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## MEMORANDUM

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**TO:** ADVISORY PLANNING COMMISSION  
**FROM:** JAMES VAN HEMERT, CONSULTING TOWN PLANNER  
**SUBJECT:** CLIMATE CHANGE AND THE 200 YEAR FLOODPLAIN  
**DATE:** 2/21/2022

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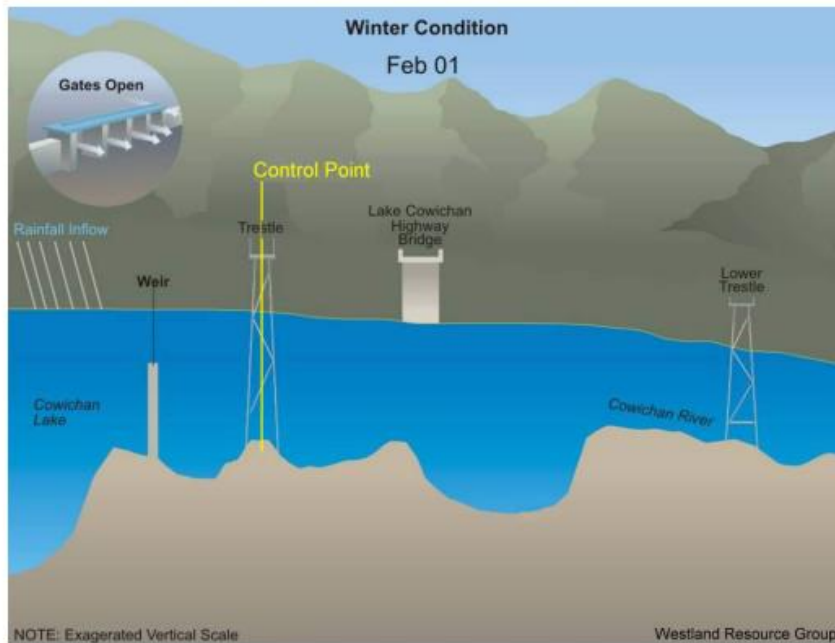
The current 200 year floodplain mapping was established in 1984. The Ministry of Environment believed the Flood Control Level (FCL) of 167.53 metres established was too high as no recorded flood event has ever reached this height.

The CVRD engaged Northwest Hydraulic Consultants in 2019 to undertake a risk assessment of flood hazards within various locals within the region, which included Lake Cowichan.

Two selected excerpts of the report are included in this brief memorandum: previous studies, and a quantified assessment of people and social impacts.

The report concludes that a change in the flood plain mapping for Lake Cowichan is not needed at this time, based on the risk assessment, that the flood elevation and FCL was correct at this time (based on climate change and wind mechanics). So it was previously overestimated and now actually correct.

**The NHC report may be accessed online:** [20190508 3003765 CVRD Risk Assessment Final - R1.pdf](#)



**Figure 5-2: Flow control in the vicinity of Cowichan weir during the flood season (November-February), from Cowichan Basin Water Management Plan (Westland 2007).**  
<http://www.cowichanwatershedboard.ca/content/cowichan-lake-weir>

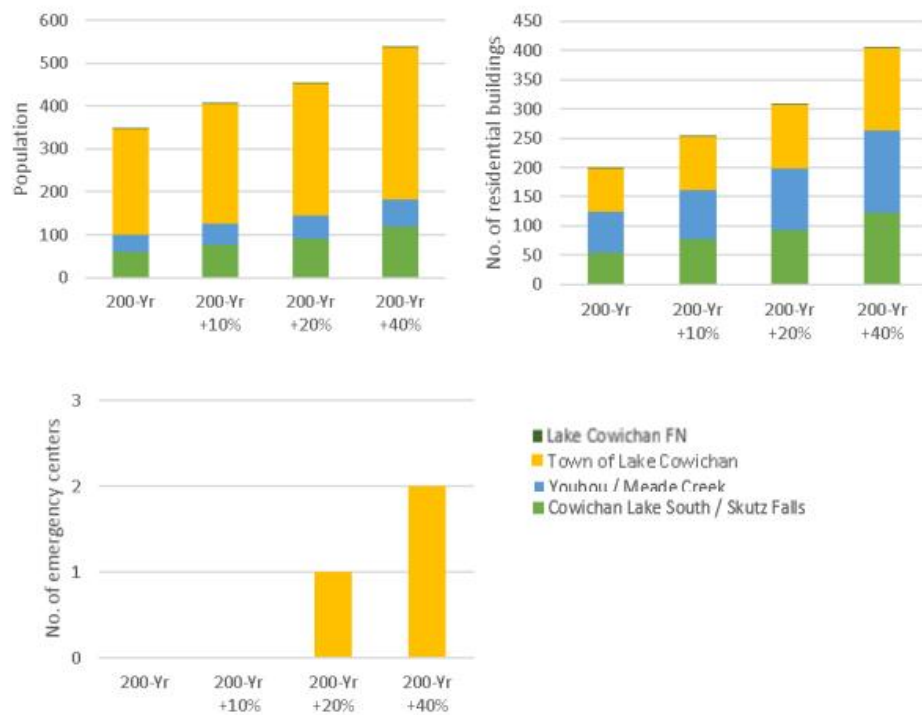
## 5.2 Previous Studies

The BC Ministry of Environment (MoE) published floodplain maps for Cowichan Lake and a portion of the Cowichan River below the lake outlet in 1984. **Figure 5-3** shows the extent of the six floodplain map sheets. The published FCL on Cowichan Lake is 167.53 m, which includes an undetermined amount of freeboard. Assuming a 0.6 m freeboard, the corresponding FCRP is 166.93 m. FCRP values at the river downstream of Cowichan Lake weir through the town were 0.3 m to 1.4 m lower than at the lake.

MoE reported that there have been requests to revise the flood maps because they show an FCL that is considerably higher than that of historical observations and experience (MoE, 1993). For example, the highest recorded lake level in 1968 was 165.59 m, which is 1.4 m lower than the adopted FCRP. MoE indicated that details for the basis of the original estimate were not available. This issue was never resolved, and it was decided to retain the original floodplain maps without revision until better information came available.

**People and Societal Impacts**

**Figure 5-14** presents the population, number of residential buildings, hospitals, emergency centres, schools, and childcare facilities exposed in the FCRP. There are 347 people exposed to flooding in the 200-year flood event under present conditions, increasing to 539 people for the +40% climate change scenario; representing a 18%, 31%, and 55% increase over the present-day scenario for the +10%, +20%, and +40% future scenarios, respectively. Between 65% and 70% of the exposed population live in the Town of Lake Cowichan for all scenarios. There are 200 residential buildings located within the present-day flood scenario, increasing by 27%, 54%, and 103% over the present-day scenario for the +10%, +20%, and +40% future scenarios, respectively. One and two emergency centres in Town of Lake Cowichan are in the 200-year FCRP for the +20% and +40% climate change scenarios, respectively. No hospitals, schools, or childcare facilities are exposed for either the +40% or present-day scenarios.



**Figure 5-14: People and societal impacts – quantified flood exposures.**