation plan in place, the City must recognize the need to potentially assist livestock owners in the planning and response phases of an evacuation.

The Ministry of Agriculture and Lands recommends⁵:

- Cattle producers in the flood plain should investigate the availability of alternative livestock accommodation on higher ground. Consider moving cattle in the days leading up to potential flooding. Arrangements should be made with other livestock owners outside the risk area who could provide temporary boarding.
- Dairy producers should consider arrangements for temporary milking at their safe evacuation point location.
- Creation of a resource database including owners, livestock haulers and those who can assist on short notice in the event of evacuation.
- All cattle should have positive identification and a record kept of the identification in case animals from different herds have to share a relocation site. Mark your animals with livestock marking pencil, using initials or herd letters.
- Dangerous livestock should be relocated well before evacuation becomes necessary.
- Notify your dairy representative, milk hauler, processor, feed representative and veterinarian of a planned destination if evacuated.
- Secure copies of insurance policies and other essential farm documents.
- Be prepared where possible to assist other livestock producers who may have to evacuate from the flood plain.

During past flood threats, the Ministry of Agriculture and Lands had an emergency operations centre in Abbotsford which provided guidance on managing livestock in preparation for flooding. The B.C. Milk Producers also established a phone line to help with the evacuation of cattle.

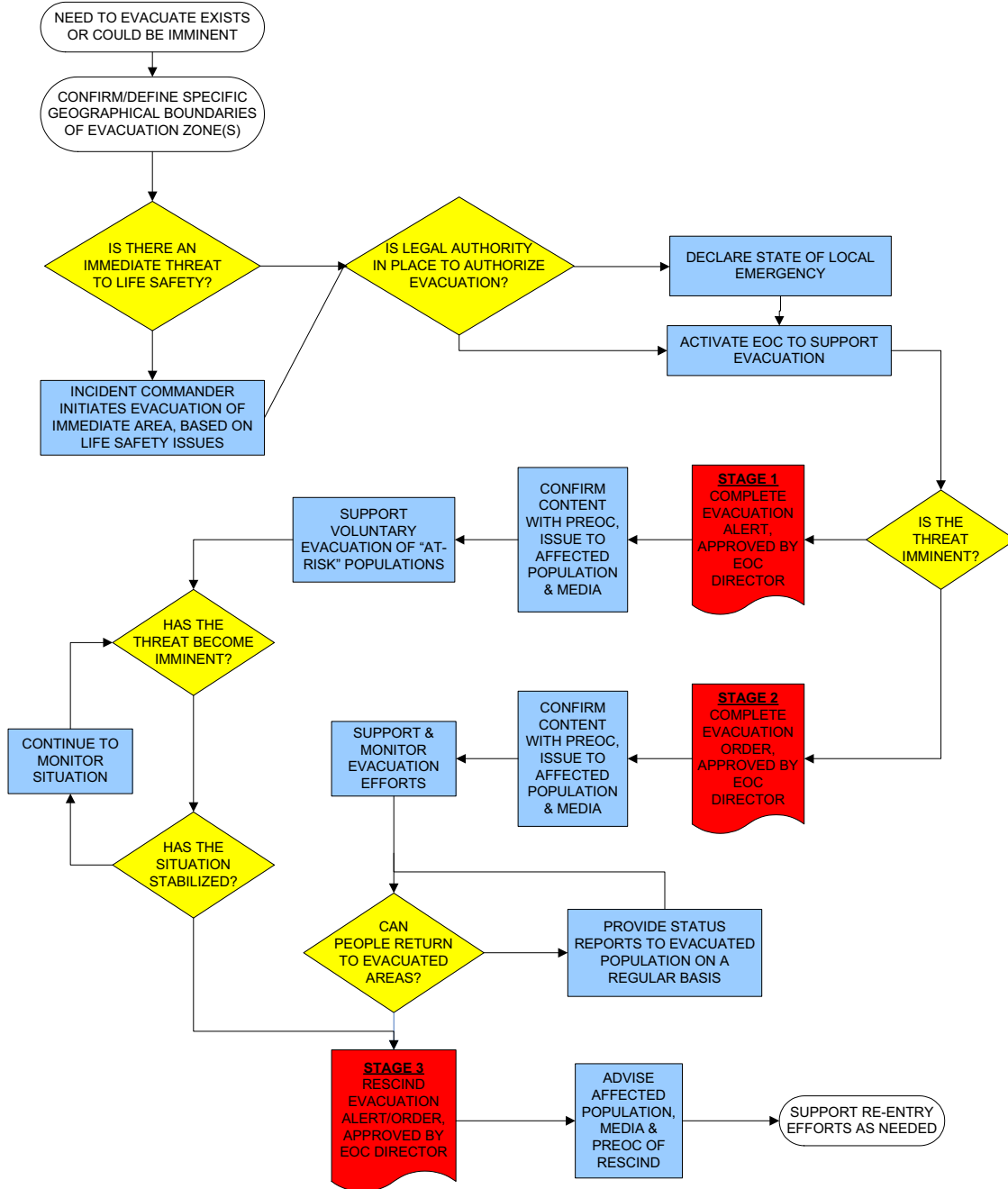
⁵ Ministry of Agriculture,
http://www.agf.gov.bc.ca/emergency/Flood/tips/AgriculturePreparednessTipsFactSheet_May18.pdf

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3.0 Evacuation Process, Stages and Types

Evacuation Process Flowchart

The following flowchart outlines the evacuation process from the initial decision to evacuate through to the re-entry phase.



3.1 Evacuation Stages

3.1.1 Stage 1: Evacuation Alert

The Evacuation Alert is the first stage of the evacuation process when the “population at risk” is warned of the potential need for evacuation. This alert highlights the nature of the danger and that one should be prepared to evacuate their home and area immediately or with little or no notice.

During the alert stage, the movement of special needs groups including disabled persons, transient populations including tourists, health care facilities, livestock, and in some cases, school population, should become a priority.

Possible methods of warning the “population at risk” include:

- Door to door notification with pamphlets delivered by members of the RCMP, City staff, and volunteers (as long as all civilians are under direct supervision of an RCMP officer);
- Radio and/or television broadcasts;
- Sirens and mobile/aerial public address system announcements;
- City’s website, and
- Emergency Notification System (pending).

Time permitting; a copy of *Evacuee Information Handout* should be attached to each copy of the Evacuation Alert delivered to each affected residence or premise within the area at risk. Copies may also be posted on the City’s website.

Note: Templates of the *Evacuee Instructions and Evacuation Alert* are located in Appendix 4.

The Evacuation Alert should include:

- Risk area perimeter and evacuation routes;
- Reception Centre location including address; and
- Emergency Call Centre contact number, if activated, otherwise City Hall Switchboard.

3.1.2 Stage 2: Evacuation Order

The Evacuation Order should include:

- The time the order is in effect;
- The hazard;
- Description of risk area with boundaries;
- Applicable powers to be utilized;
- Name and address of Reception Centre;
- Emergency Call Centre contact number for those requiring assistance; and
- All persons in the affected area are to be told “In the interest of their own safety and considering the risk, they are NOW ORDERED to leave the area.”

The written Evacuation Order is to be in a consistent form. There is no discretion allowed in the Evacuation Order, which clearly indicates immediate evacuation and relocation.

Note: A template of an *Evacuation Order* is located in Appendix 1.

3.1.3 Stage 3: Evacuation Rescind

When the emergency which necessitated the evacuation is under control and the risk area is declared safe, an Evacuation Rescind will be issued. The Evacuation Rescind should advise the population at risk that the danger may reoccur and that an Evacuation Alert or Evacuation Order may be reinstated. If this happens, the process recommences from Stage 1: Evacuation Alert.

Note: A template of an *Evacuation Rescind* is located in Appendix 1.

3.2 Types of Evacuations

3.2.1 Unplanned Evacuations

Evacuation of people at risk from emergency situations that occur with little or no warning will be implemented on an ad-hoc basis. The site's Incident Commander will initiate the evacuation process, while soliciting additional support from the City's Emergency Operations Centre (if activated).

For unplanned evacuations, where a "Declaration of State of Local Emergency" is required, the Incident Commander will conduct the evacuation while the EOC Director handles the documentation pertaining to the "Declaration of State of Local Emergency" keeping in mind that the first and second response goals are to provide for the safety and health of all responders and to save lives.

Note: In an unplanned evacuation, an Evacuation Order is immediate and no Evacuation Alert is issued.

Hazardous Materials Evacuations

The most likely cause of an unplanned evacuation is a hazardous materials incident. The type of hazardous material will determine how quickly the evacuation must be carried out.

In hazardous materials incidents where an evacuation is required, Richmond Fire Rescue's Hazmat Team will be able to provide some extremely valuable information for the evacuation. Richmond Fire Rescue's technical rescue truck is mobilized to all major fires and hazardous materials incidents. Onboard the truck are two databases, *Adashi First Response with ESRI*⁶ and *PEAC*⁷. Both are incident management software which allow first responders to retrieve important information on the type of material they are responding to and the hazards and risks associated with it. By entering information such as location of the site, type of material, wind direction and outside weather temperatures, a map is produced detailing the suggested evacuation zone around the site including direction of the plume. This information and map will assist the Incident Commander/Unified Command and EOC (if activated) to make the necessary decisions when drawing up the Incident Evacuation Plan (IEP).

⁶ Adashi First Response – www.adashi.org

⁷ PEAC – www.aristatek.com

The technical rescue truck is stationed at Fire Hall #7. Designated Richmond Fire Rescue members are trained to operate it on a 24 hour basis.

Refer to the City's CBRNE and Dangerous Goods Spill Response Plans for further information pertaining to a hazardous material response.

3.2.2 Planned Evacuations

The three stage evacuation process and terminology is simple, manageable and effective and is consistent whether the evacuation order originates at a local, provincial or federal level of government.

The Evacuation Alert alerts the population at risk of the potential for an evacuation. This Evacuation Alert will allow for the population at risk to begin preparation for a voluntary evacuation of the risk area within a specified time frame. The reality of the situation may require immediate action with very little notice.

With an Evacuation Order, the population at risk is ordered to evacuate the area at risk. An Evacuation Order does not allow for any discretionary action on the part of the population at risk – they must leave the area immediately. A statement must be included in all evacuation bulletins, pamphlets, warnings and orders which makes it very clear to all that, while the Evacuation Order is in effect, the area in question will have controlled access to only those who are authorized to enter.

When an Evacuation Rescind has been issued, the population at risk may be allowed to return to the area previously evacuated. If there is the possibility that the danger may reoccur, an the Evacuation Alert may need to be re-issued.

3.2.3 Sheltering-in-Place

To "shelter-in-place" means to take immediate shelter where you are—at home, work, school or in between—usually for short durations in response to specific hazards. Depending on the threat and risk, sheltering in place may be a viable option to evacuation and so should be considered when determining evacuation options and requirements.

Note: Refer to Appendix 3 for additional information on Shelter-in-Place and Appendix 4 for public messaging.

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4.0 Teams and Notifications

4.1 Teams and Positions

4.1.1 Site Command

Incident Commander/Unified Command

- Sets up Incident Command System/Unified Command structure at the site.
- Makes decision to order an evacuation or shelter-in-place (confers with EOC Director, if EOC activated).
- Confers with the City's EOC (if activated) to determine area to be evacuated, proposed evacuation routes, Assembly Points etc.
- Ensures communication links are in place at the site.
- Ensures communications link between the site and EOC (if activated).
- If EOC is not activated, completes an Incident Evacuation Plan (IEP)

OR

- If EOC is activated, implements Incident Evacuation Plan upon receipt from EOC and effects the evacuation.
- Oversees site operations for the evacuation process including, but not limited to:
 - a. Traffic control;
 - b. Perimeter control and security;
 - c. Access control including Access Control Points;
 - d. Assembly Points;
 - e. Door-to-door notifications (making sure no one is left); and
 - f. Evacuation of special needs groups including those without a mode of transportation.

4.1.2 Site Evacuation Teams

For large evacuations, the Incident Command/Unified Command should form an Evacuation Branch under the Operations Section. The Evacuation Branch must be provided with sufficient resources to effectively complete the required tasks.

Additional teams that may be required for the evacuation may include, but are not limited to:

- Notification Teams including Team Leaders (<5-7 teams/span of control)
- Traffic Control
- Site Security
- Mobile Notification
- Access Control
- Assembly Points
- Evacuation Point/Reception Centre Security Team

The formation of Site Evacuation Teams may be required for large evacuations.

Note: For hazardous materials incidents where an evacuation is required, consideration must be given to the safety of the first responders assigned to any evacuation teams. Ensure that all issues of safety, including Personal Protective Equipment (PPE), have been addressed prior to deployment.

The following teams, MAY or MAY NOT be utilized. The Incident Commander will, based on the factors surrounding the emergency situation and pending evacuation, determine which teams may be required.

Notification Team

The numbers of responders required to conduct an evacuation will depend on the size and scale of the evacuation. General rule is at least two members per Notification Team.

- Conducts door to door notifications.
- Ensures evacuees only take essential items.
- Assists those evacuees requiring additional assistance.
- Consists of RCMP members, RCMP auxiliary members, volunteers, and City staff.
- If more than 5-7 evacuation teams are required, a Team Leader will be assigned.

Team Leader

- Briefs and directs teams of personnel conducting evacuation in assigned areas.
- Ensures paperwork is completed.
- Ensures information is provided to each evacuee.

Access Control Team

All designated Access Control Points should be staffed by at least one RCMP member. This will allow police resources to be utilized efficiently, Auxiliary RCMP, volunteers and/or other City staff may then be teamed up with the RCMP member to form a team of three. The Access Control Point Teams will control access into and out of an evacuated area until an Evacuation Rescind is ordered. Location/s of all Access Control Point/s will be identified in the Incident Evacuation Plan.

- Ensures no unauthorized individuals enter evacuated area.
- Consists of RCMP members, RCMP auxiliary members, volunteers, and City staff.
- Access Control Teams will be deployed to the Access Control Points during the re-entry process once the go ahead to allow the evacuees back in to the vacated area is granted.

Note: During the re-entry phase, the Access Control Points may also be utilized as Re-entry Control Points.

Traffic Control Team

An evacuation of an area, especially an unplanned evacuation, will incur gridlocks and choke points throughout the area. Many evacuees will be confused and anxious and therefore will add to any slowdowns that there may be. Traffic control by means of Traffic Control Points will assist with the movement of traffic out of an evacuation area.

- Will provide traffic control for essential traffic, including ingress for emergency vehicles and equipment and egress for evacuees.
- Posted at designated Traffic Control Points along evacuation routes.
- Consists of members of the RCMP, the City's Traffic Control Personnel and trained City Public Works staff.

Site Security Team

Once an area has been evacuated it is critical that all unauthorized individuals be kept out. This will prevent any criminal activity, such as looting and vandalism, from taking place. The RCMP will manage site security through Access Control Points, mobile patrols etc.

- Performs mobile patrols and perimeter security of evacuated area to protect property and ensure that no unauthorized individuals enter into area without entering at the Access Control Points.
- Consists of RCMP members, RCMP auxiliary members, volunteers, and City staff.

Mobile Notification Team

Due to many factors such as safety concerns and time restraints, use of Public Address (PA) systems in first responder vehicles may be the preferred method to notify the public in the areas of risk.

- Conducts mobile notifications utilizing vehicle or portable public address systems.
- Follows a grid system to ensure audible warning of need to evacuate is heard throughout the evacuation area.
- Provides additional information as required.

Assembly Point Team

Coordination at Assembly Points is important in order to successfully move those without transportation from the assembly areas to Evacuation Points or Reception Centres. This includes:

- Ensures that order is maintained amongst those arriving for transportation and the coordination of bus transportation arriving into and departing from the area. Ensures the process of assembling and transporting those without a mode of transportation is conducted in an orderly manner.
- Oversees the movement of buses in and out of Assembly Point.

4.2 Door-to-Door Notifications

Door-to-door notifications utilize police, volunteers, and City staff in notification teams to advise those people within an area of risk. This method is recommended for use when evacuating a single large building, fewer smaller buildings or a neighbourhood when speed is of the essence and there is little or no threat to personnel.

Strengths:

- Effectively reaches every residence, business
- Commands attention and response

Weaknesses:

- Time consuming
- Effective only in small evacuations
- May expose responders to source of danger
- May not be effective to those persons with disabilities (i.e. hearing or mobility impaired)

4.2.1 Door-to-Door Notification Resources





A large number of police resources will be required to efficiently and effectively conduct door-to-door notifications. In order to ensure that enough personnel are assigned, one must look at the evacuation area and the makeup of the buildings, whether single family homes, apartment buildings or office towers. The general estimate of personnel required for door to door evacuation notifications:

- Single family dwelling: 2 team members per block
- Small apartment building: 2 team members per building
- Large apartment building: 2 team members per floor

All requests for resources should go through the EOC's Logistics Section, if activated, or through the site's Logistics Section.

4.2.2 Flagging System

In British Columbia, a system of flagging tape in four different colours has been adopted which allow police and volunteers to quickly identify the status of any residence in an evacuation area. The tapes are attached to a place that can be viewed during a windshield evaluation to identify residents who:

-  **BLUE:** Were not at home/no answer and must be canvassed again
-  **PINK:** Have been notified of an order to evacuate
-  **YELLOW:** Have been verified as been evacuated
-  **ORANGE:** Have been notified and are refusing to evacuate.

Note: A supply of flagging tape is located in the Emergency Command Vehicle.

4.2.3 Refusal to Evacuate

For those people who refuse to evacuate, most enforcement issues pertaining to evacuations already have law enforcement utilizing normal police powers in place such as obstruction, child safety, or trespass, or where they can enforce other statutes related to forest fighting and security zones.

Section 129 (Police Obstruction) of the Criminal Code of Canada states:

“Everyone who

- a. Resists or willfully obstructs a public officer or peace officer in the execution of his duty or any person lawfully acting in aid of such an officer,
- b. Omits, without reasonable excuse, to assist a public officer or peace officer in the execution of his duty in arresting a person or in preserving the peace, after having reasonable notice that he is required to do so, or
- c. Resists or willfully obstructs any person in the lawful execution of a process against lands or goods or in making a lawful distress or seizure, is guilty of
- d. An indictable offence and is liable to imprisonment for a term not exceeding two years,

or

- e. An offence punishable on summary conviction.”

All adults who refuse to evacuate will be provided with an information form by the RCMP which will advise them that no responder will be allowed to risk their life to return to save them; that they cannot allow minor children (under 19 years of age) to remain within an ordered evacuation area; and that security precludes anyone from moving about within an evacuated area.

The seizing of minor children at risk would fall under the Child, Family and Community Service Act (Provincial), Part 3, Division 1, 13.c.

A residence that refuses to evacuate will be tagged with an orange flagging tape visible by the front door by the Evacuation Team member. Comments must also be included on the *Address Status Record* and the *Evacuee Information Form* (planned evacuations only).

4.3 Mobile Notifications

Mobile notifications utilize first responder vehicles to drive through an area of risk using the vehicle's lights, sirens and public address system to get the public's attention.

Strengths:

- Effectively alerts people that are not monitoring radio or television broadcasts
- Commands attention
- May provide some level of alert to the hearing impaired.

Weaknesses:

- Dependant on limited resources
- Effective only in small to medium evacuations
- Cannot penetrate multi-story buildings
- Due to public address system limitations, the public may not hear or understand messaging.

Recommended for use in areas of risk not exceeding 10 blocks in size. Three (3) mobile passes are recommended.

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5.0 Other Evacuation Considerations

5.1 Evacuation Supplies

Supplies required for site operations are located in the Emergency Command Vehicle thus ensuring easy accessibility upon the requirement to conduct an evacuation.

5.2 Security

5.2.1 Perimeters

Identifying the perimeters (inner and outer) including any Access Control Points and road and laneway closures are key to securing the evacuated area. The outer perimeter is generally the area that has been evacuated and the inner perimeter will allow only those emergency vehicles required to respond to the emergency situation at hand. Twenty-four hour patrols may also be added if safe to do so to ensure that no one has inadvertently or deliberately entered into an evacuated area.

Perimeter Control

Perimeter control is normally accomplished by establishing Access Control Points, roadblocks, or road closures with barricades and supplemented by mobile police patrols.

Regular patrols through the evacuation area should be carried out as long as it is safe to do so. Access into an evacuated area through Access Control Points should be limited to:

- Emergency responders and City staff;
- Utility companies engaged in shutting down or restoring utility services;
- Contractors clearing roads, removing debris and restoring damaged buildings;
- Commercial vehicles delivering food, essential supplies, life support equipment, construction supplies, and any other related materials; and
- Media representatives, upon approval from the Senior Information Officer and Incident Commander and under escort.

Law enforcement must be present at all locations for security, crowd control and to deter any criminal activity.

Property Protection

Mobile patrols must be used to ensure the protection of properties within the evacuated area from looting and other criminal activities.

5.2.2 Access Control

Access Control

As an area is being evacuated, access controls must be established. This is essential for the safety of the responders and to keep unauthorized individuals out of the risk area.

Criteria for allowing entry into closed areas will be established for each incident.

- **No Access:** Prohibits the public from entering the closed area. Authorized personnel (i.e., responders) only will be permitted. Media representatives may be allowed access on a controlled and escorted basis.
- **Limited Access:** Allows persons into closed areas according to access criteria established by the Incident Commander.

Access Control Points at key entry locations around the perimeter should be established by RCMP members in conjunction with Auxiliary RCMP members, volunteers and/or other City staff, to control access into and out of evacuated areas. Locations of each zone's Access Control Points will be detailed in the Incident Evacuation Plan.

All inbound traffic shall be stopped at the Access Control Point and be permitted to do one of the following:

- Proceed with permit (see Appendix 1 for Authorized Entry Permits); or
- Turn around.

During the re-entry phase of an emergency and, after the Evacuation Order has been rescinded, all designated Access Control Points may be utilized as Re-entry Control Points.

Authorized Entry Permits

Entry into an evacuation area by individuals other than those involved with the response efforts should be avoided wherever possible. For those incidents where this cannot be avoided, authorization must be obtained from the Incident Commander or EOC Director. If someone (normally an evacuee) is authorized to enter the evacuation area, the RCMP member at the Access Control Point must record the information on a Record of Authorized Entry and Authorized Entry Form must be completed including the individual's signature.

Issue an Authorized Entry Permit to place on the driver's side dash of their vehicle. If the individual is already in possession of an Authorized Entry Permit, ensure to check for the following information:

- Name, address and date of birth of person(s) entering;
- Reason for entry or re-entry;
- Time of entry or re-entry;
- Time of exit; and
- Authorizing signature.

Note: Refer to Appendix 1 for a template of the Authorized Entry Permit.

5.3 Assembly Points

Designated Assembly Points serve as locations where those individuals without transportation will congregate in order to be transported to an Evacuation Point or designated Reception Centre. Assembly Points should be a large area and well-known to the general public. Areas such as shopping malls (i.e. Lansdowne Mall, Ironwood Mall) and community facilities serve as appropriate spots for such Assembly Points. Appropriate signage will be required leading up each of the Assembly Points to assist those arriving on foot.

The coordination of buses for transportation between the Assembly Points, Evacuation and Reception Centres is critical in the success of the evacuation process.

There will be some individuals who may be unable to go to an Assembly Point due to physical limitations. Those individuals must be encouraged to call the City's Emergency Call Centre (if activated) or City Switchboard and advise that they will require assistance. This specific messaging must be included in any press releases by the Senior Information Officer.

5.4 Shelters

5.4.1 Reception Centres

Reception Centres are safe gathering places for people displaced from their homes as a result of an emergency or disaster. At a Reception Centre, individuals can register and receive Emergency Social Services as well as information about the emergency situation including the evacuation.

The services that are provided at a Reception Centre include, but are not limited to:

- Registration
- Referrals for food, clothing, lodging and/or amenities
- Reunification with family or friends
- Emotional support
- Assisting persons with special needs
- First aid
- Multi-cultural services
- Pet care

5.4.2 Evacuation Points

Evacuation Points may be established and serve as a temporary safe zone for evacuees if a Reception Centre has not yet been activated or is not yet operational. Basic needs such as food, water, and washroom facilities should be available for the evacuees.

Note: The designated Evacuation Point may be within the City of Richmond or located in another municipality, depending on the type of disaster.

5.4.3 Sheltering Needs for Persons with Disabilities

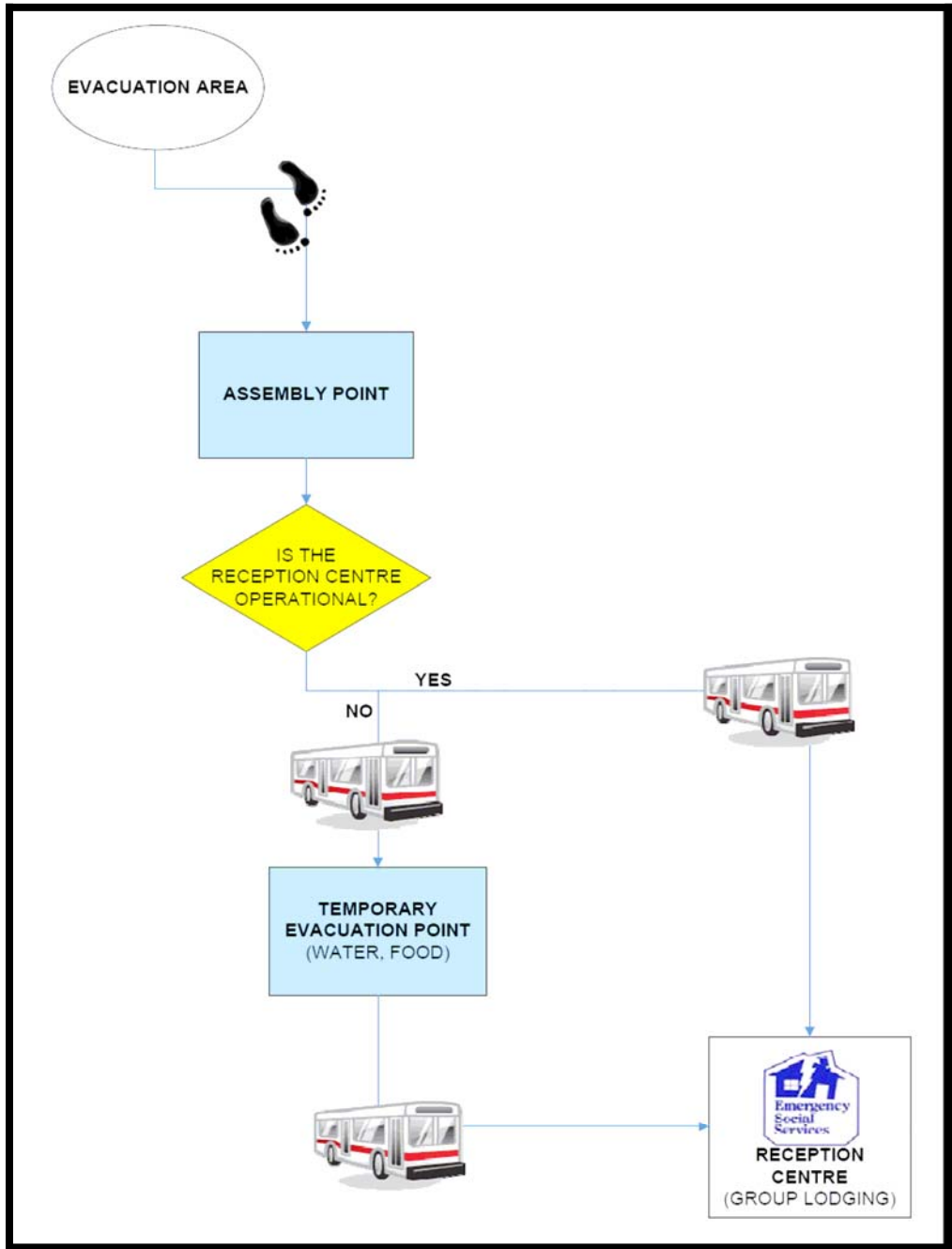
Access

When disasters occur, people are often provided safe refuge in temporary shelters. Some may be located in community centres or even tents in park areas. In the case of a small scale evacuation, lodging may be located in a local area hotel, pending room availability.

Ensure that all facilities designated for Reception Centre and/or Group Lodging use are equipped to accommodate those individuals with disabilities. This should include access and egress routes, washroom facilities equipped for the disabled, and the ability to accommodate an individual's service animal.

6.0 Transportation

6.1 Evacuation Flowchart for Population without Transportation



6.2 Transportation and Traffic Control

6.2.1 Modes of Transportation

The primary means of transportation in an evacuation is generally privately owned vehicles supplemented by buses. However, it is critical that evacuation plans identify and provide other means of transportation for those without their own transportation such as:

Rail

There are two rail lines running through the City on the north end of Lulu Island and through the centre running along Shell Road towards the South Arm of the Fraser River utilized for cargo movement only. For passenger movement to be considered passenger rail cars would be required and this would become a very time consuming process. Therefore the use of rail would not be a desired method for the movement of evacuees and should be avoided.

Water vessels

The use of private vehicles, buses and the Canada Line is the least complicated of all possible modes of transportation. As the City of Richmond is surrounded by water, the use of water vessels may be an option when all other preferred methods are not available.

Aircraft

In the case where there are no other means of evacuating available and with the close proximity of the Vancouver International Airport, evacuation via aircraft may occur. It should be noted that emergency airlifts are much more viable in rural and isolated areas than in urban areas.

A list of transportation resources is located in **M:\Emergency Programs\Emergency Resource Database\Emergency Resource Data Base.mdb**.

Buses

Buses will play an important role in an emergency evacuation shuttling those without their own transportation. In the event of an evacuation requiring the use of buses, there are several options available. These include:

Bus Passenger Capacities

TransLink

Bus Type	# of passengers
Regular buses (40')	77
Articulated buses (60')	130
Community buses	24
HandyDART: Microbus	6 ambulatory + 2 wheelchairs or 3 ambulatory + 4 wheelchairs
HandyDART: Midibus	12 ambulatory + 2 wheelchairs or 4 ambulatory + 4 wheelchairs
HandyDART: Minibus	20 ambulatory + 2 wheelchairs or 8 ambulatory + 4 wheelchairs

City of Richmond (For detailed information, refer to REDMS 2436378)

Bus Type	# of buses	Additional Information
24 passenger bus	1	Vehicle 1385: West Richmond Community Centre
22 passenger bus	2	Vehicle 1016 and 891
21 passenger bus	1	Vehicle 1219
19 passenger bus	1	Vehicle 1383: (Rosewood) May also carry 5 wheelchairs and 9 passengers
16 passenger bus	2	Vehicle 1206: wheelchair accessible for 2 WC; 8 tether tie downs for baby car seats
Van Type	# of vans	Additional Information
14 passenger van	4	Vehicle 1014: West Richmond Community Centre Vehicle 894: South Arm Community Centre Vehicle 959: Cambie Community Centre Vehicle 1080

School District of Richmond

Bus Type	# of buses	Additional Information
56 passenger bus	5	
48 passenger bus	4	
38 passenger bus	3	With wheelchair access
6 passenger bus	5	With wheelchair access

Charter Bus Companies

Bus Type	# of passengers
Charter Bus Lines Total of 108 buses in fleet Regular buses (40')	17 – 56; some with wheelchair

Canada Line

In the event of an evacuation from either Sea Island/YVR or from other areas of Richmond, Canada Line could prove to be a vital asset. The Canada Line will provide capacity equivalent to 10 arterial road lanes, with each train capable of carrying approximately 334 passengers.

Rapid transit could be the means of transportation for Richmond residents or airport passengers who lack their own vehicles, depending on the size, location and magnitude of the evacuation. People could be quickly moved out of the area to safety, and when planning time permits, Richmond and Vancouver would coordinate the receiving stops/stations to enable evacuees' access to Reception Centres and Emergency Social Services.

As the line will connect with the existing Expo and Millennium rapid transit lines, WestCoast Express and SeaBus at Waterfront Station, there are many destination options for evacuees including hotels and Reception Centres in numerous surrounding municipalities. Canada Line will also have a bus exchange at the Bridgeport and Richmond/Brighouse Stations, which would enable other residents in need of transport to reach these central receiving/transfer stations by bus.

Requests for TransLink and/or Canada Line assistance during an emergency should be made to the Provincial Emergency Program (PEP).

6.2.2 Evacuation Routes

Evacuation routes, when activated, will be used to quickly move the public from an unsafe area into an area of safety. The evacuation routes will be determined by the City's EOC when time permits during a planned evacuation and by the Site Incident Commander during an incident requiring immediate evacuation.

Routes Exiting into Vancouver

From Lulu Island:

- Oak Street and Knight Street Bridges.

From Sea Island:

- Arthur Laing Bridge enters into Vancouver north onto Granville Street or east onto Marine Drive.
- Arthur Laing Bridge and Oak Street Bridge enter Vancouver within 3 city blocks of each other.
- Knight Street Bridge is located significantly further east from the other two bridges.

Routes Exiting into New Westminister**From north-east Lulu Island:**

- Highway 91A exits into New Westminister over the Queensborough Bridge.

Routes Exiting into Surrey and North Delta**From east Lulu Island:**

- Highway 91 (Alex Fraser Bridge) exits south into the City of Surrey and North Delta.

Routes Exiting into Delta**From southbound Highway 99**

- Highway 99 cuts through Lulu Island heading south through the George Massey Tunnel and then exits onto Highway 17 into Delta (Ladner and Tsawwassen) and other points south.

Routes Exiting Mitchell Island

- Mitchell Road northbound on-ramp onto Knight Street Bridge into Vancouver.
- Mitchell Road southbound on-ramp onto the Knight Street Bridge into Richmond (Lulu Island).

Routes Exiting Sea Island into Lulu Island

- Russ Baker Way over the No. 2 Road Bridge.
- Russ Baker Way over the Dinsmore Bridge.
- Grant McConachie Way over the Moray Channel Bridge.

6.2.3 Transportation Strategies

Contra-flow Operations

Contra-flow usually occurs during mass evacuations by reversing one or more lanes of a highway to allow for an increase in traffic flow in one particular direction, in Richmond's case, the direction heading away from the City (i.e. Hwy 91 east to Surrey and Hwy 99 south to Delta and points south). Contra-flow operations have proven successful in the past significantly reducing evacuation times.

This type of operation can be implemented on highways which are signal-free, divided, and access-controlled configurations. An important consideration in the development of a contra-flow plan is the identification of inception and termination points for this type of operation.

The RCMP (Richmond in conjunction with RCMP Highway Patrol) will take the lead on the formation of a contra-flow plan for a planned evacuation.

Note: This type of operation must take place during day-time hours only.

Contra flow is not generally used and should be avoided UNLESS the City requires MORE THAN 24 HOURS to clear the area at risk using existing outbound lanes.

Effective implementation of a contra-flow plan includes:

- Planning, including notification protocols and the coordination with all surrounding jurisdictions that may be affected;
- Advance information including when contra-flow operations will begin and end, by time and location;
- Information as to what vehicles are restricted in the contra-flow lanes;
- Designated with initiation and termination points;
- Access points need to be determined;
- Development of ramp closures and assignment layouts;
- The requirement of “flushing” contra-flow lanes and procedures for verifying readiness prior to commencement and return to “regular” flow;
- Deployment of appropriate signage, signals and barriers including CMS's;
- Use of RCMP at all on and off ramps;
- Designation of a clearly marked and segregated emergency return lane;
- Continuous monitoring; and
- Use on only short portions of roadway.

Traffic Signal Coordination and Timing

Traffic signal coordination and timing plans are intended to maximize traffic flow in the outbound direction during an evacuation. Depending on the extent of the evacuation, coordination may be necessary within the City of Richmond as well as with neighboring jurisdictions.

Currently, the City of Richmond is only able to do a manual over-ride of lights. City Transportation staff responsible for Traffic Signal Coordination and Timing must be notified prior to an evacuation to perform the over-ride function.

Pre-planning should take place to ensure that at least 10 designated major arterials are configured to electronically switch over to all green lights during evacuation operations.

Closure of Highway On and Off Ramps

(**Outbound** is defined as the evacuation routes leading away from the area of risk to an area of safety. **Inbound** is defined as the roadways leading towards the area of risk from areas of safety.)

Closure of outbound highway on-ramps beyond the evacuation zone on designated evacuation routes will reduce traffic congestion from merging vehicles thus allowing the continuous movement of vehicles out of the risk area.

Closure of outbound off-ramps within close proximity of the evacuation zone will ensure evacuees remain on the designated evacuation routes.

Closure of inbound off-ramps within close proximity of the evacuation zone ensures that no unauthorized vehicles enter into the risk area.

Closure of inbound on-ramps within close proximity of the evacuation zone ensures that no unauthorized vehicles access the evacuation zone via the highway.

Note: For contra-flow operations where traffic flow will be in one direction, only all inbound on-ramps must be barricaded and staffed.

These traffic strategies will require additional personnel, resources and coordination by the Richmond RCMP, RCMP Highway Patrol, and neighbouring law enforcement agencies.

Bus/HOV Lanes

To quickly move buses that most likely will be shuttling evacuees, use of HOV lanes should be maximized. This means consideration should be given to designating lanes of the evacuation routes for buses or other higher capacity/occupancy vehicles to assist with the faster movement of evacuees, and, for quicker turn-around of buses that may need to perform a number of round trips for the population lacking their own transportation. Public information and appropriate signage will be required to implement this strategy, particularly if no HOV lanes are currently established on the designated evacuation route(s).

Phased Evacuation

The main purpose of a phased evacuation is to reduce congestion and demand for transportation resources during an event/threat that requires a large or mass evacuation. Many U.S. cities have included this strategy in their evacuation plans and it is often used in conjunction with contra-flow operations. Those in the area of highest risk would be moved first and this is done through enforced traffic management. For example, in some cities freeway on-ramps in areas at less risk would be shut down to restrict access to allow those at higher risk in the mandatory evacuation zone to evacuate more quickly with less traffic congestion. Those in the first phase can still leave if they want to but on other streets and secondary roadways not designated as evacuation routes. These strategies require advance planning, adequate communication with the public and coordination with (at minimum) Richmond RCMP, Ministry of Transportation, RCMP Highway Patrol and Public Works.

6.2.4 Traffic Control

In order that traffic moves steadily along designated evacuation routes, traffic controls must be established.

- The RCMP will be responsible for controlling traffic movement during an evacuation. The City's Traffic Control Personnel may also be called in to assist with traffic control duties as required.
- Two-way traffic should generally be maintained on all evacuation routes to allow for continued access by emergency responders.
- Abandoned or broken down vehicles must be towed or pushed to the side of the road in order to keep the routes flowing.

Traffic Control Points

Traffic Control Points are established around evacuation zones along evacuation routes as required for the purpose of directing vehicles. The points may be staffed by one or more RCMP and/or the City's Traffic Control Personnel.

It may be necessary to control traffic on other routes to minimize the impact on evacuation routes.

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7.0 Re-Entry

The return phase covers the period of time from issuing an Evacuation Rescind informing the evacuees that it is safe to return home to their arrival back into the evacuated area.

Prior to anyone returning, an “all clear” must be declared once an assessment of the affected area has been completed.

The extent of the damage and when those evacuated will be permitted back into the evacuated area, will dictate the speed of the recovery process. The period of recovery and the authorization of the repatriation of evacuees will vary upon the existing conditions at the time. The goal after an Evacuation Order is rescinded is to support the orderly and safe return of all the evacuees back to their homes. Therefore, re-entry procedures need to be methodically mapped out to ensure a seamless and expedited re-entry process.

For evacuated areas that have sustained major damage, it may be advisable to implement an Entry Program to permit limited access to affected residents and business owners as a result of the delay in re-occupancy. Access Control Points utilized during the evacuation phase can now be turned into Re-entry Control Points for the purpose of the recovery process. All contractors, agencies and responders should utilize these points for the duration of the closures.

Note: While the response effort is underway, those in the Emergency Operations Centre must already be thinking of recovery efforts including re-entry back into an evacuated area.

7.1.1 Re-Entry Assessment

The impacted areas must be thoroughly checked to ensure they are safe for residents and businesses to return. The assessment will include verification that:

- The threat that caused the evacuation is resolved;
- Structures and trees are deemed safe;
- Damage and safety assessments of structures have been completed and deemed safe to occupy;
- No leaking/ruptured gas lines or downed power lines are present;
- No ruptured water or sewer lines are present;
- Search and rescue operations have been completed;
- No hazardous materials are present that can threaten public safety;

- Water has been deemed safe or the appropriate warnings have been issued (i.e. a boil water advisory);
- Sufficient debris has been removed from roadways to allow movement;
- Major transportation routes are safe to use including bridges and tunnels;
- Unsafe structures have been boarded up and roped off with caution tape;
- Adequate water for firefighting is present; and
- There is no threat to public safety and any other significant hazards have been eliminated.

7.1.2 Re-Entry Process

Once an Evacuation Rescind has been issued procedures must be in place to ensure a coordinated, safe, and orderly re-entry prior to allowing any evacuees back into the vacated area.

The decision to allow re-entry into an evacuated area will be made by the EOC Director, based on discussions with the Incident Commander on scene and the Operations Section Chief in the EOC. The EOC may also designate a Re-entry Coordinator to support the re-entry operations and coordinate all re-entry procedures with site personnel.

Re-entry should occur through the already designated and operational Access Control Points. The public should be advised of the re-entry procedures through radio, television, press releases, City website, and information updates at Reception Centre and Group Lodging facilities.

Traffic control and transportation arrangements for special needs groups will be required for the re-entry process just as it was for the initial evacuation.

7.1.3 Phased Re-Entry

In cases where a phased evacuation takes place, re-entry should occur in the same manner (i.e. first to evacuate will be first to re-enter). This is extremely important during evacuations involving large numbers of evacuees.

8.0 Incident Evacuation Plan

Once an incident/threat, such as a flood event, escalates to the point a planned evacuation is anticipated or required an Incident Evacuation Plan (IEP) must be developed. If the Emergency Operations Centre has been activated, the EOC Evacuation Coordinator in the Planning Section, with input from the Operations Section Chief, will be tasked to develop the IEP. Once the IEP is complete and has been approved by the EOC Director, it must be forwarded to the Incident Commander for implementation. The EOC Director will complete the necessary Declaration of a State of Local Emergency and Evacuation Order.

If the IEP is revised or updated, the date, time and revision number must be inserted onto the top right corner to ensure that the most current version is followed.

The following section is provided as a tool to guide City staff and responders through the IEP process.

8.1 Objectives

The objectives of an IEP are to:

- Develop a plan based on:
 - Type of threat;
 - Population affected including special needs groups;
 - Time;
 - Weather;
 - Communications, and
 - Response resources and capabilities.
- Develop notification methods for the population within the risk area;
- Expedite the evacuation of persons within the risk area; control evacuation traffic and provide adequate means to transport persons without vehicles;
- Institute access control measures to prevent unauthorized person from entering vacated or partially vacated areas;
- Provide sufficient resources to implement the plan; and
- Monitor the plan and make changes as warranted.

8.2 Planning Activities

The primary planning activities of an IEP include, but are not limited to:

- Coordinate with all potential response agencies and resources regarding their roles;
- Determine each agency's responsibilities and tasks to be accomplished during the evacuation;
- Identify special needs facilities, and/or neighbourhoods;
- Identify perimeters around the risk area and ensure that Access Control Points are established;
- Establish easily understood directions and clearly identified evacuation routes, along with provision of traffic control and direction measures;
- Identify Access Control Points:
- Identify assembly areas for those without a mode of transportation;
- Establish personnel requirements and equipment;
- Establish Evacuation Points or Reception Centre and Group Lodging facility locations;
- Arrange for alternate modes of transportation to assist with those with special needs or at special needs facilities;
- Assign security teams to ensure that no unauthorized individuals enter the evacuated area;
- Develop public messaging which must be timely, clear, concise and accurate and a means to which the evacuees and general public will be informed on evacuation activities and the specific actions they should take; and
- Plan for demobilization process including re-entry, rescinding evacuation orders, and deactivation of facilities.

8.3 Incident Evacuation Map

An incident evacuation map should be included with any IEP. It is important to plot all relevant information on a map of the evacuation area prior to forwarding to the Incident Commander for implementation. The EOC may utilize an aerial map to plot out the evacuation area and key points.

An incident evacuation map should include, but is not limited to:

- Location of site;
- Perimeters of evacuation area (if applicable, add inner perimeter);
- Wind direction (Hazardous materials);
- Plume direction (Hazardous materials);
- Access Control Points (ACP);
- Streets/alleyways to be barricaded/staffed for perimeter control;
- Assembly Point/s (AP) for those without transportation (i.e. parking lot, school, community facility);
- Location of Reception Centre (RC) or the Evacuation Points (EP). If a Reception Centre location is not on the evacuation map, provide number of kilometres to the Reception Centre with a directional arrow;
- Evacuation routes including directional arrows indicating flow of traffic out of area;
- Traffic Control Points (TCP);
- Location of special needs facilities such as health care facilities (HC), schools (SCH), City (CITY) facilities, subsidized housing (SH), and child care (CH);
- Intersections and bridges/overpasses.

8.4 Evacuation Calculations

In this section are 4 evacuation formulas to assist response agencies to calculate the following:

- a. An estimation of the approximate population in a specified geographic area at risk;
- b. An estimation of the time that would be required to evacuate an estimated number of people from the area at risk;
- c. An estimation of the approximate population that can be evacuated within a pre-determined time based on risk factors; and
- d. Estimate of population that may require transportation.

8.4.1 Estimate of Population in Area of Risk

It is vital when planning for an evacuation to be able to estimate the number of individuals that may be within the affected geographic area. Knowing the possible numbers that will need to vacate will allow agencies to develop the appropriate evacuation strategies for movement of the population. The estimated numbers will vary depending on a number of factors such as the time of day, day of the week and the month and should be considered in the final estimation. For example if an incident occurs at 2:00 a.m., there will be no need to evacuate schools in the area at risk and it would be fair to assume that a majority of residents will be at home.

The following is a basic formula:

hectares x dwelling density average x 2.8 (average persons per dwelling unit)

- 1. Determine the approximate number of hectares of risk area**
 100 metres x 100 metres (10,000 metres²) = 2.471 acres = 1 hectare
- 2. Obtain dwelling density average for applicable zone**

Area Name	Dwelling Density Average (units/hectare)
Blundell	12.0
Bridgeport	1.5
Broadmoor	12.5
City Centre	21.0
East Cambie	4.8
East Richmond	0.5
Fraser Lands	10.5
Gilmore	0.5
Hamilton	5.6
Sea Island	0.6
Seafair	10.0
Shellmont	6.3
Steveston	11.6
Thompson	10.5
West Cambie	7.5

Example:

An area of 800 metres and 800 metres within City Centre requires evacuation. To calculate the estimated population within this area:

1. **800 metres x 800 metres = 640,000 metres² = 64 hectares**
2. **64 hectares x 21 (average dwelling units per hectare in City Centre) = 1,344 dwelling units**
3. **1,344 dwelling units x 2.8 (average persons per household/dwelling unit) = 3,763 people (approximately) that require evacuation**

8.4.2 Estimate of Time Required to Evacuate a Specific Number of People

The amount of time it will take for an area of risk to evacuate can be estimated by dividing the **estimated evacuation population** (see Section 3.4.1) by the **average vehicle occupancy (1.5)**, which is then divided by an accepted estimate of **roadway capacity (1200 vehicles per hour)** during an evacuation.

$$\text{Evacuation Time} = \frac{\left(\frac{\text{Evacuation Population}}{\text{Average Vehicle Occupancy}} \right)}{\text{Roadway Capacity}}$$

Example:

A residential neighbourhood of 10,000 (population of area at risk) located in Steveston is ordered to evacuate via Steveston Highway (2 lanes eastbound) and No. 1 Road (2 lanes northbound). The sample calculation is as follows:

$$\text{Evacuation Time} = \frac{10,000 \text{ (evacuation population)}}{1.5 \text{ (average vehicle occupancy)} \times 1200 \text{ (vehicles per hour per lane x 4 lanes)}}$$

Evacuation Time = 10,000 divided by **1.5** average vehicle occupancy divided by **4,800** vehicles per 4 lanes per hour = **1.39hours** to evacuate the population at risk.

Note: This calculation is based on conservative estimates pertaining to the average vehicle occupancy and vehicles per hour per lane and is for planning purposes only.

8.4.3 Estimate of Population That Can be Evacuated in a Pre-Determined Period of Time

of lanes multiplied by **1200 vehicles per hour** multiplied by # of hours to evacuate multiplied by **1.5 average vehicle occupancy** = number of people that are able to evacuate within the predetermined period of time.

Example:

4 lanes x 1200 vph x 24 hours x 1.5 = 172,800 people that can be evacuated in 24 hours

8.4.4 Estimate of Population That May Require Transportation

33% of the population is estimated to require transportation.

Example:

10,000 people x 0.33 = 3,300 people may require transportation

9.0 Distribution List

Copy No.

1	General Manager, Law & Community Safety
2	Director, Transportation
3	Senior Manager, Corporate Communications
4	Manager, Emergency Programs
5	Manager, Media Relations
6	Communications Officer
7	Coordinator, Emergency Programs
8	Coordinator, Emergency Social Services/Volunteer Management
9	Chief, Richmond Fire Rescue
10	Officer in Charge, RCMP
11	Watch Commander, RCMP
12	Risk Management Unit, RCMP
13	Battalion Chief
14-15	Fire Hall No. 1
17	Fire Hall No. 2
18	Fire Hall No. 3
19	Fire Hall No. 4
20	Fire Hall No. 5
21	Fire Hall No. 6
22	Fire Hall No. 7
23-25	City Hall EOC
26-28	Works Yard EOC
29	Superintendent of Schools