

# **TOWNSVILLE CITY NATURAL DISASTER RISK MANAGEMENT STUDY**

## **FORMER THURINGOWA CITY COUNCIL AREA**

### **EXECUTIVE REPORT**



**October 2010**



**Australian Government**  
**Attorney-General's Department**



**Queensland Government**



## **EXECUTIVE SUMMARY**

### **STUDY CONTEXT**

#### **The study**

Prior to the amalgamation of Townsville and Thuringowa City Councils, Townsville City had undertaken a Natural Disaster Risk Management study of its Local Government Area (LGA). This report was presented to Council in November 2009.

Prior to amalgamation, Thuringowa City Council had obtained a NDRM grant to undertake a similar study for its LGA but the study was not commenced due to the changes brought about by the amalgamation.

The new Townsville City Council decided to continue with the study of the Thuringowa LGA in 2009 to complete the All Hazards Risk Assessment for the amalgamated Townsville LGA.

A study advisory group (SAG) was formed to monitor and review progress of the project. The members of the group were:

<b>Name</b>	<b>Position</b>	<b>Department / Organisation</b>
Allen Morris	Executive Officer	Emergency Management
Lindsay Groat	Executive Manager	Technical Services
Neil Allen	Director	Infrastructure Services
Gavin Lyons	Director	Community & Environment
Paul Johnston	Coordinator City Plan	Planning & Development
Doug Millican / Cameron Finter	Technical Officer	Planning and Development
Colin Phillips	Executive Manager	Strategic Planning, Planning & Development
Geraldine Wood	Executive Manager	Corporate Services
Wayne Preedy	Area Director	Emergency Management Queensland
Kenneth Melchert	Manager	Geospatial Solutions
Andrew Hannay	Coordinator	Environmental Management & NRM
Greg Bruce	Executive Manager	Integrated Sustainability
Sue Court	Support Officer	Emergency Management
Geoff Hughes	Consultant	Emergency Management

The SAG also workshopped the risk assessment strategies developed in the initial IID Townsville LGA natural disaster risk management study and confirmed their application to the former Thuringowa LGA.

## **Public Consultation**

In addition to the oversight by the study advisory group, the draft results of the study was also made available to the public and identified stakeholders for comment. The comments received were evaluated and included in the compiled strategies. A description of the public consultation process is as follows:

<b>DATE</b>	<b>ACTION</b>
27 September 2010	Public Display
18 October 2010	Close of Comments
20 October 2010	Assessment of Comments
November 2010	Report to Council

## **Previous Studies and Mitigation Activity**

The former Thuringowa had recently (prior to amalgamation) commissioned and had completed hazard studies, mainly flooding, and these studies provided information for this report. The former Thuringowa Council had responded to these reports by undertaking major flood mitigation works in the Kelso, Purono and Kirwan areas as well as introducing land use restraints and conditions. Further mitigation works at Toolakea, Kelso and Kirwan are planned.

## **Additional Studies Required**

As part of this project additional studies were undertaken for:

Landslide risk assessment  
Bushfire risk assessment  
Earthquake risk assessment.

At an early stage it was identified that the City Plan unit would require similar studies when drafting the new City Plan. To this end the Bushfire and Landslide tender documents included clauses to satisfy the requirements of the City Plan unit.

## **Risk Management Methodology and Evaluation Criteria**

As with the initial Townsville natural disaster hazard study, this study follows a process based on the risk management Standard AS/NZS ISO 31000:2009) and defines “risk” as

*Effect of uncertainty on objectives.*

The methodology and evaluation criteria outlined in the initial IID Townsville Natural Disaster Risk Management study report (IID 2009) was adopted for this study report.

## **THE HAZARDS**

This study considered the same natural hazards as were considered in the initial Townsville study.

- severe storms (cyclones and thunderstorms);

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- floods;
- storm tide;
- landslide;
- bushfire and
- earthquake.

The influence of climate change was considered as part of each of these natural hazards.

A detailed description of these hazards is contained in the initial Townsville Natural Disaster Risk Management Study Report (IID 2009)

### THE ELEMENTS AT RISK AND THEIR VULNERABILITY

The elements at risk from a natural disaster event considered in this report were:

- The population, its distribution and demographics
- Developed properties and buildings
- Lifeline Infrastructure critical to everyday normal living
- Economy and employment
- Natural Environment

The vulnerability of each of these elements was then assessed against exposure to the natural hazards identified.

A detailed description of the process followed in included in the initial report.

### ASSESSING AND ANALYSING THE RISKS

The initial IID (2009) report contains comment on comparing the risk of the hazards being considered and develops a multi risk rating across these hazards. These principles were applied to the study area and a series of tables were developed to indicate the areas most at risk from a natural hazard. From these comparisons a comparative multi-factor risk rating was established and is illustrated in the table below

Table : Comparative multi-factor risk rating

HAZARD	SCENARIO RISK	MANAGE	AWARE	URGENCY	GROWTH	OUTRAGE	TOTAL
Destructive wind	6	3	2	2	3	3	19
River flood	5	3	2	3	2	4	19
Storm tide	5	3	3	3	3	4	21
Landslide	5	2	3	2	2	3	17
Bushfire	5	1	2	1	2	2	13
Earthquake	4	4	4	2	2	1	17

**On this assessment of total risk IID considers storm tide to pose the greatest threat to the Townsville community, with destructive winds and riverine flood a close second. Bushfire poses the lowest overall level of risk.**

## **TREATING THE RISKS**

The initial Townsville City Natural Disaster Risk Management Study (IID 2009) identified a range of risk treatment strategies in the following categories:

- Generic Risk Treatments
- Severe Storm Risk Treatments
- Flood Risk Treatments
- Storm Tide Risk Treatments
- Landslide Risk Treatments
- Bushfire Risk Treatments
- Earthquake Risk Treatments

Progress on these initial strategies has been presented to Council and are listed in the full report.

As a part of this study, further reports were commissioned on Landslides, Bushfire and Earthquakes and a risk workshop was undertaken by the Study Advisory Group (SAG).

The study reports and the risk workshop identified additional risk treatment strategies and these are summaries in the following table:

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The following table gives the additional strategies identified during the former Thuringowa LGA study.

	STRATEGY	COMMENT	STATUS	PRIORITY	REPOSNSIBLE OFFICER	TARGET DATE
	<b><i>Landslide</i></b>					
1	All areas identified as being within a Landslide area, need to be subject to a site specific geotechnical investigation at the time of a development / building application.	Process to be developed		Medium	Executive Manager Strategic Planning Planning and Development	2011
2	Identify an emergency access / evacuation route for Paluma or implement remedial / stabilisation works on Paluma Road. Negotiate with Dept. Transport and Main Roads for appropriate outcome.	Undertaken with cooperation from the Department of Transport and Main Roads		Medium	Technical Services	2011
3	Current Townsville Landslide overlay maps be updated in accordance with Australia Geomechanics Society, 2007 procedures.	Updated mapping procedure released		Low	Technical Services	2011
4	Australian Geoguides be adopted by Council for use on hillside development.	Geoguides LR3, LR4, LR5, LR6, LR8 and LR9 to be adopted.		Medium	Executive Manager Strategic Planning Planning and Development	2012
5	The current Planning Scheme Landslide Hazard code be amended to reflect the outcomes of this study report.	Draft planning code available		Medium	Executive Manager Strategic Planning Planning and Development	2012
6	The Local Disaster Management Plan be amended to: <ul style="list-style-type: none"> <li>• identify landslides as a weather related hazard</li> <li>• Identify evacuation routes for Paluma and Mt Elliot</li> <li>• Include the Dept of Main Roads and Transport as partly responsible for the road network</li> <li>• Reference the landslip report in updated Plan.</li> </ul>	Recommendation to be included at time of next review of the LDMP		High	Executive Manager Emergency Management	2011
	<b><i>Bushfire</i></b>					

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	STRATEGY	COMMENT	STATUS	PRIORITY	REPOSNSIBLE OFFICER	TARGET DATE
1	Council adopt the Bushfire Hazard Map developed under the current SPP 1/03.	Bushfire Map completed as part of this study		High	Executive Manager Strategic Planning Unit	Dec-10
2	Incorporate the updated bushfire hazard potential mapping, done to SPP 1/03 standards, into the new Townsville City Plan.	Bushfire Study Report forwarded to City Plan Unit		High	Executive Manager Strategic Planning Unit	Dec-10
3	When the new SPP 1/03 is announced revise the Bushfire Hazard Map to meet any new requirements.	Bushfire Mapping to be revised		Medium	Executive Manager Strategic Planning Unit	Jul-11
4	When an amendment is made to AS3959-2009 the bushfire prone mapping to be reviewed.	Bushfire Mapping to be revised		Medium	Executive Manager Strategic Planning Unit	Jul-11
5	When the Victorian Bushfires Royal Commission final report is released, its recommendations be reviewed and any changes incorporated into Council's new Planning Scheme.	To be assessed by Bushfire Management Officer, Bushfire Management Working Group and City Plan Unit.		High	Executive Officer Emergency Management and Executive Manager Strategic Planning Unit	Apr-11
6	When the Victorian Bushfires Royal Commission final report is released, its recommendations be reviewed and any changes incorporated into Council's Disaster Management Plans	To be assessed by Bushfire Management Officer, Bushfire Management Working Group and City Plan Unit.		High	Executive Officer Emergency Management	Apr-11
7	Local Law No 12, Safety and Convenience be amended to include provision of notices to land owners that do not appropriately manage their property in accordance with SPP 1/03, AS3959-2009 and the City Planning Scheme. Penalties to apply if an owner does not comply with the notice within the prescribed time period.	Revise Local Law No 12		Medium	Exec Manager Integrated Sustainability	Jan-11
8	Council's to inspect and monitor properties to ensure the appropriate bushfire mitigation measures are adopted and maintained and to enforce Local Law No 12.	Inspection and Monitoring to be included in the position description for Council's Bushfire Management Officer.		Medium	Exec Manager Integrated Sustainability	Jan-11

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	STRATEGY	COMMENT	STATUS	PRIORITY	REPOSNSIBLE OFFICER	TARGET DATE
9	Before the start of each Bushfire season, Council run a community education program aimed at building community resilience & self reliance. To include: - Public education and awareness program - Advertising campaign - Pamphlets delivered to rural areas	Education and awareness program to be developed by BMWG and QFRS.		High	Executive Officer Emergency Management	Mid 2011
10	Make an interactive DIY flowchart for owner builders available on Council's web site to assist in designing and building in bushfire prone areas.	To be assessed by Bushfire Management Officer, Bushfire Management Working Group and City Plan Unit.		Low	Executive Manager Strategic Planning Unit	2012
	<b>Earthquake</b>					
1	Identify additional open area evacuation sites (buildings may collapse)	Reviewed in conjunction with QFRS and Bushfire Neighbour Safety Places		Low	Executive Officer Emergency Management	2011
2	Evaluate structure stability of evacuation centres with regards to earthquake.	Centre to be able to survive an earthquake.		Medium	Executive Officer Emergency Management	2011
3	Train search and rescue personnel to current urban search and rescue procedures in collapsed buildings.	To be raised at next LDMG and DDMG.		Medium	Executive Officer Emergency Management	2011



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The following table includes the items from the former Townsville LGA study **NOT COMPLETED** to date.  
The original numbers have been retained for cross-reference purposes.

NO	STRATEGY	FORMER THURINGOWA AREA REPORT	ACTION	STATUS	PRIORITY	REPOSIBLE OFFICER	TARGET DATE
	<b>Generic</b>						
2	At an early stage in the life of each Council the LDMG arrange a briefing for all elected councillors and senior executive on their roles & responsibilities for emergency risk management. An information package to support such a briefing should contain material such as the LGAQ/EMQ resource <i>Elected member's guide to disaster management</i> .	Yes	Annual presentation to be made to Councillors	<b>In Progress</b>	High	Executive Officer Emergency Management	November Annually
6	Council commission a follow-up multi-hazard risk assessment, as Stage 2 of this study, to produce a disaster risk management strategy for the new TCC. That study should be based on updated City-wide hazard-specific studies for bushfire & earthquake (& possibly flood).	Yes	NDMP Project (Former Thuringowa area All Hazard Study) being actioned	<b>In Progress</b>	High	Executive Officer Emergency Management	Dec-10

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NO	STRATEGY	FORMER THURINGOWA AREA REPORT	ACTION	STATUS	PRIORITY	REPOSIBLE OFFICER	TARGET DATE
7	Council review its vegetation management strategies to manage remnant native trees & street tree planting to minimise their potential to do damage if brought down during storms or to provide bushfire fuel close to residents.	Yes	1. Vegetation management strategies part of Bushfire Officer's Management role	In Progress	Medium	Bushfire Management Officer - Integrated Sustainability Services	Mid 2011
			2. Bushfire Management Working Group to assess vegetation management strategies	In Progress	High	Bushfire Management Officer - Integrated Sustainability Services	June Annually
			3. Tree planting and road reserve to be assessed. (report on tree plantings noted by Council Aug 2010)	In Progress	Medium	Executive Officer Emergency Management/Parks/ Construction & Maintenance	2011
The second group of generic strategies relate to the scope of the study. This has been limited to consideration of those natural hazards that are covered under the Commonwealth Government's Natural Disaster Response & Recovery Arrangements (NDRRA).							
9	Council seek future external funding to extend its multi-hazard risk assessment studies to address the full span of hazards, including heatwave, epidemics & anthropogenic hazards.	Yes	1. Former Thuringowa All Hazard Study in progress (NDMP Funding)	In Progress	Low	Executive Officer Emergency Management	Dec-10
			2. NDRP Funding to be sought for hazards not covered by existing study	In Progress	Medium	Executive Officer Emergency Management	2011
The next group of generic strategies relate to the accumulation & recording of disaster information.							

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NO	STRATEGY	FORMER THURINGOWA AREA REPORT	ACTION	STATUS	PRIORITY	REPOSIBLE OFFICER	TARGET DATE
10	The LDMG initiate discussions with the Townsville City Library, the Museum of North Qld and local history groups to document the community's experience of & response to emergencies.	Yes	Contact to be made with library and museum of North Queensland.	<b>No Action</b>	<del>Medium</del> Low	Executive Officer Emergency Management	2011
11	The LDMG incorporate into its Local Disaster Management Plan the requirement to undertake and/or fund post-event surveys & studies from which to accurately assess the consequences (physical, economic, personal) of all significant hazard impacts.	Yes	Impact assessment plan being prepared	<b>In Progress</b>	Medium	Executive Officer Emergency Management	Dec-10
12	The LDMG recommend to EMQ that guidelines be developed to standardise the conduct of post-event surveys & studies & incorporate those guidelines into the State Disaster Management Plan.	Yes	To be reviewed after procedures for new Disaster Management Act released	<b>On Hold</b>	Low	Executive Officer Emergency Management	Jun-11
13	The LDMG develop procedures & protocols by which to manage & coordinate post-event research by outside agencies following a major disaster.	Yes	To be reviewed after procedures for new Disaster Management Act released	<b>On Hold</b>	Low	Executive Officer Emergency Management	Jun-11

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NO	STRATEGY	FORMER THURINGOWA AREA REPORT	ACTION	STATUS	PRIORITY	REPOSIBLE OFFICER	TARGET DATE
14	Council, through the LGAQ, recommend to EMQ that guidelines be developed & circulated to the scientific community relating to the conduct of post-event studies.	Yes	To be reviewed after procedures for new Disaster Management Act released	On Hold	Low	Executive Officer Emergency Management	Jun-11
16	Council enter into discussions with the BoM to upgrade the Mt Stuart weather watch radar to a Doppler radar & to review the effectiveness of the current flood warning system.	Yes	1. Follow up with BOM regarding Mt Stuart weather radar 2. Evironmon flood warning system being reviewed and updated	No Action  In Progress	Medium  Medium	Executive Officer Emergency Management  Technical Services - Infrastructure Services	Dec-10  June 2011
	The next group of generic strategies are aimed at improving community resilience & awareness through improving risk communication.						
17	The LDMG recommend to Council the development of a comprehensive emergency risk communications strategy, in association with the response agencies, including the production of a comprehensive guide to the development of household emergency management plans. The guide should be included in the 'welcome' information pack provided to new residents.	Yes	Existing Community Awareness Plan being reviewed	In Progress	Medium	Executive Officer Emergency Management	August Annually

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NO	STRATEGY	FORMER THURINGOWA AREA REPORT	ACTION	STATUS	PRIORITY	REPOSNSIBLE OFFICER	TARGET DATE
18	The LDMG, in conjunction with Council & response agencies engage with the local electronic media outlets to establish procedures to manage communications with the community, including messages in languages other than English, to provide authoritative information ahead of, during & after an emergency.	Yes	Existing Community Awareness Plan being reviewed	In Progress	Medium	Executive Officer Emergency Management	August Annually
20	Council use the current high degree of media interest in issues relating to climate change to promote messages of the linkage of climate & natural hazards both new & into the future.	Yes	Existing Community Awareness Plan being reviewed	In Progress	Medium	Executive Officer Emergency Management	August Annually
21	Before the start of each cyclone season Council run a community education program aimed at building community resilience & self reliance. To provide focus to that campaign Council could consider adopting a slogan along the line of 'your safety is our concern, but your responsibility'.	Yes	Existing Community Awareness Plan being reviewed	In Progress	Medium	Executive Officer Emergency Management	August Annually
The final group of generic strategies are aimed at improving the response & recovery activities that will be required following the impact of a major hazard.							

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22	The LDMG consider activating the local LDCC in response to the more frequently occurring lower-level emergency situations to expand the experience of members & their agencies.	Yes	LDCC Exercise held annually.	In Progress	Medium	Executive Officer Emergency Management	November Annually
24	Council , through the LGAQ recommend to EMQ that it publish guidelines for the establishing, coordination & administration of public disaster appeals.	Yes	Follow up with State Government	On Hold	Low	Executive Officer Emergency Management	2011
25	Before the onset of each cyclone season the LDMG should review & update the evacuation sub-plan of the Local Disaster Management Plan to take account of the risks identified in this study & to take account of best-practice evacuation planning methods.	Yes	TLDMP and some plans reviewed annually	In Progress	High	Executive Officer Emergency Management	December Annually
26	Townsville SES Unit investigate the development of a retirement village emergency & evacuation plan based on that operated by the Maroochy (Sunshine Coast Region) SES Unit.	Yes	Emergency Management Section to follow up with SES	No Action to Date	Ongoing Medium	Executive Officer Emergency Management	Dec-10

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28	Council establish a dialogue with the public & private proprietors & operators of critical infrastructure to ensure that they understand their role in the local disaster management process & to encourage their support for the work of the LDMG.	Yes	Existing information and processes to be reviewed prior to consultation with critical infrastructure owners and operators	<b>No Action to Date</b>	<del>Medium</del> High	Executive Officer Emergency Management	Dec-10
29	The LDMG & EMQ commission specific research & analysis of the full range of critical infrastructure, especially in areas identified as information gaps in this study. Liaise with Geoscience Australia to ensure that this research is modelled on the approach employed in Commonwealth-led Critical Infrastructure Protection, Management & Analysis (CIPMA) program so that the information developed could be exchanged between the two systems.	Yes	Existing information and processes to be reviewed prior to consultation with critical infrastructure owners and operators	<b>No Action to Date</b>	<del>Medium</del> High	Executive Officer Emergency Management	Dec-11

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30	The LDMG establish an arrangement with the local members of Wireless Institute Civil Emergency Network (WICEN) to provide communications support in the event of extended outages of telephone & other communications system.	Yes	Current loose agreement with SES to be formalised	<b>In Progress</b>	Medium	Executive Officer Emergency Management	Dec-10
	<b>Severe Storm</b>						
3	Council run annual information sessions for private certifiers, builders & architects on the requirements of AS 1170.2 & the desirability of applying the retrofit strategies of H 1321.	Yes	To be incorporated into Community Awareness Plan	<b>No Action to Date</b>	Medium	Executive Officer Emergency Management	2011
4	Council require operators of caravan parks to install tie down points for caravans & provide information to all caravan owners on caravan safety in high winds.	Yes	Review Council's Local laws regarding public safety	<b>In Progress</b>	High	Executive Officer Emergency Management	Jun-11
	<b>Flood</b>						
1	Council to review the detailed flood risk treatment strategies identified by consultants Maunsell Australia in their 2005 report for inclusion in a new City floodplain management strategy.	Yes	Townsville Flood Study	<b>In Progress</b>	Medium	Strategic Planning	2012



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NO	STRATEGY	FORMER THURINGOWA AREA REPORT	ACTION	STATUS	PRIORITY	REPOSNSIBLE OFFICER	TARGET DATE
2	Council establish a rolling program to review & update flood modelling at ten or preferably five-year intervals, in urban areas & rural areas where significant development is planned to take place. Continue research & computerised flood impact modelling to support emergency management planning & operations.	Yes	Townsville Flood Study	<b>In Progress</b>	Medium	Strategic Planning	2012
3	Council investigate the need to undertake an updated flood management study to take account of the upgrade of the Ross River Dam & to incorporate the NQ Water operational procedures for managing flows through the dam into the local disaster management plan.	Yes	Townsville Flood Study	<b>In Progress</b>	Medium	Strategic Planning	2012
4	If indicated by the outcomes of <i>Flood Strategy 3</i> Council investigate the installation of a siren warning system for properties immediately downstream of the dam to be used when flood waters are to be released from the dam.	Yes	To be discussed with BOM and EMQ	<b>No Action</b>	<del>Medium</del> Low	Executive Officer Emergency Management	Mid-11

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5	LDMG ensure that local SES and QPS staffs are made familiar with management arrangements for local flood issues, conduct on-site briefings on the management of the flood threat at identified flash flooding hotspots, especially where road closures are required.	Yes	To be reviewed after completion of Townsville Flood Study	<b>On Hold</b>	Medium	Executive Officer Emergency Management	2012
6	Council records flood inundation information from major events in order to build up a database of records that can be used in responding to future flood events in flood prone areas.	Yes	Townsville Flood Study	<b>In Progress</b>	Medium	Strategic Planning	2012
	<b><i>Storm Tide</i></b>						
1	Council establish a rolling program to review & update storm tide modelling at ten or preferably five-year intervals. Continue research & computerised inundation impact modelling to support emergency management planning & operations.	Yes	To be reviewed in line with City Plan Review (10 Years)	<b>On Hold</b>	Low	Strategic Planning	2015

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3	LDMG to maintain specific evacuation plans for communities in storm tide-prone areas such as Cungulla & parts of South Townsville based on scenarios developed from the modelling.	Yes	Evacuation sub-plan being prepared	<b>In Progress</b>	Medium	Executive Officer Emergency Management	2011
	<b><i>Landslide</i></b>						
1	Stabilise potentially problematic batters or slopes on Council-controlled roads, or erect protective structures (such as mesh fences or bunds) & encourage DMR to undertake similar work on State-controlled roads.	Yes	To be reviewed upon completion of current landslide study	<b>On Hold</b>	Ongoing Medium	Infrastructure Services	Mid 2011
2	Given the uncertainty that exists regarding the potential risks posed by rock falls from Castle Hill being initiated by a close earthquake of moderate or greater magnitude, Council, in conjunction with relevant State agencies, commission specific research to establish an appropriate management strategy.	Yes	To be reviewed upon completion of current landslide study, Castle Hill EMP also in progress	<b>On Hold</b>	Ongoing Medium	Infrastructure Services	Mid 2011

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NO	STRATEGY	FORMER THURINGOWA AREA REPORT	ACTION	STATUS	PRIORITY	REPOSIBLE OFFICER	TARGET DATE
3	Council maintain an ongoing community education program warning about rock falls from Castle Hill & landslides from other steep slope areas such as Mount Louisa.	Yes	To be reviewed upon completion of current landslide study	On Hold	Ongoing Medium	Infrastructure Services	Mid 2011
5	Council investigate technical options for monitoring areas of Castle Hill that have been identified as posing a particular threat from rock falls from steep rock cliffs.	No	Part of Castle Hill EMP process, Environmon rain gauge station installed	In progress	Ongoing Medium	Infrastructure Services	Mid 2011
6	Council establish a MOU with the State Government as to their potential liability should major damage or injury result from a rock fall or landslide from Council-managed State land on Castle Hill.	Yes	To be reviewed upon completion of current landslide study, Castle Hill EMP also in progress	In Progress	Ongoing Medium	Infrastructure Services	Mid 2011
	<b>Bushfire</b>						
2	Incorporate the updated bushfire hazard potential mapping, done to SPP 1/03 standards, into the new Townsville City Plan.	Yes	Bushfire Study Report forwarded to City Plan Unit	In Progress	High	Executive Officer Emergency Management	2012

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4	Council adopt as policy for managing fuel on council-controlled land: (a) the fire management principles & practices identified by the FABC & QPWS which seek to strike a balance between community safety & preserving biodiversity; (b) recognition of the principle that the need for fuel reduction to improve community safety will take precedence over consideration of smoke pollution from prescribed burning.	Yes	To be assed by Bushfire Management and Bushfire Management Working Group	In Progress	Medium	Bushfire Management Officer	Mid 2011
5	Conduct an annual audit of fuel conditions on Council-controlled land.	Yes	To be assessed by Bushfire Management Officer and Bushfire Management Working Group	In Progress	Medium	Bushfire Management Officer	Mid 2011
6	Based on the results of those audits, allocate adequate human & equipment resources, including QFRS support, to initiate a sustainable program of fuel management on Council-controlled land, with the land with the greatest level of hazard being treaded as soon as possible.	Yes	To be assessed by Bushfire Management and Bushfire Management Working Group	In Progress	Medium	Bushfire Management Officer	Mid 2011

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7	Council, QPWS & Department of Defence, in conjunction with QFRS, adopt a maximum desirable fuel loading in bushland interface areas within the study area (e.g. 12 t/ha). Develop strategies to monitor & maintain that loading level, especially in areas adjacent to critical infrastructure & the urban interface.	Yes	To be assessed by Bushfire Management and Bushfire Management Working Group	<b>In Progress</b>	Medium	Bushfire Management Officer	Mid 2011
9	Draw to the attention of building certifiers & developers operating in the City the existence of the <i>natural hazard management area (bushfire)</i> mapping & the responsibility they bear to ensure that the provisions of AS 3959 with regard to design & construction standards within those areas designated as being fire-prone, together with appropriate subdivisional design & sitting principles identified by CSIRO & others, are complied with.	Yes	Process to be formalised with Planning Department	<b>On Hold</b>	Low	Executive Officer Emergency Management	Mid 2011
	<b><i>Earthquake</i></b>						

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FORMER THURINGOWA CITY COUNCIL AREA EXECUTIVE REPORT**

NO	STRATEGY	FORMER THURINGOWA AREA REPORT	ACTION	STATUS	PRIORITY	REPOSNSIBLE OFFICER	TARGET DATE
1	Commission a detailed site class study of the urbanised area to improve the resolution & accuracy of the class zones suggested in this study. From that analysis identify specific building types that may be exposed to amplified earthquake shaking.	Yes	Strategy to be reassessed	<b>On Hold</b>	Low	Technical Services Infrastructure Services	2011
2	Ensure all new buildings comply with the BCA earthquake loading code (AS1170.4) as modified by the revised acceleration factors. Encourage owners of existing buildings to upgrade their properties to current standards when undertaking structural renovations or extensions.	Yes	2. Upgrade of existing buildings to be reviewed with Planning and Development	<b>On Hold</b>	Low	Executive Officer Emergency Management	2011
3	Conduct an audit of all Council buildings & where appropriate retrofit all those deemed to be potentially unsafe in an earthquake or Richter magnitude 5.0 or greater.	Yes	Project to be considered in conjunction with Property Services	<b>On Hold</b>	Low	Executive Officer Emergency Management	2012
4	Educate the public about what to do in an earthquake.	Yes	Incorporated within Community Awareness Plan, EMA brochures available	In Progress	Medium	Executive Officer Emergency Management	Dec-11

## **CONCLUSIONS**

The population and infrastructure vulnerability to a natural disaster in the former Thuringowa area is similar to the former Townsville study area and, except where specific treatments are identified for specific locations (Castle Hill), the treatment strategies apply to both areas.

The hazard study reports commissioned for the former Thuringowa area have highlighted additional treatment strategies and it is considered that these apply to the whole Townsville area.

As a result the combination of the two treatment strategies are to be implemented across the amalgamated city.