



TOWN OF SIDNEY

Report to Council

TO: Mayor and Council
FROM: Alison Verhagen, Manager of Planning
DATE: January 19, 2015 **File No.** 0400-50
SUBJECT: Sea Level Rise and the Proposed Provincial Amendments to BC Flood Hazard Area Land Use Management Guidelines

PURPOSE:

The purpose of this report is to provide information and comments to Council on the recent communication from the CRD regarding proposed amendments to the Province of BC Flood Hazard area Land Use Management Guidelines.

BACKGROUND:

The Local Government Act and Land Title Act were amended in 2003 and 2004 to remove the role of the Minister of Environment from flood plain designation and approval administration, shifting the authority to local governments. Subsequently, the Province prepared Flood Hazard Area Land Use Management Guidelines in 2004 to assist local governments in identifying flood hazard areas and developing and implementing land use management plans for these areas.

Sea levels are expected to rise as a result of climate change. The Province of BC estimates that sea levels will rise by approximately 1 metre by the year 2100. The Province proposed amendments in 2014 to the guidelines to incorporate sea level rise implications, and were open to receiving comments on the proposed amendments until the end of October 2014. Staff have been informed that the Province is expecting to adopt amendments to the guidelines as early as March 31, 2015.

DISCUSSION:

CRD staff undertook a mapping exercise to determine flood construction levels for the entire CRD geographical area based on the proposed provincial amendments. They also prepared preliminary estimates of land areas and values expected to be affected in each municipality. It is important to note that the areas shown as affected on the maps would not be regularly inundated with sea water at every high tide, but rather during extreme storm events.

The CRD's calculations for flood construction levels were completed using the Ausenco Sandwell (2011) methodology as documented in the proposed Provincial amendments. The calculations take into account the following elements:

- Projected sea level rise to the year 2100
- Higher high water large tide
- Allowance for regional uplift or subsidence (vertical land movements) to the year 2100
- Estimated storm surge for the designated storm event
- Wave effects associated with designated storm event
- Freeboard (non-inundated land above highest water level)

These elements combine to arrive at calculations of flood construction levels for the various areas of the CRD. Flood construction level (FCL) is used to keep living spaces and areas used for the storage of goods damageable by flood waters above flood levels. FCLs are typically referenced as an elevation above the natural boundary or geodetic datum. CRD staff divided the geographical area into 7 Zones, with the Town of Sidney being in the Zone 4 area (north and west side of Saanich Peninsula).

Based on the CRD's initial analysis of the proposed amendments to the Provincial guidelines there may be a new FCL as high as 5.04 metres (16.54 feet) geodetic datum. Town Bylaws do not currently identify a minimum FCL for construction in Sidney. Estimates from the CRD regarding the area and value of land and improvements that would be affected by future flood hazard (see Appendix A) do not take into account the value of municipal infrastructure. Underground utilities, roads, and other municipal assets would be affected by the increased flood hazard, although the total value of replacing affected tangible capital assets is unknown at present.

The calculations used to arrive at the above FCL are conservative and use standard numbers based on Provincial guidelines. Each local government can choose to invest in further analysis to potentially alter the FCL for their area, based on site-specific geotechnical analysis. Sidney would have to undertake further studies in order to fully examine the impacts of the proposed amendments on the municipality. For example, a height of .65 metres (2.13 ft) is specified as the average wave effect by the Province and this was used in by CRD staff to calculate wave effects for the entire region. More detailed mapping would result in a more accurate representation of actual wave effects in different locations depending on site-specific geological formations and shorelines.

Each local government can determine whether they want to adopt a Flood Plain Bylaw and adopt the Provincial flood hazard guidelines. If one municipality chooses to act on the proposed Provincial guideline amendments and other nearby municipalities choose not to make changes, it may have negative implications for the municipality in terms of land values, economic development investment, and cost to property owners.

Development Services staff have had informal discussions with colleagues from the Districts of Central Saanich and North Saanich regarding the proposed amendments and implications for the Saanich Peninsula area. Staff from all three municipalities are in agreement that leadership from a higher level of government would be useful in providing direction for local governments on these matters.

The District of North Saanich is interested in undertaking more detailed mapping of wave effects for their municipality. There may be economies of scale in partnering with an adjacent municipality on a wave effects study, and staff at the District of Central Saanich indicated that their Council is likely interested in partnering on such a study as well. A wave effects study undertaken by the CRD on behalf of all member municipalities would be most beneficial as it would establish a region-wide accepted level of risk by using the same mapping techniques for all areas.

Mapping wave effects in greater detail would be beneficial for more than analyzing sea level rise impacts, as it would also assist with planning for storm surges and infrastructure replacement and improvements. It is important to note that while further studies and analysis would likely reduce the FCL for an area, they are not guaranteed to reduce it. In addition, it may be beneficial to wait until the Province adopts the amendments to the Flood Hazard guidelines in order to see what the official amendments are, since they may be altered after receiving comments from local and regional governments in 2014.

STAFF COMMENTS:

Staff are of the opinion that the proposed amendments to the Flood Hazard Area Land Use Management Guidelines have the potential to dramatically impact Sidney, environmentally, socially, and economically. Sea level rise and climate change are long term issues for the Town and for Council, and staff will continue to bring forward information as it becomes available in the coming months and years. Direction from a higher level of government is necessary to address an unknown future that is not only local, but provincial, national and global in scope. Provincial and federal issues, such as sea level rise and climate change, need to have the appropriate resources dedicated to them in order to address issues that far exceed the ability of local jurisdictions to resolve.

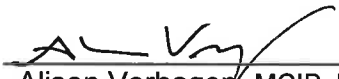
RECOMMENDATION:

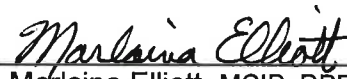
1. That Council request that the Capital Regional District coordinate detailed wave impact mapping analysis for the region, with each member municipality participating in funding the exercise; and
2. That Council direct staff to contact the District of North Saanich and District of Central Saanich to further explore a joint study on mapping wave effects for the area of the three municipalities, including First Nations reserves.


Respectfully submitted,

I concur,

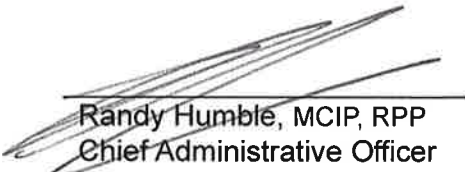
I concur,


Alison Verhagen, MCIP, RPP
Manager of Planning


Marlaine Elliott, MCIP, RPP
Director of Development Services


Tim Tanton, MPA, P.Eng
Director of Engineering and Works

I concur,


Randy Humble, MCIP, RPP
Chief Administrative Officer

AV:mb

Attachments: Appendix A: Capital Regional District Review of Proposed Amendments to BC Flood Hazard Area Land Use Management Guidelines, November 20, 2014



Making a difference...together

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Office of the CAO
250 360 3125
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November 20, 2014

All Chief Administrative Officers
Municipalities of the Capital Regional District

**RE: CAPITAL REGIONAL DISTRICT REVIEW OF PROPOSED AMENDMENTS TO BC FLOOD
HAZARD AREA LAND USE MANAGEMENT GUIDELINES**

This is further to the letter issued by the CRD's Corporate Officer dated October 10, 2014, regarding the staff report presented to the Board at a closed session pertaining to the in-house review of the proposed amendments to the 2004 Province of British Columbia's Flood Hazard Area Land Use Management Guidelines.

At the Closed Meeting of November 12, 2014, the CRD Board resolved, "That the Board rise and report at the call of the Chief Administrative Officer, as delegated by the Board Chair, on the October 8, 2014 Closed Flood Hazard Area Land Use Management Guidelines Amendments Update staff report, excluding any legal advice to the CRD, and append a cover letter detailing the methodology and limitations of this analysis."

In consultation with provincial ministries, the CRD communicated with the 10 local First Nations with Reserve lands that could be directly impacted with the findings of the materials presented to the Board. This process has now concluded and we are pleased to provide you with the attached staff report, excluding any legal advice to the CRD to be presented to your respective Councils.

The enclosed reports include preliminary in-house information that was conducted to respond to a Province of BC consultation process. The approach applied the more conservative of two methodologies presented by the Province to estimate a year 2100 Flood Construction Level. The enclosed mapping and valuation analysis includes generalized allowances for storm surge, wave effects, and freeboard, and may not necessarily represent areas at risk of Sea Level Rise.

The analysis and associated comments submitted to the Province were developed under CRD authority in the Juan de Fuca Electoral Area and may not represent the view of other local governments in the region. The authority for designating flood hazard areas rests with each local government, and local governments will need to develop their own analysis to determine how to interpret, and respond to the guidelines, once enacted.

Should you have any questions regarding this matter, please contact me at 250-360-3124 or via email at rlapham@crd.bc.ca.

Yours truly,

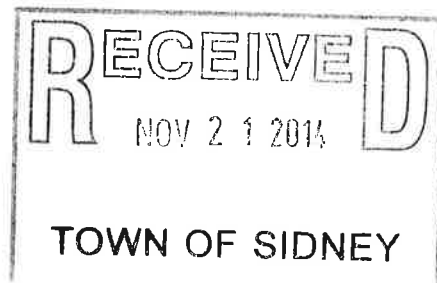
Robert Lapham, RPP, MCIP
Chief Administrative Officer

cc CRD Board Members
Larisa Hutcheson, GM Parks and Environmental Services, CRD
Attachments (2)

- Staff Report EEP 14-47
- Staff Report EEP 14-46 *Closed report redacted and publicly released Nov 19, 2014

File No.	
Mayor	
Councillor(s)	
Agenda	
CAO	
Administration	
Finance	
IT	
Dev Services	✓
Sea Level Rise	
Engineering	
Parks	
Public Works	
Fire Dept	
RCMP	
Comments:	Report to Council

File: 0110-26
Sea Level Rise



**REPORT TO CAPITAL REGIONAL DISTRICT BOARD
MEETING OF WEDNESDAY, OCTOBER 8, 2014**

**SUBJECT FLOOD HAZARD AREA LAND USE MANAGEMENT GUIDELINES
AMENDMENTS – UPDATE**

ISSUE

To update Capital Regional District (CRD) Board on proposed amendments to the 2004 Province of BC *Flood Hazard Area Land Use Management Guidelines*.

BACKGROUND

Sea levels are anticipated to rise as a result of climate change. The Province of BC estimates sea levels will rise by approximately 1 metre by 2100. Legislative changes to the *Land Title Act* and the *Local Government Act* in 2003 and 2004 removed the role of the Minister of Environment for flood plain designation and approval, shifting this authority entirely to local governments. In 2004, the *Flood Hazard Area Land Use Management Guidelines* were published to assist local governments in identifying and designating flood hazard areas. The Province has proposed amendments to the guidelines to incorporate considerations for sea level rise and has invited local governments to consult on the amendments until October 31, 2014.

Prior to 2004, the Province established Flood Construction Levels and setbacks and oversaw a specific exemption process to deal with non-conforming construction, additions to buildings and variances. Many local governments, including the CRD with respect to Juan de Fuca Electoral Area, have designated Development Permit areas for protection of development from hazardous conditions, which may include flooding. These areas require that land owners retain a qualified professional to review technical factors and determine the site is safe for the intended use. This process is complemented by Section 56 (2) of the *Community Charter* which gives building officials the authority to require a report certified by a qualified professional determining whether land that may be subject to hazards is safe for the use intended. This system of land use and development approvals has demonstrated that a high degree of site-specific analysis is required in consideration of many variables that relate to hazards.

Under Section 910 of the *Local Government Act*, the CRD is enabled to designate flood hazard areas within the Juan de Fuca Electoral Area as the local governance authority with responsibility for the management of development. Once the Province finalizes and approves the proposed guideline amendments to the Flood Hazard Guidelines, the CRD Board will need to consider policy implications. However, establishing a specific flood construction level or setback in consideration of the proposed guidelines would have significant implications for land owners whose property is within the designated flood plain. These implications will affect new development as well as owners of existing buildings that will have "non-conforming" status with significant legal and administrative implications related to the management of development.

At its June 25, 2014 meeting, the Environmental Services Committee:

- (a) Directed staff to further review and report back on implications of the proposed amendments to the Provincial *Flood Hazard Area Land Use Management Guidelines*; and
- (b) Recommended to the CRD Board that the Board Chair issue a letter to the Province recommending the consultation process be broadened.

Staff have responded to this direction in the following ways:

- A letter has been sent from the CRD Board Chair to the BC Minister of Environment regarding the consultation process.
- An internal working group comprised of staff from Regional & Strategic Planning, Protective Services, Juan de Fuca Electoral Area Planning, Building Inspection, Infrastructure Engineering & Operations, and Environmental Protection has been established to review the guidelines.

This report includes the full text of the proposed guideline amendments (Appendix A) and provides an overview of some of the key considerations identified by the staff working group (Appendix B).

ALTERNATIVES

That the CRD Board:

1. (a) Direct staff to submit comments through the provincial consultation process; and
(b) Recommend that the Board Chair issue a letter to the Province of British Columbia incorporating comments based on issues raised in Appendix B.
2. Direct staff to submit comments through the provincial consultation process.

INTER-GOVERNMENTAL IMPLICATIONS

The *Flood Hazard Area Land Use Management Guidelines* amendment represents a significant policy change that will impact land use and development decisions made by BC local governments in coastal areas. When the guidelines come into effect, the CRD, through the Juan de Fuca Land Use Committee, will then determine how best to address flood hazard policy as it relates to the regulation of land use and development within the Juan de Fuca Electoral Area. Concurrently, the CRD may also want to consider if a coordinated regional approach to sea level rise is appropriate.

SOCIAL IMPLICATIONS

Within the region, considerable infrastructure and development are currently situated within areas that could be designated as sea level rise flood hazard areas within the future.

ECONOMIC IMPLICATIONS

Once the guidelines come into effect, further study and analysis will be required to derive accurate flood construction levels, and identify policy options and responses to the potential for flooding due to sea level rise within the region.

CONCLUSIONS

The provincial consultation on the *Flood Hazard Area Land Use Management Guidelines* has triggered an important conversation with respect to sea level rise that will need to be addressed once the guidelines are passed. In the meantime, staff identified several considerations and questions that should be addressed through the provincial consultation process. This amendment represents a significant policy change that will impact land use and development decisions made by local governments in coastal areas.

RECOMMENDATIONS

That the Capital Regional District Board:

1. Direct staff to submit comments through the provincial consultation process; and
2. Recommend that the Board Chair issue a letter to the Province of British Columbia incorporating comments based on issues raised in Appendix B.



Glenn Harris, Ph.D. R.P.Bio.
Senior Manager, Environmental Protection



Larisa Hutcheson, P.Eng., General Manager
Parks & Environmental Services
Concurrence



Kevin Lorette, P.Eng., MBA
General Manager
Planning & Protective Services



Bob Lapham, MCIP, RPP
Chief Administrative Officer
Concurrence

LF:sw

Attachments: 2



AMENDMENT
(DRAFT – MAY 7, 2013)

Section 3.5 and 3.6 – Flood Hazard Area Land Use Management Guidelines

3.5 The Sea

3.5.1 Background and Reference Documents

The content for this Amendment is drawn primarily from, "Climate Change Adaptation Guidelines for Sea Dikes and Coastal Flood Hazard Land Use – Guidelines for Management of Coastal Flood Hazard Land Use", Ausenco Sandwell, report to BC Ministry of Environment, January 27, 2011 and the companion reports, "Sea Dike Guidelines" and "Draft Policy Discussion Paper", also dated January 27, 2011.

These 2011 reports, including terminology, definitions and explanatory figures, supplement this Amendment to the "Flood Hazard Area Land Use Management Guidelines". Where there is any inconsistency between the Ausenco Sandwell (2011) reports and this Amendment document, the Amendment document shall govern. These reports are referenced in this Amendment as:

"Draft Policy Discussion Paper" - AS(2011a)
"Guidelines for Management of Coastal Flood Hazard Land Use" - AS (2011b)
"Sea Dike Guidelines" - AS (2011c)

These reports are available on the ministry web page:

http://www.env.gov.bc.ca/wsd/public_safety/flood/fhm-2012/draw_report.html

3.5.2 Design and Planning Time Frame

Requirements for buildings, subdivision, and zoning should allow for sea level rise (SLR) to the year 2100.

Land use adaptation strategies should allow for sea level rise to the year 2200.

3.5.3 Recommended Sea Level Rise Scenario for BC

Allow for 0.5 m by 2050, 1.0 m by 2100 and 2.0 m Global Sea Level Rise by 2200 relative to the year 2000 as per Figure 1.

Adjust for regional uplift and subsidence using the most recent and best information available. Where no information is available, assume neutral conditions (i.e. no uplift or subsidence).

**Ministry of
Forests, Lands, &
Natural Resource
Operations**

Flood Safety Section
Resource Stewardship Division
Water Management Branch
Website: www.env.gov.bc.ca/wsd

Mailing Address:
PO Box 9340 Stn Prov Govt
Victoria BC V8W 9M1
Telephone: (250) 387-9962

Location:
3rd Floor, 395 Waterfront Crescent
Victoria BC V8T 5K7



Draft Amendment Sections 3.5 and 3.6 “Flood Hazard Area Land Use Management Guidelines”

The scenario in Figure 1 is intended to be reviewed in 2015, or sooner if there is significant new scientific information.

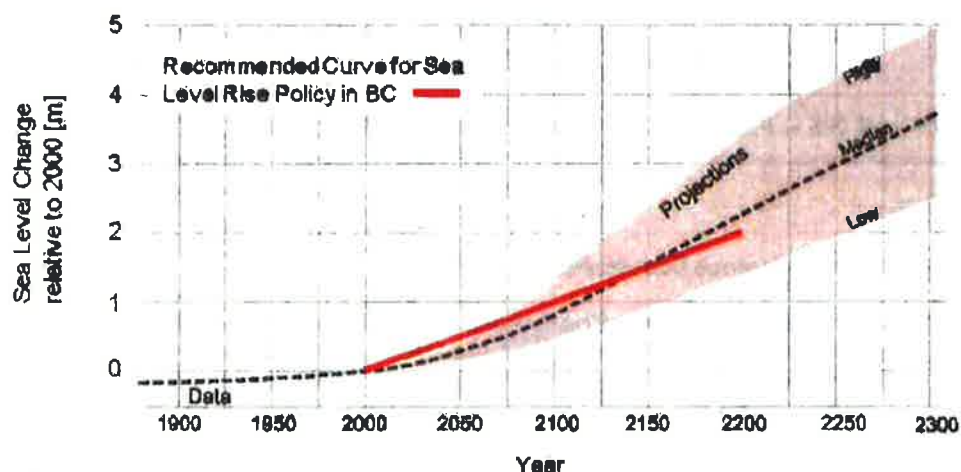


Figure 1. Recommended Global Sea Level Rise Curve for Planning and Design in BC

3.5.4 Sea Level Rise Planning Areas

Local Governments should consider defining SLR Planning Areas and developing land use planning strategies integrating both flood protection (sea dikes) and flood hazard management tools. These areas should include inland floodplains adjacent to tidally influenced rivers where potential flood levels will be increased by sea level rise.

3.5.5 Strait of Georgia

3.5.5.1 Standard FCLS and Setbacks

The Year 2100 FCL should be established for specific coastal areas during the SLR Planning Area process by a suitably qualified professional. The Year 2100 FCL should be the minimum elevation for the underside of a wooden floor system or top of concrete slab for habitable buildings, and should be determined as the sum of:

- The 1:200 Annual Exceedence Probability (AEP) water level as determined by joint probability analyses of high tides and storm surge;
- Allowance for future SLR to the year 2100;
- Allowance for regional uplift, or subsidence to the year 2100;
- Estimated wave effects associated with the Designated Storm; and
- Freeboard.

Note: Alternatively, the Year 2100 FCL can be determined by a simplified but more conservative method as described in the Ausenco Sandwell (2011) reports. Example calculations of FCLs for specific areas in coastal BC are provided in Table 3-2 AS(2011b) where the FCL is determined as the sum of:

Draft Amendment Sections 3.5 and 3.6 "Flood Hazard Area Land Use Management Guidelines"

- Allowance for future SLR to the year 2100;
- Allowance for regional uplift, or subsidence to the year 2100;
- Higher high water large tide (HHWLT);
- Estimated storm surge for the Designated Storm;
- Estimated wave effects associated with the Designated Storm; and
- Freeboard.

The building setback should be at least the greater of 15 m from the future estimated Natural Boundary of the sea at Year 2100, or landward of the location where the natural ground elevation contour is equivalent to the Year 2100 FCL (refer to Figure 2-2 in AS (2011b) for a definition sketch).

The setback may be increased on a site-specific basis such as for exposed erodible beaches and/or in areas of known erosion hazard.

3.5.5.2 Subdivision

All lots created through subdivision should have viable building sites on natural ground that comply with the Year 2100 FCL and setback guidelines noted above.

To regulate redevelopment at the end of the building lifespan, the development approving officer should require a restrictive covenant stipulating that any future reconstruction must meet the FCL and setbacks requirements in force at the time of redevelopment, and including a liability disclaimer if reconstruction does not take place at or before the planned lifespan of the building.

3.5.5.3 Development on Existing Lots

On existing lots, if meeting the setback guidelines noted above would sterilize the lot (i.e., not allow even one of the land uses or structures permitted under the current zoning), the development approving official may agree to modify setback requirements as recommended by a suitably qualified professional, provided that this is augmented through a restrictive covenant stipulating the hazard, building requirements, and liability disclaimer.

The Year 2100 FCL requirements would still apply to new habitable building construction.

3.5.5.4 Lots with Coastal Bluffs

For lots containing coastal bluffs that are steeper than 3(H):1(V) and susceptible to erosion from the sea, setbacks should be determined as follows:

1. If the future estimated Natural Boundary is located at least 15 m seaward of the toe of the bluff, then no action is required and the setback should conform with other guidelines that adequately address terrestrial cliff and slope stability hazards.
2. If the future estimated Natural Boundary is located 15m or less seaward of the toe of the bluff, then the setback from the future estimated Natural Boundary should be located at a horizontal distance of at least 3 times the height of the bluff, measured from 15 m landwards from the location of the future estimated Natural Boundary.

In some conditions, setbacks may require site-specific interpretation and could result in the use of a minimum distance measured back from the crest of the bluff. The setback may be modified provided the modification is supported by a report, giving consideration

Draft Amendment Sections 3.5 and 3.6 "Flood Hazard Area Land Use Management Guidelines"

to the coastal erosion that may occur over the life of the project, prepared by a suitably qualified professional.

3.5.6 Outside the Strait of Georgia Area - Areas Subject to Significant Tsunami Hazard

For coastal lands subject to tsunami hazards, the tsunami setback and elevation as determined below will typically exceed the "standard" setbacks and elevations determined for the Year 2100 as described in 3.5.5.1. Where the tsunami hazard is low, the greater FCLs and setbacks shall apply.

A subdivision application in tsunami prone areas must include a report by a suitably qualified professional who must formulate safe building conditions for each proposed lot based on a review of recent Tsunami hazard literature plus the historical report, "Evaluation of Tsunami Levels Along the British Columbia Coast", by Seaconsult Marine Research Ltd., dated March 1988.

At a minimum, building conditions should protect improvements from damage from a tsunami of equal magnitude to the March 28, 1964 tsunami that resulted from the Prince William Sound, Alaska earthquake.

Setback –

Setback requirements should be established on a site-specific basis and take into account tsunami hazards.

The setback must be sufficient to protect buildings and must be at least 30 metres from the Year 2100 estimated natural boundary.

FCL –

FCL requirements should be established on a site-specific basis and take into account tsunami hazards.

Reductions to these requirements should only be considered where the building can be built to the Tsunami FCL on bedrock.

3.6 Areas Protected by Standard Dikes

Residential, commercial and institutional developments in areas protected by standard dikes are required to comply with full flood proofing requirements for their respective categories, with a possible exception for development within Sea Level Rise Planning Areas as noted below.

Setback –

Buildings should be located a minimum of 7.5 metres away from any structure for flood protection or seepage control or any dike right-of-way used for protection works. In addition, fill for floodproofing should not be placed within 7.5 metres of the inboard toe of any structure for flood protection or seepage control or the inboard side of any dike right-of-way used for protection works.

Draft Amendment Sections 3.5 and 3.6 "Flood Hazard Area Land Use Management Guidelines"

Additional dike right of way and building set back requirements should be defined for Sea Level Rise Planning Areas to accommodate upgrading of dikes for sea level rise

Any change to these conditions requires the approval of the Inspector of Dikes.

FCL –

Buildings and manufactured homes in areas protected by standard dikes should meet minimum FCLs prescribed for the primary stream, lake or sea adjacent to the dike and the FCL requirements for any internal drainage (minimum ponding elevations).

Relaxation of FCL requirements for new development in coastal areas protected by standard dikes may be appropriate for Sea Level Rise Planning Areas where the long term flood protection strategy and dike upgrading program has been approved by the Inspector of Dikes. This relaxation should be augmented through a restrictive covenant stipulating the hazard and protection strategy, building requirements, and liability disclaimer.

3.6.1 Secondary sources of flooding

Where there are secondary sources of flooding within diked areas, the appropriate requirements as set out in Clauses 3.1 through 3.5 should be applied. These should include consideration of minimum ponding elevations behind the dike to protect against internal drainage.

AMENDED: _____, 2013

CAPITAL REGIONAL DISTRICT REVIEW

**STAFF COMMENTS ON PROPOSED AMENDMENTS TO
PROVINCE OF BC FLOOD HAZARD AREA LAND USE MANAGEMENT GUIDELINES**

A CRD staff working group reviewed the guidelines and identified some initial areas that require further consideration. These include:

1. Appropriate use of Flood Hazard Guidelines

The *Flood Hazard Area Land Use Management Guidelines* were designed to address periodic flooding events, and not static sea level rise. Mechanisms used within the guidelines (e.g., flood protection through raising elevation of flooring system, FCL, setback, etc.) appear to be most appropriate for buildings impacted by periodic flooding events. The guidelines don't address other infrastructure such as utility pipes, roads, etc. Additionally, the use of elevated floor systems may not be the most appropriate mechanism to address static (permanent) inundation.

2. Sec. 910 of *Local Government Act* versus Sec. 56 of *Community Charter*

Flooding is addressed within both the *Local Government Act* (the Act) and the *Community Charter* (the Charter). The Act designates flood authority through the board/council, whereas the Charter designates flood authority through the building inspector. The CRD internal working group questions what would happen in cases where these two bodies wanted to approach flooding in conflicting ways. The working group suggests that Sec. 56 of the Charter should be amended to remove the provision for flooding, and flood protection should live solely within the Act.

3. Disincentive to regulate (disaster financial assistance regulation)

Sec. 15 of the Disaster Financial Assistance Compensation Regulation states there will be no compensation for new construction built within a flood plain after flood plain is designated unless structure is properly flood protected. As the designation of a flood plain by a local government triggers potential ineligibility for disaster assistance both for new construction, and for extensions or additions to existing buildings, local governments that wish to protect the eligibility of post disaster compensation for property owners may be concerned about the effect of designating flood plains. Further, a guidance document defining "proper flood protection" needs to be developed and made accessible along with the other guidance documents.

4. Piecemeal approach to planning, zoning and regulation

Under Sec. 910 of the Act, each local government is enabled, but not required, to address sea level rise through designating flood hazard areas. It is possible (probable) that each local government across the province will choose to address sea level rise differently, resulting in a context where the building requirements, zoning, etc. is different in each jurisdiction. Several have questioned if a standardized requirement rather than a piecemeal approach through LGA 910 would be more appropriate.

5. Impact on property owners/residents

Once these guidelines are approved, residents and property owners will likely have a number of questions, and to date, the Province has not indicated if or how they will address them. Without a provincial strategy to address these considerations or concerns, it is likely that property owners will come to the local government for answers. From the perspective of individual property owners, these questions include, for example, how the proposed amendments will impact ability to expand existing homes, put in secondary suites, get insurance and impact property values, etc.

6. Implications for Local Governments

Once the guidelines are approved, municipal and regional governments will also have a variety of questions for the province to address. These include, for example: if and how the province will continue to invest money within flood hazard areas; if local governments will be required to continue to maintain infrastructure that could be subject to future flooding; what impacts abandoned properties could have on the tax base; and who will cover the costs of inundation mapping, etc.



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EEP 14-46

**REPORT TO CAPITAL REGIONAL DISTRICT BOARD
MEETING OF WEDNESDAY, OCTOBER 8, 2014**

CLOSED

**SUBJECT FLOOD HAZARD AREA LAND USE MANAGEMENT GUIDELINES
AMENDMENTS – UPDATE**

ISSUE

To update the Capital Regional District (CRD) Board on technical, legal and financial implications of proposed amendments to the 2004 Province of BC *Flood Hazard Area Land Use Management Guidelines*.

BACKGROUND

Sea levels are anticipated to rise as a result of climate change. The Province of BC estimates sea levels will rise by approximately 1 metre by 2100. Legislative changes to the *Land Title Act* and the *Local Government Act* in 2003 and 2004 removed the role of the Minister of Environment for flood plain designation and approval, shifting this authority entirely to local governments. In 2004, the *Flood Hazard Area Land Use Management Guidelines* were published to assist local governments in identifying and designating flood hazard areas. The Province has proposed amendments to the guidelines to incorporate considerations for sea level rise and has invited local governments to consult on the amendments until October 31, 2014.

At the June 25, 2014 meeting of the CRD Environmental Services Committee, the committee directed staff to further review and report back on the technical, legal and financial implications of the proposed amendments to the Provincial *Flood Hazard Area Land Use Management Guidelines*.

Staff have responded to this direction in the following ways:

- In-house review of financial and technical implications of the guidelines has been completed.
- CRD staff have obtained legal advice on the implications the guidelines could have for the region.
- Staff hosted a legal seminar on September 17, 2014 to share results of the review with local government staff within the region.

These findings were presented in closed session to the Environmental Services Committee on October 1, 2014. At this meeting, the committee directed staff to sever the confidential information included within the Closed Flood Hazard Area Land Use Management Guidelines Report, and to make all non-confidential information publicly available. This report presents the results of the confidential information included within the closed staff report, including estimated flood construction level mapping, a review of financial considerations and external legal review of the guidelines (Appendix A).

RECOMMENDATION

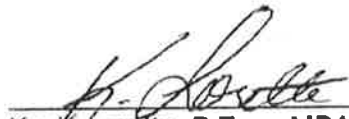
That the CRD Board receive the update report for information.



Glenn Harris, Ph.D. R.P.Bio.
Senior Manager, Environmental Protection



Larisa Hutcheson, P.Eng., General Manager
Parks & Environmental Services
Concurrence



Kevin Lorette, P.Eng., MBA
General Manager
Planning & Protective Services



Bob Lapham, MCIP, RPP
Chief Administrative Officer
Concurrence

LF:sw

Attachment: 1

**CAPITAL REGIONAL DISTRICT REVIEW
OF PROPOSED AMENDMENTS TO
PROVINCE OF BC FLOOD HAZARD AREA LAND USE MANAGEMENT GUIDELINES**

At the direction of the Environmental Services Committee, CRD staff completed an in-house technical and financial review of the guideline amendments, and have obtained external legal advice.

Technical

The guideline amendments propose two methodologies for calculating flood construction level (FCL) to the year 2100. CRD staff applied the more conservative of the two approaches (resulting in a higher estimated FCL) to map the estimated FCL elevations across the region. This general in-house review found that approximately 3,700 hectares of land across the CRD fall below the estimated future flood construction level. Using British Columbia Assessment data, the review estimated that approximately 18,000 properties and 19,000 dwellings are currently situated within these areas.

Estimated Flood Hazard Area, by Municipality

Administrative Area	Area (Ha)*	Properties*	Dwellings*
Central Saanich	110	560	480
Colwood	66	66	55
Esquimalt	70	670	880
Highlands	9	8	1
JDF Electoral Area	1,300	1,100	860
Langford	12	25	30
Metchosin	130	130	150
North Saanich	120	850	800
Oak Bay	100	1,300	1,500
Sidney	89	1,900	1,800
Southern Gulf Islands Electoral Area	820	3,000	2,400
Sooke	200	850	750
Saanich	140	1,500	1,600
Salt Spring Island Electoral Area	330	1,500	1,200
Victoria	130	4,000	5,600
View Royal	60	750	950
TOTAL	3,700	18,000	19,000

*Values rounded to 2 significant figures. Estimated flood hazard area is based upon estimated flood construction level and BC Assessment Data

Best available estimates were applied to complete this review; however, due to the short consultation period, this review was completed in-house and has not been verified by a geo-technical professional. FCL mapping for across the region is included in the following pages.

Financial

Using available BC Assessment data, staff estimated the total value of land and improvements currently located under the estimated FCL to be approximately \$4.4 billion. This figure includes both public and private infrastructure. As BC Assessment data is typically inaccurate for public infrastructure, it is possible this figure is higher.

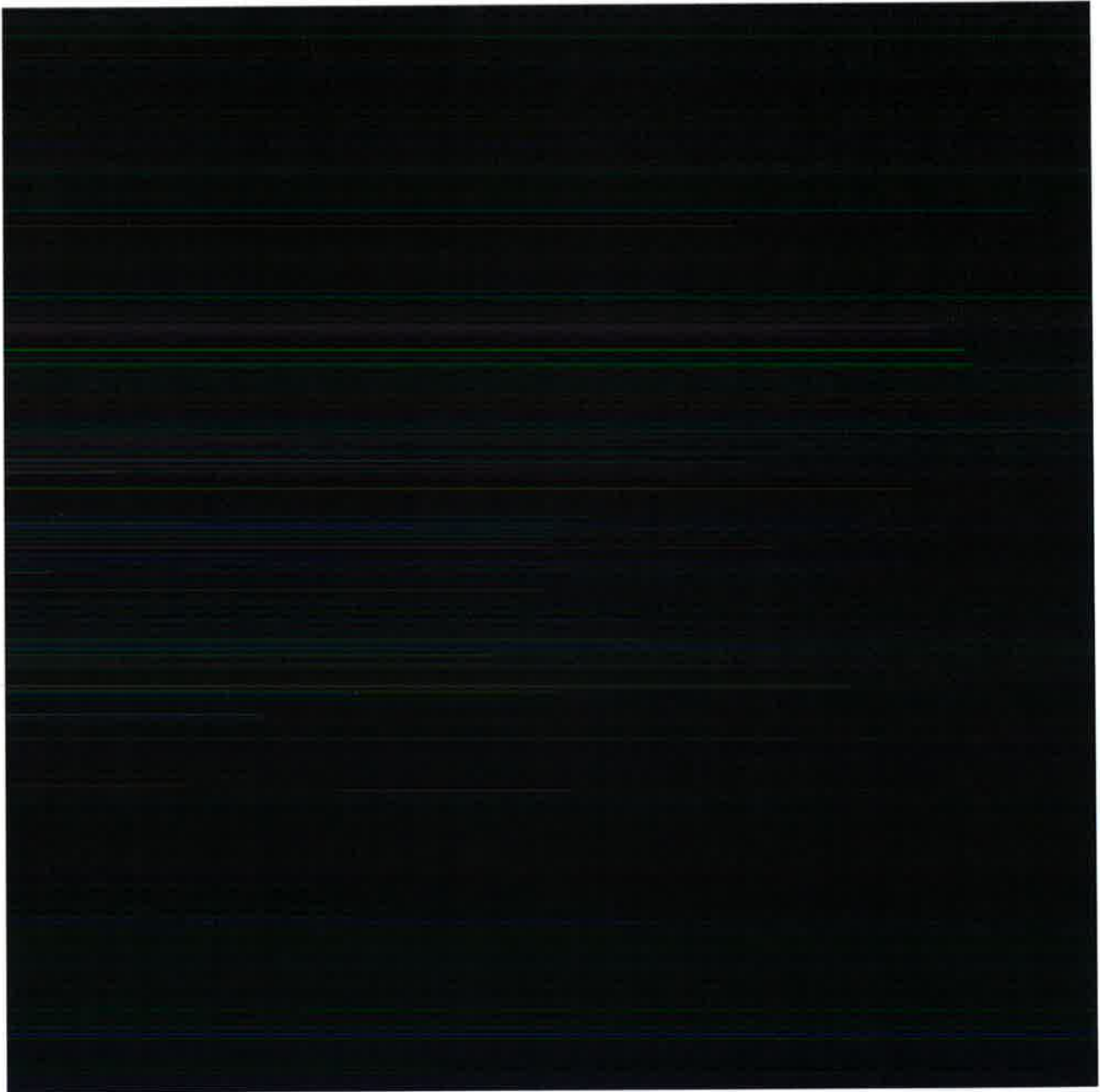
Approximate Value within Estimated Flood Hazard Area

Administrative Area	Land Value* (\$)	Improvement Value* (\$)	Total of Land and Improvement Value* (\$)
Central Saanich	\$ 49,000,000	\$ 14,000,000	\$ 63,000,000
Colwood	\$ 43,000,000	\$ 21,000,000	\$ 64,000,000
Esquimalt	\$ 180,000,000	\$ 110,000,000	\$ 290,000,000
Highlands	\$ 480,000	\$ 35,000	\$ 520,000
JDF Electoral Area	\$ 71,000,000	\$ 33,000,000	\$ 100,000,000
Langford	\$ 6,200,000	\$ 720,000	\$ 6,900,000
Metchosin	\$ 28,000,000	\$ 13,000,000	\$ 40,000,000
North Saanich	\$ 150,000,000	\$ 80,000,000	\$ 230,000,000
Oak Bay	\$ 530,000,000	\$ 210,000,000	\$ 740,000,000
Sidney	\$ 380,000,000	\$ 170,000,000	\$ 550,000,000
Southern Gulf Islands Electoral Area	\$ 170,000,000	\$ 63,000,000	\$ 240,000,000
Sooke	\$ 91,000,000	\$ 43,000,000	\$ 130,000,000
Saanich	\$ 320,000,000	\$ 120,000,000	\$ 440,000,000
Salt Spring Island Electoral Area	\$ 120,000,000	\$ 76,000,000	\$ 190,000,000
Victoria	\$ 760,000,000	\$ 380,000,000	\$ 1,100,000,000
View Royal	\$ 97,000,000	\$ 55,000,000	\$ 150,000,000
TOTAL	\$ 3,000,000,000	\$ 1,400,000,000	\$ 4,400,000,000

*Values rounded to 2 significant figures. Figures are estimated based upon available BC Assessment Data and include both private and public infrastructure. Actual value may be higher.



Client-Solicitor Privileged Information Redacted



Client-Solicitor Privileged Information Redacted

