

Flood Vulnerability Functions: Detailed vs Generalised Approach

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This poster provides interim outcomes of an ongoing project to translate vulnerability information developed by Geoscience Australia (GA) into practical guidance for flood risk managers. It involves developing and testing a number of resolution options (from asset specific vulnerability assessments to more generalised methods) in a series of case studies.

INTRODUCTION

The project is seeking to assist floodplain managers who do not have access to detailed building exposure information for their communities of interest and may need to estimate damage from flood events (real or simulated).

AIMS AND OBJECTIVES

- To develop a methodology to translate detailed vulnerability information into practical guidance for flood risk managers
- Assessing the trade-offs between the increased accuracy of detailed approaches and the increased uncertainty and biases associated with simpler models.

COMMUNITY AREA CATEGORISATION

- Climatology (Temperate Eastern Australia, Temperate Western Australia, Coastal Tropical)
- Community Type (Small Rural, Major Regional, City)
- Predominant Land Usage (Residential, Commercial, Industrial)
- Residential Building Age (Pre-1960, Post-1960)

CONCLUSIONS

- The project is developing a suite of building vulnerability models that correspond with a generalisation of flood prone urban development into sub-areas that sit in a taxonomy of types having similar mixes of building vulnerability.
- This ongoing research will lead to the development of national best practice guidance to inform flood damage assessments consistent with AEM Handbook 7 (AIFR 2017).

DETAILED VS GENERALISED FUNCTIONS: LAUNCESTON (SA1 LEVEL)

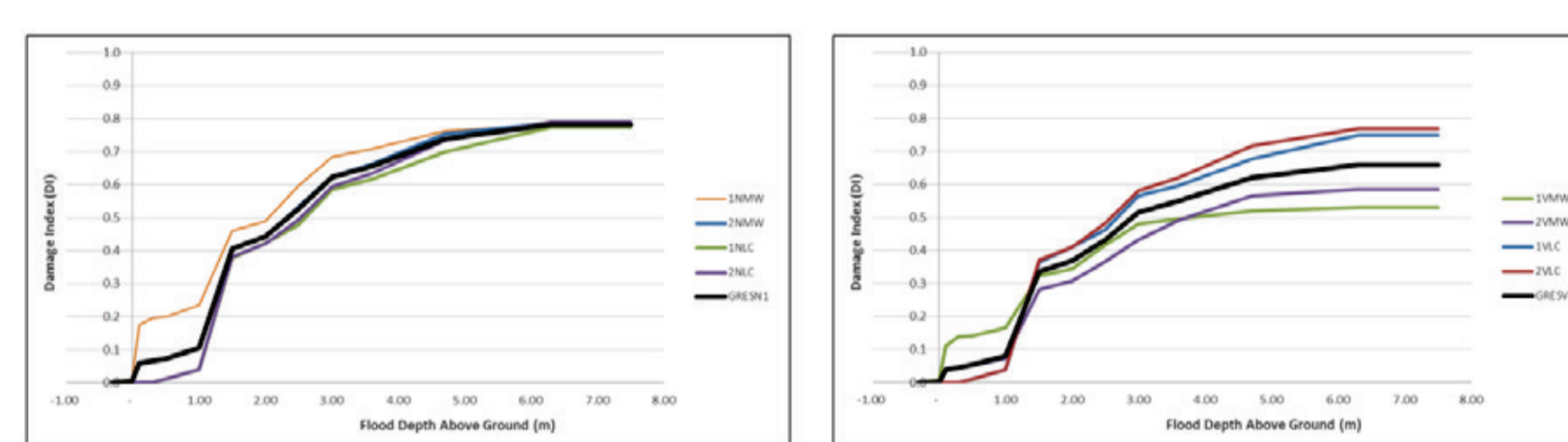


Figure 1: Residential (pre 1960s) Function

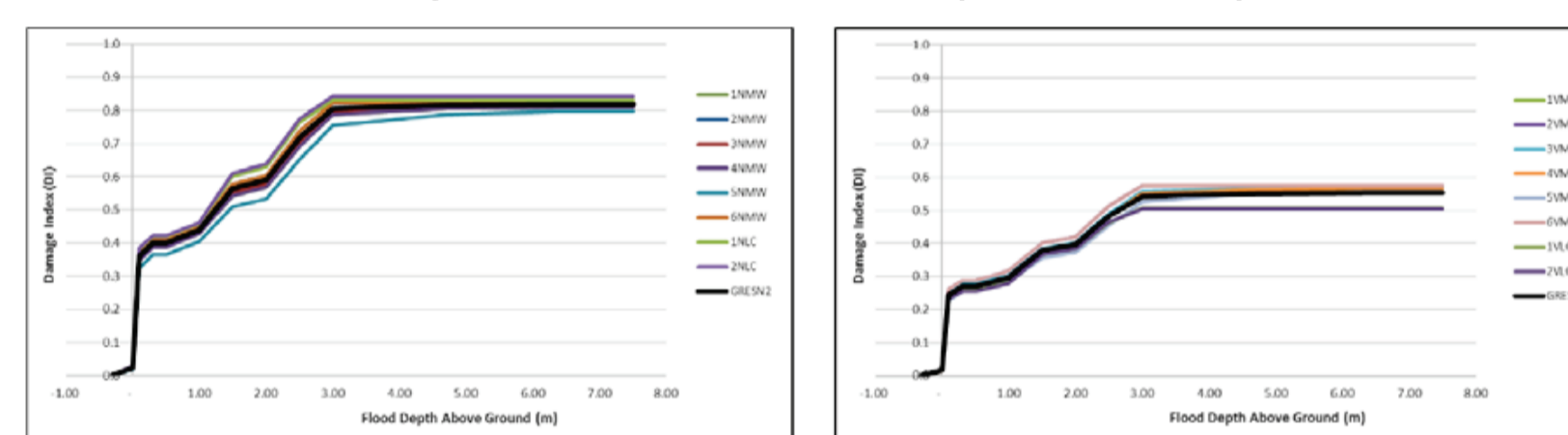


Figure 2: Residential (post 1960s) Function

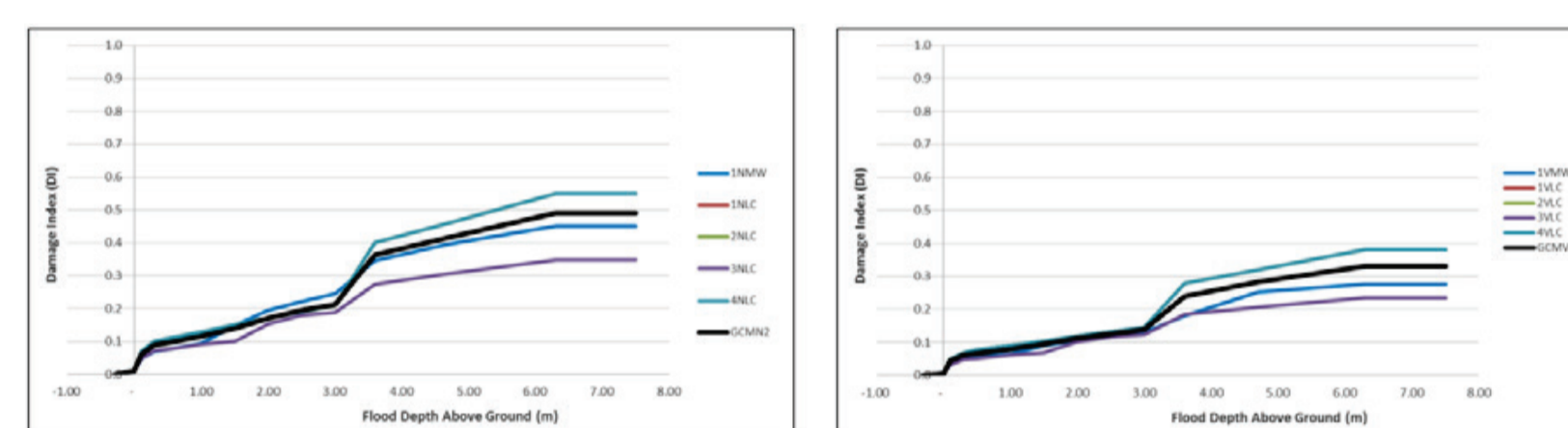


Figure 3: Commercial Function

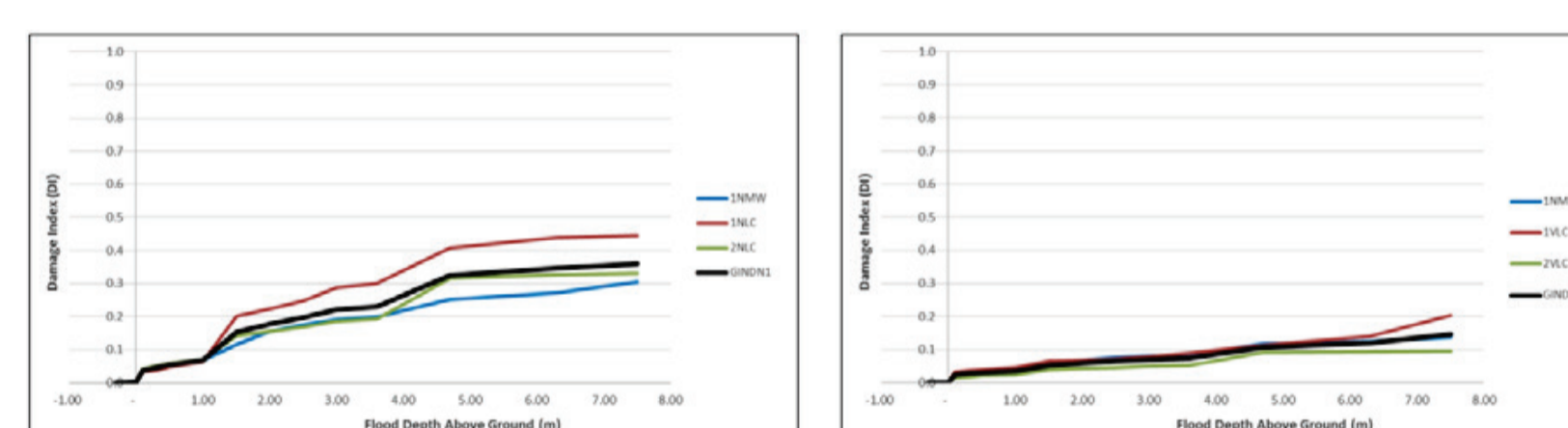


Figure 4: Industrial Function

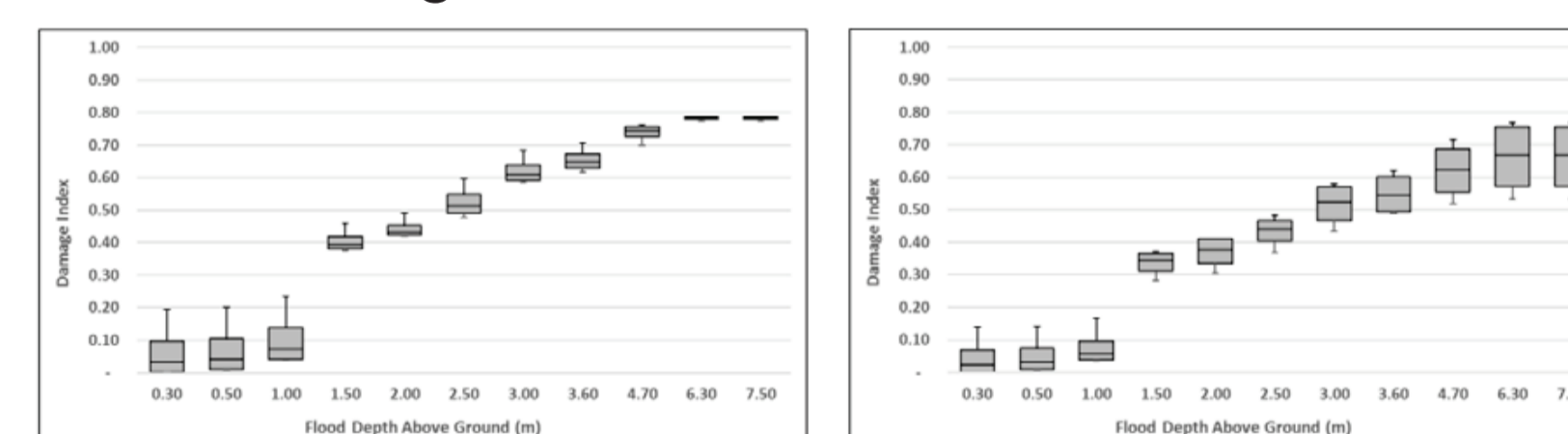
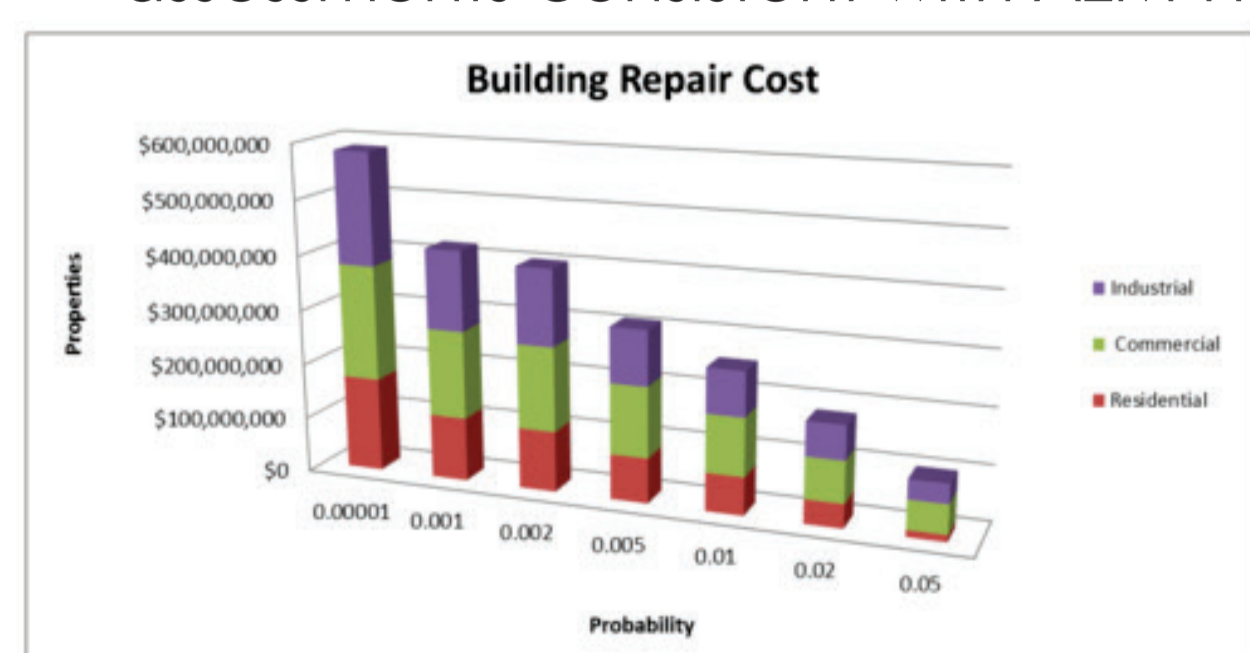
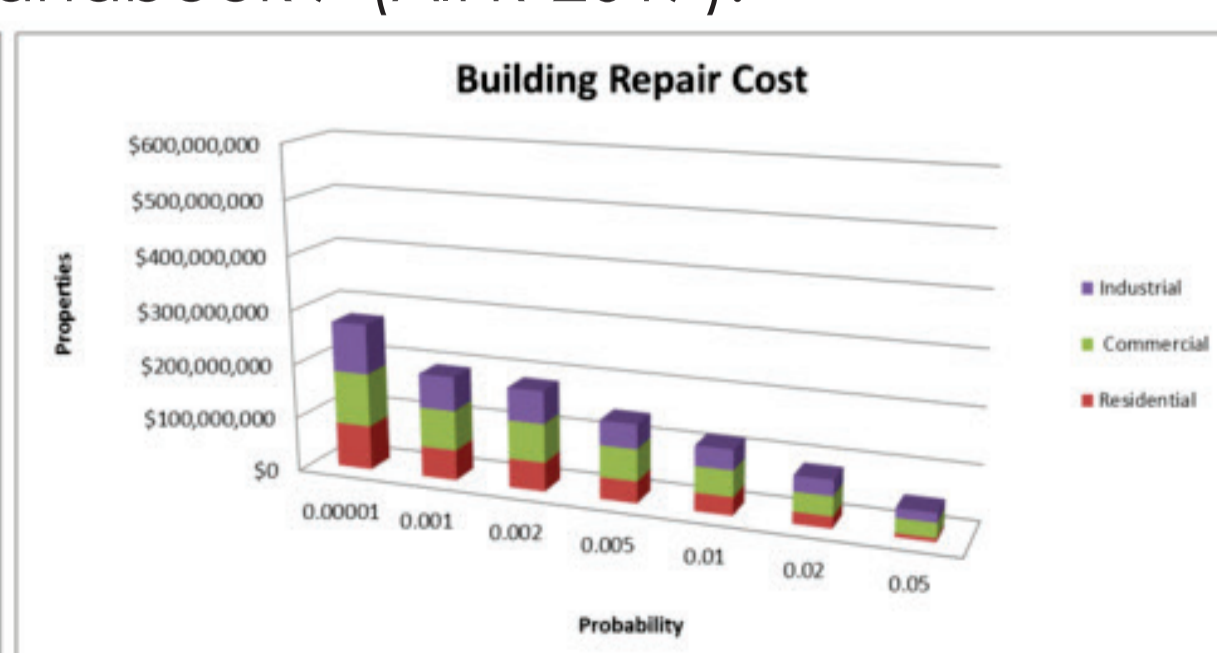


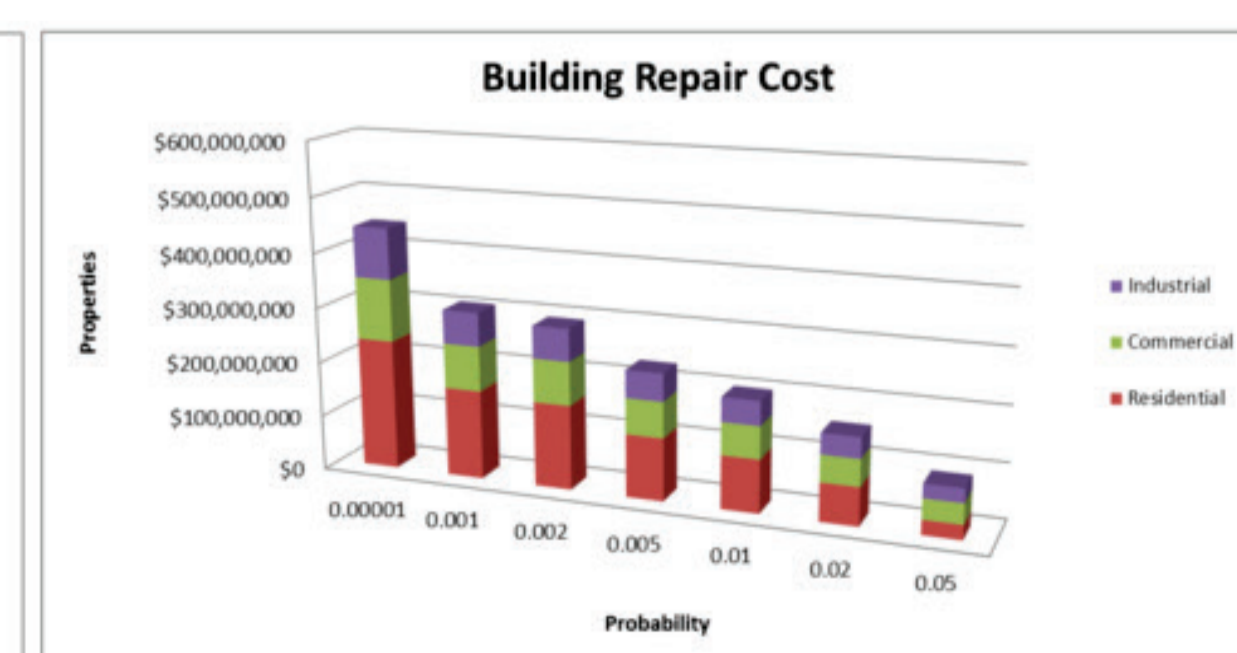
Figure 5: Residential (pre 1960s) Variability



(a) Generalised Models – Building Numbers



(b) Generalised Models – Building Value



(c) Detailed Models

Figure 6: Comparison of Loss Estimates