



ANZAC PARADE: FLOOD MODELLING, DREDGING, STOPBANKS AND THE MATARAWA DIVERSION SCHEME

How has flood modelling for the Whanganui River been developed?

Horizons has a hydraulic computer model of the Whanganui River that simulates flows in the river. To develop this, the model has two major inputs – data that describes the physical dimensions of the river channel, and data that represents flows in the river.

To describe the physical dimensions of the river channel, we use cross sectional (from one side of the river to the other) surveys. This part of the model was updated following the floods in 2015 and uses cross sections that were surveyed in November and December of 2015.

The data inputted to predict design flood levels have been determined by a statistical analysis of river flow records from gauging sites on the Whanganui River that date back to 1858. These were also updated following the 2015 flood.

Why is dredging not a viable option to reduce flood risk?

Dredging of the Whanganui River has historically been undertaken mainly for navigational purposes rather than flood control. While sand/silt bars can often be seen in the river during low flows/tides, these tend to be mobilised and washed downstream as flood waters in the river begins to rise. This essentially scours the bed, increasing the capacity of the river channel in these times.

As flood waters begins to recede, the river will drop fresh sand/silt leaving the bars that can be seen during low flows. This essentially means that dredging the bed of the river will have minimal impact on flood levels. It is also noted that towards the lower end of the river the tide has a much greater influence on flood levels than the bed of the river does.



Are stopbanks a solution?

Stopbanking could be constructed and upgraded to reduce flood risk. However, through Anzac Parade this would be a complex and costly engineering solution. This is because extensive works would be required beneath the stopbanks to prevent water from flowing through the ground and undermining the stopbank.

During the flood of 2015 water that had come from beneath the ground was observed ponding up behind the stopbank, highlighting this risk. Upgrading the existing stopbanks would also require significant tree removal in the Kowhai Park area.

Would changes to the Matarawa diversion scheme reduce flood risk for Anzac Parade?

In 2015 the flooding from the Matarawa Stream was the result of high water levels in the Whanganui River backing up the Matarawa, meaning that it was unable to flow out freely.

Essentially the Whanganui River is the limiting factor in this situation and diverting more water from the Matarawa at the diversion would make no difference to the flood levels.

