

Launceston Flood Risk Mitigation Assessment

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This poster provides outcomes of a retrospective Cost Benefit Analysis (CBA) study of a flood risk mitigation investment (levee system) in Launceston. The study assessed the long term cost to Launceston from flood hazard before and after the new mitigation works for flood events ranging from the 20 year Annual Recurrence Interval (ARI) up to the Probable Maximum Flood (PMF).

INTRODUCTION

Launceston is floodprone and located at the confluence of the Tamar, North Esk and South Esk Rivers in Tasmania.

To replace the existing deteriorated levees a new flood mitigation initiative was commenced in 2010 to provide Launceston with reliable flood protection up to the 200 year Annual Recurrence Interval (ARI) event.

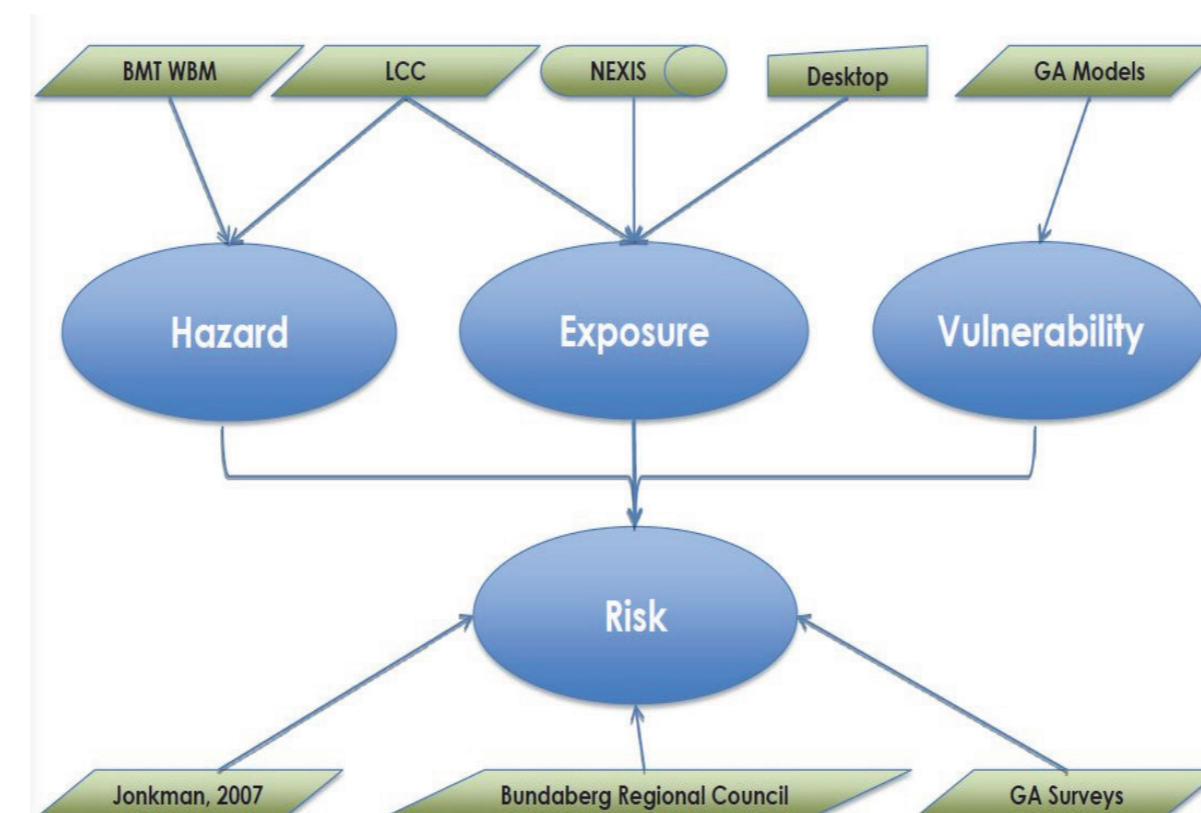
The initial project cost (mitigation investment) was estimated to be \$22 million in 2006 (\$28 million in 2016 dollars); however, the final project cost was assessed to be \$58 million (in 2016 dollars) due to increases in the cost of land acquisition and construction.

This poster provides outcomes of a retrospective Cost Benefit Analysis (CBA) study of this flood risk mitigation investment.

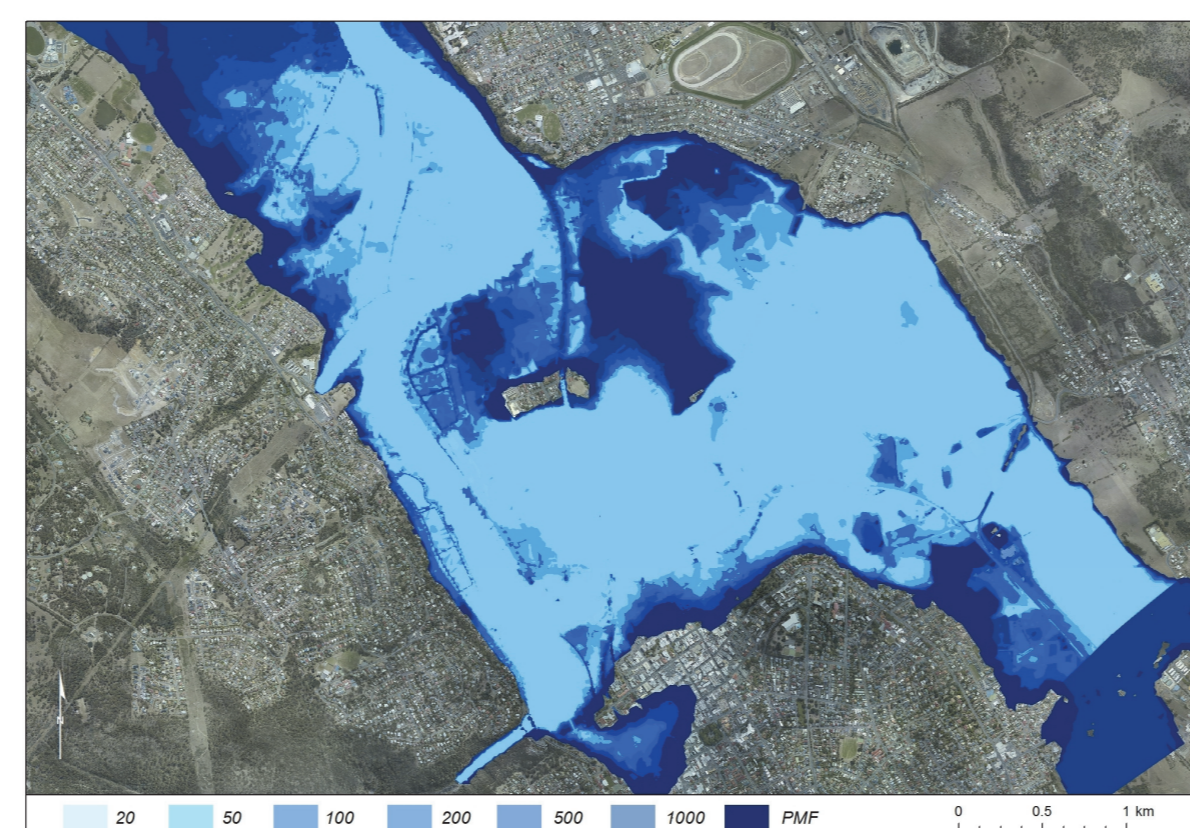
AIMS AND OBJECTIVES

- The avoided damage cost to Launceston in the June 2016 floods as a result of the new mitigation works.
- The number of people displaced due to inundation of homes for flood events ranging from the 20 year Annual Recurrence Interval (ARI) up to the Probable Maximum Flood (PMF) before and after the new mitigation works.
- Avoided residential and non-residential building damage for flood events ranging from the 20 year ARI up to the PMF due to the new mitigation works.
- The long term cost to Launceston from flood hazard before and after the new mitigation works.
- A CBA of the new flood mitigation investment.

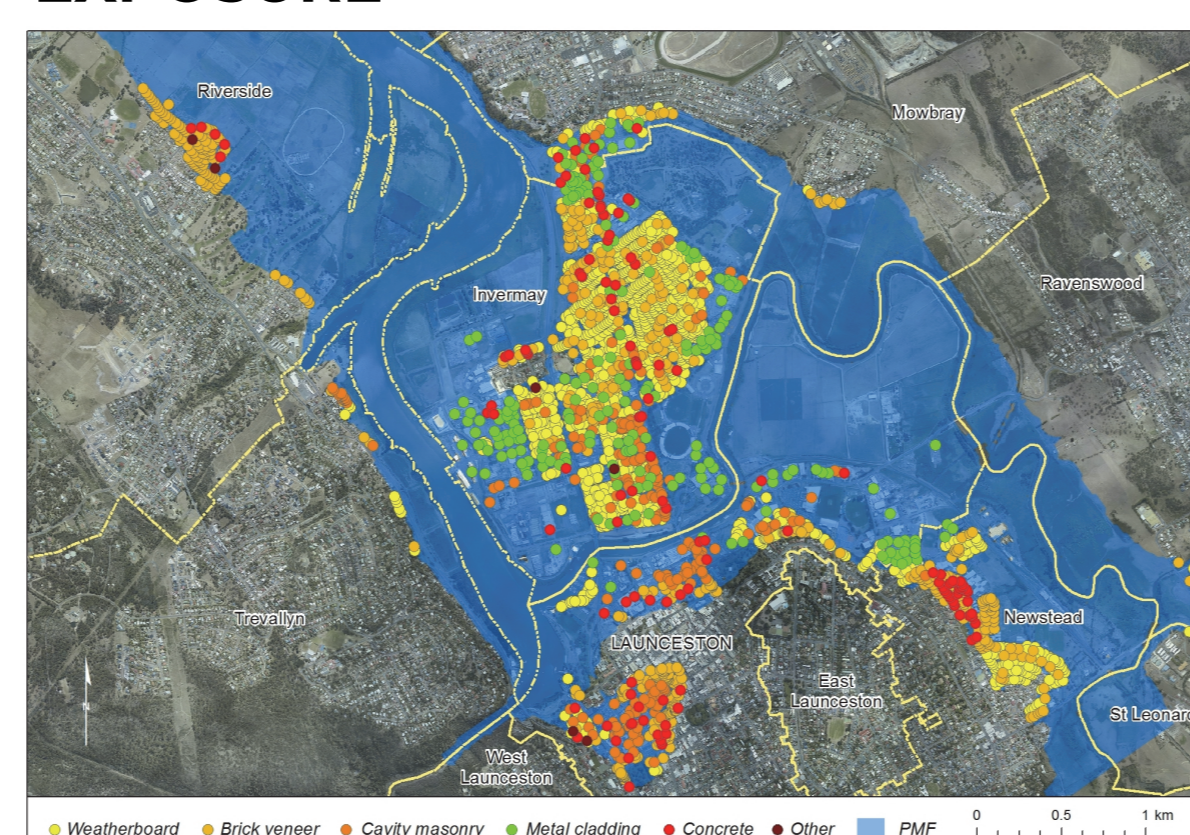
RISK ASSESSMENT FRAMEWORK



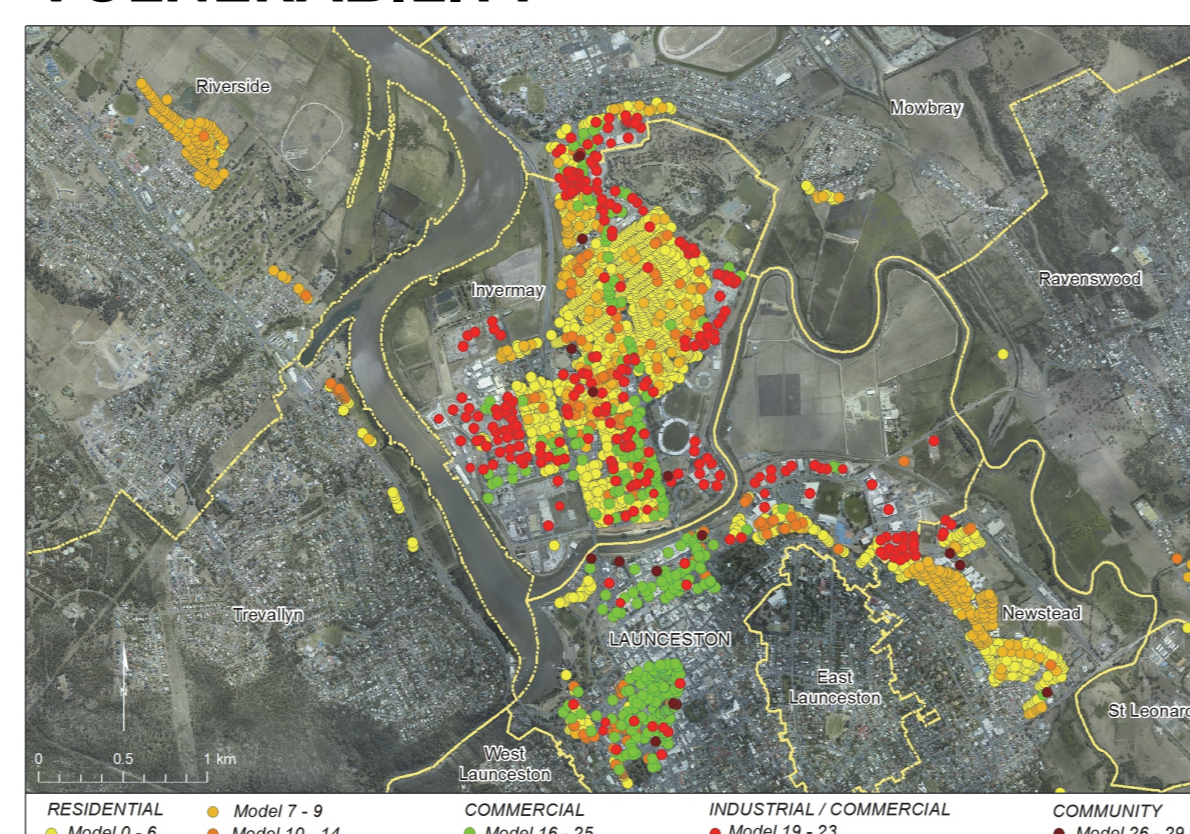
HAZARD



EXPOSURE



VULNERABILITY



RESULTS

Assessed Losses

Residential Sector	Non-residential Sector
Building repair/rebuild	Building repair/rebuild
Contents damage	Clean-up
Rental income	Inventory/equipment
Clean-up	Stock
Fatalities	Income

Average Average Loss (AAL)

ARI (Year)	Conditional Loss Before Mitigation (\$ M)	Conditional Loss After Mitigation (\$ M)	AAL Before Mitigation (\$ M)	AAL After Mitigation (\$ M)
100,000	972.2	972.2	3.95	1.04
1,000	476.5	476.5		
500	430.2	43.0		
200	256.4	0		
100	111.2	0		
50	11.9	0		
20	0.08	0		

Benefit Cost Ratio (BCR)

Investment (2016 \$ M)	Benefit Cost Ratio (BCR)				
	3%	4%	5%	6%	7%
58.4	1.51	1.19	0.98	0.82	0.71
27.9	3.15	2.49	2.04	1.72	1.48

CONCLUSIONS

- The investment in building the new flood levee system was found to be a sound economic decision.
- The losses that would have been experienced during the June 2016 floods should the old levee had failed would be four times the total investment in the new levee system.