



**REPORT TO THE PLANNING, TRANSPORTATION AND PROTECTIVE SERVICES COMMITTEE  
MEETING OF APRIL 24, 2013**

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**SUBJECT**      **Capital Regional District Modelling of Potential Tsunami Inundation Limits and Run-up**

**ISSUE**

The Capital Regional District (CRD) has completed the attached study to provide updated information on areas of risk from tsunami caused by a major Cascadia earthquake.

**BACKGROUND**

Recent world events and case study analysis has led to significant improvement in tsunami modelling regarding the potential risk from inundation and run-up. As part of the CRD emergency management program, coordinated through the Local Government Emergency Program Advisory Commission (LGEPAC), a study using a proven scientific model has been undertaken to model potential tsunami inundation and run-up in support of coordinated emergency management planning across the CRD.

This study permits the application of accurate data, in a consistent manner to understand how to best prepare for the impact of tsunami caused by a major Cascadia earthquake.

The LGEPAC will use the information to develop common public education tools for residents across the region to clearly understand their risk, plan accordingly and be prepared in the case of this type of event.

**ALTERNATIVES**

1. That the "CRD Modelling of Potential Tsunami Inundation Limits and Run-up" report be endorsed for use by local emergency programs in planning for tsunami risk and response procedures.
2. That the "CRD Modelling of Potential Tsunami Inundation Limits and Run-up" report be referred to staff for further analysis and report back.

**FINANCIAL IMPLICATIONS**

The cost of this study was shared with funding from the Core Area Liquid Waste Management project. Thru this coordination, higher resolution mapping results were achieved at a lower cost. Additionally, through this study, a unified data layer for the entire CRD coastline was created benefitting numerous CRD programs and geographic information systems (GIS) applications.

**OPERATIONAL IMPLICATIONS**

The study results will be used to develop evacuation mapping for areas of potential risk from tsunamis. This mapping will allow emergency planners to work with community emergency responders and emergency programs to pre-plan response to tsunami watch, advisories or warnings. Additionally, the information will be used in public education materials by local governments across the region to assist the public in understanding what a tsunami is and the impact it may have on this region.

**INTERGOVERNMENTAL IMPLCIATIONS (REGIONAL COOPERATION)**

This project was initiated and managed through the LGEPAC in order to create a single, consistent data layer for tsunami risk mitigation, planning, preparedness and response in the region. A link to this information is found in the attached PowerPoint Presentation (Attachment 3) or by going to: [www.crd.bc.ca](http://www.crd.bc.ca) and clicking on the Tsunami Modelling information under "Hot Topics". By taking a regional approach, community response plans will be developed on a common understanding of tsunami risk. This common approach to planning also provides for a consistent regional approach to public education and use of common public education materials.

The resulting mapping layer will be available to all municipal emergency planners and their communities for local use in development of evacuation planning or for a better understanding of local impacts or risks.

### **CONCLUSION**

This regional tsunami modelling was developed through the CRD's LGEPAC to provide a clear and consistent understanding of tsunami risk based on a 9.0 Cascadia Subduction earthquake. The result of this project is a single GIS mapping layer covering the entire CRD coastline, showing tsunami run-up and inundation based on this event.

The report and mapping layer validated much of the current understanding of the region's tsunami risk, supported by current science and modelling software. Some coastal areas and communities in the western coastal part of the region, such as Port Renfrew, are identified as having a moderate to significant risk of potential impact from tsunamis that may be generated north of the region or somewhere across the Pacific Ocean. Consequently a regular and high level of emergency preparedness is required and local emergency programs already practice and plan for this possibility. While the risk and probability of impacts is low for the majority of the region in comparison to other areas of coastal British Columbia, the report indicates there would be impacts from a major Cascadia earthquake, if it generates a tsunami. In the event of a major Cascadia earthquake there would also be many other potential impacts and this hazard will need to be planned for as part of an all hazards approach and regional vulnerability analysis currently being discussed by the LGEPAC. This report will provide for the region's local emergency programs to update local tsunami plans in a consistent and coordinated manner, working to ensure a robust regional response to tsunami notifications.

Additionally, through the CRD's LGEPAC, local emergency programs will use the information to undertake consistent and collaborative public education initiatives to ensure the public are fully informed of both the risk and the recommended actions for when a tsunami notification is in place.

### **RECOMMENDATION**

That the "CRD Modelling of Potential Tsunami Inundation Limits and Run-up" report be endorsed for use by local emergency programs in planning for tsunami risk and response procedures.

**\*\*ORIGINAL SIGNED\*\***

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Concurrence

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#### Appendices:

1. CRD Modelling of Potential Tsunami Inundation Limits and Run-up
2. Frequently Asked Questions (developed by the LGEPAC)
3. Sample PowerPoint Presentation for Community Public Education