

Amphibious Retrofit Loss Avoidance Study for Interlake First Nations in Central Manitoba

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Abstract

Current flood mitigation practices put in place to divert flood waters away from Lake Winnipeg into Lake St. Martin have exacerbated the flood rates and severity for the First Nations of the central Manitoba Interlake Tribal Council. The flood mitigation methods upstream have resulted in regular evacuations, and following a particularly harsh flood in the spring of 2011, severe damage to property. The Interlake Tribal Council, including Lake St. Martin First Nation, were all affected by the flood, with destruction of homes and land leaving many of the community members still displaced.

Rather than relocating the community to a culturally inappropriate site, the Buoyant Foundation Project proposes taking one of the existing homes on the reserve, or a prefabricated house from a nearby relocation site, and retrofitting it with a buoyant foundation system. This paper conducts a loss avoidance study for the Lake St. Martin Reserve to determine the financial viability of an amphibious retrofit. A loss avoidance study is a technical assessment of a property fitted with flood mitigation technology that compares the expected losses from a single flood event had the property not been retrofitted to the cost of installing the retrofit. It is a comparative study that is measured in dollars and evaluates the effectiveness of implementing flood mitigation technologies.

The loss avoidance study conducted on this prototype shows that even in a flooding event reaching no higher than the finish floor level, the loss avoidance ratio was greater than 1, meaning that in a single flooding event the retrofit saves the owner money, while giving the residents confidence that their home and belongings are safe. Given the certainty of seasonal flooding on the Lake St. Martin Reserve, the advantages of the amphibious retrofit are likely to multiply over time.

Keywords: Lake St. Martin First Nation; Manitoba; flood mitigation; loss avoidance study; amphibious retrofit; Buoyant Foundation; loss avoidance ratio; Pre-mitigation Flood Depth; Building Losses; Contents Losses; Displacement costs

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