

Date:

11/11/11

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Exhibit Number:

1021

Queensland
Government

Director-General Briefing Note

Minister Reference No:

02882-2009

Date: 11 August 2009

Title: Climate Change and Inland Flooding Project

1. Background

- The Guideline supporting State Planning Policy 1/03: *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (SPP 1/03) requires local governments to address the potential impacts of climate change when conducting flood studies, but is silent as to how that should be done.

2. Issues

- This is a complex area where the science needed to definitively guide policy settings is still maturing.
- At the instigation of the Local Government Association of Queensland (LGAQ), the Department of Environment and Resource Management (DERM) have proposed a joint LGAQ and Queensland Government project to identify a methodology to manage inland flood risks in a climate change environment.
- The Terms of Reference for the project are attached. They assign a leading role to the Department of Infrastructure and Planning (DIP), with a view to:
 - reviewing relevant science and flood models;
 - reviewing Queensland's current policy approach to flood risk management;
 - assessing alternative policy approaches to flood risk management; and
 - proposing policy options for improved flood risk management in Queensland.
- Within this framework, the Department of Community Safety's (DCS's) role is to provide expert advice on costs associated with residual flood risks, disaster mitigation and emergency response.
- This study focussed on Gayndah, together with complementary research through the National Climate Change Adaptation Research Facility (NCCARF) on Charleville and Mackay, will inform Draft Actions 25 and 26 of the recently released Draft SEQ Climate Change Management Plan, which call for:
 - review and update of SPP 1/03 and supporting guidelines; and
 - development of guidelines for the preparation of hazard and risk mapping, including the projected effects of climate change on natural hazards within the scope of the revised SPP 1/03.

3. Consultation

- Agencies directly involved and supportive of the Terms of Reference include the Office of Climate Change, LGAQ, DIP, DCS and DERM.

4. Recommendation

- That you note this brief

Gary Marston
ASSISTANT DIRECTOR-GENERAL
STRATEGIC POLICY DIVISION

19/8/09
Action Officer:
Area: Policy & Legislative Reform
Telephone: 94722 (0409 474 813)

DIRECTOR-GENERAL

EO:

CO:

Terms of Reference
Climate change and inland¹ flooding

**A joint Queensland Government and
Local Government Association of Queensland project**

Project Background

Attachment A outlines the catalyst for the project, as well as general information on current policy and scientific settings.

Project Objectives

- To identify an updated and effective policy approach to managing inland flood risks in a changing climate that:
 - Takes account of the latest climate change science;
 - Recognises the need to better manage existing flood risk as well as any increase in residual risk from climate change;
 - Recognises the need for a flexible policy approach that will be responsive to scientific developments; and
 - Aligns effort at state and local levels having regard to broader Queensland and Australian governments' climate change agendas.

Project Methodology and Terms of Reference (TOR)

Using a case study approach, this project will:

1. Review relevant science and flooding models with a view to developing an improved methodology for assessing inland flooding risk in a changing climate;
2. Review the current policy approach to flood risk management;
3. Assess alternative policy approaches to flood risk management and the adaptability/effectiveness of current policy measures to future flood events under a changing climate; and
4. Recommend specific policy options for improved flood risk management in the case study area and identify general policy options for consideration as part of the forthcoming review of State Planning Policy 1/03 *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (SPP 1/03).

Outline of associated tasks within each TOR

1. ***Review relevant science and flooding models***
 - Assess the adequacy of the specific approach used in the Gayndah Flood Study (2008) to determine increased risk from climate change.
 - In that context, analyse the adequacy of contemporary climate change science to project and define increased land based flood risks from climate change including:
 - the validity of available scientific data on rainfall intensity and duration (including specifically in the case study area); and
 - the feasibility of projecting rainfall intensity data in a changing climate for use in flood modelling.
 - Review existing flood risk modelling/methodologies to identify the extent to which the current approaches can be modified to manage flood risk in a changing climate. This should include consideration of whether any other jurisdiction has

¹ Inland flooding means: the temporary inundation of land by expanses of water that overtop the natural or artificial banks of a watercourse i.e. a stream, creek, river, estuary, lake or dam.

developed a valid methodological approach for coincident flooding (i.e. coastal plus inland).

- Convene expert technical advisory group/s as required to develop and test alternative methodological approaches.
 - Trial alternative approach/es in case study area.
 - Prepare a report, which will include recommendations on:
 - An improved methodology for assessing inland flooding risk that considers how to take into account climate change; and
 - A process to fill any identified gaps in the existing science framework.
- 2. *Review current policy approach to flood risk management in Queensland***
- Review current local, regional and statewide policy responses to flood risk management in Queensland.
 - Produce a brief overview of Queensland's current policy approach.
- 3. *Assess alternative policy approaches to flood risk management***
- Review selected national and international approaches to flood risk management, including any proposed actions coming out of the Council of Australian Governments (COAG).
 - Assess alternative policy approaches and compare with Queensland's current policy approach.
 - Produce a brief comparative overview of flood risk management approaches, including an assessment of their effectiveness to manage flood risks in a changing climate.
- 4. *Propose policy options for improved flood risk management in Queensland***
- Convene expert policy/technical advisory group/s as required to analyse findings from TORs 1 to 3 and provide advice on a recommended approach.
 - Develop final report recommending:
 - An improved methodology for assessing inland flooding risk that considers how to take into account climate change;
 - Specific policy options for improved flood risk management in the case study area;
 - A process to fill any identified gaps in the existing science and policy frameworks; and
 - General policy options for consideration as part of the review of SPP 1/03.

Project Deliverables

- A final report recommending:
 - An improved methodology for assessing inland flooding risk that considers how to take into account climate change;
 - Specific policy options for improved flood risk management in the case study area;
 - A process to fill any identified gaps in the existing science and policy frameworks; and
 - General policy options for consideration as part of the review of SPP 1/03.
- A draft plan to implement the report findings together with an estimate of associated costs.

Project Partners

- The project will be coordinated by the Office of Climate Change (OCC) in partnership with the Local Government Association of Queensland (LGAQ), Department of Infrastructure and Planning, Department of Environment and Resource Management, and the Department of Community Safety.
- "Lead" partners have been identified for each of the TORs; other partners will be required to contribute to the development of those TORs as required.
- The final report (TOR4) will be signed-off and agreed by all partners.
- Other relevant Queensland Government agencies will be informed and consulted on the project through the Queensland Climate Change Reference Group and Local Governments consulted through the LGAQ network.

Roles and Responsibilities

OCC, including QCCCE	<ul style="list-style-type: none">• Project coordinator.• In relation to each of the TORs, responsible for the provision of advice on climate change science and policy, including state and national climate change agendas.• Lead responsibility for TOR 1 (science).• Joint lead with DIP for development of TOR 4 (final report).
LGAQ	<ul style="list-style-type: none">• In relation to each of the TORs, responsible for the provision advice on local government policy and practice and coordinating local government liaison and input as required.
DIP	<ul style="list-style-type: none">• Responsible for leading the review of the current policy approach to flood risk management (TOR 2) and assessing alternative policy approaches (TOR 3).• Lead responsibility for TORs 2 and 3 (policy response).• Joint lead with OCC for TOR 4 (final report).
DCS	<ul style="list-style-type: none">• In relation to each of the TORs, responsible for the provisions of expert advice on the cost and effectiveness of existing and potential future residual flooding risks and linkages with disaster mitigation and emergency response.
DERM	<ul style="list-style-type: none">• In relation to each of the TORs, responsible for the provision of modelling data and expert advice on flood planning, policy and risk management.

Project Milestones

August 2009	<ul style="list-style-type: none"> • Agree final TOR. • Exchange of letters between Councillor Paul Bell and the Honourable Kate Jones MP, Minister for Climate Change and Sustainability, reflecting TOR agreement. • DIP and QCCCE to establish project teams and project plans for TORs 1, 2 and 3.
September 2009	<ul style="list-style-type: none"> • Finalise coordinated project plans for science and policy reviews (TORs 1, 2 and 3).
October 2009	<ul style="list-style-type: none"> • Produce a brief overview of Queensland's current policy approach to flood risk management (TOR 2). • Commence analysis and comparison with policy approaches in other jurisdictions (TOR3).
December 2009	<ul style="list-style-type: none"> • Produce a brief comparative overview of flood risk management approaches in other jurisdictions, including an assessment of their effectiveness to manage flood risks in a changing climate (TOR 3). • Identify updated methodology for assessing flood risk in case study area (TOR 1). • Provide update to Queensland Reference Group and LGAQ networks on research and findings to date.
January to March 2010	<ul style="list-style-type: none"> • Trial methodological approach in case study area. • Re-test where necessary and finalise methodological approach. • Finalise scientific report (TOR 1).
April to May 2010	<ul style="list-style-type: none"> • Taking inputs from TORs 1, 2 and 3, commence analysis of policy options for improved flood risk management in the case study area and for consideration as part of the review of SPP 1/03.
June 2010	<ul style="list-style-type: none"> • Prepare draft of the final report (TOR 4). • Submit draft report to the Queensland Reference Group and LGAQ networks for review.
July 2010	<ul style="list-style-type: none"> • Finalise report. • Develop implementation plan.

Project Background

Gayndah example

The former Gayndah Shire Council undertook a flood study as part of the Natural Disaster Mitigation Program approved by the then Department of Emergency Services and funded by the Australian and Queensland Governments. The study began early in 2008 and was completed by July 2008 when the final consultant report was presented to the new North Burnett Regional Council. The final consultant's report recommended that the Council adopt a climate change impact allowance of 20% (i.e. "increase river peak flow discharges of design floods by 20%", *Gayndah Flood Study Final Report Volume 1*, BMT WBM, 2008, pvii).

The North Burnett Regional Council is concerned whether this is an accurate representation of the risk as it equates to a change in the current Defined Flood Event from a 1% Annual Exceedence Probability (AEP) flood to a 0.5% AEP² with a subsequent increase in the area of Gayndah township that would be considered at flood risk for the land use planning and development assessment purposes.

The Council sought advice from LGAQ on the appropriateness of the consultant's approach and assistance in seeking definitive advice from the state government on the appropriate consideration required to address climate change impacts on the extent and frequency of flooding for land use planning purposes.

Policy Context

The largest flood that could conceivably occur at a particular location, resulting from the probable maximum precipitation, is termed the Probable Maximum Flood (PMF). The PMF determines a floodplain area. It is generally impractical to adopt the PMF as the defining limit for land use and development.

SPP 1/03 requires local governments to determine a *Defined Flood Event* (DFE) to set limits for land use and development in any floodplain area. SPP 1/03 specifies the 1% Annual Exceedence Probability (AEP) — also termed the 100 year Average Recurrence Interval (ARI) or Q100 — as the preferred DFE for land use planning. SPP 1/03 guidelines indicate that the residual risk (above the DFE) should be addressed in Local Government Counter Disaster Plans and emergency procedures.

The DFE is used to determine a flooding Natural Hazard Management Area (NHMA) and is identified in planning schemes as an overlay. A flood study is required to determine this NHMA for each river catchment. SPP 1/03 requires that development proposals in NHMAs should be compatible with the nature of the natural hazard as determined by Annex 4 of the SPP. It also states that climate change impacts should be considered when undertaking natural hazard assessments but provides no guidance for this. This project will aim to fill this policy gap.

Historically, the Q100 has typically been used as the default flood level, noting that not all local governments have undertaken a flood study to determine their *actual* flood risks. There has been minimal public communication of the level of inherent risk with the Q100 (i.e. development above the line still bears some flooding risk) and

² This is in reference to the increase in physical extent of flooding.

minimal assessment of the consequences of larger, less frequent floods (the residual risk between the Q100 and the PMF).

Given that local governments may - under SPP 1/03 - determine a DFE below the Q100 and given that slab on ground development is more affordable than raised development, it is possible that the current policy framework for flood planning and development assessment compound flood risks in some instances.

Scientific Context

The DFE is determined retrospectively from either a flood frequency analysis where sufficiently long stream flow records exist or an hydrologic study using rainfall to model stream flows. However, what is required to address increased flood risks from climate change is a prospective mechanism to determine change in geographic area and flooding intensity (extent/depth/frequency) in a changing climate. This will assist local government to establish DFEs that better identify prospective flood risks and associated management responses.

There are considerable scientific challenges associated with developing reliable climate change projections at the regional and sub-regional levels, particularly in relation to rainfall intensity and flooding. Climate change projections from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) may not be adequate for use in determining climate change affected flood assessments. The global models tend to underestimate rainfall intensity as they are not run at a sufficiently fine resolution to adequately model clouds and convection processes. The models are also not able to adequately simulate large scale intense tropical storms, such as cyclones.

Any updated methodological approach for determining flood risk in a changing climate will need to be useable as an overlay in planning schemes and able to be used efficiently by developers and councils in preparing and assessing development applications.

There are a number of current projects that could have potential synergies with the science component of this project and used to inform the outcomes including:

- The Hadley Centre ACRE data set;
- Engineer's Australia and the Bureau of Meteorology review of the Australian Runoff and Rainfall manual;
- CSIRO (Debbie Abbs) rainfall intensity studies;
- The New South Wales floodplain Manual;
- The Generalised Tropical Storm Method for Estimating Probable Maximum Precipitation (DERM and others);
- DERM's Regional water supply strategies which include consideration of climate change;
- DERM's tools for assessing flooding risks;
- The Urban Water Alliance downscaled climate change information for South East Queensland; and
- The flood study undertaken for Gayndah local government area.

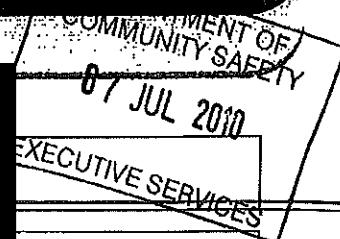
QFCOI Request 26 October 2011, Ref 1763057

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Executive Briefing Note

Requested by: [REDACTED] ED PLR

Critical ☐Urgent ☐General ☒

Ref: 05075-2010

CSD ☐ EMQ ☐ QAS ☐ QCS ☐ QFRS ☐ SPD ☒Briefing note for approval ☒Briefing note for information ☐

To: Director-General

Subject: SPP 1/03 Review: Project Manager

Date: 22/06/10

1. Background

- Under the State Planning Instrument (SPI) program administered by the Department of Infrastructure and Planning (DIP), the Department of Community Safety is required to review State Planning Policy (SPP) 1/03: *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* and establish appropriate planning instrument(s) for the future. The process is to be completed by September 2013.

2. Issues

- The review and remake of SPP 1/03 is also one of 18 action plans in the South East Queensland (SEQ) Climate Change Program, administered by DIP but in reality driven by the Office of Climate Change (OCC). This action plan (Attachment 1) includes a provisional set of milestones and responsibilities for the SPP review and remake.
- DIP, Department of Environment and Resource Management (DERM) and Local Government Association Queensland (LGAQ) have agreed to be contributing partners, with Bureau of Meteorology (BoM) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) as interested agencies.
- The Treasury has already ruled that all aspects of the SPI and SEQ Climate Change Program must be funded within departments' existing allocations. Since land use planning (LUP) is recognised as the most effective disaster resilience instrument, the SPP 1/03 review and remake process is eligible for support from the Natural Disaster Resilience Program (NDRP).
- Governance of the review and remake will sit in Policy and Legislative Reform with Mr Graham Wiltshire as the project director. However, with all LUP officers (up to three, one of whom works part time and intends to retire completely in November 2011) fully engaged on existing work, it is necessary to engage a project manager for the two year period planned for the review and remake.
- Given the complexity and level of responsibility associated with the project (including the specification and management of outsourced contracts, leading a multi-agency steering group, preparing submissions and public consultation material), it is proposed to temporarily engage a project manager at A08 level for two years commencing in August 2010.
- Full remuneration costs would be \$111,226 in 2010-11 and \$115,675 in 2011-12. Your approval is sought to draw these funds (\$226,901) from the strategic allocation of NDRP. Emergency Management Queensland (EMQ) and LGAQ are agreeable to this approach.

- As the project proceeds, further funding will be sought from NDRP to support: 1) outsourced technical studies on contemporary best practice in bushfire and landslide mitigation; and 2) a contract with a firm of professional planners to write the new planning instrument. The value of these components has yet to be determined but is expected to be less than \$250,000.

3. Is this in accordance with Government election commitments?

- N/A

4. Consultation

- Consultation has occurred with LGAQ and EMQ.

5. Total Cost of Project and Funding Source

- Up to \$500,000 over two years.

6. Has this matter been considered by a DCS Executive Committee?

- N/A

7. If this brief includes a new policy; publication; report; initiative or is a change in a policy or publication, is this information suitable for release on the Right to Information Publication Scheme web pages?

- Yes

8. Recommendation

- That you
 - Note the intention to proceed with the review and remake of SPP 1/03.
 - Approve allocation of \$243,219 from the NDRP strategic allocation over two years to fund the engagement of an AO8 as the project manager.


Gary Mahon
ASSISTANT DIRECTOR-GENERAL
STRATEGIC POLICY DIVISION

8/7/10


DIRECTOR-GENERAL

9/7/10

~~Noted~~ / ~~Approved~~ / ~~Not Approved~~

Comments:



SEQ Climate Change Program

Action Plan 14

June 2010

Summary

Title	Review State Planning Policy 1/03: <i>Mitigating the Adverse Impacts of Flood, Bushfire and Landslide</i> Including the projected effects of climate change and contemporary best practice disaster mitigation
Status	New
Commencement	August 2010
Completion	Not later than September 2013
Lead agency	DCS
Contributing partners	DIP, DERM, LGAQ

Notes for publication in the SEQRP CCP

Goal/purpose

The review of State Planning Policy (SPP) 1/03 Mitigating the adverse impacts of flooding, bushfires and landslides is required on a state-wide basis under the *Sustainable Planning Act 2009* (SPA) which calls for all State Planning Policies (SPP) to be reviewed within 10 years of initiation; ie by September 2013. The review will commence in August 2010 in line with the first round of the State Planning Instruments (SPI) Program.

The purpose of the review is to recalibrate new development land use planning constraints to mitigate the adverse impacts of flood, bushfire and landslide. In particular, the review will take account of the impacts of climate change on risk and include contemporary best practice disaster mitigation procedures.

Key issues

The key deliverable will be a state planning instrument or set of state planning instruments and supporting mechanisms that outline straightforward, unambiguous, and effective planning procedures that minimise the impacts of flood, bushfire and landslide on future new development.

Staged deliverables

Stage 1: Review of SPP 1/03 and proposal for future direction
Stage 2: Instrument development under SPI Program

Stakeholder engagement

The review will be progressed as a state-wide initiative with support from DIP, DERM and LGAQ as contributing partners. The program of work will take account of climate change. However, the work packages, stakeholder engagement, timelines, and deliverables will be driven by SPA, which requires the current SPP to be reviewed before September 2013 and also the SPI program, which establishes an annual forward program of state planning instruments to be developed.

Significant related actions

Lead in work is already being conducted through the Joint LGAQ and State Government Project on Inland Flooding. That project is due to complete in mid-2010 at which point the review of SPP 1/03 will commence. The outputs of the Inland Flood Project will be further developed as part of the SPP review. Concurrently, the recommendations of the Victorian Bushfire Royal Commission will be adapted for the needs of Queensland. In addition, the review will take on the lessons from contemporary best practice in landslide risk assessment and mitigation.

The review is expected to be complete by no later than September 2013.



Additional information

(a) Project management

Organisation	Project Director (name, email, phone)	Project Manager (name, email, phone)
Lead agency		
DCS	[REDACTED] [REDACTED]	To be nominated idc
Contributing partners		
DIP	[REDACTED] 3247 3053	[REDACTED] Sr Project Officer [REDACTED] 3224 5723
DERM (OCC)	[REDACTED] 3330 6745 Coordinating on behalf of: <ul style="list-style-type: none"> o Peter Artemieff (cc [REDACTED] Peter Allen), Environment and Natural Resource Regulation o [REDACTED] (cc [REDACTED] Water Quality and Accounting o [REDACTED] cc John Ruffini, Environmental Sciences o [REDACTED] Queensland Climate Change Centre of Excellence o [REDACTED], Office of Climate Change o [REDACTED] Land Management and Use [REDACTED], Queensland Parks and Wildlife Service 	
LGAQ	Greg Hoffman [REDACTED] [REDACTED]	[REDACTED] [REDACTED] 3000 2222 [REDACTED] 3000 2226
Interested agencies		
BOM	Peter Baddiley / [REDACTED] [REDACTED] 3239 8768	
CSIRO SEQ-CARI	[REDACTED] [REDACTED] 3214 2359	

(b) Key responsibilities

Lead agency	
DCS	Lead the review of SPP 1/03
Contributing partners	
DIP	Provide advice on land use planning aspects of the review including: the most appropriate planning instrument to achieve the desired planning outcomes; and planning implementation issues.
DERM	<ul style="list-style-type: none"> o Policy coordination to provide DERM Input to the review of SPP 1/03 (Strategic Policy) o Provide advice on technical aspects of inland flooding (Environment and Natural Resource Regulation) o Provide advice on technical aspects of inland flooding and bushfire (Environment and Resource Sciences, Queensland Parks and Wildlife Service and Land Management & Use) o Provide advice on technical aspects relating to data provision for inland flooding and bushfire (Water Quality and Accounting, Land Management and Use, Queensland Parks and Wildlife Service) o Provide regional climate change projections for assessment of inland flooding and bushfire risk, and rainfall projections to contribute to assessment of landslide risk (Queensland Climate Change Centre of Excellence, Office of Climate Change)
LGAQ	Support the engagement of local government in the review process and advise on implementation issues for the revised planning instrument(s).

(c) Estimated resources – to be confirmed.

Staff (FTE)

<i>Financial year</i>	<i>2010/11</i>	<i>2011/12</i>	<i>2012/13</i>
Existing / committed			
Proposed / additional			
Total			

Funds (\$)

<i>Financial year</i>	<i>2010/11</i>	<i>2011/12</i>	<i>2012/13</i>
Existing / committed			
Proposed / additional			
Total			

(d) Key milestones and responsibilities – to be confirmed

	<i>Milestone / Key deliverable</i>	<i>Approx date (month / year)</i>	<i>Responsible organisation</i>	<i>Status</i>
1.	Agree project governance, work plan and budget	Aug – Sep 2010	DCS with DIP, DERM and LGAQ	
2.	Conduct survey of local government feedback on existing SPP 1/03	Sep - Dec 2010	DCS with LGAQ	
3.	Assimilate outputs from the LGAQ flood study concerning contemporary best practice for flood mitigation and the impacts of climate change	Sep - Dec 2010	DCS supported by DIP, DERM and LGAQ	
3.	Outsource technical study of climate change impacts and contemporary best practice in bushfire mitigation taking in recommendations of the Victorian Bushfire Royal Commission	Oct 2010 – Mar 2011	DCS supported by DERM	
4.	Outsource technical study of climate change impacts and contemporary best practice in landslide mitigation	Oct 2010 – Mar 2011	DCS	
5.	Review planning options for implementation of flooding, bushfire and landslide mitigation	Nov 2010 – Apr 2011	DCS and DIP	
6.	Decide policy, planning and technical solution to implement future mitigation of flood, bushfire and landslide	Apr – Jun 2011	DCS supported by DIP, DERM and LGAQ	
7.	If necessary, conduct public consultation of proposed solution	Jun – Dec 2011	DCS	
8.	Annual program reporting as required under the SPI program	August 2011	DCS	
9.	Outsource preparation of the revised planning instrument(s)	Over 6 months from Jul 2011 or Feb 2012 depending on need for public consultation	DCS supported by DIP	
10.	Review revised planning instrument(s) once prepared	Over 1 month from Aug 2011 or Mar 2012 depending on need for public consultation	DCS supported by DIP, DERM and LGAQ	
11.	Develop an implementation strategy (e.g. resourcing; training of assessors and end users; communication strategy).	While revised planning instrument is being prepared.	DCS	

(f) Comments

The above milestones will be confirmed upon commencement of the review in August 2010.

Funding will be derived from the Strategic Fund component of the Natural Disaster Resilience Program



Minister's Briefing Note

DEPARTMENT OF
COMMUNITY SAFETY

12 NOV 2010

Amy

Requested by: SPA

EXECUTIVE SERVICES

Critical ☐Urgent ☒General ☐

Ref: 08590-2010

CSD ☐EMQ ☐QAS ☐QCS ☐QFRS ☐SPD ☒Briefing note for approval ☐Briefing note for information ☒Subject: Joint Queensland Government LGAQ Inland Flood Study and
the Review of SPP 1/03

Date: 11/11/10

1. Background

- On 10 November 2010, the Honourable Kate Jones MP, Minister for Climate Change and Sustainability issued a press release (attachment 1) reporting the results of the joint Queensland Government and Local Government Association of Queensland (LGAQ) inland flood study. A final report (attachment 2) was also made available on the Department of Environment and Resource Management (DERM) website.

2. Issues

- The Inland Flood Study came about as a result of an LGAQ request for a benchmark figure to take climate change into account when assessing inland flooding risk for land use planning purposes. The method of analysis was a case study based upon Gayndah in North Burnett.
- The study was led by DERM (climate change science) and the Department of Infrastructure and Planning (DIP) (planning implications). The Department of Community Safety (DCS), LGAQ, Bureau of Meteorology and CSIRO played a full part in the study.
- The main purpose of the study was to determine the change in extreme event rainfall resulting from climate change. A secondary objective was to assess the implications for future land use planning policy as a lead in to the programmed review of SPP 1/03: *Mitigating the Adverse Impacts of Flood Bushfire and Landslide*.
- A Scientific Advisory Group, led by DERM's Office of Climate Change (OCC), concluded that extreme event rainfall would increase by 5 percent for every 1 degree Celsius increase in global temperature. According to the latest climate change predictions this translates to a 10 percent increase in extreme event rainfall by 2050, and 20 percent by 2100.
- A Planning Advisory Group, led by DIP, then considered land use planning policy consequences specifically for Gayndah only. The approach adopted moved away from the traditional "only build above Q100 approach", to one based upon contemporary United Kingdom practise that uses flood hazard zones covering a range of flood hazard risk levels and which encourages development to occur in less flood-prone locations than above the Q100 line.
- As the full report states, these land use planning policy recommendations are transitory arrangements for Gayndah only in advance of the review of SPP 1/03 and that, until this review is complete, councils must continue to set their planning schemes in accordance with the existing SPP 1/03. An important point is that the transitory proposals for Gayndah lack statutory weight and leave the council open to challenge in the Planning Court.



- DERM's press release omitted the key point that the land use planning proposals were transitory, for Gayndah only, lacked statutory weight, and that SPP 1/03 remains the only statutory instrument for councils to apply until the review of that SPP is complete. We understand that the Honourable Stirling Hinchliffe MP, Minister for Infrastructure and Planning, had personally approved text that clarified these points but that this text was excluded from the final press release. ~~DCS was not consulted over the press release~~
 - The final report also makes a series of recommendations to be taken forward in the review of SPP 1/03. DCS agrees with these recommendations.
 - The review of SPP 1/03 is underway under DCS leadership and with support from DIP, DERM and LGAQ as was planned. SPP reviews must follow a standard procedure specified by DIP. The first step will be a policy issues paper that is intended to be offered to you and Minister Hinchliffe at the end of February 2011. Following studies, a draft revised SPP will be offered to Ministers before public consultation and final Cabinet approval of the revised SPP. The process is expected to complete in early 2013.
 - Emergency Management Queensland (EMQ) and the Queensland Fire and Rescue Service will be closely involved in the SPP review. Although intended chiefly for land use planning, the inland flood study conclusions on changes to extreme rainfall are being explained to EMQ for wider dissemination to the regions and councils.
 - In addition to including climate change impacts and an improved land use planning methodology, DCS intends the revised will strengthen the link between land use planning and disaster planning. This will include involving local disaster managers in land use planning decisions such that residential development decisions are conditioned by the disaster management consequences, including evacuation.
 - The decision by DERM and DIP to make the press release without consulting DCS reflects wider concerns we hold over critical land use planning regulations being concluded without proper regard to the disaster management consequences. The most acute current example is the draft Queensland Coastal Plan (QCP) due to Cabinet before then end of the year that proposes to permit residential development in the coastal zone with up to 1m of water at an occurrence of Q100.
3. Is this in accordance with Government election commitments?
- N/A
4. Consultation
- Mr Bruce Grady, Chief Officer, EMQ.
5. Total Cost of Project and Funding Source
- Natural Disaster Resilience Program (NDRP) is contributing \$300,000 for a DERM-led study of coincident flooding – i.e. as a result of sea level rise, storm surge and riverine flooding.
 - Additional studies and staff support for the SPP review will be drawn from NDRP.
6. Has this matter been considered by a DCS Executive Committee?
- N/A
7. Is Governor-In-Council Approval Required?
- N/A

8. If this brief includes a new policy; publication; report; initiative or is a change in a policy or publication, is this information suitable for release on the Right to Information Publication Scheme web pages?

- N/A

9. Recommendation

- That you note the conclusions of the Inland Flood Study and plans for the review of SPP 1/03.

Gary Mahon
ASSISTANT DIRECTOR-GENERAL
STRATEGIC POLICY DIVISION

12/11/10

DIRECTOR-GENERAL

15/11/10

MINISTER FOR POLICE, CORRECTIVE SERVICES
AND EMERGENCY SERVICES

29/11/10

Noted / Approved / Not Approved

Comments:

* Further briefing / meeting needed to discuss
NSR/DIP consultation issues and possible future actions
to address this.

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Minister for Climate Change and Sustainability
The Honourable Kate Jones
10/11/2010

FLOODING STUDY TO HELP COUNCILS PLAN FOR FUTURE RISKS

A new Queensland Government and LGAQ study is encouraging Queensland councils to move away from 1 in 100 year flood planning and focus more on likely future increases in rainfall intensity brought about by climate change.

Climate Change and Sustainability Minister Kate Jones today released the joint Inland Flood Study at LGAQ's annual environment conference on the Gold Coast.

Ms Jones said the Inland Flooding Study recommended a new formula for councils when factoring flood risk into their planning decisions.

"Flooding cost state and local governments more than \$200 million in damage to infrastructure following heavy rain across North West Queensland and in Mackay in 2009," Ms Jones said.

"That was followed by extensive flooding in March this year in South West Queensland and more heavy rains fell in October in the South East.

"These weather events are a reminder of why we need to ensure councils have the information and support they need to better plan for these risks.

"Using Gayndah as a case study, we've provided a benchmark to assess increased flood risk together with examples of how local governments can better deal with that risk."

LGAQ President Cr Paul Bell said the study demonstrated the value of a collaborative approach between the state government and local councils.

"This study addressed an intractable issue and produced a practical result of immense benefit to all involved in dealing with the implications of climate change in planning," Cr Bell said.

Minister for Infrastructure and Planning Stirling Hinchliffe said land use planning was important for all Queensland communities.

"The latest climate science will help inform the way we deal with potential impacts in local planning schemes," Mr Hinchliffe said.

"The location and design of new development is a key issue and we need flexible policy options that recognise a range of pathways for dealing with flood risks.

"This study recognises that there are several ways local governments can consider these issues in their planning schemes."

Ms Jones said the Bligh Government is committed to working with councils to plan for extreme flooding events to ensure a sustainable future for Queensland communities.

"The Gayndah study shows that planning for the old 1 in 100 year flood event is not sufficient to protect inland areas from inundation in the future," she said.

"Instead we're recommending that local governments adopt a climate change factor for increased rainfall intensity of 5 per cent per degree of global warming and incorporate this into local flood studies and planning schemes.

"This will increase the amount of land considered flood prone over time and enable councils to make informed decisions and provide better advice to residents.

"This is the first time definitive advice on how to plan for more intense flooding under climate change has been provided in Queensland."

The Inland Flood Study project is a collaboration with local government, scientists and flood specialists from leading organisations including the Bureau of Meteorology, CSIRO, the National Climate Change Adaptation Research Facility, the Walker Institute for Climate System Research and the University of Queensland.

Officers from the Department of Environment and Resource Management and the Department of Infrastructure and Planning will now work with local Councils on key findings resulting from the study.

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Increasing Queensland's resilience to inland flooding in a changing climate:

Final report on the inland flooding study

A joint project of:

Department of Environment and Resource Management

Department of Infrastructure and Planning

Local Government Association of Queensland

Prepared by:

Office of Climate Change—Department of Environment and Resource Management
Department of Infrastructure and Planning
Local Government Association of Queensland

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Executive summary

Flooding causes significant impacts on Queensland communities and the economy—and with our changing climate, flooding events are likely to become more frequent and more intense. Effective land use planning will ensure our communities are ready for the impacts of climate change.

The Local Government Association of Queensland (LGAQ) approached the Queensland Government to provide a benchmark figure for taking climate change into account when assessing inland flooding risk.

An Inland Flood Study project was established by the Minister for Climate Change and Sustainability and the Minister for Infrastructure and Planning in partnership with LGAQ to deliver:

1. An improved methodology for assessing inland flooding risk while accounting for climate change.
2. Specific policy options for improved flood risk management in the case study area—Gayndah in the North Burnett Regional Council.
3. General policy options for consideration as part of the review of State Planning Policy 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (SPP 1/03).

As a result, this Inland Flood Study combines the best available science and planning options to provide clear guidance and practical tools and enhance flood risk management by local governments.

This study provides Queensland local governments with a climate change factor for increased rainfall intensity for incorporation into flood studies. It proposes a 5% increase in rainfall intensity per degree of global warming.

This 5% increase in rainfall intensity per degree of global warming can be incorporated into the 1% (Q100), 0.5% (Q200) and 0.2% (Q500) Annual Exceedance Probability (AEP)¹ flood events recommended in SPP 1/03. For the purpose of applying this climate change factor local governments should use the following temperature increases and planning horizons: 20°C by 2050, 30°C by 2070 and 40°C by 2100.

This climate change factor will be reviewed and updated when a national position on how to factor climate change into flood studies is finalised as part of the current review of Australian Rainfall and Runoff Engineers Australia Publication (AR&R). The outcomes of this review are not expected to be available before 2014.

In the interim, local governments can use the recommended climate change factor from this project to better identify flood risks. Further technical information on how this climate change factor was derived can be found at <www.derm.qld.gov.au>.

Using this climate change factor, the Inland Flood Study developed recommended policy options to incorporate climate change into the flood risk management framework for Gayndah. These options are included in a draft flood constraint code for assessing development applications, which defines four flood hazard areas linked to the 1% (Q100), 0.5% (Q200) and 0.2% (Q500) AEP flood levels. The draft flood constraint code outlines the appropriate land uses for each of these hazard areas. This is a major step forward in shifting the focus from the 1% AEP (Q100) as the only relevant flood level for residential development to the reality that there are varying levels of flood risk that local governments need to consider.

The recommendations also include two implementation options for addressing the increased flood intensity risk from climate change. These two options allow the North Burnett Regional Council to choose how best to represent this risk in its planning scheme.

The first option uses three new flood maps that include the climate change factor:

- Map 1: 1% (Q100), 0.5% (Q200) and 0.2% (Q500) AEP flood extents projected for 2050.
- Map 2: 1% (Q100), 0.5% (Q200) and 0.2% (Q500) AEP flood extents projected for 2070.
- Map 3: 1% (Q100), 0.5% (Q200) and 0.2% (Q500) AEP flood extents projected for 2100.

These maps are used to apply development constraints based on the asset life and location of a development proposal in relation to the revised flood maps.

¹ The Annual Exceedance Probability (AEP) refers to the likelihood of occurrence of a flood of a given size (or larger) in any one year. The 1% AEP flood event is also known as the 1-in-100 year Average Recurrence Interval (ARI) or Q100 event, the 0.5% AEP is also known as the 1-in-200 year ARI or Q200 event, and the 0.2% AEP is also known as the 1-in-500 year or Q500 event.

The second option uses Gayndah's existing flood maps and increases the level of constraint on development proposals to account for the climate change factor. In effect this extends the area subject to current 1% AEP (Q100) development constraints to:

- an area equivalent to the present day 0.5% AEP (Q200) flood level for areas subject to a development commitment
- an area equivalent to the present day 0.2% AEP (Q500) flood level for new urban development.

This approach is based on the current 0.5% AEP (Q200) approximating the 1% AEP (Q100) level by 2050 and the current 0.2% AEP (Q500) approximating the 1% AEP (Q100) level by 2100.

The two implementation options apply the same climate change factor of a 5% increase in rainfall intensity per degree Celsius of global warming.

The recommended policy options provide the North Burnett Regional Council with interim guidance on how to better manage flood risk for the Gayndah township area in advance of the review of SPP 1/03. While these options are specific to the issues identified by this project for the Gayndah township, the policy approach underpinning the draft flood constraint code will be of interest to other local governments as an example of how the impact of climate change on flood risk can be addressed in planning schemes. A copy of the recommended policy options paper prepared for Gayndah can be found at <www.derm.qld.gov.au>.

The Inland Flood Study raised issues that will be considered by the Queensland Government as part of the review of SPP1/03, including:

- the benefits of requiring a standard hydrological methodology for flood studies
- identifying how frequently flood studies should be reviewed and/or updated
- investigating the circumstances in which local governments should be able to have a Defined Flood Event (DFE)² that is higher or lower than the 1% AEP (Q100)
- clarifying which components of the SPP, as they relate to flood risk management, are optional or mandatory
- identifying how to better integrate land use planning and disaster management planning for example making sure there are sufficient evacuation routes to get people to a safe and secure area in an extreme event (e.g. storm, flood or fire).

The key recommendations from the study are:

- **Recommendation 1**—Local governments should factor a 5% increase in rainfall intensity per degree of global warming into the 1% (Q100), 0.5% (Q200) and 0.2 % (Q500) AEP flood events recommended in SPP 1/03 for the location and design of new development.
- **Recommendation 2**—The following temperatures and timeframes should be used for the purposes of applying the climate change factor in Recommendation 1:
 - 2°C by 2050
 - 3°C by 2070
 - 4°C by 2100.
- **Recommendation 3**—The Queensland Government will review and update this climate change factor when a national position on how to factor climate change into flood studies is finalised as part of the current review of AR&R.
- **Recommendation 4**—That North Burnett Regional Council consider the two implementation options identified in the paper *Recommended Policy Options for Incorporating Climate Change into the Flood Risk Management Framework in Gayndah* and implement its preferred approach in its planning scheme.
- **Recommendation 5**—The review of SPP 1/03 should consider the benefits of requiring a standard method for undertaking a flood study and determining a DFE.
- **Recommendation 6**—The review of SPP 1/03 should consider whether there is a need to specify how frequently a flood study should be reviewed or updated.
- **Recommendation 7**—The review of SPP 1/03 should develop criteria that outline the circumstances where a DFE higher or lower than the 1% AEP (Q100) is appropriate for residential land use planning.

² The DFE is the flood event adopted for the management of development in a particular locality. The 1% AEP is the recommended DFE under SPP1/03.

- **Recommendation 8**—The review of SPP 1/03 should clarify what components of the SPP are compulsory and clarify what additional guidance local governments may need to meet those obligations.
- **Recommendation 9**—The review of SPP 1/03 should consider the applicability of the recommended planning response for Gayndah (as per recommendation 4) to other parts of Queensland.
- **Recommendation 10**—The review of SPP 1/03 should consider how to improve the integration of land use planning and disaster management planning.
- **Recommendation 11**—The review of SPP 1/03 should consider issues concerning coincident flooding including: the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies conducted by local governments; and the most appropriate planning instrument to address coincident flooding in the future.
- **Recommendation 12**—Working through the national Building Ministers' Forum (BMF) and the Australian Building Codes Board (ABCB), support the development of a national code for the design and construction of new building work in areas designated as flood prone in local planning schemes.

The Inland Flood Study has been a joint project of the Queensland Government and the LGAQ. Further information on the project outcomes, including specific recommendations, are set out in the remainder of this report.

Methodology and project governance

Project methodology

The Inland Flood Study comprised two components:

1. a climate change science component to incorporate climate change into flood studies
2. a planning policy component to recommend policy options for Gayndah and to carry forward to the review of SPP 1/03.

Both components included an analysis of approaches in national and international jurisdictions with a similar propensity for flooding and comparable planning frameworks and governance models.

Various scientific methodologies were examined to identify benchmark figures for planning to take account of the projected impacts of climate change on flood risks. These methods were based on the theory that precipitable water in the atmosphere will increase as global temperature increases. Analysis was undertaken to determine the extent of evidence in the Queensland historical record for this physical relationship. This analysis included both land surface temperatures and sea surface temperatures.

The recent work of Rafter and Abbs (2010)³ was also considered, which uses extreme value analyses to calculate the percentage increases of intense rainfall from a suite of Global Climate Models. The project also took into account the recently released report from the US National Academy of Sciences (2010) which concludes that: "Extreme precipitation is likely to increase as the atmospheric moisture content increases in a warming climate. Typical magnitudes are 3-10% per degree C warming, with potentially larger values in the tropics, and in the most extreme events globally."

A desktop assessment of relevant planning policy responses in selected national and international jurisdictions identified a number of promising practices to improve Queensland's land use planning response to flood risk management. The most effective practices have informed the planning policy recommendations included in this report.

Gayndah case study

A case study was undertaken in Gayndah in North Burnett Regional Council to trial the increased rainfall intensity climate change factor and consider policy options for improved flood risk management. This was in addition to desktop analyses of relevant science and policy.

³ [REDACTED] (2010). Calculation of Australian extreme rainfall within GCM simulations using Extreme Value Analyses. Unpublished.

In 2008, the former Gayndah Shire Council undertook a flood study to inform its planning and development assessment. The consultant's report recommended that the Council adopt a climate change impact allowance of 20% (i.e. increase river peak flow discharges from the Gayndah catchment by 20%). This increased the area of Gayndah township that would be considered at flood risk for land use planning and development assessment purposes, effectively moving the current 1% AEP (Q100) event up to the current 0.5% AEP (Q200) event.

In January 2009, LGAQ approached the Queensland Government for verification of the advice given to Gayndah Shire Council and to obtain clearer guidance on how to factor climate change into flood studies and land use planning.

As a result, the Queensland Government, in collaboration with LGAQ, undertook this project to deliver a more definitive approach to managing inland flooding risks in a changing climate, based on the best available science and implemented via the Queensland land use planning framework.

Gayndah provides a useful case study area for Queensland on the basis that:

- It is an inland catchment that is not influenced by coastal inundation or sea level rise (therefore the impacts associated with potential changes in rainfall intensity can be clearly measured).
- A recent, calibrated flood study had been completed to current standards including consideration of climate change as a basis for assessment.
- Flood conditions in the area are sensitive to changes in peak discharge (with a secondary flow path opening up at a particular threshold) and therefore the potential impacts of climate change are significant.
- It is within a representative inland catchment being medium-large in size (23 350 km²).

Project governance

A Project Board was established to oversee both components of the project. The Project Board was chaired by the Office of Climate Change (OCC) and comprised senior representatives from:

- LGAQ
- CSIRO Climate Adaptation Flagship
- the National Climate Change Adaptation Research Facility
- Griffith University
- Department of Infrastructure and Planning
- Department of Community Safety
- Department of Environment and Resource Management.

The science component of the project was led by the Queensland Climate Change Centre of Excellence (QCCCE) within the Department of Environment and Resource Management. The science deliverables for the project were reviewed and endorsed by a Scientific Advisory Group (SAG), comprising scientists and flood specialists from leading scientific institutions and stakeholder organisations. Members of the SAG are listed in Appendix 1.

The recommended climate change factor derived through this project was also discussed and reviewed at an end user workshop on 27 September 2010. Organisations represented at the workshop are listed in Appendix 2.

The policy component of the project was led by the Planning Policy and Legislation Branch in the Department of Infrastructure and Planning (DIP). A Planning Policy Advisory Group (PPAG) reviewed and endorsed the deliverables for the policy component of the project. Members of the PPAG are listed in Appendix 3. Consultations with senior officers from North Burnett Regional Council also occurred on 5 August 2010 and 13 October 2010 to seek their feedback and endorsement of the recommended policy options.

Key findings and recommendations

Context

Flooding is number one in the hierarchy of risks from natural hazards in Queensland, and has significant economic impacts on Queensland communities.

In March 2009 floods occurred across North West Queensland and in Mackay, costing state and local governments approximately \$234 million in damage to infrastructure. This event saw one million square kilometres, or 62% of the State underwater. In March 2010, serious flooding occurred across large areas of the State including south-west Queensland.

Although flooding is a natural occurrence, climate change science is indicating that despite a projected decrease in rainfall across most of Queensland, a projected increase in rainfall intensity could result in more flooding events⁴.

Effective land use planning can help reduce the impact of flood events by ensuring dwellings, critical infrastructure (such as hospitals) and sensitive land uses (such as storage of fuel) are located where there is a lower risk of flooding or are built to withstand the impacts of flood events (for example, building houses on stumps). This report looks at how the planning framework can assist and how it can be better integrated with disaster management.

By combining the best available science and planning options on climate change and flood risk, the Inland Flood Study has provided clearer guidance and practical tools for local governments to better understand and manage flood risk in a changing climate when conducting flood risk assessments and developing or reviewing local planning schemes.

Scientific recommendations

Recommendation 1—Local governments should factor a 5% increase in rainfall intensity per degree of global warming into the 1% (Q100), 0.5% (Q200) and 0.2% (Q500) AEP flood events recommended in SPP 1/03 for the location and design of new development.

Recommendation 2—The following temperatures and timeframes should be used for the purposes of applying the climate change factor in Recommendation 1:

- 2°C by 2050
- 3°C by 2070
- 4°C by 2100.

Recommendation 3—The Queensland Government will review and update this climate change factor when a national position on how to factor climate change into flood studies is finalised as part of the current review of AR&R.

More detailed information on the rationale for deriving the climate change factor can be found at <www.derm.qld.gov.au>.

In summary, the climate change factor is based on the proposition that as the lower atmosphere warms, the atmospheric water vapour also increases, which increases the risk of more intense rainfall events.

The rate of atmospheric warming over time is derived from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report A1FI (high) greenhouse gas emissions scenario. The A1FI scenario assumes continued dependence on fossil fuels. Global temperatures for the past decade have been the warmest on record and are currently tracking at the upper limits of the A1FI scenario.

Using the A1FI emissions scenario, the best estimate of projected changes in annual global mean temperatures is outlined in Table 1.

Table 1: Global warming best estimate and representative ranges relative to 1990 for relevant planning horizons for the A1F1 scenario

	2050		2070		2100	
	Best estimate	Representative range	Best estimate	Representative range	Best estimate	Representative range
A1F1	1.8°C	1.08–2.88°C	2.9°C	1.74–4.64°C	4.0°C	2.4–6.4°C

Local governments should use the temperatures and timeframes outlined in Recommendation 2 when producing new flood maps. However, local governments may be able to use their existing flood maps to approximate future flood levels that incorporate the recommended climate change factor for example, in the Gayndah case study area the following approximations were used⁵.

Table 2: Approximate change to flood level immunity with climate change

Existing flood level immunity	Temperature change scenario	Changes to a future flood level immunity
0.5% AEP (Q200)	2°C warming by 2050	1% AEP (Q100) by 2050
0.2% AEP (Q500)	2°C warming by 2050	0.5% AEP (Q200) by 2050
0.2% AEP (Q500)	4°C warming by 2100	1% AEP (Q100) by 2100

This project acknowledges that the AR&R publication provides the nationally accepted methodologies for undertaking flood studies. However, the publication has not been updated for 25 years and does not consider the impacts of climate change.

While the Australian Government is supporting a review of the AR&R publication, the outcomes of this review are not expected to be available before 2014. This project was therefore undertaken to meet the needs of local governments on how to consider climate change and better identify flood risks.

In that context, the climate change factor identified by this project for incorporation into flood studies will be reviewed and updated when a national position on how to factor climate change into flood studies is finalised as part of the current review of the AR&R publication.

Issues not explicitly addressed by this project will also be considered by the the AR&R publication review. For example, how antecedent conditions (the wetness or dryness of the catchment) may impact on hydrological models with climate change. For the purposes of this project, the current evidence suggests that maintaining the existing antecedent characteristics of the catchment is reasonable and warranted.

Similarly, the review will consider the implications of revised global emissions scenarios provided in the IPCC's Fifth Assessment Report (AR5) on rainfall intensity and flooding. The AR5 is scheduled for release in 2014.

Advice on how to use the climate change factor in flood studies

To account for the impacts of climate change, the nationally accepted methodologies for undertaking flood studies outlined in the AR&R publication should be followed, with the only change being that design rainfall depths are increased by a climate change factor of 5% per degree Celsius of global warming.

Design rainfall depths should be determined through an appropriate method such as the method in the AR&R publication or CRC-FORGE. Given that the climate change factor of 5% is per degree Celsius of global warming, the actual percentage increase used will depend on the timeframe and temperature outlined in Recommendation 2. For example, there will be a 10% increase in rainfall depth for a timeframe of 2050 (i.e. a 2°C increase in global warming by 2050), a 15% increase for 2070 (i.e. a 3°C increase in global warming by 2070), and a 20% increase for 2100 (i.e. a 4°C increase in global warming by 2100).

⁵ This is general guidance only and local governments need to check with flood hydrologists whether this is a valid approach for their existing flood studies and particular catchments.

The climate change factor of 5% per degree of global warming should be applied to rainfall depths and not directly to hydrographs (i.e. the quantity of water flowing in the river). The scaled rainfall depths should then be applied to the hydrological model in the same way as the current event-based methods to produce design flood hydrographs for climate change scenarios.

There is currently no requirement to adjust the remaining data inputs (temporal patterns, loss models) or modify the hydrological model parameters. The determined climate change hydrographs should, in turn, be applied to the hydraulic model to calculate the flood level, depth and extents for climate change design events.

Note: This climate change factor is limited to flood risk management for planning purposes as described by the SPP 1/03 and does not extend to more frequent events (i.e. >2% AEP or Q50) or more extreme events (i.e. probable maximum flood). The climate change factor applies to floods arising from rainfall events of at least one hour or more.

Policy recommendations

Recommendation 4 That North Burnett Regional Council consider the two implementation options identified in the paper Recommended Policy Options for Incorporating Climate Change into the Flood Risk Management Framework in Gayndah and implement its preferred approach in its planning scheme

The Inland Flood Study has identified two policy implementation options for the North Burnett Regional Council to incorporate the effect of climate change on flooding into its planning scheme.

Both implementation options comprise three components:

1. A policy that incorporates different approaches depending on a development commitment being in place or not

For proposals already subject to a development commitment, conditions will ensure that development is subject to stringent design and evacuation standards. To achieve this, development either has to be consistent with appropriate land uses for specific flood hazard areas or development must be designed and constructed to appropriate flood level and height of habitable rooms. In addition, evacuation routes must be maintained to specific flood levels.

For land that is not already subject to a development commitment, the policy directs development to areas of lowest flood hazard based on the proposed land use by requiring that new development is built above specific flood levels and that evacuation routes must also be maintained to specific flood levels.

2. A draft flood constraint code to address development in flood affected areas

A flood constraint code is a requirement within local planning schemes for flood affected areas. The draft flood constraint code developed through this project for Gayndah defines four flood hazard areas based on the three relevant flood levels described in the SPP1/03—the 1% (Q100), 0.5% (Q200) and 0.2% (Q500) AEPs.

A land use table included in the draft flood constraint code outlines the appropriate land uses for each of these hazard areas. This is a major step in shifting the focus from the 1% AEP (Q100) as the most important flood level for residential development to the reality that there are many flood hazard levels and associated risks that local governments need to consider.

3. A choice of flood overlay maps based on different planning horizons

Using the new climate change factor outlined in recommendations 1 and 2, flood overlay maps for different planning horizons were developed for the Gayndah township. These maps will allow North Burnett Regional Council to identify the geographic areas affected by flooding risks over time and will inform application of the draft flood constraint code.

The policy approach proposed for Gayndah is intended to minimise the risk to life and property in flood affected areas, including the accentuated risk from climate change, by:

- reducing the adverse impacts of flooding by encouraging, for example, flood resilient design and layout
- facilitating development in lower probability flooding areas
- maintaining local floodplain processes (water storage and flows; river discharge and capacity; banks of river, streams and water bodies protected from erosion)
- maintaining a network of evacuation routes

- maintaining critical emergency infrastructure and services during flood events
- maintaining functionality of community infrastructure during and immediately following flood events.

These policy options have been developed specifically for the Gayndah township and in response to a request by the North Burnett Regional Council and LGAQ for advice and guidance. While the outcomes of the study have been developed for Gayndah, the findings will be of interest to other local governments in Queensland. Further information can be found in the publication *Recommended Policy Options for Incorporating Climate Change into the Flood Risk Management Framework in Gayndah* available at <www.derm.qld.gov.au>.

The policy options provided for Gayndah are transitional arrangements in advance of the current review of SPP 1/03 (due for completion in 2013). The review of SPP 1/03 will provide all Queensland local governments with definitive policy requirements on how to address flood, bushfire and landslide hazards in their planning schemes. Until this review is complete, any council seeking to amend their planning schemes must continue to reflect the current policy requirements in SPP 1/03.

General recommendations for consideration as part of the review of SPP 1/03

In the context of this review, planners, consultants, engineers and council representatives were consulted on the practical issues associated with implementation of the current SPP 1/03. The Project Board has had regard to all of the issues that were identified during those discussions in formulating the following recommendations for consideration as part of the broader review of SPP 1/03.

Recommendation 5 - The review of SPP 1/03 should consider the benefits of requiring a standard method for undertaking a flood study and determining a DFE.

There is currently no requirement on local governments to use a standard calibrated engineering method for undertaking flood studies. Under the current SPP, local governments may elect instead to use, for example, historical flood data (including the lack of data) to determine their DFE. This discretion in how local governments assess their flood risk results in varying degrees of accuracy and predictive value of current and future flood hazards.

Development of a standard method for flood studies which includes advice on the Queensland Government's endorsed climate change factors and takes account of different catchment characteristics (e.g. large rural catchments and highly developed urban catchments) would improve the consistency and accuracy of flood studies in Queensland. On this issue, the Project Board and advisory group members identified that New South Wales appears to have overcome issues of accuracy in the assessment of flood hazards by requiring uniform state-wide application of a standard method for flood studies.

Recommendation 6 - The review of SPP 1/03 should consider whether there is a need to specify how frequently a flood study should be reviewed or updated.

While SPP 1/03 requires that a flood study be undertaken for natural hazard management areas, there is currently no guidance on when local governments should review or update those studies. In practice, this means that local governments may be using flood studies that do not reflect recent development in the area and the impact of that development on potential flood risks.

Therefore it is recommended that the review of SPP 1/03 identify appropriate triggers to guide when local governments need to review and/or update their flood studies, taking into consideration the likely cost impacts on local governments of increasing the frequency of undertaking flood studies. Triggers could include undertaking a planning scheme review (review hydraulic components) and updated AR&R advice (update hydrological components).

Recommendation 7 - The review of SPP 1/03 should develop criteria that outline the circumstances where a DFE higher or lower than the 1% AEP (Q100) is appropriate for residential land use planning.

SPP 1/03 currently requires local governments to determine a DFE to set limits for land use and development in any floodplain area. SPP 1/03 specifies the 1% AEP (Q100) as the preferred DFE for residential land use planning. SPP 1/03 guidelines indicate that the residual risk (the risk of a flood exceeding the DFE) should be addressed in local government counter disaster plans and emergency procedures.

However, there are currently no criteria to determine when it may be appropriate for a council to use another DFE (i.e. above or below the 1% AEP or Q100). In practice this has led to local governments adopting varying flood levels to constrain development without reference to any consistent criteria. The review of SPP 1/03 should develop clear and transparent criteria for use by local governments and referral agencies on the circumstances where a DFE above or below the 1% AEP (Q100) is appropriate.

Recommendation 8- The review of SPP 1/03 should clarify what components of the SPP are compulsory and clarify what additional guidance local governments may need to meet those obligations.

The review provides a useful opportunity to clarify the core components of what local governments must do to assess and manage their flood risk, as well as provide more detailed guidance on how local governments should meet those obligations (as per recommendations 1 and 2). This would help to address current inconsistencies in how local governments interpret and implement the SPP. More generally, the review provides an opportunity to provide clearer guidance to local governments on core requirements and standards, as well as those matters on which they continue to have discretion. This could include guidance on how the revised SPP should be reflected in statutory regional plans.

Recommendation 9- The review of SPP 1/03 should consider the applicability of the recommended planning response for Gayndah (as per Recommendation 4) to other parts of Queensland.

The recommended planning responses for Gayndah township should be considered for applicability in other local government areas and to establish if the policy options provide an appropriate planning response to direct new development to areas with lower levels of flood risk now and in the future under climate change.

This should include consideration of the utility of incorporating draft flood overlay codes (modelled on the draft flood constraint code developed for Gayndah) in the Queensland Planning Provisions (QPPs).

An assessment of the useability of the draft flood constraint code developed for Gayndah should form part of this broader consideration of state-wide applicability.

Recommendation 10- The review of SPP 1/03 should consider how to improve the integration of land use planning and disaster management planning.

The SPP 1/03 guidelines currently outline how residual risk can be addressed in disaster management plans and emergency procedures developed by local governments.

The review provides an opportunity to consider what changes need to be made to improve the integration of land use planning and disaster management planning, including whether any additional guidance is required and what, if any, elements of that guidance should become mandatory provisions under a revised SPP (for example, ensuring land use planning takes account of population growth and its impact on the efficient evacuation of people to a safe and secure area in an extreme event).

Recommendation 11- The review of SPP 1/03 should consider issues concerning coincident flooding including: the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies conducted by local governments; and the most appropriate planning instrument to address coincident flooding in the future.

The AR&R publication provides national guidance for undertaking flood studies. As mentioned previously, the publication is currently being reviewed to include consideration of climate change and incorporate new data and technological advances in rainfall/runoff assessment. This review is due for completion in 2014.

One component of the AR&R review includes examining the interaction of coastal processes and severe weather events and should result in guidelines for incorporating the joint effects of flood flows from storm rainfall and elevated ocean levels into flooding predictions (coincident flooding). Elevated ocean levels caused by the storm (storm surge) as well as those caused by climate change (sea level rise) will be considered.

The Department of Environment and Resource Management has been allocated National Disaster Resilience Program funding to examine the impacts of coincident flooding in Queensland.

The results of this research should be considered as part of the review of SPP 1/03 to determine how this issue should be addressed in Queensland's land use and disaster planning frameworks.

National guidance on coincident flooding is expected to be provided from the AR&R review in 2014.

Recommendation 11: Working through the national BMF and the ABCB to support the development of a national code for the design and construction of new building work in areas designated as flood prone in local planning schemes

Queensland is represented at the BMF by the Minister for Infrastructure and Planning. In 2009, the Minister sought recognition at the forum of the significant impact of flooding on buildings in Australia, the current lack of national building codes to address this issue, and for the ABCB to develop a national code for building in flood prone areas for regulatory adoption by individual States and Territories.

Subsequently, the ABCB has drafted a proposal to develop national design and construction requirements under the Building Code of Australia for new building work in designated areas vulnerable to flooding. Minimum requirements under the Building Code of Australia would include performance requirements and deemed-to-satisfy provisions to minimise damage to buildings and building materials from flooding.

The ABCB is expected to develop this new code by the end of 2012. This code would be referenced in Queensland under the *Building Act 1975* and, once developed, will specify the design and construction requirements that apply in Queensland for new building work in designated flood prone areas.

Conclusion

The outcomes from this project provide guidance to local governments on how to better manage their flood risks and land use planning responses in a changing climate. This has been done by providing a climate change factor for incorporation into flood studies, developing specific land use policy options to improve the flood risk management framework in Gayndah, and identifying a series of recommendations for consideration in the SPP 1/03 review.

The project provides all Queensland local governments with a climate change factor for incorporation into the 1% (Q100), 0.5% (Q200) and 0.2% (Q500) AEP flood events recommended in SPP 1/03 for the location of new development. This approach will be reviewed and updated when a national position on how to factor climate change into flood studies is finalised as part of the current review of the AR&R publication. In the interim, Queensland local governments can use the approach from this project to better identify flood risks.

A progressive policy approach for the Gayndah township has also been developed that incorporates multiple flood hazard zones and reduces reliance on one flood level in local government planning. The broader applicability of this approach will be considered as part of the review of SPP 1/03.

The project also makes recommendations to address challenges in the planning framework and its consistent implementation through the review of SPP 1/03. These recommendations are designed to address challenges and gaps in the current planning framework and improve the connectivity between disaster management and land use planning.

By integrating the best available science and innovative planning options through multiple flood hazard zones and reducing reliance on one flood level in local government planning, this joint project between the Queensland Government and the LGAQ has delivered clearer guidance and practical tools for local governments so they are better positioned to manage flood risk for Queensland communities.

Appendix 1: Membership of the Inland Flood Study Scientific Advisory Group

Name	Organisation
Prof Colin Apelt	University of Queensland (retired)
Prof [REDACTED]	Director, Walker Institute for Climate System Research
[REDACTED]	Queensland Hydrology Manager, Bureau of Meteorology
[REDACTED]	Chief Scientist, Coastal Impacts Unit, Queensland Climate Change Centre of Excellence
[REDACTED]	Research Scientist, CSIRO
Ken Morris	Principal Engineer, Water and Environment, Brisbane City Council
[REDACTED]	Director, NCCARF (National Climate Change Adaptation Research Facility)
[REDACTED]	Hydrologist, Bureau of Meteorology
[REDACTED]	Director, Regional Water Supplies, Department of Environment and Resource Management
[REDACTED]	Director, Coastal Impacts Unit, Queensland Climate Change Centre of Excellence
John Ruffini	Director, Water Science, Department of Environment and Resource Management
[REDACTED]	Director (Hydraulics), Department of Transport and Main Roads

Appendix 2: Organisations represented at the Inland Flood Study Workshop

The following organisations were represented at the Inland Flood Study Workshop held in Brisbane on 27 September 2010:

- Department of Environment and Resource Management
- Department of Infrastructure and Planning
- Office of Climate Change
- Queensland Climate Change Centre of Excellence
- Bureau of Meteorology
- Local Government Association of Queensland
- SEQ Water
- Brisbane City Council
- Ipswich City Council
- Redland City Council
- Moreton Bay Regional Council
- Cardno Associates
- BMT WBM
- Sinclair Knight Merz
- Kellogg Brown and Root.

Appendix 3: Membership of the Inland Flood Study Policy and Planning Advisory Group

Name	Organisation
[REDACTED]	Project Manager, Industry Projects Facilitation, Department of Infrastructure and Planning
[REDACTED]	Director, Planning Policy and Legislation, Growth Management Queensland
[REDACTED]	Chief Scientist, Coastal Impacts Unit, Queensland Climate Change Centre of Excellence
[REDACTED]	Senior Project Officer, Office of Climate Change
[REDACTED]	Senior Advisor, Local Government Association of Queensland
[REDACTED]	Principal Planner, Planning Services, Department of Infrastructure and Planning
[REDACTED]	Director, Planning Services, Department of Infrastructure and Planning
[REDACTED]	Principal Advisor, Building Codes Queensland
[REDACTED]	Principal Advisor, Planning Policy and Major Development, Department of Transport and Main Roads
[REDACTED]	Manager, Environment and Planning, Local Government Association of Queensland
[REDACTED]	Manager, Climate Change, Planning Policy and Legislation, Growth Management Queensland
[REDACTED]	Senior Project Officer, Climate Change, Planning Policy and Legislation, Growth Management Queensland
[REDACTED]	Principal Policy Officer, Office of Climate Change
[REDACTED]	Director, Strategic Policy, Department of Community Safety

**Minister's Briefing Note**DEPARTMENT OF
COMMUNITY SAFETY

10 DEC 2010

Requested by: Minister's Office

EXECUTIVE SERVICES

Critical ☐Urgent ☐General ☒

Ref: 08990-2010

CSD ☐EMQ ☐QAS ☐QCS ☐QFRS ☐SPD ☒Briefing note for approval ☐Briefing note for information ☒

Subject: Review of State Planning Policy (SPP) 1/03

Date: 07/12/2010

1. Background

- Additional information was requested on the review of SPP 1/03 to support your letter of reply (Attachment 1) to [REDACTED] MP, Member for Nicklin, regarding his letter of 19 August 2010 to the the Honourable Stephen Robertson MP, Minister for Natural Resources, Mines and Energy and Minister for Trade, regarding flooding and stormwater issues near Bli Bli on the Sunshine Coast.
- A letter from the Honourable Stirling Hinchliffe MP, Minister for Infrastructure and Planning of 29 October 2010 to Mr Wellington indicated that the review of SPP 1/03: *Mitigating the adverse impacts of flooding bushfires and landslides* is one of several government responses to flooding issues.

2. Issues**Who is leading the review?**

- The review is led by the Department of Community Safety (DCS).
- The review is being undertaken with the support of the Department of Infrastructure and Planning (DIP), the Department of Environment and Resource Management (DERM), and the Department of Premier and Cabinet (DPC) through an Inter-Departmental Committee (IDC).
- The IDC is supported by a Working Group (WG) which includes: representatives from core state agencies (DCS, DIP, DERM); a representative of the Local Government Association of Queensland (LGAQ); and representatives from other state agencies (e.g. Department of Public Works (DPW), Department of Transport and Main Roads (TMR), Department of Employment, Economic Development and Innovation (DEEDI), Department of Communities (DOC)), as required.
- As well as endorsement from the Minister for Police, Corrective Services and Emergency Services, all major proposals arising from the review will seek endorsement from the Minister for Infrastructure and Planning and the Growth Management CEO Committee and the Growth Management Cabinet Committee.

What will the review cover?

- The review will update and clarify outcomes that the Queensland Government would like to achieve through a replacement state planning instrument – likely to be a new SPP – in conjunction with other planning instruments such as Regional Plans.

- It will assess how well the SPP has worked to date, and develop improved planning mechanisms to deliver better outcomes for new communities.
- It will look at the strengths and limitations of current methods of delineating hazard-prone areas, and develop improved criteria to identify those locations that will be subject to flooding, bushfires and landslides in the future, to also take account of climate change.
- It will identify major challenges that the State Government, Local Governments, the community and industry have faced in implementing the current SPP, and highlight opportunities for more effective implementation of a future planning instrument.

What will it seek to change and why?

- A top priority for the review is to look at better ways to limit or design development in a way that improves community resilience to reduce the future social and economic impact of flooding, bushfires and landslides.
- The review will identify improved linkages between land use planning and disaster management planning to reduce the risk of loss of human life, illness or injury to people in an effort to close any major gaps that would place future communities at risk.
- The review will look at the need for more exact criteria and methods for identifying areas prone to flooding, bushfires and landslides, including factors to take account of climate change, that reduce the long term cost of adaptation.
- It will look at ways to improve the integrated application of a future planning instrument with other instruments such as building codes, Regional Plans and Standard Planning Scheme Provisions to improve local government and industry implementation of state policies.
- The review will examine the advantages of a multiple hazard zone approach for risk management (not the existing single line approach) to provide local governments with a pragmatic and flexible set of mitigation responses that will direct future development towards areas that are less hazard-prone.
- The review will identify options for more effective State involvement in the approval of developments and hazard studies to ensure land use planning responses are proportional to level of the risk and the effectiveness of a planning response.

When will information be released for public comment and other important time frames?

- SPP 1/03 was first released by the Minister for Emergency Services and the Minister for Local Government and Planning in May 2003.
- The review will prepare an initial policy paper on priority issues in early 2011 and a second paper that reports on an analysis of priority issues by June 2011.
- It will prepare a draft replacement planning instrument for public comment in late 2011.
- A replacement planning instrument and other recommendations will be prepared in early 2013.
- A replacement planning instrument (or other State Planning Instruments) need to be in place before September 2013 – when the current SPP expires.
- An indicative timeline is attached at Attachment 2.

Progress to date

- The Director-General has written to all state agencies, local governments, the LGAQ, and key industry and community stakeholders inviting nomination of interests and issues they would like to see addressed in the review by 14 January 2011.

- The WG met on 30 November 2010, and discussed some of the possible key issues and organisation of the project. Its next meeting is scheduled for 27 January 2011.
- The first meeting of the IDC on 9 December 2010 endorsed a project plan for the review and a set of frequently asked questions (FAQ) for possible release on DCS and LGAQ web sites, subject to approval.
- The next meeting of the IDC on 10 February 2011 will consider a draft initial policy issues paper, prior to consideration by you and Minister Hinchliffe.

3. Is this in accordance with Government election commitments?

- N/A

4. Consultation

- Consultation has occurred with Mr Andrew Walls, Strategic Policy and Legislation, DIP, who has been provided with an advance draft of this brief and its attachment/s.

5. Total Cost of Project and Funding Source

- Estimated at approximately \$750,000 plus officer salaries (Attachment 3). The full extent of funding will depend on matters identified and agreed through consideration of a Policy Issues Paper in February 2011. Funding is to be drawn from the Natural Disaster Resilience Program.
- The Director-General has the necessary delegation to approve this expenditure.

6. Has this matter been considered by a DCS Executive Committee?

- N/A

7. Is Governor-In-Council Approval Required?

- N/A

8. If this brief includes a new policy; publication; report; initiative or is a change in a policy or publication, is this information suitable for release on the Right to Information Publication Scheme web pages?

- Not at this stage, however, information will be considered for release at a later stage of the review process.

9. Recommendation

- That you note this brief.

Gary Mahon
ASSISTANT DIRECTOR GENERAL
STRATEGIC POLICY DIVISION

DIRECTOR-GENERAL

MINISTER FOR POLICE, CORRECTIVE SERVICES
AND EMERGENCY SERVICES

13/12/10

13/12/10

22/12/10

Noted / Approved / Not Approved

Comments:



Queensland
Government

Member for Nudgee

File No: (DES/02/0516/P7)
Ref No: (08427-2010)

Minister for Police, Corrective Services
and Emergency Services

Member for Nicklin
PO Box 265
NAMBOUR QLD 4560

Dear Mr Wellington

I refer to your letter of 19 August 2010, addressed to the Honourable Stephen Robertson MP, Minister for Natural Resources, Mines and Energy and Minister for Trade regarding flood and storm water issues near Bli Bli on the Sunshine Coast.

As the matter of the *State Planning Policy 1/03* falls partly under the Emergency Services portfolio, your correspondence was referred to my office for consideration and reply.

As noted in a response from the Honourable Stirling Hinchliffe MP, Minister for Infrastructure and Planning of 29 October 2010, I am pleased to advise the review of *State Planning Policy 1/03: Mitigating the adverse impacts of flood, bushfire and landslide*, recently commenced. This review will be undertaken in accordance with guidelines released by the Department of Infrastructure and Planning for their Statutory Instruments Program, and is scheduled to be completed before September 2013.

As part of this review, the Queensland Government will release a draft statutory instrument, for public comment. All Members of Parliament, and the public will have the opportunity to provide comment during that stage of the review process.

Please be assured, opportunities to minimise future risks to people and property from flooding in areas proposed for development is one of the matters the Department of Community Safety will investigate in this review.

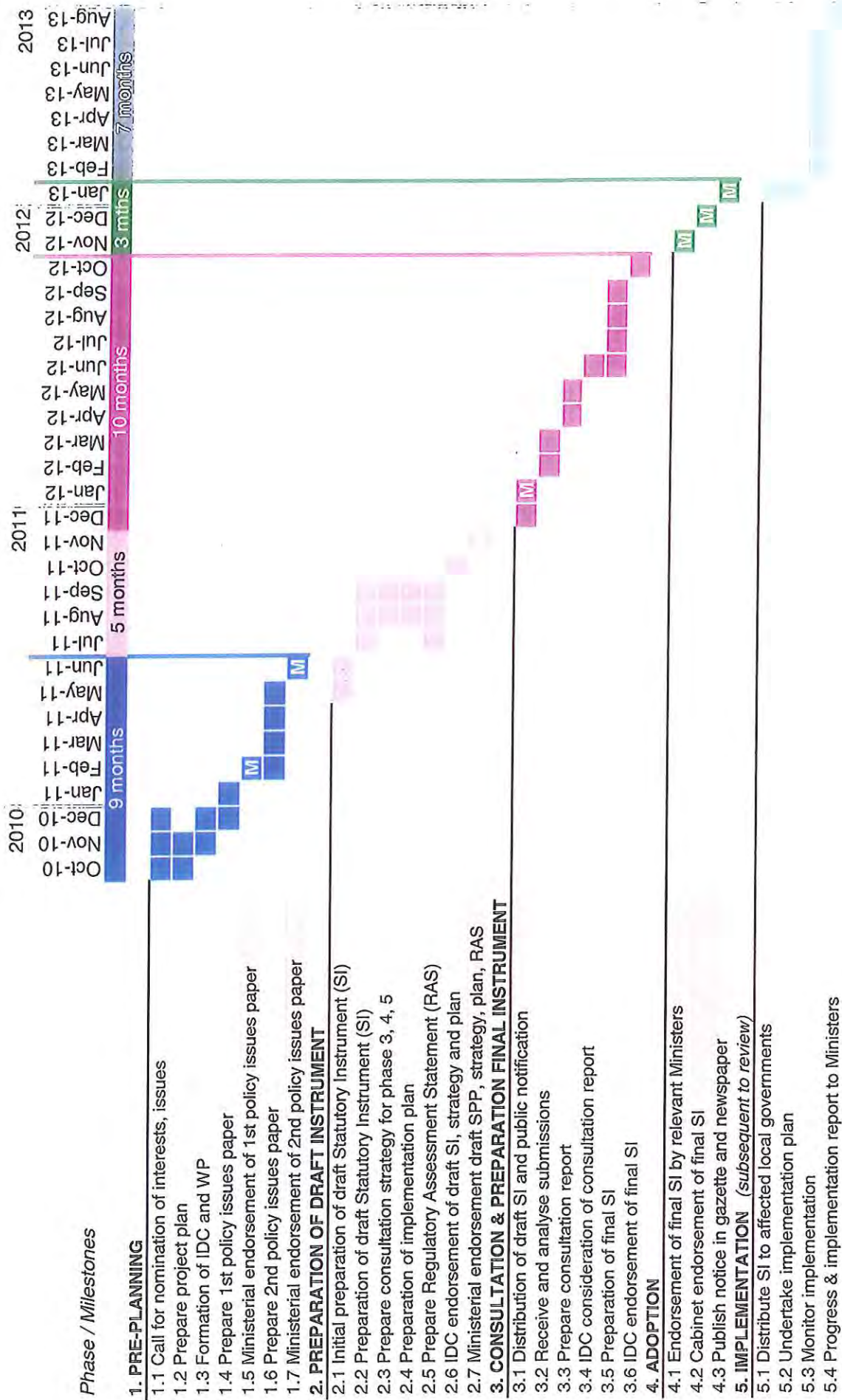
Should you require further information, please contact [redacted] Senior Policy Advisor, on telephone number (07) 3239 0199.

Yours sincerely

Minister for Police, Corrective Services
and Emergency Services

Level 24 State Law Building
50 Ann Street Brisbane 4000
PO Box 15195 City East
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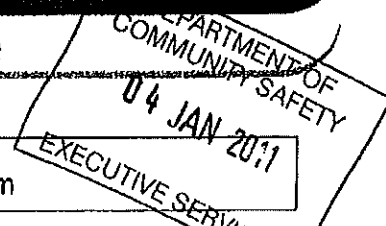
ABN 65 959 415 158



SPP 1/03 Review - Preliminary Budget Estimate

Materials and services for period: 2010/11, 2011/12, 2012/13 FY

Phase	Tasks	Est. cost
	Planning consultant	
1	Develop recommended options for new instrument framework including draft elements of planning and non-planning mechanisms (input to second Policy Issues Paper)	\$ 40,000.00
2	Develop new draft instruments and associated non-planning mechanisms	\$ 80,000.00
3	Develop new final instruments and associated non-planning mechanisms	\$ 80,000.00
<i>sub-total</i>		\$ 200,000.00
	Flood mitigation and mapping specialist	
1	Develop recommended options for new flood hazard and risk mapping and assessment framework (input to 2nd Policy Issues Paper) including draft elements of new draft guideline	\$ 50,000.00
2	Develop draft guidelines for flood risk mitigation and hazard mapping	\$ 70,000.00
3	Develop final guidelines for flood risk mitigation and hazard mapping	\$ 30,000.00
<i>sub-total</i>		\$ 150,000.00
	Bushfire mitigation and mapping specialist	
1	Develop recommended options for new bushfire hazard and risk mapping and assessment framework (input to 2nd Policy Issues Paper) including draft elements of new draft guideline	\$ 40,000.00
2	Develop draft guidelines for bushfire risk mitigation and hazard mapping	\$ 50,000.00
3	Develop final guidelines for bushfire risk mitigation and hazard mapping	\$ 30,000.00
<i>sub-total</i>		\$ 120,000.00
	Landslide mitigation and mapping specialist	
1	Develop recommended options for new landslide hazard and risk mapping and assessment framework (input to 2nd Policy Issues Paper) including draft elements of new draft guideline	\$ 30,000.00
2	Develop draft guidelines for landslide risk mitigation and hazard mapping	\$ 30,000.00
3	Develop final guidelines for landslide risk mitigation and hazard mapping	\$ 30,000.00
<i>sub-total</i>		\$ 90,000.00
	Printing and advertising	
2	Advertising and print material for draft instrument	\$ 15,000.00
3	Advertising and print material for final instrument	\$ 25,000.00
<i>sub-total</i>		\$ 40,000.00
	Economic and business analyst	
2	Prepare RAS	\$ 150,000.00
TOTAL		\$ 750,000.00

**Executive Briefing Note**

Requested by: [REDACTED] Director, Policy and Legislative Reform

Critical ☐Urgent ☐General ☒

Ref: 00021-2011 [REDACTED]

CSD ☐EMQ ☐QAS ☐QCS ☐QFRS ☐SPD ☒Briefing note for approval ☒Briefing note for information ☐

To: Director-General, Department of Community Safety

Subject: Approval to proceed with procurement of consultants to assist with State Planning Policy (SPP) 1/03 Review

Date: 23/12/10

1. Background

- Policy and Legislative Reform Branch has commenced the review of SPP 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide.
- On 9 December 2010 an Inter-Departmental Committee (IDC) (chaired by Ms Yolande Yorke, Executive Director, Policy and Legislative Reform) endorsed a Project Plan for the review on 9 December 2010 (**Attachment 1**).
- A Briefing Note to the Minister was signed on 13 December 2010 on the review (**Attachment 2**) that included a budget estimate of \$750,000 for materials and services (**Attachment 3**). Funding is available from the National Disaster Resilience Program.
- An initial Policy Issues paper, informed by interests and issues from state agencies, local governments, the Local Government Association of Queensland and other relevant stakeholders, is to be considered by the Minister for Police, Corrective Services and Emergency Services, and the Minister for Infrastructure and Planning by the end of February 2011.

2. Issues

- The review of SPP 1/03 will require significant expertise, that is currently not available within this Department to undertake detailed policy analysis, prepare a draft replacement State Planning Instrument (SPI) and associated guidelines for public comment, prepare a Regulatory Assessment Statement (RAS) and prepare a final SPI for approval by Cabinet.
- Expertise is required to undertake development of reports relating to town planning, flood hazard mitigation and mapping, bushfire hazard mitigation and mapping, landslide hazard mitigation and business analysis during the period March 2011 to October 2012.
- Approximate tasks and resources (including GST) to a total of \$710,000 are:
 1. Produce town planning reports - \$200,000.00
 2. Produce flood mitigation and mapping reports - \$150,000.00
 3. Produce bushfire mitigation and mapping reports - \$120,000.00
 4. Produce landslide mitigation and mapping reports - \$90,000.00
 5. Produce RAS reports - \$150,000.00

The balance of \$40,000.00 is required for printing and advertising.

- Departmental procurement guidelines indicate that an open tender process is required for procurement.
- A detailed Statement of Requirements for the five tasks would be bundled into one Invitation to Offer for ease of administration. Offers for each of the five tasks listed above will be evaluated and allocated under separate contracts, as it is unusual for single providers in this market to cover all requirements.
- The Statement of Requirements will be prepared for endorsement by the next IDC meeting on 10 February 2011, for further consideration and approvals as necessary.

3. Is this in accordance with Government election commitments?

- N/A

4. Consultation

- N/A

5. Total Cost of Project and Funding Source

- Total cost of project is estimated at \$750,000 (GST incl) plus salary costs.
- The Director General has the necessary delegation to approve this expenditure.

6. Has this matter been considered by a DCS Executive Committee?

- N/A

7. If this brief includes a new policy; publication; report; initiative or is a change in a policy or publication, is this information suitable for release on the Right to Information Publication Scheme web pages?

- This brief includes a new initiative suitable for release on the Right to Information Publication Scheme web pages in January 2011 using information endorsed by the IDC.

8. Recommendation

- That, consistent with the Director-General's financial delegation up to \$5 million, you approve Policy and Legislative Reform to seek Consultancy Services to the Department of Community Safety to Review SPP 1/03. The estimated spend on this contract is \$710,000 which is within the project budget.
- That you approve this info to released on the Right to Information Publication Scheme web pages

[REDACTED]
[REDACTED]
DIRECTOR
POLICY AND LEGISLATION REFORM
/ /

ENDORSED / NOT ENDORSED

[REDACTED]
[REDACTED]
CHIEF FINANCE OFFICER
CORPORATE SUPPORT DIVISION
05/01/11

ENDORSED / NOT ENDORSED

Gary Mahon
ASSISTANT DIRECTOR GENERAL
STRATEGIC POLICY DIVISION
/ /

ENDORSED / NOT ENDORSED

[REDACTED]
DIRECTOR-GENERAL
/ /

Noted / Approved / Not Approved

Comments:

December 2010

Version	2.1
Owner:	[REDACTED] Project Manager – SPP 1/03 Review
Contact Details:	Ph: 3635 3782; Email: [REDACTED]
Division/Unit:	Strategic Policy Division / Policy & Legislative Reform Branch
Document Status:	Draft

Revision History

Revision Date	Version No.	Author	Description of Change/Revision
18 Oct 10	1.0	[REDACTED]	Original draft
19 Nov 10	1.1		Amended to incorporate recent approvals
26 Nov 10	1.2		Incorporates comments from NW, PW, BT
03 Dec 10	2.0		Incorporates suggestions from Andrew Walls incl. new attachment A.
13 Dec 10	2.1		Incorporates changes requested at IDC Meeting 9 Dec 2010

Endorsement

Name	Members	Date
Inter-Departmental Committee	[REDACTED] (DCS), Michael Papageorgiou (DIP), [REDACTED] for [REDACTED] (DERM), [REDACTED] (DPC)	9 Dec 2010
Working Group	[REDACTED] (DCS), [REDACTED] (QFRS), [REDACTED] (EMQ), [REDACTED] (DIP), [REDACTED] [REDACTED]	30 Nov 2010

Approvals

Name	Title	Signature	Date
Gary Mahon	Project Executive/Sponsor		
[REDACTED]	Project Executive Director		
[REDACTED]	Project Director		
[REDACTED]	Project Manager		

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1. Project Definition

1.1 Project Background

State Planning Policy 1/03 *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (SPP 1/03) is one of four types of State Planning Instruments (SPIs) used to implement the Sustainable Planning Act 2009 (SPA) to influence land use planning and development in Queensland.

The four types of state planning instruments are:

- state planning regulatory provisions (SPRP)
- regional plans
- state planning policies (SPP)
- standard planning scheme provisions, known as the Queensland Planning Provisions (QPP).

SPP 1/03 was originally drafted under the Integrated Planning Act (1997) and came into effect on 1 September 2003. Under SPA, SPPs expire ten years after they are made.

The purpose of SPP 1/03 is to describe the State's interest in ensuring that the natural hazards of flood, bushfire and landslide are adequately considered when making decisions about development. Its coverage of natural hazards is complementary to coastal hazards that will be managed through a State Planning Policy - Coastal Protection (i.e. coastal inundation, erosion and storm tide inundation - including the effects of climate change on sea level rise and increased storm intensity).

The Department of Community Safety is reviewing SPP 1/03 as part of the Statutory Instruments Program for 2010/11, as approved by Cabinet in March 2010. An action plan for the review of SPP has also been prepared for publication in the SEQ Regional Plan Climate Change Management Plan. This review is being conducted in accordance with the State Planning Instruments Program Guideline, produced by the Department of Infrastructure and Planning, and with the assistance of an Inter-Departmental Committee (IDC) and Working Group (WG). The working group includes a representative from the Local Government Association of Queensland (LGAQ).

1.2 Project Objectives

The objectives of this project are:

- (1) To provide advice to relevant Ministers on the state policy position with respect major interests and issues for the review of SPP 1/03 including:
 - accurate definition of current state interests,
 - preferred planning and non-planning options,
 - criteria and methods to delineate areas of interest, and
 - implications for the state government and local governments

by conducting a thorough analysis of state agency, local government, LGAQ and key stakeholder issues and interests (regarding development, land use and land management), with consideration of initiatives and approaches used in other jurisdictions, as outlined in Attachment A, including:

- priority issues that arise from an evaluation of the current SPP and current state policy (Policy Issues Paper 1),
 - recommended policy issues that need to be addressed through the planning framework or other means.(Policy Issues Paper 2)
- (2) To ensure the state's interests in flood, bushfire and landslides are adequately addressed in accordance with recommendations endorsed from relevant Ministers by:
- preparing planning instruments and other products as appropriate for cabinet approval and public comment
 - receiving and analysing public submission
 - preparing final planning instruments and other products as appropriate for cabinet approval
- (3) To prepare drafting instructions for the preparation of SPI required to better reflect state interests.
- (4) To document possible implications for industry, the community or other stakeholders via preparation of a Regulatory Assessment Statement (RAS)
- (5) To coordinate the analysis of state agency and stakeholder interests and the timely provision of advice and recommendations to relevant Ministers and Cabinet as required.

1.3 Project Scope

The following are included in the scope of the project:

- state interests relevant to ensuring that the natural hazards of flood, bushfire and landslide are adequately considered when making decisions about development in accordance with the Sustainable Planning Act (2009).
- consideration of state, industry, community and stakeholder implications

The following are outside the scope of the project:

- Matters outside of scope of this project will be determined through preparation and endorsement of Policy Issues Paper and Policy Research Paper prepared during Phase 1 of this project.

1.4 Products

The Products that will be delivered by this project (also refer Attachment B) are:

- A first Policy Issues Paper (Milestone 1.5) that identifies priority issues for the review of SPP 1/03 - to be endorsed by an interdepartmental committee (IDC) and relevant Ministers and a second Policy Issues Paper (Milestone 1.7) that provides recommendations for the development of Statutory Planning Instruments (such as a replacement SPP) and other appropriate non-planning instruments, based on more detailed investigation of priority issues - to be endorsed by an interdepartmental committee (IDC) and relevant Ministers (output from Phase 1)
- A replacement Draft SPI and / or drafting instructions for modifications to other Statutory Planning Instruments (Milestone 2.6) to be endorsed by the IDC, approved by relevant Ministers or Cabinet for public consultation (output from Phase 2)
- Final replacement SPI, modifications to other Statutory Planning Instruments SPIs and other appropriate non-planning instruments (Milestone 4.2) endorsed by the IDC, relevant Ministers and approved by Cabinet - published by way of gazette and newspaper (output from Phase 3 and 4).

1.5 Assumptions and Constraints

The following assumptions have been made during the planning of this project:

- that agencies outside the control of the project, which need to provide input or undertake action needed by the project, are able to do so and within the timings allowed;
- approval from the relevant Ministers will be obtained within reasonable timeframes;
- Cabinet consideration to occur as scheduled;
- that there would be no additional tasks outside the current scope of the project plan placed upon the project during the course of the project;
- that external consultation does not identify significant issues not yet considered and which would delay project timeframes

The following constraints have been placed on this project:

- funding will depend on matters identified and agreed through consideration of a Policy Issues Paper (Phase 1). Funding is to be drawn by DCS from Natural Disaster Resilience Program subject to relevant approval processes.

1.6 Project Schedule

This is an indicative timeframe only and is subject to the above assumptions.

Phase	Deliverable	Est. Date of Completion
1. Pre-Planning	An initial Policy Issues Paper and second Policy Issues Paper to be endorsed by an interdepartmental committee (IDC) and relevant Ministers.	June 2011
2. Preparation of draft instrument	Draft replacement SPI to be endorsed by the IDC, approved by relevant Ministers or Cabinet for public consultation	November 2011
3. Consultation and preparation of final instrument	Final replacement SPI, endorsed by the IDC	October 2012
4. Adoption	The replacement SPI, endorsed by the relevant Ministers and approved by Cabinet, will be published by way of gazette and newspaper	January 2013
5. Implementation	Initial implementation and ongoing monitoring and reporting of implementation	February-August 2013

* Ongoing implementation and related reporting not to be completed by project team.

An indicative timeline for this project is shown in Appendix C.

2. Project Roles

2.1 Relevant Ministers

The relevant Minister for the review of SPP 1/03 are:

- the Minister for Police, Corrective Services and Emergency Services
- the Minister for Infrastructure and Planning

2.2 Growth Management Committees

The Growth Management CEO Committee and the Growth Management Cabinet Sub-Committee will consider and endorse all major proposals arising from the review.

Role	Responsibilities
The Growth Management Sub-Committee of Cabinet (GMSCC)	Discuss and develop a whole-of-Government response to the review of SPP 1/03 in line with associated strategic growth management policy issues.
Growth Management Chief Executive Officer Committee (GMCEOC)	Provide strategic direction and Whole of Government leadership for the review of SPP 1/03 in line with the Government's growth management agenda.

2.3 Project Executive – Lead agency

The project executive of the lead agency (Department of Community Safety) is:

Role	Responsibilities
Project Executive – Gary Mahon Assistant Director-General (DCS)	The Project Executive has ultimate responsibility for satisfactory completion of the project and provision of advice to the Minister for Police, Corrective Services and Emergency Services through the Director General, Department of Community Safety.
Project Executive Director [REDACTED]	The Project Executive Director has responsibility for ensuring the Project Executive is fully advised of state and key stakeholder interests and concerns, and that the project is delivered in accordance with the approved project plan.

2.4 Inter-Departmental Committee

The role of the Inter-Departmental Committee (SPP 1/03 review) will be ensure comprehensive cross-government identification and consideration of relevant issues. This committee will enable the coordination of state agency input to preparation of the replacement SPI outside the formal consultation stages.

The IDC representative from the Department of Infrastructure and Planning has responsibility for the provision of advice to the Minister for Infrastructure and Planning and the GMCEOC based on advice from the Chair of the IDC.

Agencies represented on the IDC and members nominated by respective Director Generals are:

Agency	Member
Department of Community Safety (Lead agency)	[REDACTED] Executive Director, Policy and Legislation Reform (Chair)
Department of Infrastructure and Planning	Michael Papageorgiou, Executive Director, Planning Policy
Department of Environment and Resource Management.	[REDACTED] Director, Director, Integrated Planning, Strategy and Policy
Department of Premier and Cabinet	[REDACTED], Director, Environment and Resources

Membership by the Department of Employment, Economic Development and Innovation, Department of Transport and Main Roads, Department of Public Works, Department of Communities and other agencies to be confirmed at the next IDC meeting on 10 February 2010.

2.5 Project Team

The project team is responsible for the preparation of all reports and information considered by the IDC and Project Executive with the support of a Working Group. The project team also provides secretariat support to the IDC.

Agency / organisation	Member
Project Director - [REDACTED] Director, Strategy (DCS)	The Project Director has responsibility for ensuring that the project is delivered on time and within budget and for reporting to the Project Executive.
Project Manager – [REDACTED] Principal Policy Advisor (DCS)	The Project Manager will manage the project on a day-to-day basis on behalf of the Project Executive and Project Director and will coordinate stakeholder consultation, the preparation of research and policy papers, and the draft and final instruments by team members and contractors.
Project Team Member/s [REDACTED] (DCS), [REDACTED] (DCS),	The Project Team Member/s will be responsible for the delivery of discrete components of the project, aspects of consultation, the preparation of research and policy papers, and the draft and final instruments. Project team members will report to the Project Director and Project Manager.

2.6 Working Group

A working group has been established to support the project team, preparation of matters considered by the IDC and to incorporate views of the LGAQ and other key stakeholders as required. Members of the working group will coordinate agency / organisational input to the review of SPP 1/03.

Role	Member/s
Department of Community Safety (Lead agency)	[REDACTED] (Chair) [REDACTED] (QFRS) [REDACTED] (EMQ) [REDACTED] (Secretary)
Department of Infrastructure and Planning	[REDACTED]
Department of Environment and Resource Management.	[REDACTED]
LGAQ	[REDACTED]
Department of Employment, Economic Development and Innovation	[REDACTED]
Department of Transport and Main Roads	[REDACTED]
Department of Public Works	TBA
Department of Communities	TBA

3. Related Initiatives

The projects and other initiatives shown in the table below have a bearing, or are in some way dependent on this project:

Related Project/Initiative	Nature of Relationship
Inland Flood Study	Recommendations of the study will influence the policy issues to be explored as part of this project.
Queensland Coastal Plan and State Planning Policy Coastal Protection	As the Qld Coastal Plan also looks at issues involving flooding/inundation, there is a need to ensure consistency between the two instruments
Victorian Bushfires Royal Commission and Queensland IDC Sub-group on Planning and Building	The recommendations of the Royal Commission include matters relating to land use planning and will be considered as part of this project.
Coincident Flooding Research by QCCE using NDRM funds	The study will identify issues concerning coincident flooding including potential impacts; the extent that coincident flooding is already covered in flood studies and the most appropriate planning instrument to address coincident flooding.
Assessment of Natural Hazard Disaster Risk in Queensland	An assessment of the current natural hazard risk profile, consideration of alternative risk mitigation treatments and potential climate change impacts (study by Risk Frontiers – Macquarie University- in prep).

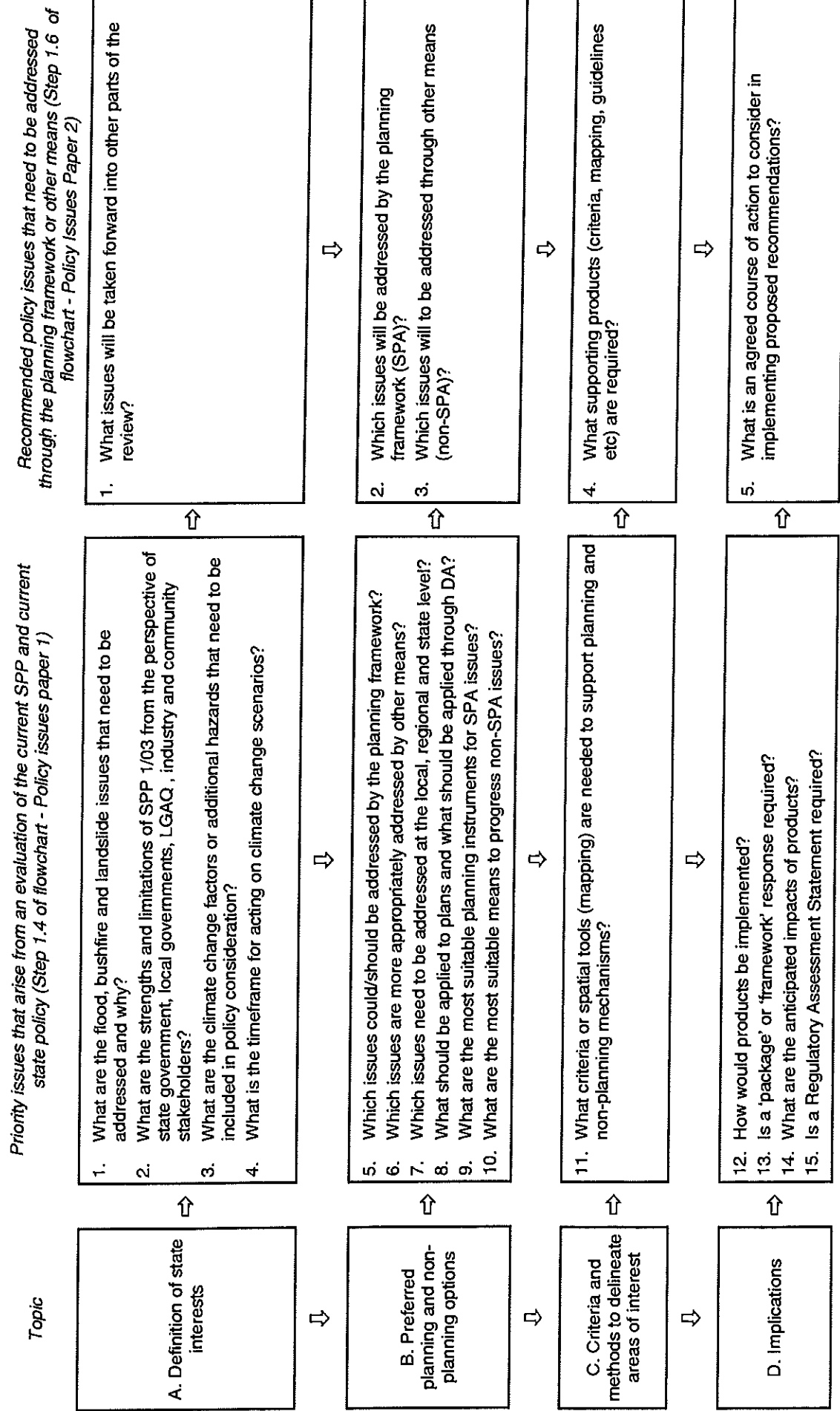
4. Stakeholder consultation

The following consultation with stakeholders will be undertaken during Phase 1 (Pre planning) and Phase 2 (Preparation of Draft Instrument) of the Project.

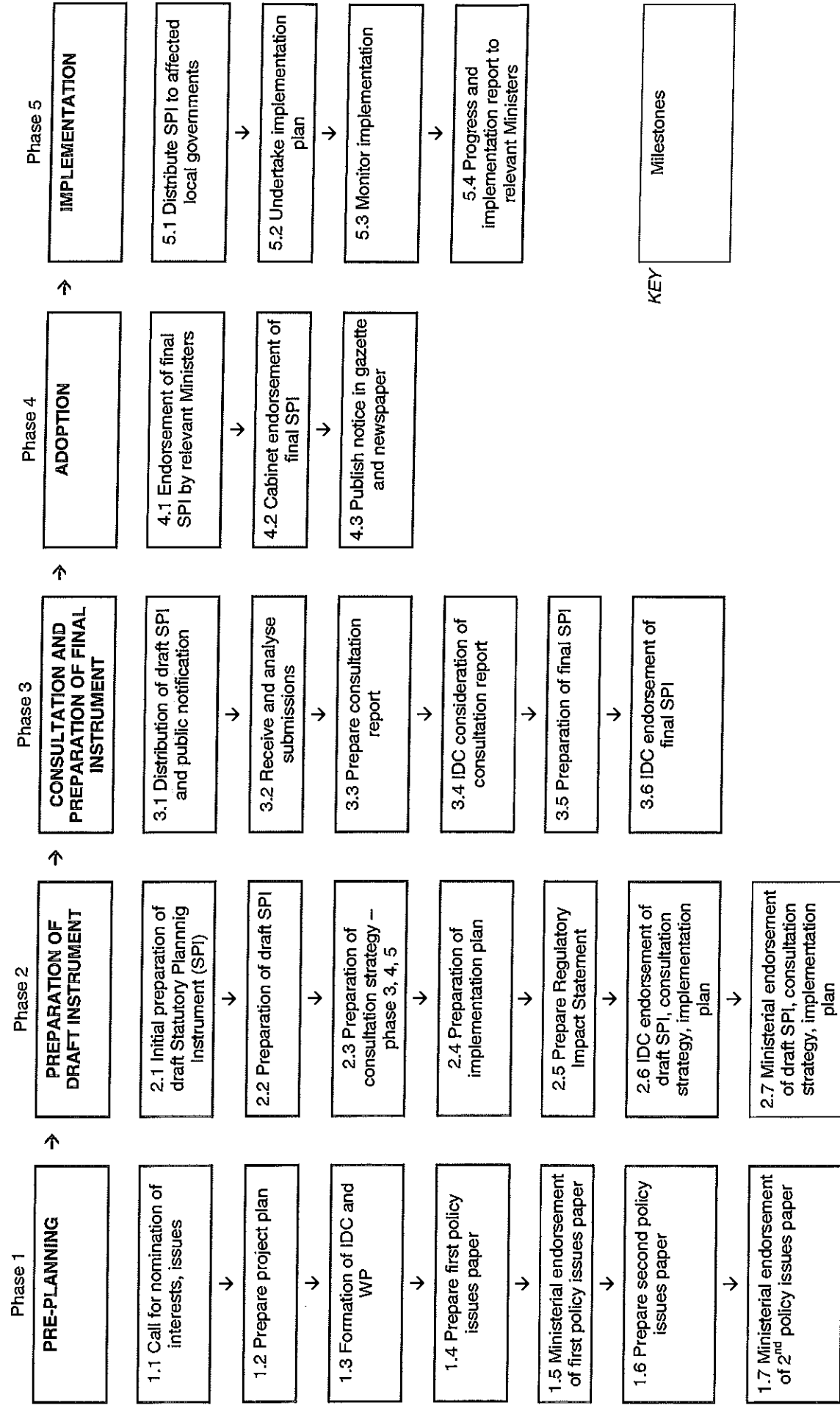
- The Local Government Association of Queensland (LGAQ) will be invited to identify issues considered in the review, and participate on the Working Group to assist with development of the Policy Issues Paper, draft replacement SPI, and final SPI.
- All of Queensland Local Governments will be invited to suggest issues that they would like to see addressed in the review of SPP 1/03 by way of completing a questionnaire.
- Key stakeholders (Appendix D) will be invited to also suggest issues that they would like to see addressed in the review
- Additional public consultation as may be required,

Plans for stakeholder consultation during Phase 3, 4 and 5 will be developed during Phase 2 of the project.

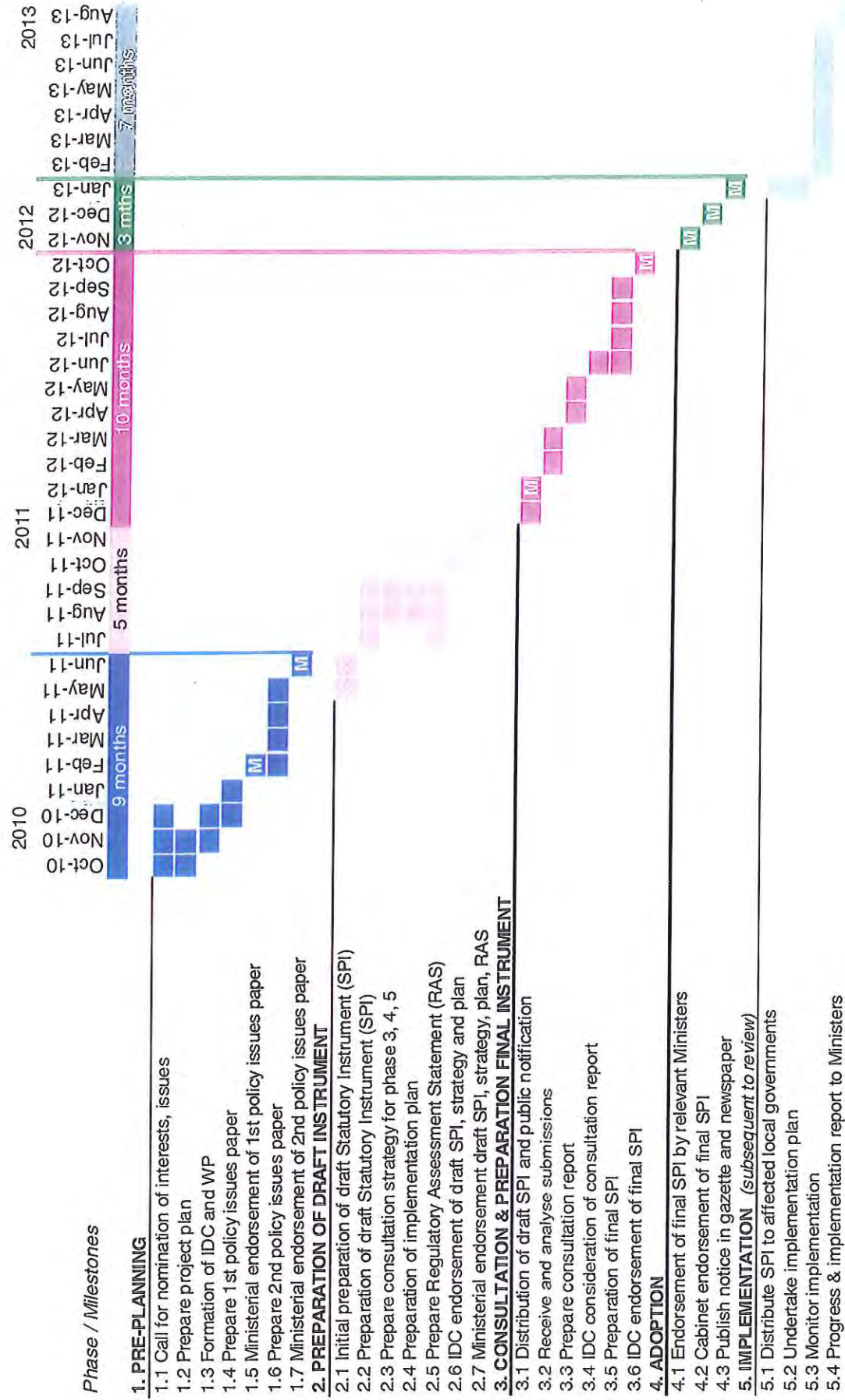
Appendix A – Issues Analysis Framework



Appendix B – Indicative Flowchart



Appendix C – Indicative Timeline



Appendix D – Community and Industry Stakeholders

Academic	CSIRO Climate Adaptation Flagship
	Griffith University
	James Cook University
	National Climate Change Adaptation Research Facility
	Queensland University of Technology
	Sunshine Coast University
	University of Queensland
Bushfire	Australian Institute of Building Surveyors - Queensland/Northern Territory Chapter
	Fire Protection Association Australia - Queensland State Committee
Commonwealth	Attorney General's Department
	Bureau of Meteorology
	Department of Climate Change and Energy Efficiency
Disaster Management	Emergency Services Advisory Council
Environment	Environment Institute of Australia and New Zealand
	Environmental Defenders Office
	Queensland Conservation Council
Flooding	Engineers Australia - Queensland Division
	Institute of Public Works Engineering
	The Board of Professional Engineers of Queensland
Landslide	Australian Geomechanics Society
Law	Queensland Environmental Law Association
	Queensland Law Society
Local Government	Local Government Association of Queensland
Property	Planning Institute of Australia (Queensland)
	Property Council of Australia - Queensland Division
	Real Estate Institute of Queensland
	Urban Development Institute of Australia (Queensland)
Utility	Urban Land Development Authority
	Brisbane Airport Corporation Pty Ltd
	Energex Limited
	Ergon Energy
	Powerlink Queensland



Minister's Briefing Note

DEPARTMENT OF
COMMUNITY SAFETY

10 DEC 2010

Requested by: Minister's Office

EXECUTIVE SERVICES

Critical ☐Urgent ☐General ☒

Ref: 08990-2010

CSD ☐EMQ ☐QAS ☐QCS ☐QFRS ☐SPD ☒Briefing note for approval ☐Briefing note for information ☒

Subject: Review of State Planning Policy (SPP) 1/03

Date: 07/12/2010

1. Background

- Additional information was requested on the review of SPP 1/03 to support your letter of reply (Attachment 1) to [REDACTED] MP, Member for Nicklin, regarding his letter of 19 August 2010 to the the Honourable Stephen Robertson MP, Minister for Natural Resources, Mines and Energy and Minister for Trade, regarding flooding and stormwater issues near Bli Bli on the Sunshine Coast.
- A letter from the Honourable Stirling Hinchliffe MP, Minister for Infrastructure and Planning of 29 October 2010 to Mr Wellington indicated that the review of *SPP 1/03: Mitigating the adverse impacts of flooding bushfires and landslides* is one of several government responses to flooding issues.

2. Issues

Who is leading the review?

- The review is led by the Department of Community Safety (DCS).
- The review is being undertaken with the support of the Department of Infrastructure and Planning (DIP), the Department of Environment and Resource Management (DERM), and the Department of Premier and Cabinet (DPC) through an Inter-Departmental Committee (IDC).
- The IDC is supported by a Working Group (WG) which includes: representatives from core state agencies (DCS, DIP, DERM); a representative of the Local Government Association of Queensland (LGAQ); and representatives from other state agencies (e.g. Department of Public Works (DPW), Department of Transport and Main Roads (TMR), Department of Employment, Economic Development and Innovation (DEEDI), Department of Communities (DOC)), as required.
- As well as endorsement from the Minister for Police, Corrective Services and Emergency Services, all major proposals arising from the review will seek endorsement from the Minister for Infrastructure and Planning and the Growth Management CEO Committee and the Growth Management Cabinet Committee.

What will the review cover?

- The review will update and clarify outcomes that the Queensland Government would like to achieve through a replacement state planning instrument – likely to be a new SPP – in conjunction with other planning instruments such as Regional Plans.

- It will assess how well the SPP has worked to date, and develop improved planning mechanisms to deliver better outcomes for new communities.
- It will look at the strengths and limitations of current methods of delineating hazard-prone areas, and develop improved criteria to identify those locations that will be subject to flooding, bushfires and landslides in the future, to also take account of climate change.
- It will identify major challenges that the State Government, Local Governments, the community and industry have faced in implementing the current SPP, and highlight opportunities for more effective implementation of a future planning instrument.

What will it seek to change and why?

- A top priority for the review is to look at better ways to limit or design development in a way that improves community resilience to reduce the future social and economic impact of flooding, bushfires and landslides.
- The review will identify improved linkages between land use planning and disaster management planning to reduce the risk of loss of human life, illness or injury to people in an effort to close any major gaps that would place future communities at risk.
- The review will look at the need for more exact criteria and methods for identifying areas prone to flooding, bushfires and landslides, including factors to take account of climate change, that reduce the long term cost of adaptation.
- It will look at ways to improve the integrated application of a future planning instrument with other instruments such as building codes, Regional Plans and Standard Planning Scheme Provisions to improve local government and industry implementation of state policies.
- The review will examine the advantages of a multiple hazard zone approach for risk management (not the existing single line approach) to provide local governments with a pragmatic and flexible set of mitigation responses that will direct future development towards areas that are less hazard-prone.
- The review will identify options for more effective State involvement in the approval of developments and hazard studies to ensure land use planning responses are proportional to level of the risk and the effectiveness of a planning response.

When will information be released for public comment and other important time frames?

- SPP 1/03 was first released by the Minister for Emergency Services and the Minister for Local Government and Planning in May 2003.
- The review will prepare an initial policy paper on priority issues in early 2011 and a second paper that reports on an analysis of priority issues by June 2011.
- It will prepare a draft replacement planning instrument for public comment in late 2011.
- A replacement planning instrument and other recommendations will be prepared in early 2013.
- A replacement planning instrument (or other State Planning Instruments) need to be in place before September 2013 – when the current SPP expires.
- An indicative timeline is attached at Attachment 2.

Progress to date

- The Director-General has written to all state agencies, local governments, the LGAQ, and key industry and community stakeholders inviting nomination of interests and issues they would like to see addressed in the review by 14 January 2011.

- The WG met on 30 November 2010, and discussed some of the possible key issues and organisation of the project. Its next meeting is scheduled for 27 January 2011.
- The first meeting of the IDC on 9 December 2010 endorsed a project plan for the review and a set of frequently asked questions (FAQ) for possible release on DCS and LGAQ web sites, subject to approval.
- The next meeting of the IDC on 10 February 2011 will consider a draft initial policy issues paper, prior to consideration by you and Minister Hinchliffe.

3. Is this in accordance with Government election commitments?

- N/A

4. Consultation

- Consultation has occurred with [REDACTED], Strategic Policy and Legislation, DIP, who has been provided with an advance draft of this brief and its attachment/s.

5. Total Cost of Project and Funding Source

- Estimated at approximately \$750,000 plus officer salaries (Attachment 3). The full extent of funding will depend on matters identified and agreed through consideration of a Policy Issues Paper in February 2011. Funding is to be drawn from the Natural Disaster Resilience Program.
- The Director-General has the necessary delegation to approve this expenditure.

6. Has this matter been considered by a DCS Executive Committee?

- N/A

7. Is Governor-In-Council Approval Required?

- N/A

8. If this brief includes a new policy; publication; report; initiative or is a change in a policy or publication, is this information suitable for release on the Right to Information Publication Scheme web pages?

- Not at this stage, however, information will be considered for release at a later stage of the review process.

9. Recommendation

- That you note this brief.

[REDACTED]
Gary Mahon
ASSISTANT DIRECTOR GENERAL
STRATEGIC POLICY DIVISION

13/12/10

[REDACTED]
DIRECTOR-GENERAL

13/12/10

[REDACTED]
MINISTER FOR POLICE, CORRECTIVE SERVICES
AND EMERGENCY SERVICES

22/12/10

Noted / Approved / Not Approved

Comments:

SPP 1/03 Review - Preliminary Budget Estimate

Materials and services for period: 2010/11, 2011/12, 2012/13 FY

Phase	Tasks	Est. cost
	<i>Planning consultant</i>	
1	Develop recommended options for new instrument framework including draft elements of planning and non-planning mechanisms (input to second Policy Issues Paper)	\$ 40,000.00
2	Develop new draft instruments and associated non-planning mechanisms	\$ 80,000.00
3	Develop new final instruments and associated non-planning mechanisms	\$ 80,000.00
<i>sub-total</i>		\$ 200,000.00
	<i>Flood mitigation and mapping specialist</i>	
1	Develop recommended options for new flood hazard and risk mapping and assessment framework (input to 2nd Policy Issues Paper) including draft elements of new draft guideline	\$ 50,000.00
2	Develop draft guidelines for flood risk mitigation and hazard mapping	\$ 70,000.00
3	Develop final guidelines for flood risk mitigation and hazard mapping	\$ 30,000.00
<i>sub-total</i>		\$ 150,000.00
	<i>Bushfire mitigation and mapping specialist</i>	
1	Develop recommended options for new bushfire hazard and risk mapping and assessment framework (input to 2nd Policy Issues Paper) including draft elements of new draft guideline	\$ 40,000.00
2	Develop draft guidelines for bushfire risk mitigation and hazard mapping	\$ 50,000.00
3	Develop final guidelines for bushfire risk mitigation and hazard mapping	\$ 30,000.00
<i>sub-total</i>		\$ 120,000.00
	<i>Landslide mitigation and mapping specialist</i>	
1	Develop recommended options for new landslide hazard and risk mapping and assessment framework (input to 2nd Policy Issues Paper) including draft elements of new draft guideline	\$ 30,000.00
2	Develop draft guidelines for landslide risk mitigation and hazard mapping	\$ 30,000.00
3	Develop final guidelines for landslide risk mitigation and hazard mapping	\$ 30,000.00
<i>sub-total</i>		\$ 90,000.00
	<i>Printing and advertising</i>	
2	Advertising and print material for draft instrument	\$ 15,000.00
3	Advertising and print material for final instrument	\$ 25,000.00
<i>sub-total</i>		\$ 40,000.00
	<i>Economic and business analyst</i>	
2	Prepare RAS	\$ 150,000.00
TOTAL		\$ 750,000.00

**Executive Briefing Note**

Requested by: [REDACTED] ED PLR

Critical ☐**Urgent** ☐**General** ☒

Ref: MinCor/Recfind #

CSD ☐EMQ ☐QAS ☐QCS ☐QFRS ☐SPD ☒Briefing note for approval ☐Briefing note for information ☒

To: Director-General

Subject: QldRA work on advice to LGs on flood mitigation**Date:** 15/08/11**1. Background**

- Director-General (DG), Department of Local Government and Planning (DLGP) has written to you (attached) in response to an email from Gary Mahon to Gary White of DLGP (also attached).

2. Issues

- Gary Mahon's email to Gary White was prompted by the urgent Queensland Reconstruction Authority (QldRA) work on advice to local governments concerning flood mitigation and land use planning.
- The QldRA work is in two parts: Part 1 will give an indication of potential flood level to those Councils who have not conducted flood studies; Part 2 will include advice on the conduct of flood studies to those Councils needing to remake their planning schemes.
- The issues addressed in Part 2 overlap with the Review of State Planning Policy (SPP) 1/03. The QldRA work is still underway, but it is quite possible that Part 2 will satisfactorily cover at least the flood study component of the SPP 1/03 Review. This is important because Local Government Association of Queensland (LGAQ) and Councils would take issue if the State revised its flood study guidance in late 2011 (QldRA work) and again in late 2013 (SPP Review). Flood studies are expensive.
- Gary Mahon's email was influenced by DCS' view that a strategic-level planning issue such as this is the responsibility of DLGP. However, DG DLGP's response reflects the DLGP perception that development and implementation of SPP 1/03 is the responsibility of DCS through an Inter-Departmental Committee (IDC) chaired by DCS and that includes DLGP and the Department of Environment and Resource Management (DERM).
- You will recall that the SPP Review has been paused in order to benefit from the recommendations expected in Phase 2 of the QLD Flood Commission of Inquiry – though preparatory work on technical studies has continued.
- The Chair of the IDC [REDACTED] will call an IDC meeting that will include a briefing by QldRA and consider the implications of that work for the SPP 1/03 Review. A response to DG DLGP's letter will then be drafted.

- If, as anticipated, the QldRA work satisfactorily addresses the flood study component of the SPP 1/03 Review, the outstanding flood issue will be the planning component that DLGP are likely to want to align with the "adaptation strategies" as feature in the Coastal SPP (i.e. decisions including defend or retreat).
 - There will still be a need to review the bushfire and landslide components of SPP 1/03. However, the clear evidence from the statewide risk assessment is of significantly less risk of bushfire and landslide compared to flood and cyclone.
- 3. Is this in accordance with Government election commitments?**
- N/A
- 4. Consultation**
- NA
- 5. Total Cost of Project and Funding Source**
- As previously advised, the full SPP 1/03 Review was estimated at \$750,000 to be drawn from the Strategic Fund of National Disaster Resilience Program.
- 6. Has this matter been considered by a DCS Executive Committee?**
- N/A
- 7. If this brief includes a new policy; publication; report; initiative or is a change in a policy or publication, is this information suitable for release on the Right to Information Publication Scheme web pages?**
- Yes
- 8. Recommendation**
- That:
 - You note this brief;
 - That you approve for this information to be released on the Right to Information Publication Scheme web pages.

ACTING ASSISTANT DG

DIRECTOR-GENERAL

/ /

/ /

Noted / Approved / Not Approved

Comments:

From: [REDACTED]
Sent: Thursday, 11 August 2011 3:06 PM
To: [REDACTED]
Subject: FW: QRA work on advice to local governments on flood mitigation

Importance: High

From: Gary Mahon
Sent: Tuesday, 26 July 2011 2:37 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: QRA work on advice to local governments on flood mitigation
Importance: High

[REDACTED]

Yesterday our respective staff attended a briefing by Brendan Nelson concerning the work QRA are undertaking on floodplain management. My understanding is that QRA intend shortly to deliver two products for local governments to apply flood mitigation in their planning schemes.

The first, "Part 1", intended for those planning schemes that presently include no flood mitigation, is an information toolkit with mapping for introduction into planning schemes via a temporary local planning instrument. Part 1 will apparently be delivered at the end of July 2011.

The second, "Part 2", intended for those Councils with some form of flood mitigation in their current planning schemes but who need to write a new planning scheme (for example following amalgamation), will include a standard flood study template for Councils to let contracts for flood studies and then include flood mitigation code in new planning schemes. I understand that Brendan said the intention was to deliver Part 2 at the end of September 2011.

My question is about the relationship between this work by QRA and the SPP 1/03 Review that is due to complete by September 2013 as required by the SPI program administered by DLGP. I fully understand the case for an interim measure following the January floods. However, QRA's Part 2 appears to amount to a revised flood component of the existing SPP. Other than attendance at two briefings, DCS has not been involved in the work by QRA which cuts across the prescribed SPP development process that, as you know, includes interdepartmental agreement, public consultation, and Cabinet submission.

I would appreciate your clarification of what the QRA activity means for the formal review of the flood component of SPP 1/03. Is it conceivable in DLGP's view that the State Government gives Councils land use planning direction on flood mitigation (that will involve significant financial outlay and effort by Councils) in September of 2011 and then revise that advice in 2013. I expect that Councils would reasonably expect that a new planning scheme run its full ten year course.

I would suggest that if the QRA work is to become the flood component of a revised SPP 1/03 at the end of September, then responsible State agencies (notably DLGP, DERM and DCS) need to have some opportunity to influence its development and agree its conclusions. I would appreciate your advice.

Regards

Gary M

Gary Mahon | Assistant Director-General | Strategic Policy Division | Department of Community Safety |
 ☎3635 3792 | ☎5379 [REDACTED]

Our ref: OUT11/7272

12 AUG 2011

██████████
Director-General
Department of Community Safety
GPO Box 1425
Brisbane QLD 4001

Dear ██████████

**Re: Queensland Reconstruction Authority work on advice to Local Governments
on flood mitigation**

I refer to email correspondence received by the Department of Local Government and Planning (DLGP) from your Assistant Director-General, Mr Gary Mahon, dated 26 July 2011.

As you are aware, the State Planning Instruments Program (1 July 2010 to 30 June 2011) confirmed that, as the lead agency, the Department of Community Safety (DCS) would review State Planning Policy 1/03 – *Mitigating the adverse impacts of flood, bushfire and landslide* including its development and implementation.

In view of this, I would be grateful if DCS would arrange an inter-departmental committee (IDC) meeting as soon as practical. This will provide an opportunity for the IDC to be updated on the progress of the review, the current work program and discuss the recommendations of the recently released interim report by the Queensland Floods Commission of Inquiry.

As you would appreciate, the IDC meeting would benefit from an update from the Queensland Reconstruction Authority on its current work activities. This may also inform any revisions to the current work program.

Executive Building
100 George Street
PO Box 15009
City East Queensland 4002
Telephone +61 7 3227 8548
Facsimile +61 7 3224 4683
Website www.dlgp.qld.gov.au

If you require any further information, please contact Mr Michael Papageorgiou, Executive Director, Planning Policy Division on 3238 3010 or email at Michael.Papageorgiou@dlgp.qld.gov.au who will be pleased to assist.

Yours sincerely



Director-General
Department of Local Government and Planning



Executive Briefing Note

22 AUG 2011

Requested by: Executive Director, PLR

EXECUTIVE SERVICES

Critical ☐ Urgent ☐ General ☒

Ref: 06342-2011

CSD ☐ EMQ ☐ QAS ☐ QCS ☐ QFRS ☐ SPD ☒Briefing note for approval ☐Briefing note for information ☒

To: [REDACTED] Director-General

NO need to be advised to the IDC shall be

DG has advised to be

Subject: Queensland Reconstruction Authority work on advice to Local Governments on flood mitigation

Date: 15/08/11

1. Background

- Director-General (DG), Department of Local Government and Planning (DLGP), has written to you (attachment 1) in response to an email from Gary Mahon to Gary White of DLGP (attachment 2).

2. Issues

- Gary Mahon's email to Gary White ~~was prompted by the urgent Queensland Reconstruction Authority (QldRA) work on advice to local governments concerning flood mitigation and land use planning.~~ *refers to*
- The QldRA work is in two parts: Part 1 will give an indication of potential flood level to those Councils who have not conducted flood studies; Part 2 will include advice on the conduct of flood studies to those Councils needing to remake their planning schemes.
- it would overlap,* The issues addressed in Part 2 overlap with the Review of State Planning Policy (SPP) 1/03. ~~The QldRA work is still underway, but it is quite possible that Part 2 will satisfactorily cover at least the flood study component of the SPP 1/03 Review. This is important because Local Government Association of Queensland (LGAQ) and Councils would take issue if the State revised its flood study guidance in late 2011 (QldRA work) and again in late 2013 (SPP Review). Flood studies are expensive.~~
- ~~Gary Mahon's email was influenced by the Department of Community Safety's (DCS) view that a strategic-level planning issue such as this is the responsibility of DLGP. However, DG DLGP's response reflects the DLGP perception that development and implementation of SPP 1/03 is the responsibility of DCS through an Inter-Departmental Committee (IDC) chaired by DCS and that includes DLGP and the Department of Environment and Resource Management (DERM).~~
- You will recall that the SPP Review has been paused in order to benefit from the recommendations expected in Phase 2 of the QLD Flood Commission of Inquiry – though preparatory work on technical studies has continued.

- The Chair of the IDC [REDACTED] will call an IDC meeting that will include a briefing by QldRA and consider the implications of that work for the SPP 1/03 Review. A response to DG DLGP's letter will then be drafted.
 - If, as anticipated, the QldRA work satisfactorily addresses the flood study component of the SPP 1/03 Review, the outstanding flood issue will be the planning component that DLGP are likely to want to align with the "adaptation strategies" as feature in the Coastal SPP (i.e. decisions including defend or retreat).
 - There will still be a need to review the bushfire and landslide components of SPP 1/03. However, the clear evidence from the statewide risk assessment is of significantly less risk of bushfire and landslide compared to flood and cyclone.
- 3. Is this in accordance with Government election commitments?**
- N/A
- 4. Consultation**
- NA
- 5. Total Cost of Project and Funding Source**
- As previously advised, the full SPP 1/03 Review was estimated at \$750,000 to be drawn from the Strategic Fund of National Disaster Resilience Program.
- 6. Has this matter been considered by a DCS Executive Committee?**
- N/A
- 7. If this brief includes a new policy; publication; report; initiative or is a change in a policy or publication, is this information suitable for release on the Right to Information Publication Scheme web pages?**
- Yes
- 8. Recommendation**
- That:
 - You note this brief;
 - That you approve for this information to be released on the Right to Information Publication Scheme web pages.

[REDACTED]
 ACTING ASSISTANT DIRECTOR-GENERAL
 STRATEGIC POLICY DIVISION

[REDACTED]
 DIRECTOR-GENERAL

/ /

/ /

Noted / Approved / Not Approved

Comments:

Department of Community Safety

State Planning Policy 1/03 Review

Working Group Meeting No 1

9:30 am-11:30 am

Tuesday, 30 November 2010

Conference Room B3.01
Emergency Services Complex
Corner of Kedron Park and Park Roads, Kedron

Attendance:

Attendance

Apologies

DRAFT MINUTES

1. Introduction

- The working group includes members of key agencies and the LGAQ.
- Cabinet has approved the review of SPP 1/03 by the Department of Community Safety as part of the Statutory Instruments Program for 2010-11.
- The review must be completed before September 2010.
- It will take on board recommendations of the Inland Flooding Study and planning and building recommendations the Victorian Bushfires Royal Commission Final report – with consideration of the much lower level of bushfire hazard in Queensland.

2. Overview – DCS

(a) Progress to date

- DCS has appointed a Project Director (Graham Wiltshire) and Project Manager (Robert Preston)
- The first stage of the review is to determine issues interests for the review. The first policy issues paper is to be prepared for relevant Ministers in February 2011. A second policy issues paper will be prepared in June 2011.

(b) Outgoing correspondence

- Letters have been sent to the following organisations re: Issues for the review.

- 9 Nov 2010 - DIP, DERM, DPC
- 9 Nov 2010 - LGAQ, ULDA
- 9 Nov 2010 - QH, DOC, DET, DEEDI, DJAG, DPW, DTMR, DT, QP, CCYP
- 26 Nov 2010 - Industry and community stakeholders
- 26 Nov 2010 - LG CEOs

3. Progress report - issue identification - All

- DERM have commenced an internal process of issue identification. Preliminary issues concern matters such as the delineation of natural hazard management areas, definition of acceptable solutions, the influence of climate change on bushfires, potential conflict with the Koala SPP, and criteria for delineating hazard management areas for landslide
- LGAQ would prefer to wait until 14 January 2011 before finalising its advice on issues for the review – to align with the new timeline for local governments. Some preliminary local government issues are the difficulty in obtaining advice from the state, challenges in interpreting state interests in the SPP, the possible need for separating or simplifying coverage of the 3 hazards, and the need for better links between disaster management and land use planning. LGAQ are also concerned that the due date for the survey of local government coincides with the date for comment on the Infrastructure Charges Taskforce Report, requested by DIP.
- DIP would like to see a clear statement of state interests in the early stages of the review – including readily understood statements of the outcomes that the state would like to see achieved by implementing the SPP. This is an important review for DIP as it is the first to be conducted under SPA.
- QFRS sees a need for a better understanding of the role of planning – which is to manage hazard – compared to the role of building codes – which is to mitigate risk for individual buildings.
- **Action:** All to advance definition of issues and interests to DCS by 14 Jan 2011.

4. Draft papers for first SPP 1/03 Review IDC Meeting (9 Dec)

(a) IDC - TOR and membership

- Terms of reference for the IDC are satisfactory and should be distributed to the IDC for endorsement.

(b) Working Group - TOR and membership

- Terms of reference for the WG are satisfactory and should be distributed to the IDC for endorsement.
- The organisation for [REDACTED] should be corrected to LGAQ.

(c) Project plan incl. timeline

- The project plan is satisfactory and should be circulated to the IDC for consideration.

(d) Preliminary issues and interests

- DCS has compiled a preliminary list of issues spanning the need to reflect community resilience outcomes, the need for stronger linkages between disaster management planning and land use planning, the need to improve criteria and mapping methods – including the effects of climate change, the need for effective links with building codes, regional plans and standard planning scheme provisions, the possible benefits of a multi-zone approach for managing all hazards, and clarification of an appropriate role for the state in development approvals.
- DCS has also developed a framework for the analysis of interests and the development of recommendations for the remade SPP spanning the 4 stages of state interest definition, identifying planning and non-planning mechanisms, methods for determining areas of interest, and determining implications for government, industry and stakeholders.

5. Other business

- The IDC may wish to consider extending membership to include DEEDI.

6. Next meeting

- 10:30am Thursday 27 January 2011

Department of Community Safety

State Planning Policy 1/03 Review

Inter-Departmental Committee (IDC) Meeting No 1

10:00 am-11:30 am

Thursday, 9 December 2010

Conference Room C3.07
Emergency Services Complex
Corner of Kedron Park and Park Roads, Kedron

Attendance:

Invited

[REDACTED] (Chair); Michael Papageorgiou (DIP); [REDACTED]
(DERM); [REDACTED] (DERM)

Apologies

[REDACTED]

DRAFT AGENDA

1. Introduction

2. Overview – DCS

- (a) Progress to date
- (b) Correspondence

3. Membership and Terms of Reference of committees - *for endorsement*

- (a) Inter-Departmental Committee
- (b) Working Group

4. Project plan – *for endorsement*

5. Frequently Asked Questions – *for endorsement*

6. Preliminary issues and interests

7. Other business

8. Next meeting

Department of Community Safety

State Planning Policy 1/03 Review

IDC Meeting No 1 – 9 December 2010

Item 2 (b) Correspondence

Item	Date sent	To	Response requested	Topic	Status / Response
1	09 Nov 2010	DIP, DERM, DPC	30 Nov 2010	Issues for SPP 1/03, IDC rep	DIP 26 Nov 2010
2	09 Nov 2010	LGAQ, ULDA	10 Dec 2010	Issues for SPP 1/03	Nil to date
3	09 Nov 2010	QH, DOC, DET, DEEDI, DJAG, DPW, DTMR, DT, QP, CCYP	10 Dec 2010	Issues for SPP 1/03	DJAG - Nil
4	26 Nov 2010	Industry and community stakeholders	14 Jan 2011	Issues for SPP 1/03	Nil response to date
5	26 Nov 2010	LG CEOs	14 Jan 2011	Issues for SPP 1/03 & Survey	1 response to date

Department of Community Safety

State Planning Policy 1/03 Review

IDC Meeting No 1

Item 3 (a) IDC TOR and membership

(a) Chair

The Department of Community Safety will chair the inter-departmental committee (IDC) for the review of SPP 1/03 as lead agency.

(b) Membership

Membership includes representatives of all state government departments that are likely to have a state interest affected by the proposed SPP.

In the first instance, members of the IDC are:

[REDACTED] - Department of Community Safety (Chair)
Michael Papageorgiou - Department of Infrastructure and Planning
[REDACTED] - Department of Environment and Resource Management
[REDACTED] - Department of Premier and Cabinet
TBA - Department of Employment, Economic Development and Innovation
TBA - Department of Transport and Main Roads
TBA - Department of Public Works

(c) Purpose

The purpose of the IDC is to:

- Appoint representatives to a Working Group who will prepare papers for consideration by the IDC
- Consider and endorse papers and recommendations prior to consideration by relevant Ministers
- Consider and endorse a project plan for the review of SPP 1/03 and any amendments that may be required
- Advise the Chair of any matters relevant to the review that may be of interest or concern to the lead agency

(d) Key responsibilities

- Assist the identification of issues and opportunities for the SPP review
- Assist the development of risk management strategies
- Assist the identification of solutions to meet the needs of government, relevant industries and community
- Agree on preferred options for Cabinet consideration.

(e) Meetings

Meetings will occur on a 'needs' basis, but not less than once every 4 months.

Department of Community Safety

State Planning Policy 1/03 Review

IDC Meeting No 1

Item 3 (b) Working Group - TOR and membership

(a) Chair

The Department of Community Safety will chair the working group (WG) for the review of SPP 1/03 as lead agency.

(b) Membership

Membership includes representatives of state government departments on the IDC (except DPC) and the Local Government Association of Queensland.

In the first instance, members of the Working Group are:

[REDACTED] Department of Community Safety (Chair)
[REDACTED] Queensland Fire and Rescue Service – Dept. Community Safety
[REDACTED] – Emergency Management Queensland - Department of
Community Safety
[REDACTED] Department of Infrastructure and Planning
[REDACTED] – Department of Environment and Resource Management
[REDACTED] – Local Government Association of Queensland
TBA - Department of Employment, Economic Development and Innovation
TBA – Department of Transport and Main Roads
TBA – Department of Public Works

(c) Purpose

The purpose of the Working Group is to:

- Assist with the preparation of papers for consideration by the IDC
- Consider and endorse a project plan for the review of SPP 1/03 and any amendments that may be required
- Advise the Chair of any matters relevant to the review that may be of interest or concern to the lead agency

(d) Key responsibilities

- Assist the IDC to identify issues and opportunities for the SPP review
- Assist the IDC to develop necessary risk management strategies
- Assist the IDC to identify solutions to meet the needs of government, relevant industries and community
- Agree on preferred options for IDC consideration.

(e) Meetings

Meetings will occur on a 'needs' basis, but not less than once every 2 months.

Department of Community Safety

State Planning Policy 1/03 Review

Project Plan

November 2010

Version	2.0
Owner:	[REDACTED], Project Manager – SPP 1/03 Review
Contact Details:	Ph: 3635 3782; Email [REDACTED]
Division/Unit:	Strategic Policy Division / Policy & Legislative Reform Branch
Document Status:	Draft

Revision History

Revision Date	Version No	Author	Description of Change/Revision
18 Oct 10	1.0		Original draft
19 Nov 10	1.1		Amended to incorporate recent approvals
26 Nov 10	1.2		Incorporates comments from NW, PW, BT
03 Dec 10	2.0		Incorporates suggestions from Andrew Walls incl. new attachment A.

Endorsement

Name	Members	Date
Inter-Departmental Committee	Michael Papageorgiou (DIP), (DPC), TBA (DPW), TBA (DEEDI), TBA (DTMR)	
Working Group	(LGAQ)	30 Nov 2010

Approvals

Name	Title	Signature	Date
Gary Mahon	Project Executive/Sponsor		
	Project Executive Director		
	Project Director		
	Project Manager		

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1. Project Definition

1.1 Project Background

State Planning Policy 1/03 *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (SPP 1/03) is one of four types of State Planning Instruments (SPIs) used to implement the Sustainable Planning Act 2009 (SPA) to influence land use planning and development in Queensland.

The four types of state planning instruments are:

- state planning regulatory provisions (SPRP)
- regional plans
- state planning policies (SPP)
- standard planning scheme provisions, known as the Queensland Planning Provisions (QPP).

SPP 1/03 was originally drafted under the Integrated Planning Act (1997) and came into effect on 1 September 2003. Under SPA, SPPs expire ten years after they are made.

The purpose of SPP 1/03 is to describe the State's interest in ensuring that the natural hazards of flood, bushfire and landslide are adequately considered when making decisions about development. Its coverage of natural hazards is complementary to coastal hazards that will be managed through a State Planning Policy - Coastal Protection (i.e. coastal inundation, erosion and storm tide inundation - including the effects of climate change on sea level rise and increased storm intensity).

The Department of Community Safety is reviewing SPP 1/03 as part of the Statutory Instruments Program for 2010/11, as approved by Cabinet in March 2010. An action plan for the review of SPP has also been prepared for publication in the SEQ Regional Plan Climate Change Management Plan. This review is being conducted in accordance with the State Planning Instruments Program Guideline, produced by the Department of Infrastructure and Planning, and with the assistance of an Inter-Departmental Committee (IDC) and Working Group (WG). The working group includes a representative from the Local Government Association of Queensland (LGAQ).

1.2 Project Objectives

The objectives of this project are:

(1) To provide advice to relevant Ministers on the state policy position with respect major interests and issues for the review of SPP 1/03 including:

- A. Accurate definition of current state planning interests,
- B. Preferred planning and non-planning options,
- C. Criteria and methods to delineate areas of interest, and
- D. Implications for the state government and local governments

by conducting a thorough analysis of state agency, local government, LGAQ and key stakeholder issues and interests, as outlined in Attachment A, including:

- priority issues that arise from an evaluation of the current SPP and current state policy (Policy Issues Paper 1),

- recommended policy issues that need to be addressed through the planning framework or other means.(Policy Issues Paper 2)
- (2) To ensure the state's interests in flood, bushfire and landslides are adequately addressed in accordance with recommendations endorsed from relevant Ministers by:
 - preparing planning instruments and other products as appropriate for cabinet approval and public comment
 - receiving and analysing public submission
 - preparing final planning instruments and other products as appropriate for cabinet approval
 - (3) To prepare drafting instructions for the preparation of SPI required to better reflect state interests.
 - (4) To document possible implications for industry, the community or other stakeholders via preparation of a Regulatory Assessment Statement (RAS)
 - (5) To coordinate the analysis of state agency and stakeholder interests and the timely provision of advice and recommendations to relevant Ministers and Cabinet as required.

1.3 Project Scope

The following are included in the scope of the project:

- state interests relevant to ensuring that the natural hazards of flood, bushfire and landslide are adequately considered when making decisions about development in accordance with the Sustainable Planning Act (2009).
- consideration of state, industry, community and stakeholder implications

The following are outside the scope of the project:

- Matters outside of scope of this project will be determined through preparation and endorsement of Policy Issues Paper and Policy Research Paper prepared during Phase 1 of this project.

1.4 Products

The Products that will be delivered by this project (also refer Attachment B) are:

- A first Policy Issues Paper (Milestone 1.5) that identifies priority issues for the review of SPP 1/03 - to be endorsed by an interdepartmental committee (IDC) and relevant Ministers and a second Policy Issues Paper (Milestone 1.7) that provides recommendations for the development of Statutory Planning Instruments (such as a replacement SPP) and other appropriate non-planning instruments, based on more detailed investigation of priority issues - to be endorsed by an interdepartmental committee (IDC) and relevant Ministers (output from Phase 1)
- A replacement Draft SPP and / or drafting instructions for modifications to other Statutory Planning Instruments (Milestone 2.6) to be endorsed by the IDC, approved by relevant Ministers or Cabinet for public consultation (output from Phase 2)
- Final replacement SPP, modifications to other Statutory Planning Instruments SPIs and other appropriate non-planning instruments (Milestone 4.2) endorsed by the IDC, relevant Ministers and approved by Cabinet - published by way of gazette and newspaper (output from Phase 3 and 4).

1.5 Assumptions and Constraints

The following assumptions have been made during the planning of this project:

- that agencies outside the control of the project, which need to provide input or undertake action needed by the project, are able to do so and within the timings allowed;
- approval from the relevant Ministers will be obtained within reasonable timeframes;
- Cabinet consideration to occur as scheduled;
- that there would be no additional tasks outside the current scope of the project plan placed upon the project during the course of the project;
- that external consultation does not identify significant issues not yet considered and which would delay project timeframes

The following constraints have been placed on this project:

- funding will depend on matters identified and agreed through consideration of a Policy Issues Paper (Phase 1). Funding is to be drawn by DCS from Natural Disaster Resilience Program subject to relevant approval processes.

1.6 Project Schedule

This is an indicative timeframe only and is subject to the above assumptions.

Phase	Deliverable	Est. Date of Completion
1. Pre-Planning	An initial Policy Issues Paper and second Policy Issues Paper to be endorsed by an interdepartmental committee (IDC) and relevant Ministers.	June 2011
2. Preparation of draft instrument	Draft remade SPP to be endorsed by the IDC, approved by relevant Ministers or Cabinet for public consultation	November 2011
3. Consultation and preparation of final instrument	Final remade SPP, endorsed by the IDC	October 2012
4. Adoption	The remade SPP, endorsed by the relevant Ministers and approved by Cabinet, will be published by way of gazette and newspaper	January 2013
5. Implementation	Initial implementation and ongoing monitoring and reporting of implementation	February-August 2013

* Ongoing implementation and related reporting not to be completed by project team.

An indicative timeline for this project is shown in Appendix C.

2. Project Roles

2.1 Relevant Ministers

The relevant Minister for the review of SPP 1/03 are:

- the Minister for Police, Corrective Services and Emergency Services
- the Minister for Infrastructure and Planning

2.2 Project Executive – Lead agency

The project executive of the lead agency (Department of Community Safety) is:

Role	Responsibilities
Project Executive – Gary Mahon Assistant Director-General (DCS)	The Project Executive has ultimate responsibility for satisfactory completion of the project and provision of advice to the Minister for Police, Corrective Services and Emergency Services through the Director General, Department of Community Safety.
Project Executive Director [REDACTED] (DCS)	The Project Executive Director has responsibility for ensuring the Project Executive is fully advised of state and key stakeholder interests and concerns, and that the project is delivered in accordance with the approved project plan.

2.3 Inter-Departmental Committee

The role of the Inter-Departmental Committee (SPP 1/03 review) will be ensure comprehensive cross-government identification and consideration of relevant issues. This committee will enable the coordination of state agency input to preparation of the remade SPP outside the formal consultation stages. Agencies represented on the IDC and members nominated by respective Director Generals are:

Agency	Member
Department of Community Safety (Lead agency)	[REDACTED], Executive Director, Policy and Legislation Reform (Chair)
Department of Infrastructure and Planning	Michael Papageorgiou, Executive Director, Planning Policy (tbc)
Department of Environment and Resource Management.	[REDACTED] Director, Director, Integrated Planning, Strategy and Policy (tbc)
Department of Premier and Cabinet	[REDACTED] Director, Environment and Resources (tbc)
Department of Employment, Economic Development and Innovation	TBC
Department of Transport and Main Roads	TBC

Agency	Member
Department of Public Works	TBC

2.4 Project Team

The project team is responsible for the preparation of all reports and information considered by the IDC and Project Executive with the support of a Working Group. The project team also provides secretariat support to the IDC.

Agency / organisation	Member
Project Director - [REDACTED] Director, Strategy (DCS)	The Project Director has responsibility for ensuring that the project is delivered on time and within budget and for reporting to the Project Executive.
Project Manager – [REDACTED] Principal Policy Advisor (DCS)	The Project Manager will manage the project on a day-to-day basis on behalf of the Project Executive and Project Director and will coordinate stakeholder consultation, the preparation of research and policy papers, and the draft and final instruments by team members and contractors.
Project Team Member/s [REDACTED] (DCS), [REDACTED] (DCS),	The Project Team Member/s will be responsible for the delivery of discrete components of the project, aspects of consultation, the preparation of research and policy papers, and the draft and final instruments. Project team members will report to the Project Director and Project Manager.

2.5 Working Group

A working group has been established to support the project team, preparation of matters considered by the IDC and to incorporate views of the LGAQ and other key stakeholders as required. Members of the working group will coordinate agency / organisational input to the review of SPP 1/03.

Role	Member/s
Department of Community Safety (Lead agency)	[REDACTED] (Chair) [REDACTED] (QFRS) [REDACTED] (EMQ) [REDACTED] (Secretary)
Department of Infrastructure and Planning	[REDACTED]
Department of Environment and Resource Management.	
LGAQ	
Department of Employment, Economic Development and Innovation	TBC
Department of Transport and Main Roads	TBC
Department of Public Works	TBC

3. Related Initiatives

The projects and other initiatives shown in the table below have a bearing, or are in some way dependent on this project:

Related Project/Initiative	Nature of Relationship
Inland Flood Study	Recommendations of the study will influence the policy issues to be explored as part of this project.
Queensland Coastal Plan and State Planning Policy Coastal Protection	As the Qld Coastal Plan also looks at issues involving flooding/inundation, there is a need to ensure consistency between the two instruments
Victorian Bushfires Royal Commission and Queensland IDC Sub-group on Planning and Building	The recommendations of the Royal Commission include matters relating to land use planning and will be considered as part of this project.
Coincident Flooding Research by QCCE using NDRM funds	The study will identify issues concerning coincident flooding including potential impacts; the extent that coincident flooding is already covered in flood studies and the most appropriate planning instrument to address coincident flooding.
Assessment of Natural Hazard Disaster Risk in Queensland	An assessment of the current natural hazard risk profile, consideration of alternative risk mitigation treatments and potential climate change impacts (study by Risk Frontiers – Macquarie University- in prep).

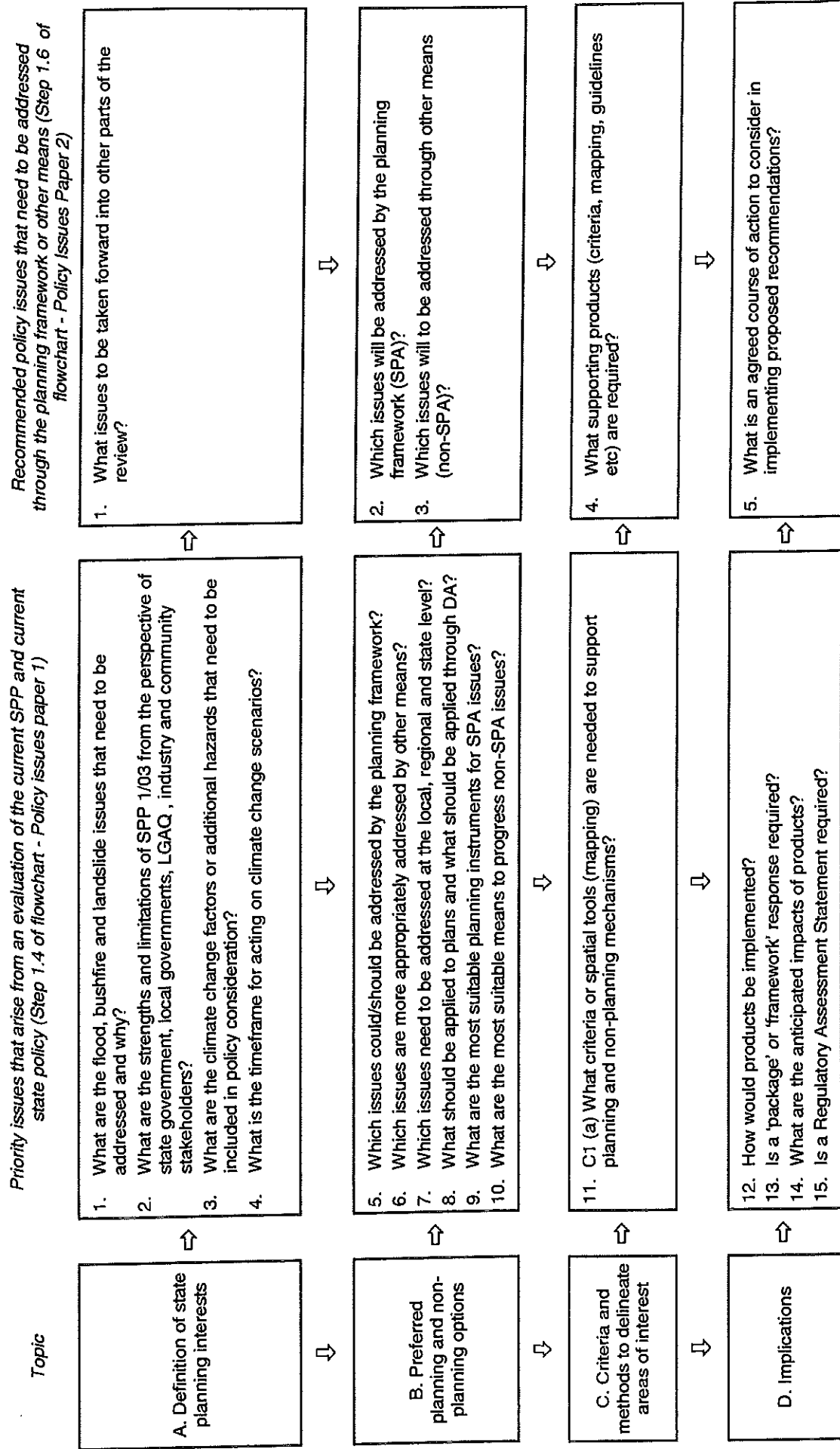
4. Stakeholder consultation

The following consultation with stakeholders will be undertaken during Phase 1 (Pre planning) and Phase 2 (Preparation of Draft Instrument) of the Project.

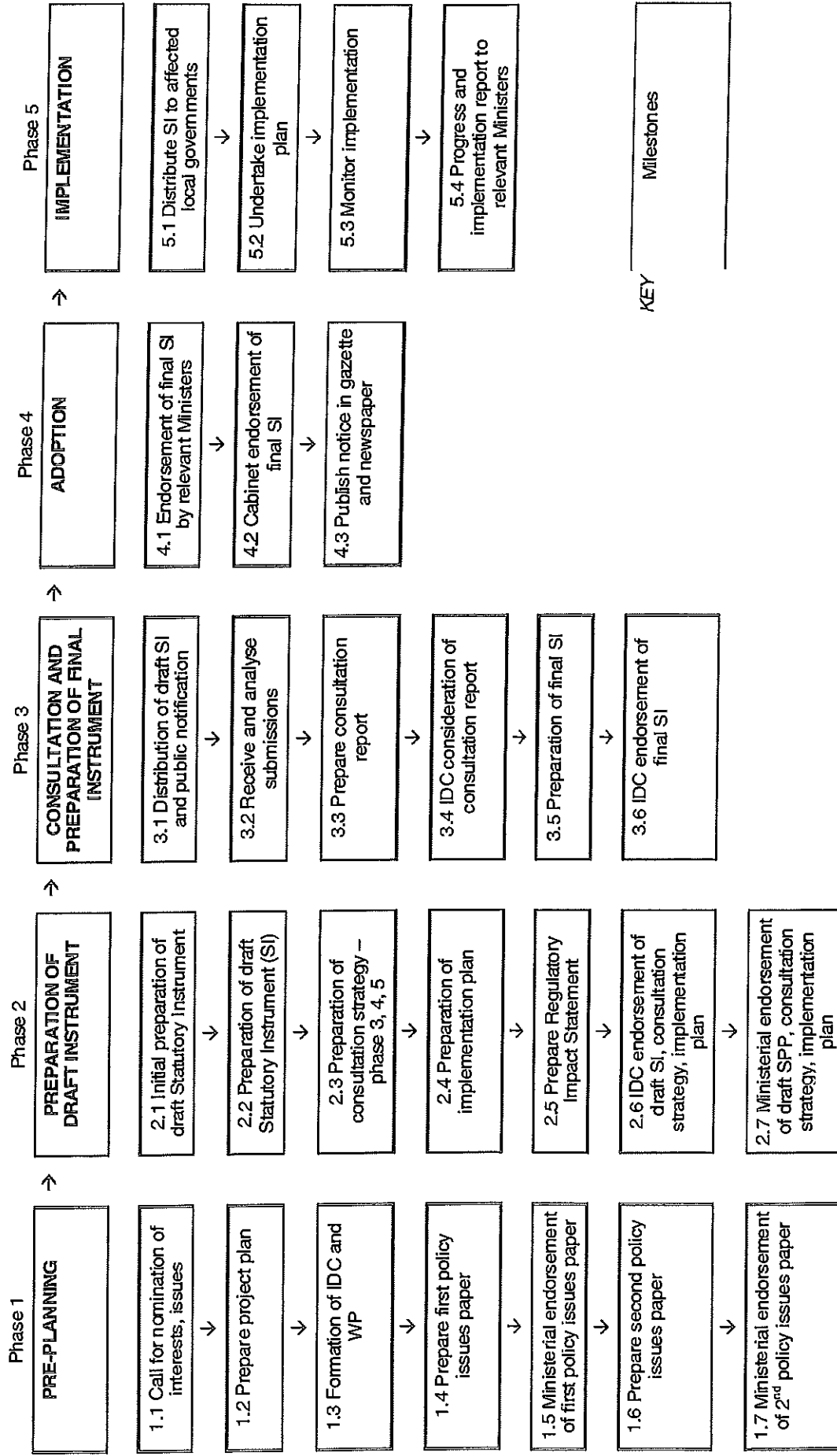
- The Local Government Association of Queensland (LGAQ) will be invited to identify issues considered in the review, and participate on the Working Group to assist with development of the Policy Issues Paper, draft revised SPP, and final SPP.
- All of Queensland Local Governments will be invited to suggest issues that they would like to see addressed in the review of SPP 1/03 by way of completing a questionnaire.
- Key stakeholders (Appendix D) will be invited to also suggest issues that they would like to see addressed in the review
- Additional public consultation as may be required,

Plans for stakeholder consultation during Phase 3, 4 and 5 will be developed during Phase 2 of the project.

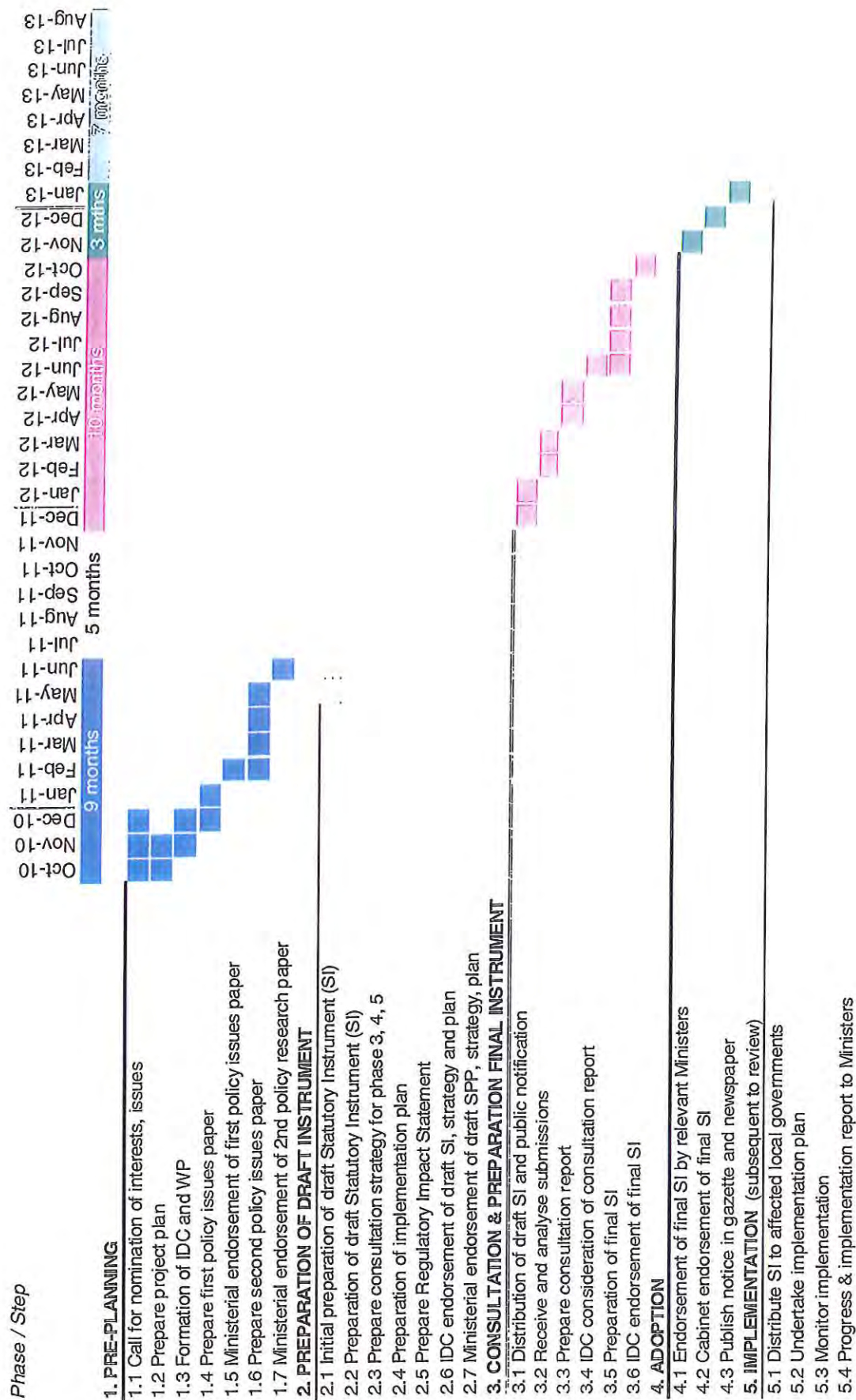
Appendix A – Issues Analysis Framework



Appendix B – Indicative Flowchart



Appendix C – Indicative Timeline



Appendix D – Community and Industry Stakeholders

Academic	CSIRO Climate Adaptation Flagship
	Griffith University
	James Cook University
	National Climate Change Adaptation Research Facility
	Queensland University of Technology
	Sunshine Coast University
	University of Queensland
Bushfire	Australian Institute of Building Surveyors - Queensland/Northern Territory Chapter
	Fire Protection Association Australia - Queensland State Committee
Commonwealth	Attorney General's Department
	Bureau of Meteorology
	Department of Climate Change and Energy Efficiency
Disaster Management	Emergency Services Advisory Council
Environment	Environment Institute of Australia and New Zealand
	Environmental Defenders Office
	Queensland Conservation Council
Flooding	Engineers Australia - Queensland Division
	Institute of Public Works Engineering
	The Board of Professional Engineers of Queensland
Landslide	Australian Geomechanics Society
Law	Queensland Environmental Law Association
	Queensland Law Society
Local Government	Local Government Association of Queensland
Property	Planning Institute of Australia (Queensland)
	Property Council of Australia - Queensland Division
	Real Estate Institute of Queensland
	Urban Development Institute of Australia (Queensland)
	Urban Land Development Authority
Utility	Brisbane Airport Corporation Pty Ltd
	Energex Limited
	Ergon Energy
	Powerlink Queensland

Robert Preston

From: [REDACTED]

Sent: Monday, 6 December 2010 2:42 PM

To: [REDACTED]

Cc: [REDACTED]

Subject: SPP 103 Review IDC - Additional Agenda Papers for Meeting 1

Attachments: SPP 103 Review IDC Meeting 01 Item 6 State Issues v01 6 Dec 2010.doc; SPP 103 Review IDC Meeting 01 Item 2a WG Meeting 01 Minutes.doc

Please find attached additional agenda papers for Thursday's meeting.

- Item 2a Progress to date - Minutes from WG meeting 01 - for noting
- Item 6 State Issues - to 6 Dec 2010 - for noting

[REDACTED]
Project Manager - SPP 1/03 Review
Policy & Legislative Reform Branch
Strategic Policy Division
Department of Community Safety
GPO Box 1425 Brisbane Queensland 4001
Phone: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]

Department of Community Safety

State Planning Policy 1/03 Review

Working Group Meeting No 1

9:30 am-11:30 am

Tuesday, 30 November 2010

Conference Room B3.01
Emergency Services Complex
Corner of Kedron Park and Park Roads, Kedron

Attendance:

Attendance

Apologies

MINUTES

1. Introduction

- The working group includes members of key agencies and the LGAQ.
- Cabinet has approved the review of SPP 1/03 by the Department of Community Safety as part of the Statutory Instruments Program for 2010-11.
- The review must be completed before September 2010.
- It will take on board recommendations of the Inland Flooding Study and planning and building recommendations the Victorian Bushfires Royal Commission Final report – with consideration of the much lower level of bushfire hazard in Queensland.

2. Overview – DCS

(a) Progress to date

- DCS has appointed a Project Director () and Project Manager ()
- The first stage of the review is to determine issues interests for the review. The first policy issues paper is to be prepared for relevant Ministers in February 2011. A second policy issues paper will be prepared in June 2011.

(b) Outgoing correspondence

- Letters have been sent to the following organisations re: Issues for the review.

- 9 Nov 2010 - DIP, DERM, DPC
- 9 Nov 2010 - LGAQ, ULDA
- 9 Nov 2010 - QH, DOC, DET, DEEDI, DJAG, DPW, DTMR, DT, QP, CCYP
- 26 Nov 2010 - Industry and community stakeholders
- 26 Nov 2010 - LG CEOs

3. Progress report - issue identification - All

- DERM have commenced an internal process of issue identification. Preliminary issues concern matters such as the delineation of natural hazard management areas, definition of acceptable solutions, the influence of climate change on bushfires, potential conflict with the Koala SPP, and criteria for delineating hazard management areas for landslide
- LGAQ would prefer to wait until 14 January 2011 before finalising its advice on issues for the review – to align with the new timeline for local governments. Some preliminary local government issues are the difficulty in obtaining advice from the state, challenges in interpreting state interests in the SPP, the possible need for separating or simplifying coverage of the 3 hazards, and the need for better links between disaster management and land use planning. LGAQ are also concern that the due date for the survey of local government coincides with the date for comment on the Infrastructure Charges Taskforce Report, requested by DIP.
- DIP would like to see a clear statement of state interests in the early stages of the review – including readily understood statements of the outcomes that the state would like to see achieved by implementing the SPP. This is an important review for DIP as it is the first to be conducted under SPA.
- QFRS sees a need for a better understanding of the role of planning – which is to manage hazard – compared to the role of building codes – which is to mitigate risk for individual buildings.
- **Action:** *All to advance definition of issues and interests to DCS by 14 Jan 2011.*

4. Draft papers for first SPP 1/03 Review IDC Meeting (9 Dec)

(a) IDC - TOR and membership

- Terms of reference for the IDC are satisfactory and should be distributed to the IDC for endorsement.

(b) Working Group - TOR and membership

- Terms of reference for the WG are satisfactory and should be distributed to the IDC for endorsement.
- The organisation for [REDACTED] should be corrected to LGAQ.

(c) Project plan incl. timeline

- The project plan is satisfactory and should be circulated to the IDC for consideration.

(d) Preliminary issues and interests

- DCS has compiled a preliminary list of issues spanning the need to reflect community resilience outcomes, the need for stronger linkages between disaster management planning and land use planning, the need to improve criteria and mapping methods – including the effects of climate change, the need for effective links with building codes, regional plans and standard planning scheme provisions, the possible benefits of a multi-zone approach for managing all hazards, and clarification of an appropriate role for the state in development approvals.
- DCS has also developed a framework for the analysis of interests and the development of recommendations for the remade SPP spanning the 4 stages of state interest definition, identifying planning and non-planning mechanisms, methods for determining areas of interest, and determining implications for government, industry and stakeholders.

5. Other business

- The IDC may wish to consider extending membership to include DEEDI.

6. Next meeting

- 10:30am Thursday 27 January 2011

Review of State Planning Policy 1/03

State Issues and Interests

Last updated: 6 December 2010

Agency	Date	From	Issues
Department of Justice and Attorney-General	17 Nov 10	[REDACTED] Executive Manager, Corporate Governance	<ol style="list-style-type: none"> DJAG has no comment/issues with the current State Planning Policy 1/03. DJAG will not need to provide a contact officer for this issue.
Department of Infrastructure and Planning	29 Nov 10	[REDACTED] Director General	<ol style="list-style-type: none"> The Department's primary concern for all planning and development related State interests is that the interest itself is clearly articulated, and that the most appropriate planning instrument/s to protect the interest are in place. In this regard, I ask that the Department of Community Safety revisits the scope of the State interest, analyses the effectiveness of SPP 1/03 in achieving its purpose, and reviews existing approaches and mechanisms used by other jurisdictions. This work will assist in determining whether the interest needs to be redefined and/or whether a new SPP should be refocused and considered as part of a package of planning instruments to achieve required outcomes. As this is the first SPP review to commence since the Sustainable Planning Act 2009 came into effect, the Department is keen to work with you and would appreciate your advice and feedback in relation to the process for reviews as it progresses.
Department of Premier and Cabinet	2 Dec 10	Ken Smith Director General	<ol style="list-style-type: none"> This review will be important in re-evaluating the effectiveness of the State Planning Policy in mitigating the adverse impacts of flood, bushfire and landslide in Queensland. The review should incorporate additional relevant strategies that have been developed, including the National Disaster Resilience Strategy. The review should also consider issues raised in the Victorian Bushfire Royal

Agency	Date	From	Issues
			Commission's final report recommendations relating to planning and building, specifically those recommendations around mapping bushfire risk, a regional settlement policy, amendments to State Planning Provisions, assessment of permit applications and bushfire risk mitigation through vegetation removal.
Department of Employment, Economic Development and Innovation	6 Dec 10	Manager, Project Development and Facilitation Employment and Economic Development	<p>1. DEEDI seeks consultation with the Department of Community Services in relation to provisions relevant to timber plantations (plantation forestry). As part of the implementation of the Queensland Government's Timber Plantation Strategy 2020, DEEDI is currently preparing a statutory standard code under the Queensland Planning Provisions relevant to development applications for timber plantations. This standard code may include issues relevant to fire hazard and DEEDI would like to discuss the connectivity between policies and also avoid duplication/overlap of issues or solutions.</p> <p>2. The SPP provides an exception where there is an 'overriding need' for the development 'in the public interest' . . . there have been issues around the interpretation of these terms in the past. There is a significant amount of case law surrounding these terms or similar. Consideration should be given to establishing a consistent definition such as in other SPPs or statutory regional plans such as FNQ2031 or SEQ. Public interest needs to address either a regional or local perspective.</p> <p>3. The new SPP will need to address how it can be incorporated into the new Indigenous Shire Planning schemes.</p> <p>4. In hindsight of the Victorian Bushfires, consider the relevance of the exemption for Community infrastructure if built for specific purposes e.g. bushfires and its location.</p> <p>5. The Review of the SPP 1/03 needs to be consistent with and assess potential consequences of the new SPPs developed such as the Temporary SPP for Protecting Wetlands of high Ecological Significance in the Great Barrier Reef Catchments in terms of mitigation and relevant flood levels both river and local. DERM have developed a waterway envelope concept for FNQ2013 regional plan and are proposing to develop guidelines for Councils. This proposal is suggesting no development including sports fields etc other than for biodiversity outcomes or some passive recreation parks within the envelope and buffers. This may need to be considered in relation to land available for</p>

Agency	Date	From	Issues
			development in Greenfield sites and opportunities for development that can assist in flood detention basins.
			6. Consistency of the new SPP with the new definitions of land use defined within the QPP e.g. agriculture and plantation forestry are included in the same definition whereas Forestry for Carbon sequestration is defined differently. The application of the new SPP needs to account for the new definitions in the Qld planning provisions.

From: [REDACTED]
 Sent: Tuesday, 7 December 2010 8:21 AM
 To: [REDACTED]
 Subject: Re: SPP 1/03 Review
 Hi [REDACTED]

The primary contact person will be from our Health Planning and Infrastructure Division. I'm trying to find out who that person is and will let you know as soon as I know.

We'll still have an interest from a population health perspective, but will liaise with the QH primary contact person.

Thanks
 [REDACTED]

>>> [REDACTED] 6/12/2010 9:38 am >>>
 Hello [REDACTED]

Good to talk with you last week.

I have recently started with DCS as Project Manager for the review of SPP 1/03 (flooding, bushfires and landslides) and was wondering if you were aware of the attached letter that was sent to your DG on 26 November, inviting nomination of issues or interests for the review. If you have time I would appreciate if you let me know whether a letter of reply has yet been drafted.

I have attached a set of draft 'frequently asked questions' and a draft project plan which are to be addressed at a meeting of the inter-departmental committee later this week, for your information.

Please feel free to contact me if you have any questions.

Cheers

Project Manager - SPP 1/03 Review
 Policy & Legislative Reform Branch
 Strategic Policy Division
 Department of Community Safety
 GPO Box 1425 Brisbane Queensland 4001
 Phone: 07 3636 3782 (x53782)
 Fax: 3247 8798
 Email: [REDACTED]

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[REDACTED]

Sent: Wednesday, 22 December 2010 10:36 AM

To: [REDACTED]

Cc: [REDACTED]

Subject: SPP 1/03

Attachments: SPP 103 Review Project Plan v2-1.doc; QPS to DCS DOC221210.pdf

Dear [REDACTED]

Thank you for taking my call about the review of SPP 1/03.

As discussed DCS has established a Working Group and IDC that will be meeting periodically throughout the project.

The working group includes representatives from Emergency Management Queensland and the Queensland and Fire Rescue Service. As you are well aware, both of these divisions of DCS also have a major interest in the issues raised in your letter of 6 December 2010.

The IDC has also recently endorsed a project plan that includes a timeline for completion of the project in early 2013 (attached).

Please feel free to contact me or my Director (Graham Wiltshire) should you have any further questions or suggestions about the review of SPP 1/03.

I hope that you and your family have a very peaceful and enjoyable Christmas.

[REDACTED]

Project Manager - SPP 1/03 Review

Policy & Legislative Reform Branch

Strategic Policy Division

Department of Community Safety

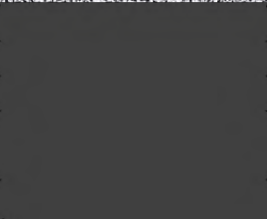
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Email [REDACTED]

Revision History

Revision Date	Version No.	Author	Description of Change/Revision
18 Oct 10	1.0		Original draft
19 Nov 10	1.1		Amended to incorporate recent approvals
26 Nov 10	1.2		Incorporates comments from NW, PW, BT
03 Dec 10	2.0		Incorporates suggestions from Andrew Walls incl. new attachment A.
13 Dec 10	2.1		Incorporates changes requested at IDC Meeting 9 Dec 2010

Endorsement

Name	Members	Date
Inter-Departmental Committee	 DCS), Michael Papageorgiou (DIP),  (DERM),  (DPC)	9 Dec 2010
Working Group		30 Nov 2010

Approvals

Name	Title	Signature	Date
Gary Mahon	Project Executive/Sponsor		
	Project Executive Director		
	Project Director		
	Project Manager		

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1. Project Definition

1.1 Project Background

State Planning Policy 1/03 *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (SPP 1/03) is one of four types of State Planning Instruments (SPIs) used to implement the Sustainable Planning Act 2009 (SPA) to influence land use planning and development in Queensland.

The four types of state planning instruments are:

- state planning regulatory provisions (SPRP)
- regional plans
- state planning policies (SPP)
- standard planning scheme provisions, known as the Queensland Planning Provisions (QPP).

SPP 1/03 was originally drafted under the Integrated Planning Act (1997) and came into effect on 1 September 2003. Under SPA, SPPs expire ten years after they are made.

The purpose of SPP 1/03 is to describe the State's interest in ensuring that the natural hazards of flood, bushfire and landslide are adequately considered when making decisions about development. Its coverage of natural hazards is complementary to coastal hazards that will be managed through a State Planning Policy - Coastal Protection (i.e. coastal inundation, erosion and storm tide inundation - including the effects of climate change on sea level rise and increased storm intensity).

The Department of Community Safety is reviewing SPP 1/03 as part of the Statutory Instruments Program for 2010/11, as approved by Cabinet in March 2010. An action plan for the review of SPP has also been prepared for publication in the SEQ Regional Plan Climate Change Management Plan. This review is being conducted in accordance with the State Planning Instruments Program Guideline, produced by the Department of Infrastructure and Planning, and with the assistance of an Inter-Departmental Committee (IDC) and Working Group (WG). The working group includes a representative from the Local Government Association of Queensland (LGAQ).

1.2 Project Objectives

The objectives of this project are:

- (1) To provide advice to relevant Ministers on the state policy position with respect major interests and issues for the review of SPP 1/03 including:

- accurate definition of current state interests,
- preferred planning and non-planning options,
- criteria and methods to delineate areas of interest, and
- implications for the state government and local governments

by conducting a thorough analysis of state agency, local government, LGAQ and key stakeholder issues and interests (regarding development, land use and land management), with consideration of initiatives and approaches used in other jurisdictions, as outlined in Attachment A, including:

- priority issues that arise from an evaluation of the current SPP and current state policy (Policy Issues Paper 1),
 - recommended policy issues that need to be addressed through the planning framework or other means.(Policy Issues Paper 2)
- (2) To ensure the state's interests in flood, bushfire and landslides are adequately addressed in accordance with recommendations endorsed from relevant Ministers by:
- preparing planning instruments and other products as appropriate for cabinet approval and public comment
 - receiving and analysing public submission
 - preparing final planning instruments and other products as appropriate for cabinet approval
- (3) To prepare drafting instructions for the preparation of SPI required to better reflect state interests.
- (4) To document possible implications for industry, the community or other stakeholders via preparation of a Regulatory Assessment Statement (RAS)
- (5) To coordinate the analysis of state agency and stakeholder interests and the timely provision of advice and recommendations to relevant Ministers and Cabinet as required.

1.3 Project Scope

The following are included in the scope of the project:

- state interests relevant to ensuring that the natural hazards of flood, bushfire and landslide are adequately considered when making decisions about development in accordance with the Sustainable Planning Act (2009).
- consideration of state, industry, community and stakeholder implications

The following are outside the scope of the project:

- Matters outside of scope of this project will be determined through preparation and endorsement of Policy Issues Paper and Policy Research Paper prepared during Phase 1 of this project.

1.4 Products

The Products that will be delivered by this project (also refer Attachment B) are:

- A first Policy Issues Paper (Milestone 1.5) that identifies priority issues for the review of SPP 1/03 - to be endorsed by an interdepartmental committee (IDC) and relevant Ministers and a second Policy Issues Paper (Milestone 1.7) that provides recommendations for the development of Statutory Planning Instruments (such as a replacement SPP) and other appropriate non-planning instruments, based on more detailed investigation of priority issues - to be endorsed by an interdepartmental committee (IDC) and relevant Ministers (output from Phase 1)
- A replacement Draft SPI and / or drafting instructions for modifications to other Statutory Planning Instruments (Milestone 2.6) to be endorsed by the IDC, approved by relevant Ministers or Cabinet for public consultation (output from Phase 2)
- Final replacement SPI, modifications to other Statutory Planning Instruments SPIs and other appropriate non-planning instruments (Milestone 4.2) endorsed by the IDC, relevant Ministers and approved by Cabinet - published by way of gazette and newspaper (output from Phase 3 and 4).

1.5 Assumptions and Constraints

The following assumptions have been made during the planning of this project:

- that agencies outside the control of the project, which need to provide input or undertake action needed by the project, are able to do so and within the timings allowed;
- approval from the relevant Ministers will be obtained within reasonable timeframes;
- Cabinet consideration to occur as scheduled;
- that there would be no additional tasks outside the current scope of the project plan placed upon the project during the course of the project;
- that external consultation does not identify significant issues not yet considered and which would delay project timeframes

The following constraints have been placed on this project:

- funding will depend on matters identified and agreed through consideration of a Policy Issues Paper (Phase 1). Funding is to be drawn by DCS from Natural Disaster Resilience Program subject to relevant approval processes.

1.6 Project Schedule

This is an indicative timeframe only and is subject to the above assumptions.

Phase	Deliverable	Est. Date of Completion
1. Pre-Planning	An initial Policy Issues Paper and second Policy Issues Paper to be endorsed by an interdepartmental committee (IDC) and relevant Ministers.	June 2011
2. Preparation of draft instrument	Draft replacement SPI to be endorsed by the IDC, approved by relevant Ministers or Cabinet for public consultation	November 2011
3. Consultation and preparation of final instrument	Final replacement SPI, endorsed by the IDC	October 2012
4. Adoption	The replacement SPI, endorsed by the relevant Ministers and approved by Cabinet, will be published by way of gazette and newspaper	January 2013
5. Implementation	Initial implementation and ongoing monitoring and reporting of implementation	February-August 2013

* Ongoing implementation and related reporting not to be completed by project team.

An indicative timeline for this project is shown in Appendix C.

2. Project Roles

2.1 Relevant Ministers

The relevant Minister for the review of SPP 1/03 are:

- the Minister for Police, Corrective Services and Emergency Services
- the Minister for Infrastructure and Planning

2.2 Growth Management Committees

The Growth Management CEO Committee and the Growth Management Cabinet Sub-Committee will consider and endorse all major proposals arising from the review.

Role	Responsibilities
The Growth Management Sub-Committee of Cabinet (GMSCC)	Discuss and develop a whole-of-Government response to the review of SPP 1/03 in line with associated strategic growth management policy issues.
Growth Management Chief Executive Officer Committee (GMCEOC)	Provide strategic direction and Whole of Government leadership for the review of SPP 1/03 in line with the Government's growth management agenda.

2.3 Project Executive – Lead agency

The project executive of the lead agency (Department of Community Safety) is:

Role	Responsibilities
Project Executive – Gary Mahon Assistant Director-General (DCS)	The Project Executive has ultimate responsibility for satisfactory completion of the project and provision of advice to the Minister for Police, Corrective Services and Emergency Services through the Director General, Department of Community Safety.
Project Executive Director [REDACTED] (DCS)	The Project Executive Director has responsibility for ensuring the Project Executive is fully advised of state and key stakeholder interests and concerns, and that the project is delivered in accordance with the approved project plan.

2.4 Inter-Departmental Committee

The role of the Inter-Departmental Committee (SPP 1/03 review) will be ensure comprehensive cross-government identification and consideration of relevant issues. This committee will enable the coordination of state agency input to preparation of the replacement SPI outside the formal consultation stages.

The IDC representative from the Department of Infrastructure and Planning has responsibility for the provision of advice to the Minister for Infrastructure and Planning and the GMCEOC based on advice from the Chair of the IDC.

Agencies represented on the IDC and members nominated by respective Director Generals are:

Agency	Member
Department of Community Safety (Lead agency)	[REDACTED] Executive Director, Policy and Legislation Reform (Chair)
Department of Infrastructure and Planning	Michael Papageorgiou, Executive Director, Planning Policy
Department of Environment and Resource Management.	[REDACTED] Director, Director, Integrated Planning, Strategy and Policy
Department of Premier and Cabinet	[REDACTED] Director, Environment and Resources

Membership by the Department of Employment, Economic Development and Innovation, Department of Transport and Main Roads, Department of Public Works, Department of Communities and other agencies to be confirmed at the next IDC meeting on 10 February 2010.

2.5 Project Team

The project team is responsible for the preparation of all reports and information considered by the IDC and Project Executive with the support of a Working Group. The project team also provides secretariat support to the IDC.

Agency / organisation	Member
Project Director - [REDACTED] Director, Strategy (DCS)	The Project Director has responsibility for ensuring that the project is delivered on time and within budget and for reporting to the Project Executive.
Project Manager – [REDACTED] Principal Policy Advisor (DCS)	The Project Manager will manage the project on a day-to-day basis on behalf of the Project Executive and Project Director and will coordinate stakeholder consultation, the preparation of research and policy papers, and the draft and final instruments by team members and contractors.
Project Team Member/s [REDACTED]	The Project Team Member/s will be responsible for the delivery of discrete components of the project, aspects of consultation, the preparation of research and policy papers, and the draft and final instruments. Project team members will report to the Project Director and Project Manager.

2.6 Working Group

A working group has been established to support the project team, preparation of matters considered by the IDC and to incorporate views of the LGAQ and other key stakeholders as required. Members of the working group will coordinate agency / organisational input to the review of SPP 1/03.

Role	Member/s
Department of Community Safety (Lead agency)	
Department of Infrastructure and Planning	
Department of Environment and Resource Management.	
LGAQ	
Department of Employment, Economic Development and Innovation	
Department of Transport and Main Roads	
Department of Public Works	TBA
Department of Communities	TBA

3. Related Initiatives

The projects and other initiatives shown in the table below have a bearing, or are in some way dependent on this project:

Related Project/Initiative	Nature of Relationship
Inland Flood Study	Recommendations of the study will influence the policy issues to be explored as part of this project.
Queensland Coastal Plan and State Planning Policy Coastal Protection	As the Qld Coastal Plan also looks at issues involving flooding/inundation, there is a need to ensure consistency between the two instruments
Victorian Bushfires Royal Commission and Queensland IDC Sub-group on Planning and Building	The recommendations of the Royal Commission include matters relating to land use planning and will be considered as part of this project.
Coincident Flooding Research by QCCE using NDRM funds	The study will identify issues concerning coincident flooding including potential impacts; the extent that coincident flooding is already covered in flood studies and the most appropriate planning instrument to address coincident flooding.
Assessment of Natural Hazard Disaster Risk in Queensland	An assessment of the current natural hazard risk profile, consideration of alternative risk mitigation treatments and potential climate change impacts (study by Risk Frontiers – Macquarie University- in prep).

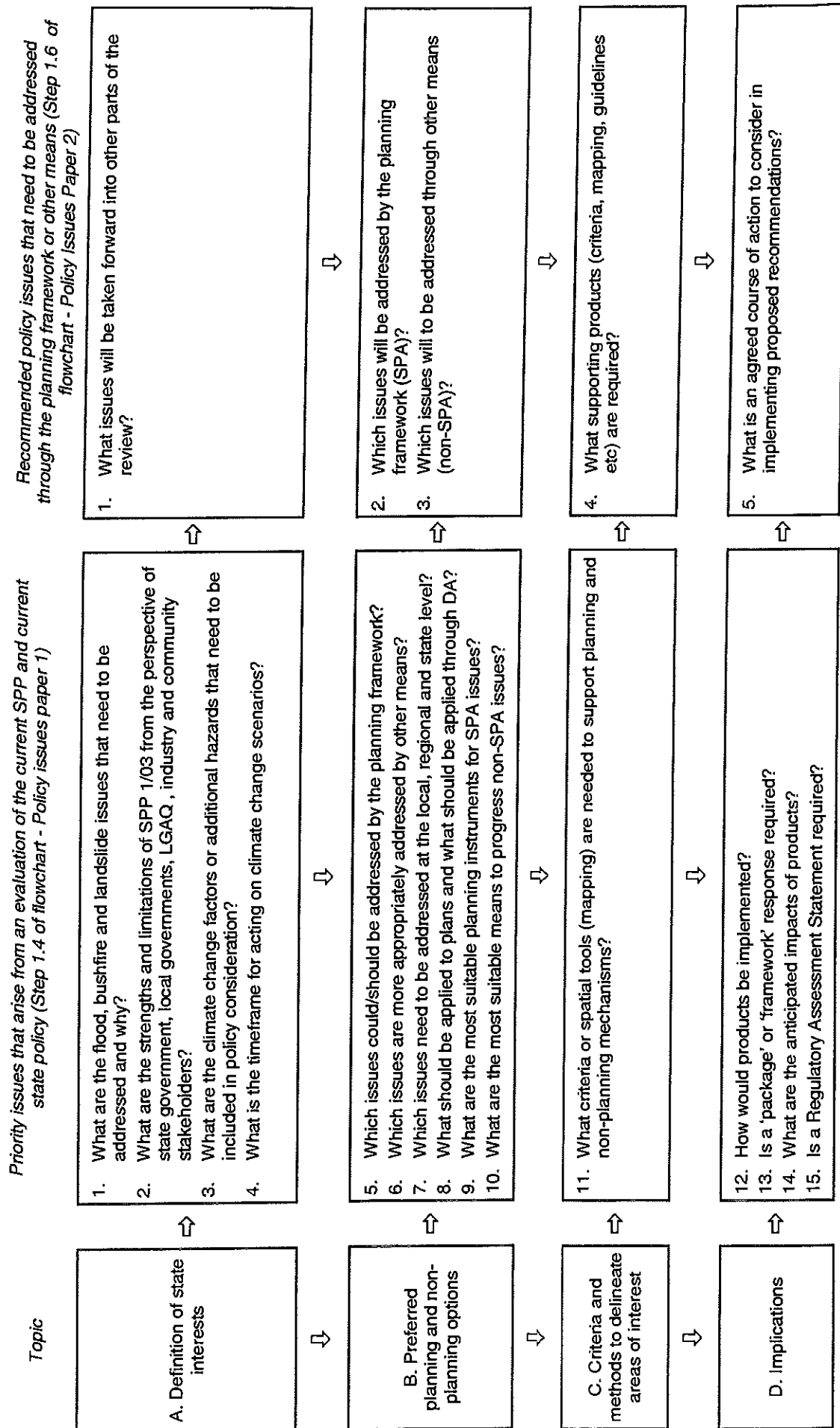
4. Stakeholder consultation

The following consultation with stakeholders will be undertaken during Phase 1 (Pre planning) and Phase 2 (Preparation of Draft Instrument) of the Project.

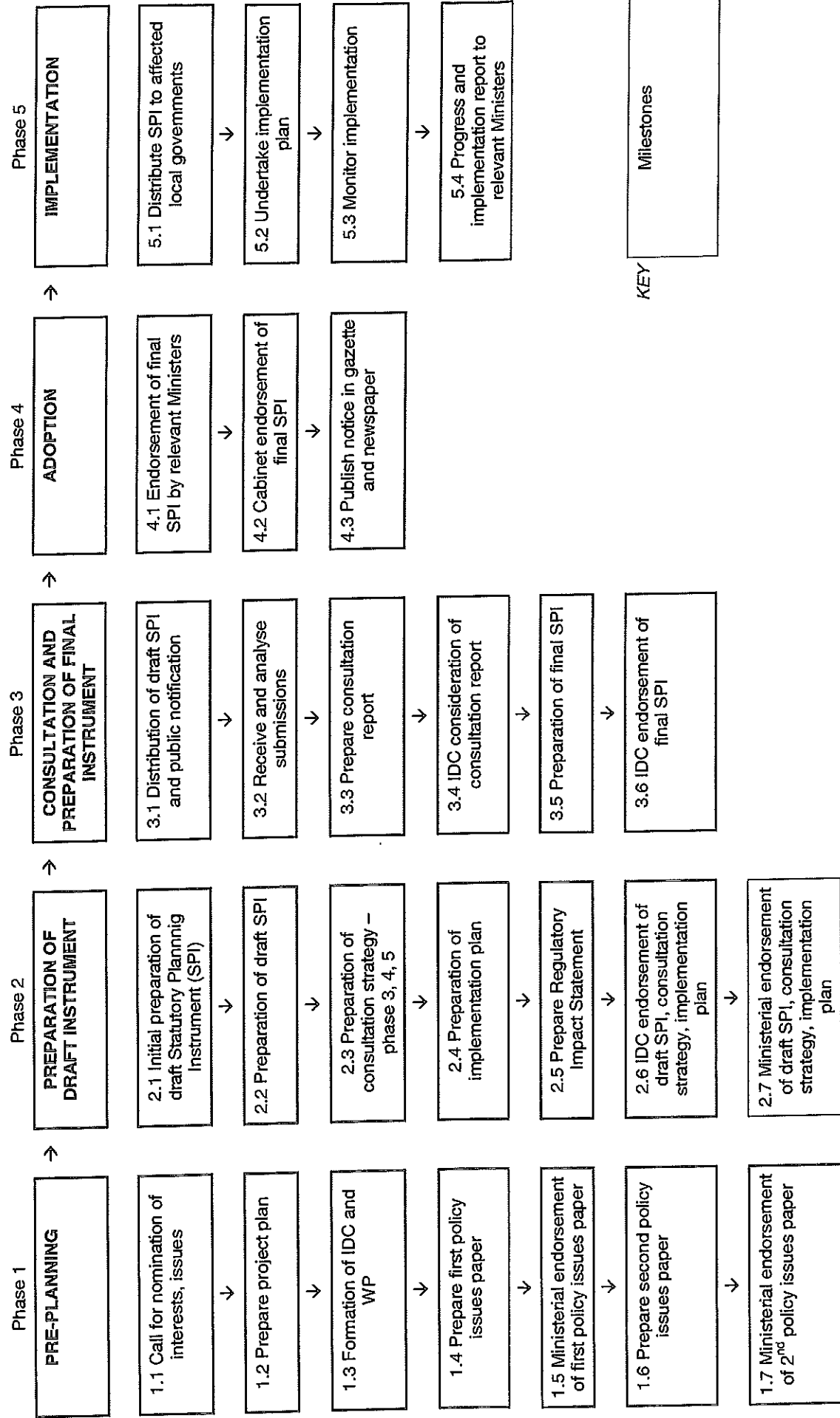
- The Local Government Association of Queensland (LGAQ) will be invited to identify issues considered in the review, and participate on the Working Group to assist with development of the Policy Issues Paper, draft replacement SPI, and final SPI.
- All of Queensland Local Governments will be invited to suggest issues that they would like to see addressed in the review of SPP 1/03 by way of completing a questionnaire.
- Key stakeholders (Appendix D) will be invited to also suggest issues that they would like to see addressed in the review
- Additional public consultation as may be required,

Plans for stakeholder consultation during Phase 3, 4 and 5 will be developed during Phase 2 of the project.

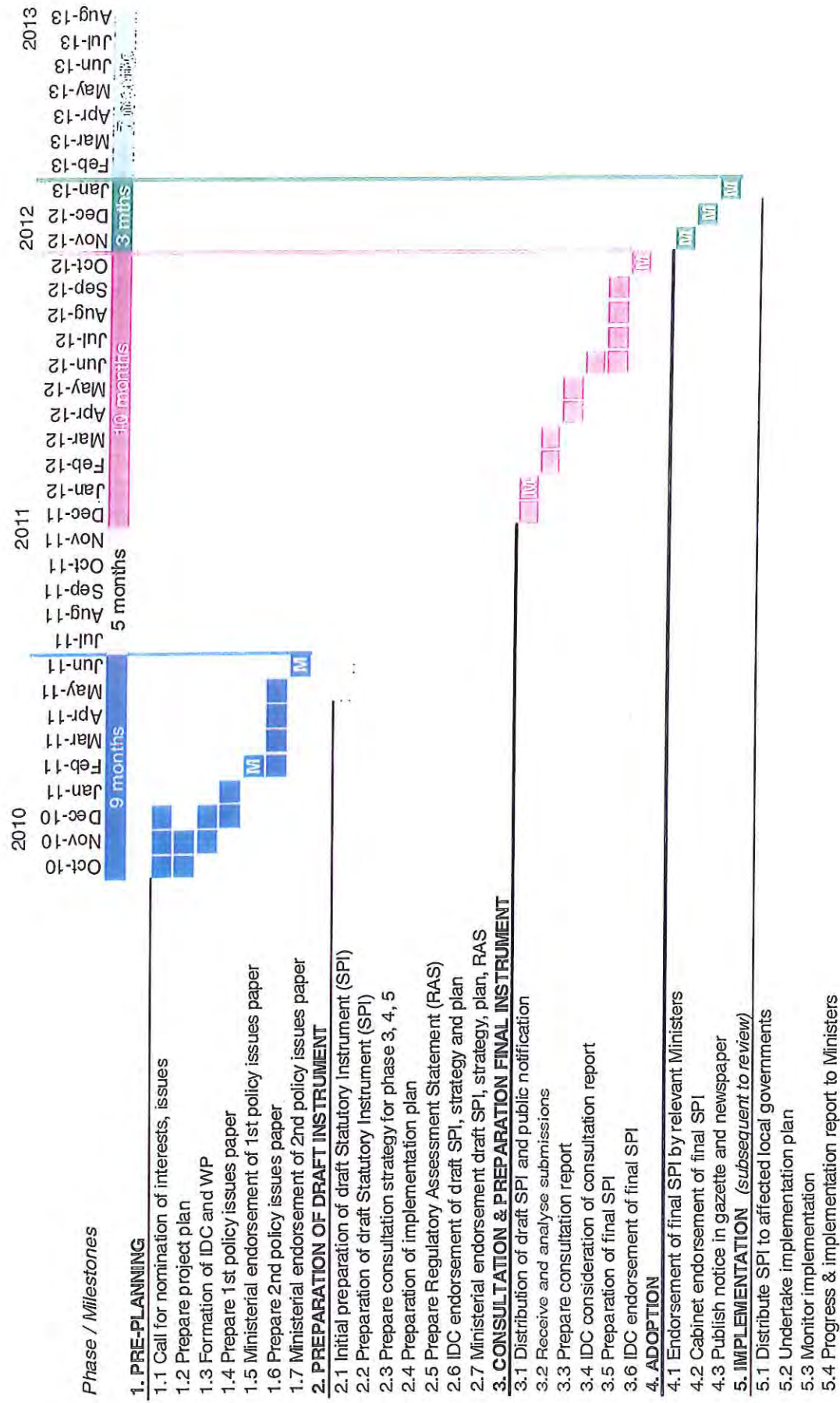
Appendix A – Issues Analysis Framework



Appendix B – Indicative Flowchart



Appendix C – Indicative Timeline



Appendix D – Community and Industry Stakeholders

Academic	CSIRO Climate Adaptation Flagship
	Griffith University
	James Cook University
	National Climate Change Adaptation Research Facility
	Queensland University of Technology
	Sunshine Coast University
	University of Queensland
Bushfire	Australian Institute of Building Surveyors - Queensland/Northern Territory Chapter
	Fire Protection Association Australia - Queensland State Committee
Commonwealth	Attorney General's Department
	Bureau of Meteorology
	Department of Climate Change and Energy Efficiency
Disaster Management	Emergency Services Advisory Council
Environment	Environment Institute of Australia and New Zealand
	Environmental Defenders Office
	Queensland Conservation Council
Flooding	Engineers Australia - Queensland Division
	Institute of Public Works Engineering
	The Board of Professional Engineers of Queensland
Landslide	Australian Geomechanics Society
Law	Queensland Environmental Law Association
	Queensland Law Society
Local Government	Local Government Association of Queensland
Property	Planning Institute of Australia (Queensland)
	Property Council of Australia - Queensland Division
	Real Estate Institute of Queensland
	Urban Development Institute of Australia (Queensland)
	Urban Land Development Authority
Utility	Brisbane Airport Corporation Pty Ltd
	Energex Limited
	Ergon Energy
	Powerlink Queensland

SPP 1/03 Review technical investigations (flood)
- based on recommendations of the Inland Flooding Study

20 July 2011

<i>IFS Recommendations</i>	<i>SPP 1/03 review requirement for technical investigations</i>
<p>Recommendation 1— Local governments should factor a 5 per cent increase in rainfall intensity per degree of global warming into the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood events recommended in SPP 1/03 for the location and design of new development.</p> <p>Recommendation 2—The following temperatures and timeframes should be used for the purposes of applying the climate change factor in Recommendation 1: 2°C by 2050 3°C by 2070, 4°C by 2100.</p> <p>Recommendation 3—The Queensland Government will review and update this climate change factor when a national position on how to factor climate change into flood studies is finalised as part of the current review of AR&R.</p> <p>Local governments should use the temperatures and timeframes outlined in Recommendation 2 when producing new flood maps. However, local governments may be able to use their existing flood maps to approximate future flood levels that incorporate the recommended climate change factor.</p> <p>This project acknowledges that the AR&R publication provides the nationally accepted methodologies for undertaking flood studies. However, the publication has not been updated for 23 years and does not consider the impacts of climate change. While the Australian Government is supporting a review of the AR&R publication, the outcomes of this review are not expected to be available before 2014. This project was therefore undertaken to meet the needs of local governments on how to consider climate change and better identify flood risks.</p>	<p>a. Climate change factors from IFS to be incorporated into the standard methodology for flood studies (Recommendation 5).</p> <p>b. The standard methodology should also indicate the effect of climate change (as per the IFS) on flood hazard at a number of hazard levels above and below Q100.</p>
<p>Recommendation 5—The review of SPP 1/03 should consider the benefits of requiring a standard method for undertaking a flood study and determining a DFE.</p>	<p>c. A standard flood study methodology should be compiled as a draft guideline to a future State Planning Instrument (SPI) that recognises the need for greater precision in high risk parts of</p>

IFS Recommendations	SPP 1/03 review requirement for technical investigations
	The methodology does not need to extend to risk assessment (Recommendation 7)
<p>Recommendation 6—The review of SPP 1/03 should consider whether there is a need to specify how frequently a flood study should be reviewed or updated.</p> <p>While SPP 1/03 requires that a flood study be undertaken for natural hazard management areas, there is currently no guidance on when local governments should review or update those studies. In practice, this means that local governments may be using flood studies that do not reflect recent development in the area and the impact of that development on potential flood risks. Therefore it is recommended that the review of SPP 1/03 identify appropriate triggers to guide when local governments need to review and/or update their flood studies, taking into consideration the likely cost impacts on local governments of increasing the frequency of undertaking flood studies. Triggers could include undertaking a planning scheme review (review hydraulic components) and updated AR&R advice (update hydrological components).</p>	<p>h. The standard methodology and guidelines (Recommendation 5) should also provide recommendations on a suitable update frequency and triggers for update.</p>
<p>Recommendation 9—The review of SPP 1/03 should consider the applicability of the recommended planning response for Gayndah (as per Recommendation 4) to other parts of Queensland.</p> <p>The recommended planning responses for Gayndah township should be considered for applicability in other local government areas and to establish if the policy options provide an appropriate planning response to direct new development to areas with lower levels of flood risk now and in the future under climate change. This should include consideration of the utility of incorporating draft flood overlay codes (modelled on the draft flood constraint code developed for Gayndah) in the Queensland Planning Provisions (QPPs). An assessment of the useability of the draft flood constraint code developed for Gayndah should form part of this broader consideration of state-wide applicability.</p>	<p>i. Testing of AEP / climate change relationships (introduced in the IFS) for other catchments</p>
<p>Recommendation 11—The review of SPP 1/03 should consider issues concerning coincident flooding including: the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies conducted by local governments; and the most appropriate planning instrument to address coincident</p>	<p>j. Research into the potential impacts of coincident flooding</p> <p>k. A standard methodology for considering coincident flooding should be included in the standard methodology (Recommendation 5).</p>

appropriate.
<p>Recommendation 8—The review of SPP 1/03 should clarify what components of the SPP are compulsory and clarify what additional guidance local governments may need to meet those obligations.</p> <p>The review provides a useful opportunity to clarify the core components of what local governments must do to assess and manage their flood risk, as well as provide more detailed guidance on how local governments should meet those obligations (as per recommendations 1 and 2). This would help to address current inconsistencies in how local governments interpret and implement the SPP. More generally, the review provides an opportunity to provide clearer guidance to local governments on core requirements and standards, as well as those matters on which they continue to have discretion. This could include guidance on how the revised SPP should be reflected in statutory regional plans.</p>
<p>Recommendation 10—The review of SPP 1/03 should consider how to improve the integration of land use planning and disaster management planning.</p> <p>The SPP 1/03 guidelines currently outline how residual risk can be addressed in disaster management plans and emergency procedures developed by local governments. The review provides an opportunity to consider what changes need to be made to improve the integration of land use planning and disaster management planning, including whether any additional guidance is required and what, if any, elements of that guidance should become mandatory provisions under a revised SPP (for example, ensuring land use planning takes account of population growth and its impact on the efficient evacuation of people to a safe and secure area in an extreme event).</p>
<p>Recommendation 12—Working through the national Building Ministers' Forum (BMF) and the Australian Building Codes Board (ABCB) to support the development of a national code for the design and construction of new building work in areas designated as food prone in local planning schemes Queensland is represented at the BMF by the Minister for Infrastructure and Planning.</p> <p>In 2009, the Minister sought recognition at the forum of the significant impact of flooding on buildings in Australia, the current lack of national building codes to address this issue, and for the ABCB to develop a national code for building in flood prone areas for regulatory adoption by individual States and Territories. Subsequently, the ABCB has drafted a proposal to develop national design and construction requirements under the Building Code of Australia for new building work in designated areas vulnerable to flooding. Minimum requirements under the Building Code of Australia would include performance requirements and deemed-to satisfy provisions to minimise damage to buildings and building materials from flooding. The ABCB is expected to develop this new code by the end of 2012. This code would be referenced in Queensland under the <i>Building Act 1975</i> and, once developed, will specify the design and construction requirements that apply in Queensland for new building work in designated flood prone areas.</p>

National Disaster Resilience Program – Queensland

Coincident Flooding in Queensland Project Plan

Prepared by:

Queensland Climate Change Centre of Excellence

Department of Environment and Resource Management

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Contact (07) 340 43070 or email <[REDACTED]>

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DAF

Definitions

AHD	Australian Height Datum
BOM	Bureau of Meteorology
COTS	Commercial Off-the-Shelf
CRCSI	Cooperative Research Centre for Spatial Information
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSW	Catalogue Service - Web
DCCEE	(Commonwealth) Department of Climate Change and Energy Efficiency
DCS	Department of Community Safety
DEEDI	Department of Employment, Economic Development and Innovation
DEM	Digital Elevation Model
DERM	Department of Environment and Resource Management
DIP	Department of Infrastructure and Planning
GA	Geoscience Australia
GIS	Geographic Information System
HAT	Highest Astronomical Tide
IPCC	Intergovernmental Panel on Climate Change
ITS	Information Technology Services (within DERM)
LGA	Local Government Area
LIDAR	Light Detection and Ranging – Airborne Laser Sensor
NDRP	National Disaster Resilience Program
OCC	Office of Climate Change
QCCCE	Queensland Climate Change Centre for Excellence
SIG	DERM's Spatial Information Group (within DERM)
SPP	State Planning Policy
UDEM	Urban Digital Elevation Model
WOG	Whole of Government

1 Executive Summary

This study will investigate the significance of the risk from the coincident occurrence of riverine flooding and storm tide inundation events in coastal areas of Queensland. The study is aligned with the ClimateQ Improved Coastal Mapping for Queensland Climate Change Responses (Improved Coastal Mapping) project lead by the Department of Environment and Resource Management (DERM) Office of Climate Change (OCC) to deliver precise mapping of potential climate change impacts. The results of this study will be incorporated into an interactive mapping tool which will be made available across government and to the community in 2011/2012. This will assist communities to understand the impacts of climate change and how their community may be affected.

The project proposal was established in partnership with Emergency Management Queensland (EMQ) to provide more detailed scientific advice on the affect of climate change on coincident flooding in Queensland to inform disaster planning and extend the current coastal evacuation zoning project. Detailed coincident flooding mapping will utilise the coastal Digital Elevation Model (DEM) and interactive mapping delivered by ClimateQ.

Consequences of climate change relevant to this plan include:

- Increased frequency and intensity of tropical storms
- Increased rainfall intensity with increasing temperature
- Increased sea levels.

The objectives of the project are to:

- Identify coastal areas and associated catchments likely to be at increased risk from coincident flooding
- Determine the implications of climate change on the combination of riverine and tidal storm-surge flood events
- Inform disaster management response, State Government policy and planning and climate change adaptation strategies.

The project benefits are:

- Improved understanding of the relative importance of coincident flooding in Queensland compared with riverine and coastal flooding
- Clearer characterisation of the types of catchments and coastal areas where coincident flooding may be significant
- Improved understanding on the relationship between climate change and coincident flooding in Queensland
- Improved tools for disaster planning and response.

This project will assist the Queensland Government in meeting its strategic objective to provide environmentally sustainable solutions for Queensland's future by informing sustainable development. This will be enabled through assisting business and industry plan to achieve better environmental performance as sea levels rise and the risk of coincident flooding increases; and build community knowledge and participation about the impacts of climate change on coastal communities. Outputs from the project will be in the form of a project report and any coincident flooding assessments performed with any associated GIS shape files.

OCC through the Queensland Climate Change Centre of Excellence (QCCCE) is taking urgent action to prepare detailed mapping of coastal hazards to underpin the Queensland Coastal Plan; support the regional planning processes coordinated by the Department of Infrastructure and Planning (DIP); and provide a suitable baseline against which to monitor the longer-term effects of rising sea levels and underpin future studies.

QCCCE is committed to providing project governance and control to maximise value for money returns on investment, optimum risk management and quality assurance. The core project team will comprise a project manager with 2 subordinate positions, responsible for performing the main project activities, within budget and schedule to appropriate quality standards. The project team will use external consultants, contractors and partners as necessary.

The allocation of funding for this project extends until 2012.

2 Introduction

The National Disaster Resilience Program (NDRP) is a four year grant program "to reduce Queensland communities' vulnerability to natural hazards by supporting regional councils and other stakeholders to build community resilience." In December 2010, QCCCE received funding over two years to complete a coincident flooding study. The study is aligned with the ClimateQ initiative "Improved Coastal Mapping for Queensland Climate Change Responses" which will deliver improved mapping of climate change impacts using a coastal DEM based on LIDAR gathered in 2010 and scheduled to be complete by September 2011. The coastal DEM will be an important tool in estimating the potential significance of coincident flooding across Queensland.

The Department of Community Safety (DCS) is embarking on a new round of inland LIDAR acquisition to establish a DEM to inform inland flooding mapping for emergency purposes. DCS has expressed an interest in better understanding the likelihood and consequence of potential coincident flooding in Queensland.

The Queensland Government has made a commitment to taking action to reduce the impact of climate change and flooding is one of Queensland's highest natural hazard risks. Climate change is likely to have an impact on the following flooding mechanisms:

1. Climate change is expected to modify the frequency, intensity and duration of rainfall
2. Climate change is expected to result in significant sea level rise
3. As the intensity of storms increases with climate change, the likelihood of storm-tide inundation events in Queensland will also increase.

Understanding the impact of the combined occurrence of these events on flooding levels in Queensland is a major focus for this study. This research will enable State Government in partnership with Local Governments to better understand the significance of coincident flooding and inform the development of appropriate policy and planning instruments to mitigate any climate change risk.

Coincident Flooding and SPP 1/03

The inland flooding study 2010 – "Increasing Queensland's resilience to inland flooding in a changing climate" – included a set of recommendations to be considered as part of the review of State Planning Policy (SPP) 1/03. The inland flooding study was a joint project of DERM, DIP and the Local Government Association of Queensland.

It has been requested that, where possible, this study should take into account the technical recommendations within its scope. Consequently, this study will incorporate and employ the scientific recommendations of the inland flooding study by implicitly using the figures from recommendations 1, 2 and 3. In addition, when preparing the project outputs, this study will recommend a standard method for QLD coincident flood studies to be considered when determining local Defined Flood Events (DFEs). The results of this coincident flooding study will be considered as part of the review of SPP 1/03 and therefore explicitly supports recommendation 11.

2.1 Scope

This project plan details the major products, activities and resources required to meet the time, cost, scope and quality targets for the coincident flooding project. The emphasis of the project is coincident flooding as opposed to either general riverine flooding or inundation of coastal areas by the sea.

Interpretation of coincident flooding

For the purpose of this project, coincident flooding is interpreted as the joint probability of flooding from one or more riverine events occurring simultaneously in the same location as inundation from storm surge and the two processes having a combined effect.

Other interpretations of coincident flooding are excluded such as flooding due to combinations of different intensities of rainfall in different parts of a catchment or river systems; or flooding at different times in the same location owing to rainfall and storm surge, even if they are dependent mechanisms (i.e. created by the same storm).

2.1.1 In Scope

The scope includes a review element, which will collate significant reports and research, and a number of subsequent analysis elements:

- Audit of existing data and research
- Evaluation of risks posed to Queensland at a high level from studies of synoptic weather patterns, catchment characteristics and climate change variables
- High-level vulnerability mapping
- Recommend of a standard method for undertaking a coincident flood study to feed into standard method recommendations for determining a DFE for inclusion in the SPP1/03 review (based on recommendation 5 from the Inland Flooding Study)

In addition to the major products and activities, the project team will take a broader view of its responsibilities and will:

- Take into account future or ongoing studies
- Investigate options to capitalise upon existing work or collaborate with other agencies to add value.

2.1.2 Out of Scope

During the initiation stage, the coincident flooding study considered what contribution, if any could be made to support the recommendations of the Inland Flooding Study:

- Recommendations 1, 2, 3 & 4 will be used to provide input conditions. Recommendation 5 is in scope
- Recommendation 6 – considers development triggers for undertaking extra local flooding studies and cost impacts. The coincident flooding study will exclude development triggers and costs but may be able to provide some recommendations concerning the time interval between flood studies bearing in mind the temporal change in drivers such as sea level rise and extent of storm surges
- Recommendations 7 & 8 - Out of scope
- Inland Flooding Study recommendation 9 – considers flood constraint codes and applicability beyond Gayndah. The majority of the recommendation is out of scope but the study may be able to exam the general principle of applying existing flood maps for more extreme events to approximate future flood levels
- Recommendation 10 – Out of scope (integration of land use and disaster management planning)
- Inland Flooding Study recommendation 11 - the outputs from this study will support recommendation 11 but will not include details on the most appropriate planning instruments to address coincident flooding
- Inland Flooding Study recommendation 12 – Out of scope (building standards).

2.2 Plan Prerequisites

The following aspects are fundamental to the plan and must remain in place for the plan to succeed:

- Continuing funding from NDRP
- A continuing requirement for the outputs and benefits of the study.

2.3 External Dependencies

The following dependencies exist that may affect the execution of the plan:

- Australian Rainfall and Runoff (AR&R) Project 18 will review the methodology for examining the impact of climate change on coincident flooding. Ideally, the Queensland coincident flooding project would adopt this methodology however the revision of this section of AR&R is due in 2012 and therefore unlikely to be completed in time to be fully incorporated.

- New South Wales has adopted a uniform state-wide application of a standard approach to coincident flood studies. This project will aim to review and adopt a similar approach. The project therefore has a dependency on access to that information.

2.4 Planning Assumptions

The following assumptions have been made in the preparation of this plan:

1. QCCCE can access sufficient resources to undertake the project
2. QCCCE is able to provide its contribution (\$150,000) to the project funding either in kind or in cash
3. Inputs from related studies will become available in time to inform this study
4. Tasks 2 and 3 (section 5.1.2) can be performed in parallel
5. Technical staff can be reused elsewhere on revenue generating or funded work when not working on this project
6. Agencies beyond control of this project can provide any necessary input or action within the necessary timeframe
7. No additional tasks will be placed on the project
8. The initial technical steering committee meeting does not identify significant additional issues.

In the event that the assumptions are not realised, the following contingency situations have been considered:

1. The project can use external contractors to provide early inputs and the scope reviewed to ensure it can be met within budget
2. TBD
3. Phase the project timelines where possible and work closely with other studies and agencies to gain early advice and outputs from the other projects
4. Co-ordinate tasks 2 and 3 closely to minimise schedule risk
5. There is probably sufficient capacity to absorb one junior staff position full time on the project
6. See 3, above
7. Any additional tasks or issues will be reviewed and the plan reissued as necessary. If the project becomes unviable it will be stopped.
8. See 7, above.

2.5 Lessons Incorporated

1. A technical steering committee will inform and advise progress
2. Clear, uninhibited communications are an important factor in the success of a project. All stakeholders should be open to approach and prepared to discuss issues concerning the project informally, rather than rely on meetings to air lower level issues
3. Meetings should have a clearly defined purpose and scope.

2.6 Monitoring and Control

The work will be monitored through regular progress reporting to QCCCE and to NDRP; frequent formal and informal team meetings and meetings with both senior users and suppliers. Control will be exercised through quality management, configuration management and formal project controls such as work packages, specifications and service level agreements. The project organisation and governance are outlined in section 4.

2.7 Budgets

The project is funded from NDRP with additional work funded through collaboration to support ClimateQ improved coastal mapping objectives. QCCCE will manage a sum of \$300,000, provided by NDRP, over two years to meet the business objectives. The detailed breakdown of the budget and planned expenditure is given in section 5.3.

2.8 Tolerances

The project must be complete by the end date.

2.9 Product Descriptions

This project defines 'a product' as any measurable intermediate or final output. Therefore a product may not be a physical, tangible object such as a document, a map or a piece of equipment; instead a product may be the satisfactory and quality-checked accomplishment of a defined and measurable activity. In this way, quality and traceability are built into every step of the project.

The products are outlined in the breakdown structure in section 7. Each product is defined with objective quality criteria in place and may be devolved into lower-level products.

2.10 Schedule

The proposed project schedule is based on a start date of March 2011, continuing until December 2012. The baseline estimates of duration and milestones are based on stakeholder feedback and known project commitments.

Key drivers for this project are:

- Provide critical decision making tools as soon as possible.

A current snapshot of the schedule is given in section 8.

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3 Aims and Objectives

State Planning and Policy (SPP) 1/03 requires climate change impacts to be considered when undertaking natural hazard assessments for development proposals. The AR&R review is currently underway to revise the National guidelines being used to provide technical advice for flood risk assessment. However, this project has a 3 – 4 year timeframe and the first stage will be to update the rainfall data that underpins the scientific assessment. Advice from the project leaders is that the revised methodology to deal with climate change is unlikely to be available for 2 more years.

A Queensland state government case study approach (Increasing Queensland's resilience to inland flooding in a changing climate) applied a range of methodologies to characterise flooding for Gayndah in the Burnett catchment. It is proposed to extend this approach and now incorporate the risks associated with the coincident occurrence of a storm tide inundation event and a riverine flooding event.

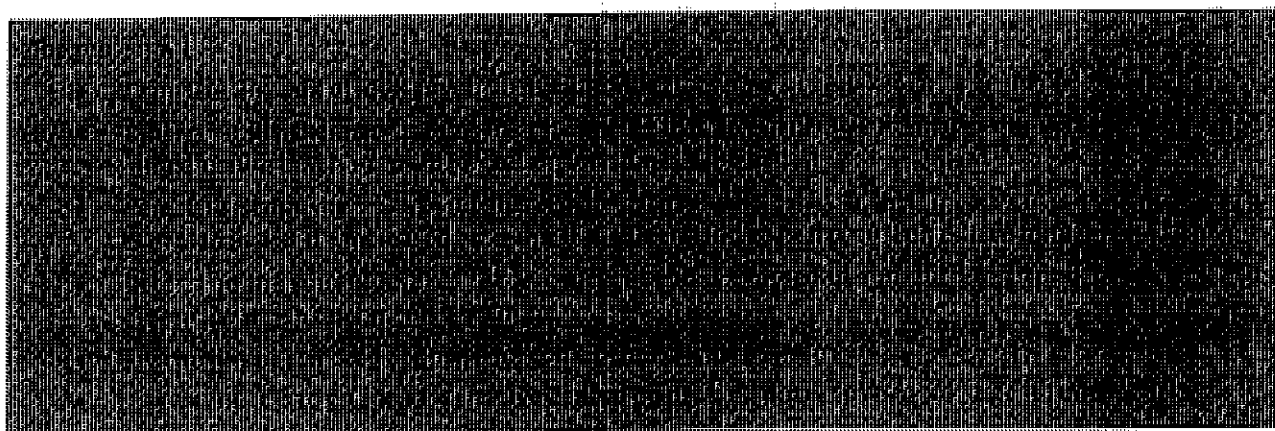
3.1 Aims

This project is a technical project, which draws on the technical expertise and experience of QCCCE. The project outputs may inform policy where appropriate but will predominantly provide planning tools centred around coincident flooding and climate change.

The aims of this project are to:

- Quantitatively or otherwise objectively describe the risk posed to Queensland as a whole from coincident flooding under the influence of climate change
- Promote the adoption of a common approach to coincident flooding studies within Queensland
- Identify areas particularly susceptible to coincident flooding in Queensland as sea level rises and storms become more intense
- Identify the synoptic conditions and patterns most likely to result in coincident flooding events.

3.2 Objectives



3.3 Outputs

The project outputs will be a final report and shape files for ingestion by EMQ and visual mapping produced using technology developed by the ICM project.

3.4 Outcomes

The project outcomes are:

- Improved understanding of climate change impacts on coincident flooding
- Improved mapping and decision making tools to plan for coincident flooding events in Queensland
- Greater interoperation and commonality between coincident flooding assessments performed by different parties in Queensland
- State government will benefit from this project through an increased confidence in the methodologies used by regional authorities to assess their flood risks in a changing climate.

- Any revised methodology will be of benefit in assessing the trade-offs between the planning decisions that need to be made now, versus the increased costs of emergency responses when these decisions do not factor in the risks from extreme weather events.
- Communities will benefit through development that minimises damage to property and critical infrastructure and lowers insurance costs.

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4 Organisation

4.1 Project Governance

The coincident flooding project will be managed by QCCCE and where possible use existing resources. The project organisation is represented in Figure 1.

4.1.1 Sponsor

The sponsor is responsible for commissioning the project and defining the project-level budget. The sponsor is NDRP.

4.1.2 Project Board

This project does not require a project board. Reporting, auditing and payment will be processed through the NDRP reporting system.

4.1.3 Project Manager

The project manager is responsible for the day-to-day management of the project within the constraints set-out by the NDRP. The project manager's prime responsibility is to ensure that the project produces the required products in accordance with the time, cost, scope, risk and benefit performance goals. The project manager will undertake the activities of the project office such as include configuration management, administering quality reviews, maintaining the registers and records and liaising with all work package managers to gather actual data and forecasts.

4.1.4 Technical Steering Committee

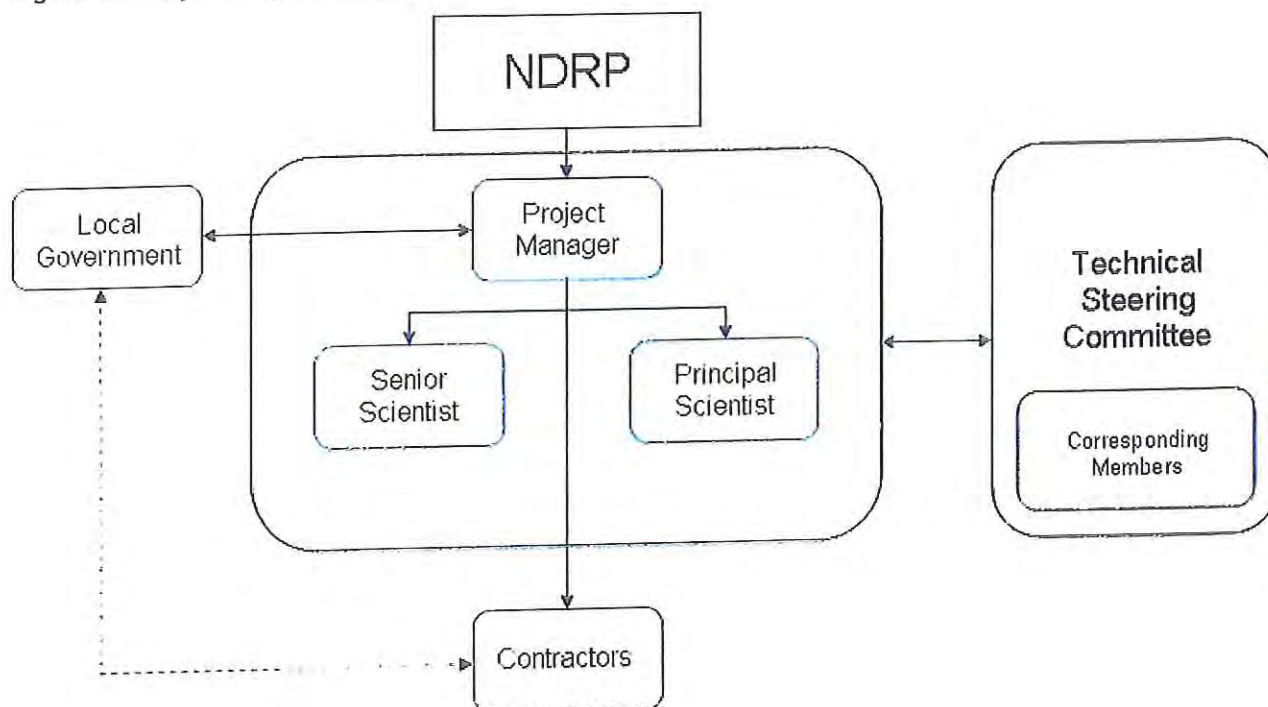
The study will be informed and lead by a technical steering committee which will provide direction as well as review and endorse the project outputs. The technical steering committee will offer technical advice to the project team, acting as an important resource for identifying wider issues concerning the project and recommending appropriate approaches to address them. As requirements change and details of ongoing studies emerge, the technical steering committee will provide advice on how to incorporate them into the project or modify the project objectives. As the project progresses the technical steering committee will review intermediate results and advise on how to progress further to best effect.

The following individuals have been approached to sit on the technical steering committee:

Team Member	Organisation	Title
	DERM, QCCCE	Senior Director, QCCCE
John Ruffini	DERM	Director, Water Science
	EMQ, DCS	Project Manager - SPP 1/03 Review
Michael Papageorgiou ¹	DIP	Executive Director, Planning Policy Division, Growth Management Queensland
	DECCW	Project Manager, Coincident Flooding
Dr Bill Weeks	TMR	Director, Hydraulics
Peter Baddiley	BoM	Queensland Hydrology Manager
	DERM, QCCCE	Manager Climate Science, QCCCE
	CSIRO	Research Scientist
Robert Schwartz	DERM, QCCCE	Chief Engineer, Coastal Unit, QCCCE

¹ Corresponding members

Figure 1 - Project Organisation



4.1.5 Coincident Flooding Project Team

The coincident flooding project team comprises a project manager (described above) and 2 principal scientist positions as shown in Figure 1. The project team will also call upon contractors to cover internal resource shortages or expertise and undertake specific packages of work such as detailed local coincident flooding assessments.

Since local governments already hold some coincident flooding assessments for their own areas, the team will consult with local authorities to build upon those resources, consider climate change factors and commission new assessments where appropriate. The internal roles are as follows:

Senior Scientist

This position is responsible for providing an overview of the current state of coincident flooding research. In particular this position will undertake the audit of existing projects and resources for coincident flooding across Queensland's coastal catchments during Stage 1.

The senior scientist will also be responsible for performing the analysis of the potential for coincident flooding events through studying the joint probabilities and will be informed by the outputs of the initial audit (above). In particular this position will undertake the analysis of the risk of coincident occurrence of riverine flooding and storm tide inundation events in Queensland during Stage 1.

Principal Scientist

This position is responsible for performing the study of synoptic weather patterns most likely to result in coincident flooding for specific catchments and the analysis of climate change variables that will impact upon the incidence of coincident flooding in a changing environment. This position will provide input and advice to the technical review of risk estimation methods in Stage 1.

5 Major Activities

The project has 2 major stages. Stage 1 is an audit of existing processes and research and characterises the threats in Queensland. Stage 2 will comprise detailed studies for areas highlighted in Stage 1.

5.1 Stage 1

5.1.1 Description

Assessment of the current significance of coincident flooding in Queensland particularly in relation to the potential to exceed existing 100 year flood and storm tide levels. Analysis of the potential for the coincident occurrence of riverine flooding and storm tide inundation events in Queensland and how the frequency of occurrence may change under climate change.

5.1.2 Activities

1. Audit of existing projects and resources for coincident flooding across Queensland's coastal catchments. This desk-based audit will provide the following baseline information:

- a. An account of existing coincident flooding projects, reports and papers both locally and internationally as well as coincident flooding assessments in Queensland.
- b. A technical review of existing methods for the estimation of the risk of coincident flooding, including joint probability and inter-variable dependence

Inter alia, activities 1a and 1b will provide the basis for a qualitative review of coincident flooding assessments across Queensland, detailing the underlying assumptions, data assessed and factors included. These findings will provide insights into how studies, albeit conducted differently, might be compared or combined and may also provide evidence for a preferred approach.

- c. A qualitative study to characterise the catchments most susceptible to coincident flooding and the conditions that can exacerbate those events; for example size, population and degree of development
- d. The synoptic weather types that produce the occurrence of coincident flood events in particular catchments
- e. The project team will produce a report detailing the findings and conclusions of the activities to date.

2. Analysis of the risk of the coincident occurrence of riverine flooding and storm tide inundation events in Queensland. Using the information and methods gathered in the audit, this task will broadly assess the current risk of coincident flooding across Queensland (i.e. frequency of events), specifically in relation to exceeding the 100 year flood and storm tide levels.

3. Analysis of the climate change variables that will impact on coincident flooding events. Building on the previous task, an analysis of the projected changes to the intensity, direction and behaviour of variables and drivers relevant to coincident events (e.g. cyclones, east coast lows) will be conducted to assess the increased exposure that Queensland coastal communities face from climate change.

4. Vulnerability mapping limited to identifying catchments. This task will provide a broad estimate of the Queensland coastal areas and associated catchments vulnerable to coincident flooding. The level of exposure will be a key determinant into the decision as to whether a more detailed assessment is required for areas vulnerable to coincident flooding in Queensland (i.e. whether Stage 2 proceeds).

5.2 Stage 2

5.2.1 Description

Modelling and recommendations to inform future coincident flood studies in Queensland. A recommendation of a standard coincident flooding assessment approach for adoption throughout Queensland to form an input to the review of SPP 1/03.

5.2.2 Activities

The stage two activities have two distinct outputs: The first output will be one or more policy recommendations; the other will be detailed modelling of specific catchments.

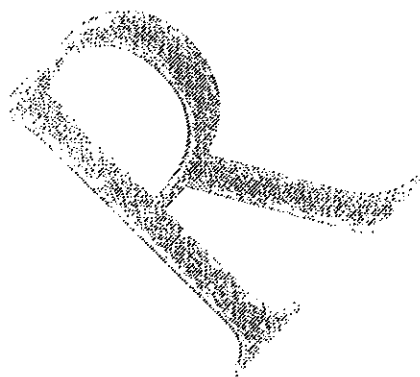
1. Policy recommendations:

- a. Prepare a recommendation for consideration in the SPP 1/03 review describing the underlying assumptions and methodology that could be established to perform coincident flooding analyses throughout Queensland, taking into account climate change factors. This might include the key drivers, the climate change inputs, the minimum data to be assessed, the process for combining input data and the boundaries – for example Q20 flood combined with a 100 year storm event and vice versa.
- b. Provide a recommendation regarding triggers to repeating coincident flooding studies in a catchment for example: Period between studies to account for changes in sea level or changes to average storm intensity, amount of new development since previous study or man-made changes to the water course.

2. Modelling.

- a. Using the Gayndah planning recommendations as a guide, model flooding in one or two catchments using the 0.5% AEP (Q200) and 0.2% AEP (Q500) flood levels. Compare these with flood models based on 2050 and 2100 climate change expectations.
- b. A detailed assessment of areas vulnerable to coincident flooding in Queensland, if the assessment in Stage 1 indicates that the level of risk from coincident flooding warrants more detailed work.

This element of the project will be a partnership approach with local governments. QCCCE will work with local government to undertake detailed coincident flood modelling and mapping. The Queensland DEM will be the underpinning bare earth model to which coincident flooding mapping is applied, to determine the extent of potential flooding. Key outputs are the identification of areas vulnerable to coincident flooding and detailed coincident flooding information to inform emergency response and regional planning activities.



5.3 Project Stage Summary

The project stages are outlined in Table 1.

Stage	Activity	Timeframe	Overview
1	March 2011 to December 2011		
	1a & 1c	March/April 2011	Audit of existing work and catchment characterisation <i>Skills: Water/hydrology/resource investigation</i>
	1b	March/April 2011	Technical review of existing methods for risk estimation <i>Skills: Joint probability/flooding</i>
	1d	April/May 2011	Study of synoptic weather types <i>Skills: Climate science/flooding/storm surge</i>
	Report	31 July 2011	Synthesis report detailing intermediate conclusions <i>Skills: Technical overview/editorial</i>
	2	August 2011 for 3-6 months	Analysis of risk within Queensland especially 100yr flood and storm tides scenarios <i>Skills: Flooding/storm surge/coincident flooding</i>
	3	August 2011 for 3-6 months	Analysis of climate change variables impacting coincident flooding. Scope to be agreed with Technical Committee <i>Skills: Climate science/coincident flooding</i>
	4	December 2011/January 2012	Identification of vulnerable catchments <i>Skills: Coincident flooding/GIS mapping</i>
2	January 2012 to December 2012		
	1a	January 2012	Recommendation for a state-wide coincident flooding assessment methodology <i>Skills: Report writing/quality/flooding/policy</i>
	1b	January 2012	Triggers to conducting a coincident flooding assessment update <i>Skills: Report writing/hydrology/flooding/policy</i>
	2a	Earliest January 2012	Comparison of Q200 flood level with 2030 climate change and Q500 with 2100 <i>Skills: Coincident flooding/GIS mapping</i>
	2b	Earliest January 2012	Detailed assessment of vulnerable areas as identified in Stage1 <i>Skills: Coincident flooding assessment</i>

Table 1 – Coincident Flooding in Queensland Project

6 Budget

6.1 Analysis of Costs

The costs in Table 2 for Stage 1 have been calculated based on PO3 and PO5 manpower assigned, with a management component.

Activity	Timeframe	Overview	Effort	Labour Cost
1.1a	Mar/Apr11	Audit of existing work	14d	\$3,750
1.1b	Mar/Apr 11	Technical review of existing methods for risk estimation	28d+3d	\$8,500
1.1c	Mar/Apr 11	Catchment characterisation	14d	\$3,750
1.1d	Apr/May 11	Study of synoptic weather types	28d	\$10,000
Report	Jul 11	Synthesis report detailing Intermediate conclusions	14d	\$3,750
1.2	Aug 11 to Jan 12	Analysis of risk within Queensland especially 100yr flood and storm tides scenarios	3-6m	\$45,000
1.3	Aug 11 to Jan 12	Analysis of climate change variables impacting coincident flooding. Scope to be agreed with Technical Committee	3-6m	\$60,000
1.4	Dec 11/Jan 12	Identification of vulnerable catchments	28d	\$10,000
2.1a	Jan 12	Recommendation for a state-wide coincident flooding assessment methodology	28d	\$10,000
2.1b	Jan 12	Triggers to updating extant coincident flooding assessments	14d	\$3,750
2.2a	Jan/Feb 12	Comparison of current AEP flood levels and climate change coincident flooding predictions	56d	\$20,000
2.2b	Jan/Feb 12	Detailed assessment of vulnerable areas as identified in Stage1	TBD	Unknown
Ongoing		Management and overheads		\$17,850
Totals			Total	\$196,350

Table 2 - Summary of key project milestones and bottom-up cost

6.2 Stage 2 Provision

The scope and extent of Stage 2 will depend on the results of Stage 1. Value will be maximised by seeking partnerships with local authorities, however coincident flooding assessments will probably be performed by specialist contractors. The Stage 2 scope will be constrained by the remaining budget.

6.3 Availability, Utilisation and Risk

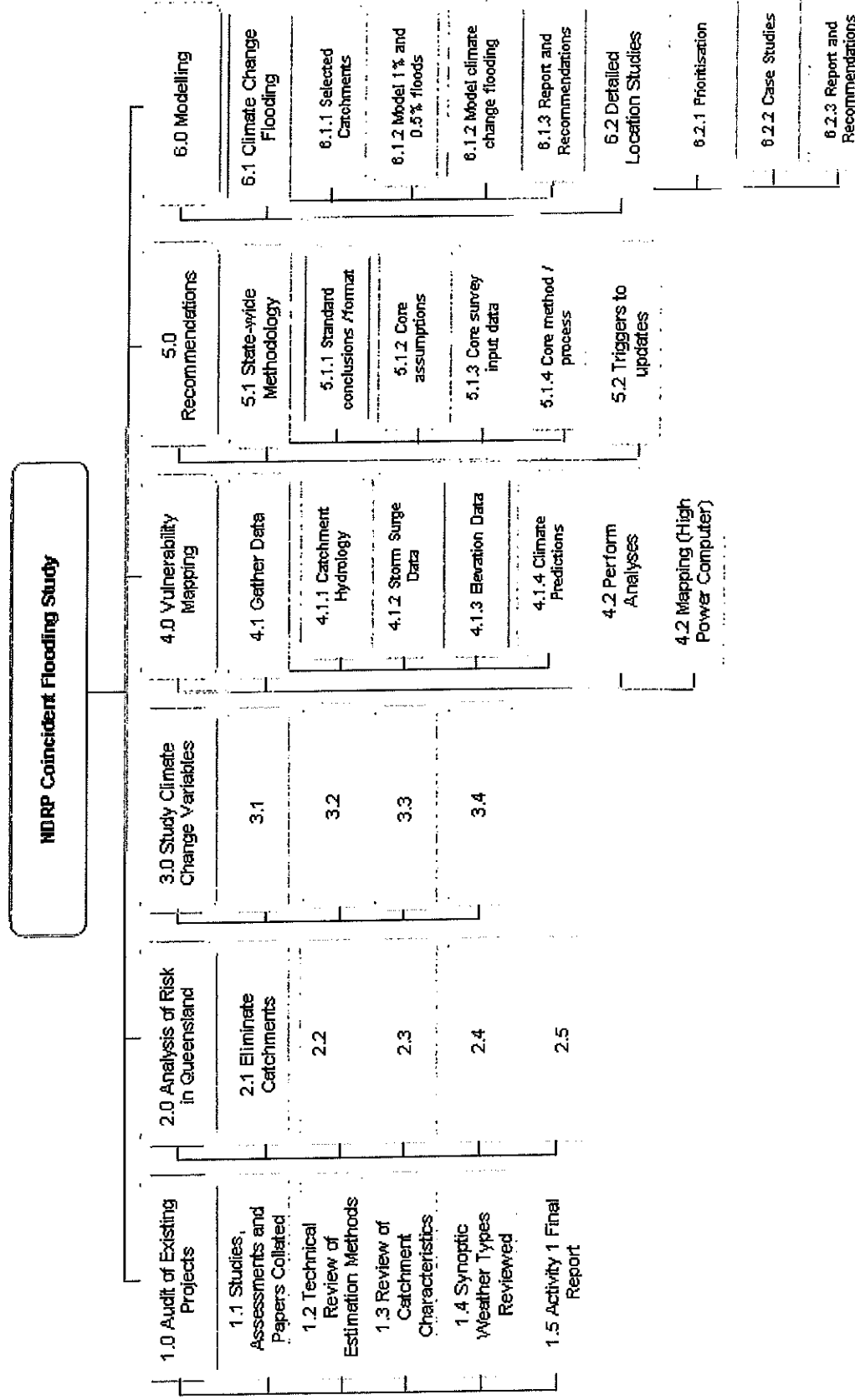
The forecast, above, demonstrates that both positions will be 100% utilised for the period from March 2011 until January 2012, assuming appropriate personnel are available. It is currently expected that a principal scientist will be available until mid 2011, thereafter the project may need to call upon contractors or consultants. This introduces substantial budget risk.

Allowing for a contractor rate of \$1000 per day increases the cost of undertaking either Task 1.2 or Task 1.3 to \$180,000. Therefore adequate risk budget must be allowed to cover this eventuality.

The cost of stage 1 may potentially increase from \$160,000 to \$250,000. This will have an impact on the scope of Stage 2.

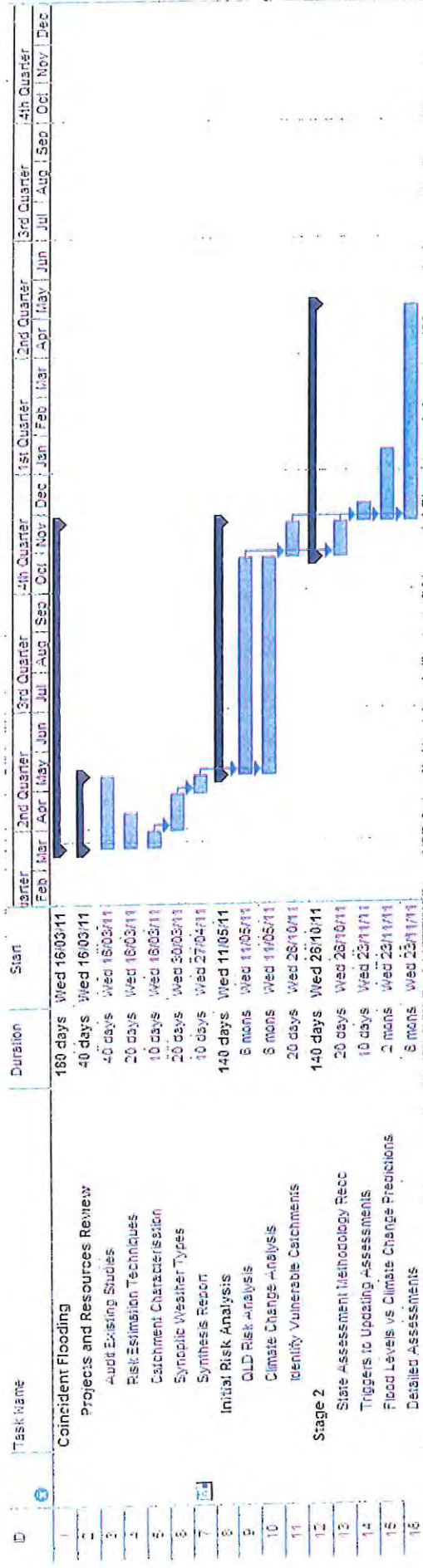
7 Product Breakdown Structure

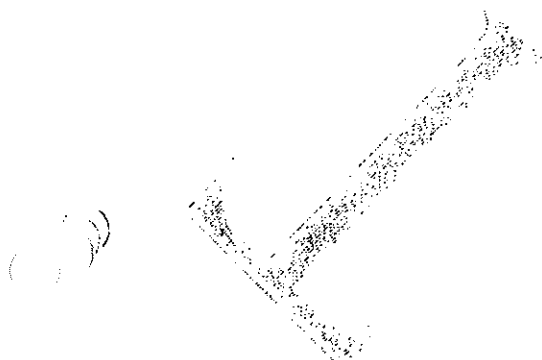
The coincident flooding project is a technical project and will be managed to produce quality outputs within the approximate schedule boundaries.



8 Schedule

The schedule, below is an indicative guide to the expected start times and durations of activities. The project schedule is not a management tool since the project is output based not schedule based. The schedule will be updated with update of the project plan to provide a visual guide only.





DAFI

**National Disaster Resilience Program –
Queensland**
Coincident Flooding Component
Project Plan

Prepared by:

Queensland Climate Change Centre of Excellence

Department of Environment and Resource Management

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Definitions

BOM	Bureau of Meteorology
CRCSI	Cooperative Research Centre for Spatial Information
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSW	Catalogue Service - Web
DCCEE	(Commonwealth) Department of Climate Change and Energy Efficiency
DCS	Department of Community Safety
DEEDI	Department of Employment, Economic Development and Innovation
DEM	Digital Elevation Model
DERM	Department of Environment and Resource Management
DFE	Defined Flood Event
DIP	Department of Infrastructure and Planning
EMQ	Emergency Management Queensland
GIS	Geographic Information System
HAT	Highest Astronomical Tide
IFS	Inland Flooding Study 2010 – “Increasing Queensland’s resilience to inland flooding in a changing climate”
IPCC	Intergovernmental Panel on Climate Change
LGA	Local Government Area
LIDAR	Light Detection and Ranging – Airborne Laser Sensor
NDRP	National Disaster Resilience Program
OCC	Office of Climate Change
QCCCE	Queensland Climate Change Centre for Excellence
SAG	Scientific Advisory Group
SIG	DERM’s Spatial Information Group {within DERM}
SPP	State Planning Policy
WOG	Whole of Government

1 Executive Summary

This study will investigate the significance of the risk from the coincident occurrence of riverine flooding and storm tide inundation events in coastal areas of Queensland. The study is aligned with the ClimateQ Improved Coastal Mapping for Queensland Climate Change Responses (Improved Coastal Mapping) project lead by the Department of Environment and Resource Management (DERM) Office of Climate Change (OCC) to deliver precise mapping of potential climate change impacts. The results of this study will be incorporated into an interactive mapping tool which will be made available across government and to the community in 2011/2012. This will assist communities to understand the impacts of climate change and how their community may be affected.

The project proposal was established in partnership with Emergency Management Queensland (EMQ) to provide more detailed scientific advice on the affect of climate change on coincident flooding in Queensland to inform disaster planning and extend the current coastal evacuation zoning project. Detailed coincident flooding mapping will utilise the coastal Digital Elevation Model (DEM) and interactive mapping delivered by ClimateQ.

Consequences of climate change relevant to this plan include:

- Increased frequency and intensity of tropical storms
- Increased rainfall intensity with increasing temperature
- Increased sea levels.

The objectives of the project are to:

- Identify coastal areas and associated catchments likely to be at increased risk from coincident flooding
- Determine the implications of climate change on the combination of riverine and tidal storm-surge flood events
- Inform disaster management response, State Government policy and planning and climate change adaptation strategies.

The project benefits are:

- Improved understanding of the relative importance of coincident flooding in Queensland compared with riverine and coastal flooding
- Clearer characterisation of the types of catchments and coastal areas where coincident flooding may be significant
- Improved understanding on the relationship between climate change and coincident flooding in Queensland
- Improved tools for disaster planning and response.

This project will assist the Queensland Government in meeting its strategic objective to provide environmentally sustainable solutions for Queensland's future by informing sustainable development. This will be enabled through assisting business and industry plan to achieve better environmental performance as sea levels rise and the risk of coincident flooding increases; and build community knowledge and participation about the impacts of climate change on coastal communities. Outputs from the project will be in the form of a project report and any coincident flooding assessments performed with any associated Geographic Information System (GIS) shape files.

OCC through the Queensland Climate Change Centre of Excellence (QCCCE) has taken urgent action to prepare detailed mapping of coastal hazards to underpin the Queensland Coastal Plan; support the regional planning processes coordinated by the Department of Infrastructure and Planning (DIP); and provide a suitable baseline against which to monitor the longer-term effects of rising sea levels and underpin future studies.

QCCCE is committed to providing project governance and control to maximise value for money returns on investment, optimum risk management and quality assurance. The core project team will comprise a project manager with 2 subordinate positions, responsible for performing the main project activities, within budget and schedule to appropriate quality standards. The project team will use external consultants, contractors and partners as necessary.

The allocation of funding for this project extends until 2012.

2 Introduction

The National Disaster Resilience Program (NDRP) is a four year grant program “to reduce Queensland communities’ vulnerability to natural hazards by supporting regional councils and other stakeholders to build community resilience.” In December 2010, QCCCE received funding over two years to complete a coincident flooding study investigating the state-wide vulnerability to coincident flooding events.

Coincident Flooding and SPP 1/03

The inland flooding study (IFS) 2010 – “Increasing Queensland’s resilience to inland flooding in a changing climate” – included a set of recommendations to be considered as part of the review of State Planning Policy (SPP) 1/03. The inland flooding study was a joint project of DERM, DIP and the Local Government Association of Queensland.

In light of the IFS, the Department of Community Safety (DCS) has requested a scope change to consider the IFS recommendations in detail at the expense of a Queensland-level coincident flooding study. The revised scope was prepared by DCS Strategic Policy Division and is

The work is aligned with the ClimateQ initiative “Improved Coastal Mapping for Queensland Climate Change Responses” project which will deliver improved mapping of climate change impacts using a coastal DEM based on LiDAR gathered in 2010 and scheduled to be complete by September 2011. The coastal DEM will be an important tool in estimating the potential significance of coincident flooding across Queensland.

The Department of Community Safety (DCS) is embarking on a new round of Inland LiDAR acquisition to establish a DEM to inform inland flooding mapping for emergency purposes. DCS has expressed an interest in better understanding the likelihood and consequence of potential coincident flooding in Queensland.

The Queensland Government has made a commitment to taking action to reduce the impact of climate change and flooding is one of Queensland’s highest natural hazard risks. Climate change is likely to have an impact on the following flooding mechanisms:

1. Climate change is expected to modify the frequency, intensity and duration of rainfall
2. Climate change is expected to result in significant sea level rise
3. As the intensity of storms increases with climate change, the likelihood of storm-tide inundation events in Queensland will also increase.

Understanding the impact of the combined occurrence of these events on flooding levels in Queensland is a major focus for this study. This research will enable State Government in partnership with Local Governments to better understand the significance of coincident flooding and inform the development of appropriate policy and planning instruments to mitigate any climate change risk.

It has been requested that, where possible, this study should take into account the technical recommendations within the scope of the IFS. Consequently, this study will incorporate and employ the scientific recommendations of the IFS by implicitly using the figures from recommendations 1, 2 and 3. In addition, when preparing the project outputs, this study will recommend a standard method for QLD coincident flood studies to be considered when determining local Defined Flood Events (DFEs). The results of this coincident flooding study will explicitly support recommendation 11.

2.1 Scope

This project plan details the major products, activities and resources required to meet the time, cost, scope and quality targets for the coincident flooding project. The emphasis of the project is coincident flooding rather than either general riverine flooding or inundation of coastal areas by the sea.

Interpretation of coincident flooding

For the purpose of this project, coincident flooding is interpreted as the joint probability of flooding from one or more riverine events occurring simultaneously in the same location as inundation from storm surge and the two processes having a combined effect.

Other interpretations of coincident flooding are excluded such as flooding due to combinations of different intensities of rainfall in different parts of a catchment or river systems; or flooding at different times in the same location owing to rainfall and storm surge, even if they are dependent mechanisms (i.e. created by the same storm).

2.1.1 In Scope

The scope includes a review element, which will collate significant reports and research, and a number of subsequent analysis elements:

- Audit of existing data and research
- Recommend a standard method for undertaking a coincident flood study to feed into standard method recommendations for determining a DFE for inclusion in the SPP1/03 review (based on recommendation 5 from the Inland Flooding Study)
- IFS recommendations: 1, 2, 3, 4, 5 and 11:
 - Recommendations 1, 2, 3 & 4 will be used to provide input conditions
 - Recommendation 5 is in scope to the extent of proposing a standard coincident flood study methodology
 - Recommendation 11 is in scope and will provide empirical information to inform decisions on the most appropriate planning instruments to address coincident flooding.

In addition to the major products and activities, the project team will take a broader view of its responsibilities and will:

- Take into account future or ongoing studies
- Investigate options to capitalise upon existing work or collaborate with other agencies to add value.

2.1.2 Out of Scope

During the initiation stage, the coincident flooding study considered what contribution, if any could be made to support the recommendations of the Inland Flooding Study:

- IFS Recommendations 6, 7, 8, 9, 10 & 12

2.2 Plan Prerequisites

The following aspects are fundamental to the plan and must remain in place for the plan to succeed:

- Continuing funding from NDRP
- A continuing requirement for the outputs and benefits of the study.

2.3 External Dependencies

The following dependencies exist that may affect the execution of the plan:

- Australian Rainfall and Runoff (AR&R) Project 18 will review the methodology for examining the impact of climate change on coincident flooding. Ideally, the Queensland coincident flooding project would adopt this methodology however the revision of this section of AR&R is due in 2012 and therefore unlikely to be completed in time to be fully incorporated.
- New South Wales has adopted a uniform state-wide application of a standard approach to coincident flood studies. This project will aim to review and adopt a similar approach. The project therefore has a dependency on access to that information.

2.4 Planning Assumptions

The following assumptions have been made in the preparation of this plan:

1. QCCCE can access sufficient resources to undertake the project
2. Inputs from related studies will become available in time to inform this study

3. Technical staff can be reused elsewhere on revenue generating or funded work when not working on this project
4. Agencies beyond control of this project can provide any necessary input or action within the necessary timeframe
5. No additional tasks will be placed-on the project
6. The initial technical steering committee meeting does not identify significant additional issues.

In the event that the assumptions are not realised, the following contingency situations have been considered:

1. The project can use external contractors to provide early inputs and the scope reviewed to ensure it can be met within budget
2. Phase the project timelines where possible and work closely with other studies and agencies to gain early advice and outputs from the other projects
3. There is probably sufficient capacity to absorb one junior staff position full time on the project
4. See 2, above
5. Any additional tasks or issues will be reviewed and the plan reissued as necessary. If the project becomes unviable it will be stopped
6. See 5, above.

2.5 Lessons Incorporated

1. A technical steering committee will inform and advise progress
2. Clear, uninhibited communications are an important factor in the success of a project. All stakeholders should be open to approach and prepared to discuss issues concerning the project informally, rather than rely on meetings to air lower level issues
3. Meetings should have a clearly defined purpose and scope.

2.6 Monitoring and Control

The work will be monitored through regular progress reporting to DERM Water Sciences who will in turn report to NDRP; frequent formal and informal team meetings and meetings with both senior users and suppliers. Control will be exercised through quality management, configuration management and formal project controls such as work packages, specifications and service level agreements. The project organisation and governance are outlined in section 4.

2.7 Budgets

The project is funded from NDRP. Water Sciences will manage the NDRP provided funds over two years to meet the business objectives. The detailed breakdown of the budget and planned expenditure for coincident flooding is given in section 5.3.

2.8 Tolerances

The project must be complete by the end date.

2.9 Product Descriptions

This project defines 'a product' as any measurable intermediate or final output. Therefore a product may not be a physical, tangible object such as a document, a map or a piece of equipment; instead a product may be the satisfactory and quality-checked accomplishment of a defined and measurable activity. In this way, quality and traceability are built into every step of the project.

The products are outlined in the breakdown structure in section **Error! Reference source not found.** Each product is defined with objective quality criteria in place and may be devolved into lower-level products.

2.10 Schedule

The proposed project schedule is based on a start date of March 2011, continuing until January 2012. The baseline estimates of duration and milestones are based on stakeholder feedback and known project commitments.

Key drivers for this project are:

- Provide critical decision making tools as soon as possible.

A current snapshot of the schedule is given in section **Error! Reference source not found.**.

3 Aims and Objectives

The coincident flooding study will be conducted by QCCCE to provide an input to the wider SPPP1/03 study funded by NDRP and managed by the Water Sciences directorate in DERM.

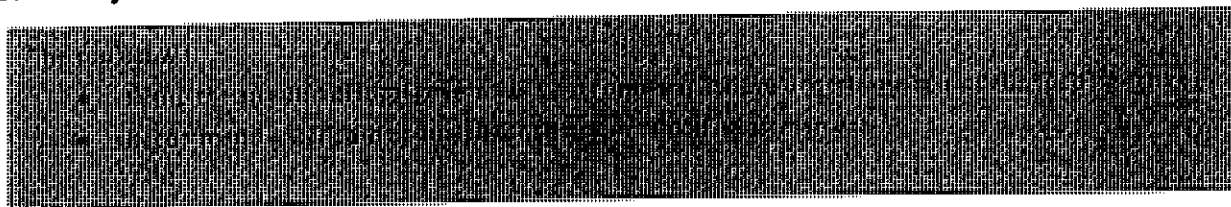
3.1 Aims

This component of the project is a technical investigation, which draws on the technical expertise and experience of QCCCE. The project outputs will inform centred on coincident flooding and climate change.

The aims of this work are to:

- Consider issues concerning coincident flooding including the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies conducted by local governments; and the most appropriate planning instrument to address coincident flooding in the future.
- Examine the interaction of coastal processes and severe weather events to inform guidelines for incorporating the joint effects of flood flows from storm rainfall and elevated ocean levels into flooding predictions (coincident flooding). Elevated ocean levels caused by the storm (storm surge) as well as those caused by climate change (sea level rise) will be considered.
- Promote the adoption of a common approach to coincident flooding studies within Queensland

3.2 Objectives



3.3 Outputs

The project output will be a series of investigation reports to DERM, Water Sciences as outlined in section 5.3.

3.4 Outcomes

The project outcomes are:

- Improved understanding of climate change impacts on coincident flooding
- Greater interoperation and commonality between coincident flooding assessments performed by different parties in Queensland
- Communities will benefit through development that minimises damage to property and critical infrastructure and lowers insurance costs.

4 Organisation

4.1 Project Governance

DERM Water Sciences will manage the overall SPP1/03 project effort with NDRP. The coincident flooding project will be managed by QCCCE and where possible use existing resources. The outputs from QCCCE will be provided to DERM water sciences for inclusion in its final reports. The QCCCE project organisation is represented in Figure 1.

4.1.1 Sponsor

The sponsor is responsible for commissioning the project and defining the project-level budget. The sponsor is NDRP.

4.1.2 Project Board

This project does not require a project board. Reporting, auditing and payment will be processed through the NDRP reporting system.

4.1.3 Project Manager

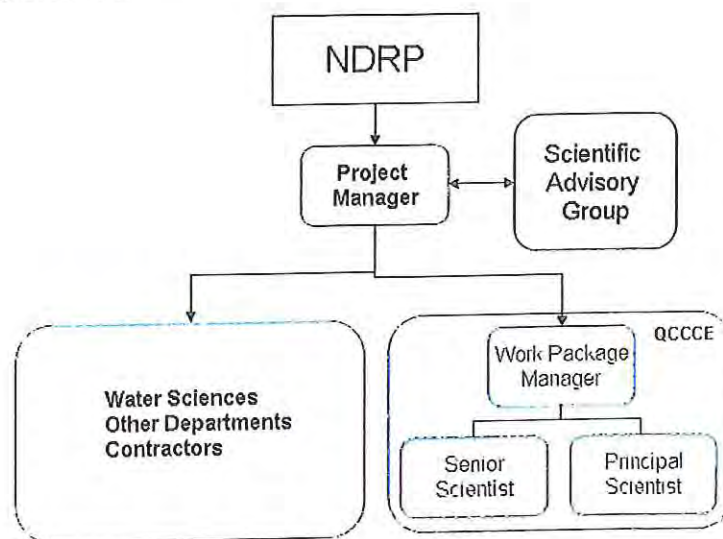
The project manager is responsible for the day-to-day management of the project within the constraints set-out by the NDRP. The project manager's prime responsibility is to ensure that the project produces the required products in accordance with the time, cost, scope, risk and benefit performance goals. The project manager will undertake the activities of the project office such as include configuration management, administering quality reviews, maintaining the registers and records and liaising with all work package managers to gather actual data and forecasts.

4.1.4 Scientific Advisory Group

At NDRP study level, activities will be informed by a Scientific Advisory Group (SAG) which will provide direction as well as review and endorse the project outputs. The SAG will offer technical advice to the project team, acting as an important resource for identifying wider issues concerning the project and recommending appropriate approaches to address them. As requirements change and details of ongoing studies emerge, the SAG will provide advice on how to incorporate them into the project or modify the project objectives. As the project progresses, the SAG will review intermediate results and advise on how to progress further to best effect.

The project manager will determine the composition of the SAG.

Figure 1 - Project Organisation



4.1.5 Coincident Flooding Project Team

The coincident flooding project team comprises a work package manager who will provide the interface to the project manager and two scientist positions as shown in Figure 1.

Since local governments already hold some coincident flooding assessments for their own areas, the team will consult with local authorities to build upon those resources, consider climate change factors and commission new assessments where appropriate. The internal roles are as follows:

Senior Scientist

This position is responsible for providing an overview of the current state of coincident flooding research and performing a technical review of the existing methods for the estimation of the risk of coincident flooding. In particular this position will undertake the audit of existing projects and resources for coincident flooding across Queensland's coastal catchments.

Principal Scientist

This position will provide ad hoc input and advice to the technical review of risk estimation methods.

5 Major Activities

5.1 Stage 1 Activities

5.1.1 Overview

1. Audit of existing projects and resources for coincident flooding across Queensland's coastal catchments. This desk-based audit will provide the following baseline information:
 - a. An account of existing coincident flooding projects, reports and papers both locally and internationally as well as coincident flooding assessments in Queensland.
 - b. A technical review of existing methods for the estimation of the risk of coincident flooding, including joint probability and inter-variable dependence.

The activities 1a and 1b will provide the basis for a qualitative review of coincident flooding assessments across Queensland, detailing the underlying assumptions, data assessed and factors included. These findings will provide insights into how studies, albeit conducted differently, might be compared or combined and may also provide evidence for a preferred approach.

5.1.2 Audit of Existing Work

This activity will produce a register of approaches taken in other areas and jurisdictions as well as within Australia; it will examine the underlying assumptions and methods.

1. Perform a literature review and investigation to produce a register of information relevant to coincident flooding in Queensland.
2. Underlying Assumptions
3. Locations of studies: type of terrain/catchment/shore
4. Methods used, including the order and combinations in which those technical methods are applied
5. Level of precision of measurements
6. Any objective validation of evidence of accuracy
7. Any objective evidence of coincident flooding directly affecting the outcome of a flood event
8. Magnitude of the effect.

5.2 Stage 2 Activities

5.2.1 Overview

The stage two activities will produce one or more policy recommendations.

1. Policy recommendations:
 - a. Prepare a recommendation for consideration in the SPP 1/03 review describing the underlying assumptions and methodology that could be established to perform coincident flooding analyses throughout Queensland, taking into account climate change factors. This might include the key drivers, the climate change inputs, the minimum data to be assessed, the process for combining input data and the boundaries – for example Q20 flood combined with a 100 year storm event and vice versa.
 - b. Provide a recommendation regarding triggers to repeating coincident flooding studies in a catchment for example: Period between studies to account for changes in sea level or changes to average storm intensity, amount of new development since previous study or man-made changes to the water course.

5.3 Project Stage Summary

The project stages are outlined in Table 1.

Stage	Activity	Timeframe	Overview
1	1a	May/June 2011	Audit of existing work <i>Skills: Resource investigation</i>
	1b	June/July 2011	Technical review of existing methods for risk estimation <i>Skills: Joint probability/flooding</i>
2	2a	August/September 2011	Recommendation for a state-wide coincident flooding assessment methodology <i>Skills: Report writing/quality/flooding/policy</i>
	2b	September/October 2011	Triggers to conducting a coincident flooding assessment update <i>Skills: Report writing/hydrology/flooding/policy</i>

Table 1 – Coincident Flooding in Queensland Project

6 Budget

6.1 Analysis of Costs

The costs in Table 2 for Stage 1 have been calculated based on PO3 and PO5 manpower assigned, with a management component.

Activity	Timeframe	Overview	Effort	Labour Cost
1a	Jun11	Audit of existing work	28d	\$8,500
1b	Jul 11	Technical review of existing methods for risk estimation	28d	\$8,500
2a	Sep 11	Recommendation for a state-wide coincident flooding assessment methodology	28d	\$8,500
2b	Oct 11	Triggers to updating extant coincident flooding assessments	14d	\$4,250
Ongoing		Management and overheads		\$2,975
Totals			Total	\$32,725

Table 2 - Summary of key project milestones and bottom-up cost

6.2 Availability, Utilisation and Risk

The forecast, above, demonstrates that the senior scientist position will be 100% utilised for the period from May 2011 until October 2011, assuming appropriate personnel are available. It is currently expected that a principal scientist will be available to provide ad hoc support until mid 2011.

7 Department of Community Safety, Strategic Policy Division Revised Scope

The revised scope was detailed by the Department of Community safety on 6 April 2011. The scope calls for a project reflecting the following priority areas of investigation:

A. Development and documentation of a standard flood methodology (IFS recommendation 5) as a guideline suitable for attachment to a future SPI that would also incorporate:

- interim climate change allowances (per IFS recommendations 1-3)
 - advice on update frequency (IFS recommendation 6)
 - coincident flooding (per IFS recommendation 11)
- B. Testing of AEP / climate change relationships (introduced in the IFS) for other catchments (IFS recommendation 9)
- C. An audit and gap analysis of flood studies (including riverine, flash and coincident flooding) (IFS recommendation 11)
- D. Coincident flooding investigations (IFS recommendation 11)
- E. Other investigations described in Table 3.

Table 3 - Mapping of IFS recommendations to revised NDRP project scope

IFS Recommendations	SPP 1/03 review requirement for technical investigations
<p>Recommendation 1— Local governments should factor a 5 per cent increase in rainfall intensity per degree of global warming into the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood events recommended in SPP 1/03 for the location and design of new development.</p> <p>Recommendation 2—The following temperatures and timeframes should be used for the purposes of applying the climate change factor in Recommendation 1: 2°C by 2050 3°C by 2070, 4°C by 2100.</p> <p>Recommendation 3—The Queensland Government will review and update this climate change factor when a national position on how to factor climate change into flood studies is finalised as part of the current review of AR&R.</p> <p>Local governments should use the temperatures and timeframes outlined in Recommendation 2 when producing new flood maps. However, local governments may be able to use their existing flood maps to approximate future flood levels that incorporate the recommended climate change factor.</p> <p>This project acknowledges that the AR&R publication provides the nationally accepted methodologies for undertaking flood studies. However, the publication has not been updated for 23 years and does not consider the impacts of climate change. While the</p>	<p>a. Climate change factors from IFS to be incorporated into standard methodology for flood studies (Recommendation 5).</p>

<p>IFS Recommendations</p>	<p>SPP 1/03 review requirement for technical investigations</p>
<p>Australian Government is supporting a review of the AR&R publication, the outcomes of this review are not expected to be available before 2014. This project was therefore undertaken to meet the needs of local governments on how to consider climate change and better identify flood risks.</p>	
<p>Recommendation 5—The review of SPP 1/03 should consider the benefits of requiring a standard method for undertaking a flood study and determining a DFE.</p> <p>There is currently no requirement on local governments to use a standard calibrated engineering method for undertaking flood studies. Under the current SPP, local governments may elect instead to use, for example, historical flood data (including the lack of data) to determine their DFE. This discretion in how local governments assess their flood risk results in varying degrees of accuracy and predictive value of current and future flood hazards. Development of a standard method for flood studies which includes advice on the Queensland Government's endorsed climate change factors and takes account of different catchment characteristics (e.g. large rural catchments and highly developed urban catchments) would improve the consistency and accuracy of flood studies in Queensland. On this issue, the Project Board and advisory group members identified that New South Wales appears to have overcome issues of accuracy in the assessment of flood hazards by requiring uniform state-wide application of a standard method for flood studies.</p>	<ul style="list-style-type: none"> a. A standard flood study methodology compiled as a draft guideline to a future State Planning Instrument (SPI) that recognises the need for greater precision in high risk parts of catchments. b. The standard methodology / guideline should be completed in time for release of the Draft SPI (possibly Jun 2012) with a draft for policy makers by Jan 2012. c. The methodology should be cognisant of relevant national guidelines currently in preparation (SCARM, AR&R). d. The methodology should be cognisant of the current standard of flood studies in Queensland (see Recommendation 11) e. The methodology will need to include the following sources of flooding: <ul style="list-style-type: none"> - riverine flooding - flash flooding - sheet flooding - sea level rise - coincident storm surge and riverine flooding (see Recommendation 11) - flooding from overflowing urban drainage - flooding that results from failure of mitigation structures (es. Levees) f. The methodology should incorporate methods to define and communicating the <i>uncertainty</i> of flood model outputs (Confidence interval etc) for inclusion in risk assessments. <p>The methodology does not need to extend to risk assessment (Recommendation 7)</p>

IFS Recommendations	SPP 1/03 review requirement for technical investigations
<p>Recommendation 6—The review of SPP 1/03 should consider whether there is a need to specify how frequently a flood study should be reviewed or updated.</p> <p>While SPP 1/03 requires that a flood study be undertaken for natural hazard management areas, there is currently no guidance on when local governments should review or update those studies. In practice, this means that local governments may be using flood studies that do not reflect recent development in the area and the impact of that development on potential flood risks. Therefore it is recommended that the review of SPP 1/03 identify appropriate triggers to guide when local governments need to review and/or update their flood studies, taking into consideration the likely cost impacts on local governments of increasing the frequency of undertaking flood studies. Triggers could include undertaking a planning scheme review (review hydraulic components) and updated AR&R advice (update hydrological components).</p>	<p>a. The standard methodology and guidelines (Recommendation 5) should also provide recommendations on a suitable update frequency and triggers for update.</p>
<p>Recommendation 9—The review of SPP 1/03 should consider the applicability of the recommended planning response for Gayndah (as per Recommendation 4) to other parts of Queensland.</p> <p>The recommended planning responses for Gayndah township should be considered for applicability in other local government areas and to establish if the policy options provide an appropriate planning response to direct new development to areas with lower levels of flood risk now and in the future under climate change. This should include consideration of the utility of incorporating draft flood overlay codes (modelled on the draft flood constraint code developed for Gayndah) in the Queensland Planning Provisions (QPPs). An assessment of the useability of the draft flood constraint code developed for Gayndah should form part of this broader consideration of state-wide applicability.</p>	<p>a. Testing of AEP / climate change relationships (introduced in the IFS) for other catchments</p>
<p>Recommendation 11—The review of SPP 1/03 should consider issues concerning coincident flooding including: the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies conducted by local governments; and the most appropriate planning instrument to address coincident flooding in the future.</p> <p>The AR&R publication provides national guidance for undertaking flood studies. The publication is currently being reviewed to include consideration of climate change and incorporate new data and technological advances in rainfall/runoff assessment. This review is due for completion in 2014. One component of the AR&R review includes examining the interaction of coastal processes and severe weather events and should result in guidelines for incorporating the joint effects of flood flows from storm rainfall</p>	<p>a. Research into the potential impacts of coincident flooding</p> <p>b. A standard methodology for considering coincident flooding should be included in the standard methodology (Recommendation 5).</p> <p>c. An audit of flood studies (including riverine, flash and coincident flooding) in Queensland by local and state governments</p> <p>d. The audit should also be extended to include a gap analysis that identifies data and modelling requirements needed to raise flood studies to the standard methodology described</p>

<p>IFS Recommendations</p> <p>and elevated ocean levels into flooding predictions (coincident flooding). Elevated ocean levels caused by the storm (storm surge) as well as those caused by climate change (sea level rise) will be considered. The Department of Environment and Resource Management has been allocated National Disaster Resilience Program funding to examine the impacts of coincident flooding in Queensland. The results of this research should be considered as part of the review of SPP 1/03 to determine how this issue should be addressed in Queensland's land use and disaster planning frameworks. National guidance on coincident flooding is expected to be provided from the AR&R review in 2014.</p>	<p>SPP 1/03 review requirement for technical investigations</p> <p>against recommendation 5.</p>
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Potential Options for Coincident Flooding Study

Option	Task	Approximate Cost	Approximate Cost	Approximate Cost	
1	<p>Audit of existing work</p> <p>Technical review of risk estimation methods</p> <p>Catchment characterisation</p> <p>Study of synoptic weather types</p> <p>Analysis of risk within Queensland especially 100yr flood and storm tides scenarios</p> <p>Analysis of climate change variables impacting coincident flooding</p> <p>Identification of vulnerable catchments</p> <p>Recommendation for a state-wide coincident flooding assessment methodology</p> <p>Triggers to updating coincident flooding assessments</p> <p>Comparison of current AEP flood levels and climate change coincident flooding predictions</p> <p>Detailed assessment of vulnerable areas identified in Stage1</p>	<p>A standard flood study methodology compiled as a draft guideline to a future State Planning Instrument (SPI). It should be completed in time for release of the Draft SPI (possibly Jun 2012) with a draft for policy makers by Jan 2012 and include:</p> <ul style="list-style-type: none">-riverine flooding-flash flooding-sheet flooding-sea level rise-coincident storm surge and riverine flooding (QCCCE will provide)-flooding from overflowing urban drainage-flooding that results from failure of mitigation structures (es. Levees) <p>The methodology should be cognisant of:</p> <ul style="list-style-type: none">-relevant national guidelines currently in preparation (SCARM, AR&R).-the current standard of flood studies in Queensland (QCCCE to assist) <p>The methodology should incorporate methods to define and communicating the uncertainty of flood model outputs (Confidence interval etc) for inclusion in risk assessments.</p>	\$300,000	\$100,000	QCCCE
2	<p>Audit of existing work</p> <p>Technical review of risk estimation methods</p> <p>Recommendation for a state-wide coincident flooding assessment methodology</p> <p>Triggers to updating coincident flooding assessments</p>	<p>Testing of AEP / climate change relationships (introduced in the IFS) for other catchments</p> <p>Guidelines should provide recommendations on suitable update frequency and triggers for update</p> <p>An audit of riverine and flash flood studies in Queensland by local and state governments</p>	\$50,000 max	\$350,000	Science
3	<p>Same as (Option 1) without detailed area assessments</p>	<p>The audit should be extended to include a gap analysis that identifies data and modeling requirements needed to raise flood studies to the standard methodology described against recommendation 5.</p>	\$200,000	\$200,000	Science

Note: Option 1 may not meet DCS needs as there is unlikely to be enough funding to complete the scope detailed by Robert Preston in his email of 6th April

SPP 1/03 Review technical investigations (flood) based on recommendations of the Inland Flooding Study

6 April 2011

IFS Recommendations	SPP 1/03 review requirement for technical investigations
<p>Recommendation 1—Local governments should factor a 5 per cent increase in rainfall intensity per degree of global warming into the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood events recommended in SPP 1/03 for the location and design of new development.</p> <p>Recommendation 2—The following temperatures and timeframes should be used for the purposes of applying the climate change factor in Recommendation 1: 2°C by 2050 3°C by 2070, 4°C by 2100.</p> <p>Recommendation 3—The Queensland Government will review and update this climate change factor when a national position on how to factor climate change into flood studies is finalised as part of the current review of AR&R.</p> <p>Local governments should use the temperatures and timeframes outlined in Recommendation 2 when producing new flood maps. However, local governments may be able to use their existing flood maps to approximate future flood levels that incorporate the recommended climate change factor.</p> <p>This project acknowledges that the AR&R publication provides the nationally accepted methodologies for undertaking flood studies. However, the publication has not been updated for 23 years and does not consider the impacts of climate change. While the Australian Government is supporting a review of the AR&R publication, the outcomes of this review are not expected to be available before 2014. This project was therefore undertaken to meet the needs of local governments on how to consider climate change and better identify flood risks.</p>	<p>a. Climate change factors from IFS to be incorporated into standard methodology for flood studies (Recommendation 5).</p>
<p>Recommendation 5—The review of SPP 1/03 should consider the benefits of requiring a standard method for undertaking a flood study and determining a DFE.</p> <p>There is currently no requirement on local governments to use a standard calibrated engineering method for undertaking flood studies. Under the current SPP, local</p>	<p>a. A standard flood study methodology compiled as a draft guideline to a future State Planning Instrument (SPI) that recognises the need for greater precision in high risk parts of catchments.</p>

<p>IFS Recommendations</p> <p>governments may elect instead to use, for example, historical flood data (including the lack of data) to determine their DFE. This discretion in how local governments assess their flood risk results in varying degrees of accuracy and predictive value of current and future flood hazards. Development of a standard method for flood studies which includes advice on the Queensland Government's endorsed climate change factors and takes account of different catchment characteristics (e.g. large rural catchments and highly developed urban catchments) would improve the consistency and accuracy of flood studies in Queensland. On this issue, the Project Board and advisory group members identified that New South Wales appears to have overcome issues of accuracy in the assessment of flood hazards by requiring uniform state-wide application of a standard method for flood studies.</p>	<p>SPP 1/03 review requirement for technical investigations</p>
	<p>b. The standard methodology / guideline should be completed in time for release of the Draft SPI (possibly Jun 2012) with a draft for policy makers by Jan 2012.</p> <p>c. The methodology should be cognisant of relevant national guidelines currently in preparation (SCARM, AR&R).</p> <p>d. The methodology should be cognisant of the current standard of flood studies in Queensland (see Recommendation 11)</p> <p>e. The methodology will need to include the following sources of flooding:</p> <ul style="list-style-type: none"> - riverine flooding - flash flooding - sheet flooding - sea level rise - coincident storm surge and riverine flooding (see Recommendation 11) - flooding from overflowing urban drainage - flooding that results from failure of mitigation structures (es. Levees) <p>f. The methodology should incorporate methods to define and communicating the <i>uncertainty</i> of flood model outputs (Confidence interval etc) for inclusion in risk assessments.</p> <p>The methodology does not need to extend to risk assessment (Recommendation 7)</p>
<p>Recommendation 6—The review of SPP 1/03 should consider whether there is a need to specify how frequently a flood study should be reviewed or updated.</p> <p>While SPP 1/03 requires that a flood study be undertaken for natural hazard</p>	<p>a. The standard methodology and guidelines (Recommendation 5) should also provide recommendations on a suitable update frequency and triggers for update.</p>

<i>IFS Recommendations</i>	<i>SPP 1/03 review requirement for technical investigations</i>
<p>management areas, there is currently no guidance on when local governments should review or update those studies. In practice, this means that local governments may be using flood studies that do not reflect recent development in the area and the impact of that development on potential flood risks. Therefore it is recommended that the review of SPP 1/03 identify appropriate triggers to guide when local governments need to review and/or update their flood studies, taking into consideration the likely cost impacts on local governments of increasing the frequency of undertaking flood studies. Triggers could include undertaking a planning scheme review (review hydraulic components) and updated AR&R advice (update hydrological components).</p>	
<p>Recommendation 9—The review of SPP 1/03 should consider the applicability of the recommended planning response for Gayndah (as per Recommendation 4) to other parts of Queensland.</p> <p>The recommended planning responses for Gayndah township should be considered for applicability in other local government areas and to establish if the policy options provide an appropriate planning response to direct new development to areas with lower levels of flood risk now and in the future under climate change. This should include consideration of the utility of incorporating draft flood overlay codes (modelled on the draft flood constraint code developed for Gayndah) in the Queensland Planning Provisions (QPPs). An assessment of the useability of the draft flood constraint code developed for Gayndah should form part of this broader consideration of state-wide applicability.</p>	<p>a. Testing of AEP / climate change relationships (introduced in the IFS) for other catchments</p>
<p>Recommendation 11—The review of SPP 1/03 should consider issues concerning coincident flooding including: the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies conducted by local governments; and the most appropriate planning instrument to address coincident flooding in the future.</p> <p>The AR&R publication provides national guidance for undertaking flood studies. The publication is currently being reviewed to include consideration of climate change and incorporate new data and technological advances in rainfall/runoff assessment. This review is due for completion in 2014. One component of the AR&R review includes examining the interaction of coastal processes and severe weather events and should</p>	<p>a. Research into the potential impacts of coincident flooding</p> <p>b. A standard methodology for considering coincident flooding should be included in the standard methodology (Recommendation 5).</p> <p>c. An audit of flood studies (including riverine, flash and coincident flooding) in Queensland by local and state governments</p> <p>d. The audit should also be extended to include a gap analysis that identifies data and modelling requirements needed to</p>

IFS Recommendations	SPP 1/03 review requirement for technical investigations
result in guidelines for incorporating the joint effects of flood flows from storm rainfall and elevated ocean levels into flooding predictions (coincident flooding). Elevated ocean levels caused by the storm (storm surge) as well as those caused by climate change (sea level rise) will be considered. The Department of Environment and Resource Management has been allocated National Disaster Resilience Program funding to examine the impacts of coincident flooding in Queensland. The results of this research should be considered as part of the review of SPP 1/03 to determine how this issue should be addressed in Queensland's land use and disaster planning frameworks. National guidance on coincident flooding is expected to be provided from the AR&R review in 2014.	raise flood studies to the standard methodology described against recommendation 5.

IFS recommendations not in scope for SPP 1-03 Review technical investigations (flood)

Recommendation 4 —That North Burnett Regional Council consider the two implementation options identified in the paper Recommended Policy Options for Incorporating Climate Change into the Flood Risk Management Framework in Gayndah and implement its preferred approach in its planning scheme.	
Recommendation 7 —The review of SPP 1/03 should develop criteria that outline the circumstances where a DFE higher or lower than the 1 per cent AEP (Q100) is appropriate for residential land use planning. SPP 1/03 currently requires local governments to determine a DFE to set limits for land use and development in any floodplain area. SPP 1/03 specifies the 1 per cent AEP (Q100) as the preferred DFE for residential land use planning. SPP 1/03 guidelines indicate that the residual risk (the risk of a flood exceeding the DFE) should be addressed in local government counter disaster plans and emergency procedures. However, there are currently no criteria to determine when it may be appropriate for a council to use another DFE (i.e. above or below the 1 per cent AEP or Q100). In practice this has led to local governments adopting varying flood levels to constrain development without reference to any consistent criteria. The review of SPP 1/03 should develop clear and transparent criteria for use by local governments and referral agencies on the circumstances where a DFE above or below the 1 per cent AEP (Q100) is appropriate.	
Recommendation 8 —The review of SPP 1/03 should clarify what components of the SPP are compulsory and clarify what additional guidance local governments may need to meet those obligations. The review provides a useful opportunity to clarify the core components of what local governments must do to assess and manage their flood risk, as well as provide more detailed guidance on how local governments should meet those obligations (as per recommendations 1 and 2). This would help to address current inconsistencies in how local governments interpret and implement the SPP. More generally, the review provides an opportunity to provide clearer	

<p>guidance to local governments on core requirements and standards, as well as those matters on which they continue to have discretion. This could include guidance on how the revised SPP should be reflected in statutory regional plans.</p>	<p>Recommendation 10—The review of SPP 1/03 should consider how to improve the integration of land use planning and disaster management planning. The SPP 1/03 guidelines currently outline how residual risk can be addressed in disaster management plans and emergency procedures developed by local governments. The review provides an opportunity to consider what changes need to be made to improve the integration of land use planning and disaster management planning, including whether any additional guidance is required and what, if any, elements of that guidance should become mandatory provisions under a revised SPP (for example, ensuring land use planning takes account of population growth and its impact on the efficient evacuation of people to a safe and secure area in an extreme event).</p>
<p>Recommendation 12—Working through the national Building Ministers' Forum (BMF) and the Australian Building Codes Board (ABCB) to support the development of a national code for the design and construction of new building work in areas designated as flood prone in local planning schemes Queensland is represented at the BMF by the Minister for Infrastructure and Planning.</p> <p>In 2009, the Minister sought recognition at the forum of the significant impact of flooding on buildings in Australia, the current lack of national building codes to address this issue, and for the ABCB to develop a national code for building in flood prone areas for regulatory adoption by individual States and Territories. Subsequently, the ABCB has drafted a proposal to develop national design and construction requirements under the Building Code of Australia for new building work in designated areas vulnerable to flooding. Minimum requirements under the Building Code of Australia would include performance requirements and deemed-to satisfy provisions to minimise damage to buildings and building materials from flooding. The ABCB is expected to develop this new code by the end of 2012. This code would be referenced in Queensland under the <i>Building Act 1975</i> and, once developed, will specify the design and construction requirements that apply in Queensland for new building work in designated flood prone areas.</p>	

Relationship between Requirements of SPP 1/03 Review for technical flooding investigations, Inland Flooding Study recommendations, and draft DERM / NDRP Coincident Flooding Project Plan

24 March 2011

No	Issue or interest	SPP 1/03 Review Requirement	Agreement at meeting of 7 Jan 2011	Current DERM NDRP Project Plan (23 March 2011)
1	<p>Recommendation 1— Local governments should factor a 5 per cent increase in rainfall intensity per degree of global warming into the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood events recommended in SPP 1/03 for the location and design of new development.</p> <p>Recommendation 2—The following temperatures and timeframes should be used for the purposes of applying the climate change factor in Recommendation 1: • 20C by 2050 • 30C by 2070 • 40C by 2100.</p> <p>Recommendation 3—The Queensland Government will review and update this climate change factor when a national position on how to factor climate change into flood studies is finalised as part of the current review of AR&R.</p> <p>Local governments should use the temperatures and timeframes outlined in Recommendation 2 when producing new flood maps. However, local governments may be able to use their existing flood maps to approximate future flood levels that incorporate the recommended climate change factor.</p> <p>This project acknowledges that the AR&R publication provides the nationally accepted methodologies for undertaking flood studies. However, the publication has not been updated for 23 years and does not consider the impacts of climate change.</p>	<p>Climate change factors from IFS to be incorporated into standard methodology for flood studies (Recommendation 5).</p>	<p>To be recognised in revised NDRP project plan</p>	<p>Included. No modification of scope required.</p>

No	Issue or interest	SPP 1/03 Review Requirement	Agreement at meeting of 7 Jan 2011	Current DERM NDRP Project Plan (23 March 2011)
	While the Australian Government is supporting a review of the AR&R publication, the outcomes of this review are not expected to be available before 2014. This project was therefore undertaken to meet the needs of local governments on how to consider climate change and better identify flood risks.			
2	<p>Recommendation 5—The review of SPP 1/03 should consider the benefits of requiring a standard method for undertaking a flood study and determining a DFE.</p> <p>There is currently no requirement on local governments to use a standard calibrated engineering method for undertaking flood studies. Under the current SPP, local governments may elect instead to use, for example, historical flood data (including the lack of data) to determine their DFE. This discretion in how local governments assess their flood risk results in varying degrees of accuracy and predictive value of current and future flood hazards. Development of a standard method for flood studies which includes advice on the Queensland Government's endorsed climate change factors and takes account of different catchment characteristics (e.g. large rural catchments and highly developed urban catchments) would improve the consistency and accuracy of flood studies in Queensland. On this issue, the Project Board and advisory group members identified that New South Wales appears to have overcome issues of accuracy in the assessment of flood hazards by requiring uniform state-wide application of a standard method for flood studies.</p>	<p>a. Standard flood study methodology is a high priority.</p> <p>b. Standards will need to reflect different levels of risk for different catchments.</p> <p>c. Methodology should be developed as a draft guideline to replacement SPI.</p> <p>d. Methodology will be required in time for release of Draft SPI (<i>likely to be Jun 2012</i>)</p> <p>e. Methodology should be cognisant of relevant national guidelines currently in preparation.</p> <p>f. Due to Jan 2011 flooding, and Commission of Inquiry, the methodology will need to include:</p> <ul style="list-style-type: none"> - consideration of <i>flash flooding</i> - consideration of flooding from <i>urban drainage</i> - consideration and documentation of <i>uncertainty</i> in flood modelling 	To be included in revision of NDRP Project Plan.	<p>Currently limited to coincident flood study.</p> <p>Suggest modifying scope to include:</p> <ul style="list-style-type: none"> - riverine flooding - flash flooding - overflow from urban drainage. <p>Suggest review of timeframe to meet SPP 1/03 review timeline.</p>

No	Issue or interest	SPP 1/03 Review Requirement	Agreement at meeting of 7 Jan 2011	Current DERM NDRP Project Plan (23 March) 2011)
3	<p>Recommendation 6—The review of SPP 1/03 should consider whether there is a need to specify how frequently a flood study should be reviewed or updated.</p> <p>While SPP 1/03 requires that a flood study be undertaken for natural hazard management areas, there is currently no guidance on when local governments should review or update those studies. In practice, this means that local governments may be using flood studies that do not reflect recent development in the area and the impact of that development on potential flood risks. Therefore it is recommended that the review of SPP 1/03 identify appropriate triggers to guide when local governments need to review and/or update their flood studies, taking into consideration the likely cost impacts on local governments of increasing the frequency of undertaking flood studies. Triggers could include undertaking a planning scheme review (review hydraulic components) and updated AR&R advice (update hydrological components).</p>	Need to recognise update frequency in preparation of methodology (Recommendation 5).	To be considered in revision of NDRP Project Plan.	Suggest review of scope to include triggers.
4	<p>Recommendation 7—The review of SPP 1/03 should develop criteria that outline the circumstances where a DFE higher or lower than the 1 per cent AEP (Q100) is appropriate for residential land use planning.</p> <p>SPP 1/03 currently requires local governments to determine a DFE to set limits for land use and development in any floodplain area. SPP 1/03 specifies the 1 per cent AEP (Q100) as the preferred DFE for residential land use planning. SPP 1/03 guidelines indicate that the residual risk (the risk of a flood exceeding the DFE) should be addressed in local government counter disaster plans and emergency procedures. However, there are currently no criteria to determine when it may be</p>	Nil requirement from technical flood studies.	Not in scope.	Not in scope. No change.

No	Issue or interest	SPP 1/03 Review Requirement	Agreement at meeting of 7 Jan 2011	Current DERM NDRP Project Plan (23 March) 2011)
	appropriate for a council to use another DFE (i.e. above or below the 1 per cent AEP or Q100). In practice this has led to local governments adopting varying flood levels to constrain development without reference to any consistent criteria. The review of SPP 1/03 should develop clear and transparent criteria for use by local governments and referral agencies on the circumstances where a DFE above or below the 1 per cent AEP (Q100) is appropriate.			
5	<p>Recommendation 8—The review of SPP 1/03 should clarify what components of the SPP are compulsory and clarify what additional guidance local governments may need to meet those obligations.</p> <p>The review provides a useful opportunity to clarify the core components of what local governments must do to assess and manage their flood risk, as well as provide more detailed guidance on how local governments should meet those obligations (as per recommendations 1 and 2). This would help to address current inconsistencies in how local governments interpret and implement the SPP. More generally, the review provides an opportunity to provide clearer guidance to local governments on core requirements and standards, as well as those matters on which they continue to have discretion. This could include guidance on how the revised SPP should be reflected in statutory regional plans.</p>	Nil requirement from technical flood studies.	Not in scope.	Not in scope. No change.
6	<p>Recommendation 9—The review of SPP 1/03 should consider the applicability of the recommended planning response for Gayndah (as per Recommendation 4) to other parts of Queensland.</p> <p>The recommended planning responses for Gayndah township</p>	Modelling to test IFS assumptions for additional catchments.	To be included in revision of NDRP Project Plan. Additional funds may be required.	Modify to confirm in scope.

No	Issue or interest	SPP 1/03 Review Requirement	Agreement at meeting of 7 Jan 2011	Current DERM NDRP Project Plan (23 March) 2011)
	should be considered for applicability in other local government areas and to establish if the policy options provide an appropriate planning response to direct new development to areas with lower levels of flood risk now and in the future under climate change. This should include consideration of the utility of incorporating draft flood overlay codes (modelled on the draft flood constraint code developed for Gayndah) in the Queensland Planning Provisions (QPPs). An assessment of the useability of the draft flood constraint code developed for Gayndah should form part of this broader consideration of state-wide applicability.			
7	<p>Recommendation 10—The review of SPP 1/03 should consider how to improve the integration of land use planning and disaster management planning.</p> <p>The SPP 1/03 guidelines currently outline how residual risk can be addressed in disaster management plans and emergency procedures developed by local governments. The review provides an opportunity to consider what changes need to be made to improve the integration of land use planning and disaster management planning, including whether any additional guidance is required and what, if any, elements of that guidance should become mandatory provisions under a revised SPP (for example, ensuring land use planning takes account of population growth and its impact on the efficient evacuation of people to a safe and secure area in an extreme event).</p>	Nil requirement from technical flood studies.	Not in scope.	Not in scope. No change.
8	Recommendation 11 —The review of SPP 1/03 should consider issues concerning coincident flooding including: the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies	a. Require audit of riverine flood studies by local and state government.	To be considered in revision of NDRP Project Plan.	Modify scope to include audit of inland flood studies.

No	Issue or interest	SPP 1/03 Review Requirement	Agreement at meeting of 7 Jan 2011	Current DERM NDRP Project Plan (23 March) 2011)
	<p>conducted by local governments; and the most appropriate planning instrument to address coincident flooding in the future.</p> <p>The AR&R publication provides national guidance for undertaking flood studies. The publication is currently being reviewed to include consideration of climate change and incorporate new data and technological advances in rainfall/runoff assessment. This review is due for completion in 2014. One component of the AR&R review includes examining the interaction of coastal processes and severe weather events and should result in guidelines for incorporating the joint effects of flood flows from storm rainfall and elevated ocean levels into flooding predictions (coincident flooding). Elevated ocean levels caused by the storm (storm surge) as well as those caused by climate change (sea level rise) will be considered. The Department of Environment and Resource Management has been allocated National Disaster Resilience Program funding to examine the impacts of coincident flooding in Queensland. The results of this research should be considered as part of the review of SPP 1/03 to determine how this issue should be addressed in Queensland's land use and disaster planning frameworks. National guidance on coincident flooding is expected to be provided from the AR&R review in 2014.</p>			
9	<p>Recommendation 12—Working through the national Building Ministers' Forum (BMF) and the Australian Building Codes Board (ABCB) to support the development of a national code for the design and construction of new building work in areas designated as food prone in local planning schemes</p> <p>Queensland is represented at the BMF by the Minister for Infrastructure and Planning.</p> <p>In 2009, the Minister sought recognition at the forum of the</p>	<p>Nil requirement from technical flood studies.</p>	<p>Not in scope.</p>	<p>Not in scope. No change.</p>

No	Issue or interest	SPP 1/03 Review Requirement	Agreement at meeting of 7 Jan 2011	Current DERM NDRP Project Plan (23 March 2011)
	<p>significant impact of flooding on buildings in Australia, the current lack of national building codes to address this issue, and for the ABCB to develop a national code for building in flood prone areas for regulatory adoption by individual States and Territories. Subsequently, the ABCB has drafted a proposal to develop national design and construction requirements under the Building Code of Australia for new building work in designated areas vulnerable to flooding. Minimum requirements under the Building Code of Australia would include performance requirements and deemed-to satisfy provisions to minimise damage to buildings and building materials from flooding. The ABCB is expected to develop this new code by the end of 2012. This code would be referenced in Queensland under the <i>Building Act 1975</i> and, once developed, will specify the design and construction requirements that apply in Queensland for new building work in designated flood prone areas.</p>			

SPP 1/03 Review technical investigations (flood) based on recommendations of the Inland Flooding Study

6 April 2011

<i>IFS Recommendations</i>	<i>SPP 1/03 review requirement for technical investigations</i>
<p>Recommendation 1—Local governments should factor a 5 per cent increase in rainfall intensity per degree of global warming into the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood events recommended in SPP 1/03 for the location and design of new development.</p> <p>Recommendation 2—The following temperatures and timeframes should be used for the purposes of applying the climate change factor in Recommendation 1: 2°C by 2050 3°C by 2070, 4°C by 2100.</p> <p>Recommendation 3—The Queensland Government will review and update this climate change factor when a national position on how to factor climate change into flood studies is finalised as part of the current review of AR&R.</p> <p>Local governments should use the temperatures and timeframes outlined in Recommendation 2 when producing new flood maps. However, local governments may be able to use their existing flood maps to approximate future flood levels that incorporate the recommended climate change factor.</p> <p>This project acknowledges that the AR&R publication provides the nationally accepted methodologies for undertaking flood studies. However, the publication has not been updated for 23 years and does not consider the impacts of climate change. While the Australian Government is supporting a review of the AR&R publication, the outcomes of this review are not expected to be available before 2014. This project was therefore undertaken to meet the needs of local governments on how to consider climate change and better identify flood risks.</p> <p>Recommendation 5—The review of SPP 1/03 should consider the benefits of requiring a standard method for undertaking a flood study and determining a DFE.</p> <p>There is currently no requirement on local governments to use a standard calibrated engineering method for undertaking flood studies. Under the current SPP, local</p>	<p>a. Climate change factors from IFS to be incorporated into standard methodology for flood studies (Recommendation 5).</p>
<p>Recommendation 5—The review of SPP 1/03 should consider the benefits of requiring a standard method for undertaking a flood study and determining a DFE.</p> <p>There is currently no requirement on local governments to use a standard calibrated engineering method for undertaking flood studies. Under the current SPP, local</p>	<p>a. A standard flood study methodology compiled as a draft guideline to a future State Planning Instrument (SPI) that recognises the need for greater precision in high risk parts of catchments.</p>

IFS Recommendations	SPP 1/03 review requirement for technical investigations
<p>governments may elect instead to use, for example, historical flood data (including the lack of data) to determine their DFE. This discretion in how local governments assess their flood risk results in varying degrees of accuracy and predictive value of current and future flood hazards. Development of a standard method for flood studies which includes advice on the Queensland Government's endorsed climate change factors and takes account of different catchment characteristics (e.g. large rural catchments and highly developed urban catchments) would improve the consistency and accuracy of flood studies in Queensland. On this issue, the Project Board and advisory group members identified that New South Wales appears to have overcome issues of accuracy in the assessment of flood hazards by requiring uniform state-wide application of a standard method for flood studies.</p>	<p>b. The standard methodology / guideline should be completed in time for release of the Draft SPI (possibly Jun 2012) with a draft for policy makers by Jan 2012.</p> <p>c. The methodology should be cognisant of relevant national guidelines currently in preparation (SCARM, AR&R).</p> <p>d. The methodology should be cognisant of the current standard of flood studies in Queensland (see Recommendation 11)</p> <p>e. The methodology will need to include the following sources of flooding:</p> <ul style="list-style-type: none"> - riverine flooding - flash flooding - sheet flooding - sea level rise - coincident storm surge and riverine flooding (see Recommendation 11) - flooding from overflowing urban drainage - flooding that results from failure of mitigation structures (es. Levees) <p>f. The methodology should incorporate methods to define and communicating the <i>uncertainty</i> of flood model outputs (Confidence interval etc) for inclusion in risk assessments.</p> <p>The methodology does not need to extend to risk assessment (Recommendation 7)</p>
<p>Recommendation 6—The review of SPP 1/03 should consider whether there is a need to specify how frequently a flood study should be reviewed or updated.</p> <p>While SPP 1/03 requires that a flood study be undertaken for natural hazard</p>	<p>a. The standard methodology and guidelines (Recommendation 5) should also provide recommendations on a suitable update frequency and triggers for update.</p>

<p><i>IFS Recommendations</i></p>	<p><i>SPP 1/03 review requirement for technical investigations</i></p>
<p>management areas, there is currently no guidance on when local governments should review or update those studies. In practice, this means that local governments may be using flood studies that do not reflect recent development in the area and the impact of that development on potential flood risks. Therefore it is recommended that the review of SPP 1/03 identify appropriate triggers to guide when local governments need to review and/or update their flood studies, taking into consideration the likely cost impacts on local governments of increasing the frequency of undertaking flood studies. Triggers could include undertaking a planning scheme review (review hydraulic components) and updated AR&R advice (update hydrological components).</p>	
<p>Recommendation 9—The review of SPP 1/03 should consider the applicability of the recommended planning response for Gayndah (as per Recommendation 4) to other parts of Queensland.</p> <p>The recommended planning responses for Gayndah township should be considered for applicability in other local government areas and to establish if the policy options provide an appropriate planning response to direct new development to areas with lower levels of flood risk now and in the future under climate change. This should include consideration of the utility of incorporating draft flood overlay codes (modelled on the draft flood constraint code developed for Gayndah) in the Queensland Planning Provisions (QPPs). An assessment of the useability of the draft flood constraint code developed for Gayndah should form part of this broader consideration of state-wide applicability.</p>	<p>a. Testing of AEP / climate change relationships (introduced in the IFS) for other catchments</p>
<p>Recommendation 11—The review of SPP 1/03 should consider issues concerning coincident flooding including: the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies conducted by local governments; and the most appropriate planning instrument to address coincident flooding in the future.</p> <p>The AR&R publication provides national guidance for undertaking flood studies. The publication is currently being reviewed to include consideration of climate change and incorporate new data and technological advances in rainfall/runoff assessment. This review is due for completion in 2014. One component of the AR&R review includes examining the interaction of coastal processes and severe weather events and should</p>	<p>a. Research into the potential impacts of coincident flooding</p> <p>b. A standard methodology for considering coincident flooding should be included in the standard methodology (Recommendation 5).</p> <p>c. An audit of flood studies (including riverine, flash and coincident flooding) in Queensland by local and state governments</p> <p>d. The audit should also be extended to include a gap analysis that identifies data and modelling requirements needed to</p>

<i>IFS Recommendations</i>	<p>SPP 1/03 review requirement for technical investigations</p> <p>raise flood studies to the standard methodology described against recommendation 5.</p>
<p>result in guidelines for incorporating the joint effects of flood flows from storm rainfall and elevated ocean levels into flooding predictions (coincident flooding). Elevated ocean levels caused by the storm (storm surge) as well as those caused by climate change (sea level rise) will be considered. The Department of Environment and Resource Management has been allocated National Disaster Resilience Program funding to examine the impacts of coincident flooding in Queensland. The results of this research should be considered as part of the review of SPP 1/03 to determine how this issue should be addressed in Queensland's land use and disaster planning frameworks. National guidance on coincident flooding is expected to be provided from the AR&R review in 2014.</p>	

IFS recommendations not in scope for SPP 1-03 Review technical investigations (flood)

<p>Recommendation 4—That North Burnett Regional Council consider the two implementation options identified in the paper Recommended Policy Options for Incorporating Climate Change into the Flood Risk Management Framework in Gayndah and implement its preferred approach in its planning scheme.</p>	
<p>Recommendation 7—The review of SPP 1/03 should develop criteria that outline the circumstances where a DFE higher or lower than the 1 per cent AEP (Q100) is appropriate for residential land use planning.</p> <p>SPP 1/03 currently requires local governments to determine a DFE to set limits for land use and development in any floodplain area. SPP 1/03 specifies the 1 per cent AEP (Q100) as the preferred DFE for residential land use planning. SPP 1/03 guidelines indicate that the residual risk (the risk of a flood exceeding the DFE) should be addressed in local government counter disaster plans and emergency procedures. However, there are currently no criteria to determine when it may be appropriate for a council to use another DFE (i.e. above or below the 1 per cent AEP or Q100). In practice this has led to local governments adopting varying flood levels to constrain development without reference to any consistent criteria. The review of SPP 1/03 should develop clear and transparent criteria for use by local governments and referral agencies on the circumstances where a DFE above or below the 1 per cent AEP (Q100) is appropriate.</p>	
<p>Recommendation 8—The review of SPP 1/03 should clarify what components of the SPP are compulsory and clarify what additional guidance local governments may need to meet those obligations.</p> <p>The review provides a useful opportunity to clarify the core components of what local governments must do to assess and manage their flood risk, as well as provide more detailed guidance on how local governments should meet those obligations (as per recommendations 1 and 2). This would help to address current inconsistencies in how local governments interpret and implement the SPP. More generally, the review provides an opportunity to provide clearer</p>	

<p>guidance to local governments on core requirements and standards, as well as those matters on which they continue to have discretion. This could include guidance on how the revised SPP should be reflected in statutory regional plans.</p>	<p>Recommendation 10—The review of SPP 1/03 should consider how to improve the integration of land use planning and disaster management planning. The SPP 1/03 guidelines currently outline how residual risk can be addressed in disaster management plans and emergency procedures developed by local governments. The review provides an opportunity to consider what changes need to be made to improve the integration of land use planning and disaster management planning, including whether any additional guidance is required and what, if any, elements of that guidance should become mandatory provisions under a revised SPP (for example, ensuring land use planning takes account of population growth and its impact on the efficient evacuation of people to a safe and secure area in an extreme event).</p>	<p>Recommendation 12—Working through the national Building Ministers' Forum (BMF) and the Australian Building Codes Board (ABCB) to support the development of a national code for the design and construction of new building work in areas designated as flood prone in local planning schemes Queensland is represented at the BMF by the Minister for Infrastructure and Planning.</p> <p>In 2009, the Minister sought recognition at the forum of the significant impact of flooding on buildings in Australia, the current lack of national building codes to address this issue, and for the ABCB to develop a national code for building in flood prone areas for regulatory adoption by individual States and Territories. Subsequently, the ABCB has drafted a proposal to develop national design and construction requirements under the Building Code of Australia for new building work in designated areas vulnerable to flooding. Minimum requirements under the Building Code of Australia would include performance requirements and deemed-to satisfy provisions to minimise damage to buildings and building materials from flooding. The ABCB is expected to develop this new code by the end of 2012. This code would be referenced in Queensland under the <i>Building Act 1975</i> and, once developed, will specify the design and construction requirements that apply in Queensland for new building work in designated flood prone areas.</p>
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SPP 1/03 Review technical investigations (flood) based on recommendations of the Inland Flooding Study

6 April 2011

<i>IFS Recommendations</i>	<i>SPP 1/03 review requirement for technical investigations</i>
<p>Recommendation 1—Local governments should factor a 5 per cent increase in rainfall intensity per degree of global warming into the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood events recommended in SPP 1/03 for the location and design of new development.</p> <p>Recommendation 2—The following temperatures and timeframes should be used for the purposes of applying the climate change factor in Recommendation 1: 2°C by 2050 3°C by 2070, 4°C by 2100.</p> <p>Recommendation 3—The Queensland Government will review and update this climate change factor when a national position on how to factor climate change into flood studies is finalised as part of the current review of AR&R.</p> <p>Local governments should use the temperatures and timeframes outlined in Recommendation 2 when producing new flood maps. However, local governments may be able to use their existing flood maps to approximate future flood levels that incorporate the recommended climate change factor.</p> <p>This project acknowledges that the AR&R publication provides the nationally accepted methodologies for undertaking flood studies. However, the publication has not been updated for 23 years and does not consider the impacts of climate change. While the Australian Government is supporting a review of the AR&R publication, the outcomes of this review are not expected to be available before 2014. This project was therefore undertaken to meet the needs of local governments on how to consider climate change and better identify flood risks.</p>	<p>a. Climate change factors from IFS to be incorporated into standard methodology for flood studies (Recommendation 5).</p>
<p>Recommendation 5—The review of SPP 1/03 should consider the benefits of requiring a standard method for undertaking a flood study and determining a DFE.</p> <p>There is currently no requirement on local governments to use a standard calibrated engineering method for undertaking flood studies. Under the current SPP, local</p>	<p>a. A standard flood study methodology compiled as a draft guideline to a future State Planning Instrument (SPI) that recognises the need for greater precision in high risk parts of catchments.</p>

<p><i>IFS Recommendations</i></p> <p>governments may elect instead to use, for example, historical flood data (including the lack of data) to determine their DFE. This discretion in how local governments assess their flood risk results in varying degrees of accuracy and predictive value of current and future flood hazards. Development of a standard method for flood studies which includes advice on the Queensland Government's endorsed climate change factors and takes account of different catchment characteristics (e.g. large rural catchments and highly developed urban catchments) would improve the consistency and accuracy of flood studies in Queensland. On this issue, the Project Board and advisory group members identified that New South Wales appears to have overcome issues of accuracy in the assessment of flood hazards by requiring uniform state-wide application of a standard method for flood studies.</p>	<p><i>SPP 1/03 review requirement for technical investigations</i></p>
	<p>b. The standard methodology / guideline should be completed in time for release of the Draft SPI (possibly Jun 2012) with a draft for policy makers by Jan 2012.</p> <p>c. The methodology should be cognisant of relevant national guidelines currently in preparation (SCARM, AR&R).</p> <p>d. The methodology should be cognisant of the current standard of flood studies in Queensland (see Recommendation 11)</p> <p>e. The methodology will need to include the following sources of flooding:</p> <ul style="list-style-type: none"> - riverine flooding - flash flooding - sheet flooding - sea level rise - coincident storm surge and riverine flooding (see Recommendation 11) - flooding from overflowing urban drainage - flooding that results from failure of mitigation structures (es. Levees) <p>f. The methodology should incorporate methods to define and communicating the <i>uncertainty</i> of flood model outputs (Confidence interval etc) for inclusion in risk assessments.</p> <p>The methodology does not need to extend to risk assessment (Recommendation 7)</p>
<p>Recommendation 6—The review of SPP 1/03 should consider whether there is a need to specify how frequently a flood study should be reviewed or updated.</p> <p>While SPP 1/03 requires that a flood study be undertaken for natural hazard</p>	<p>a. The standard methodology and guidelines (Recommendation 5) should also provide recommendations on a suitable update frequency and triggers for update.</p>

<p><i>IFS Recommendations</i></p>	<p><i>SPP 1/03 review requirement for technical investigations</i></p>
<p>management areas, there is currently no guidance on when local governments should review or update those studies. In practice, this means that local governments may be using flood studies that do not reflect recent development in the area and the impact of that development on potential flood risks. Therefore it is recommended that the review of SPP 1/03 identify appropriate triggers to guide when local governments need to review and/or update their flood studies, taking into consideration the likely cost impacts on local governments of increasing the frequency of undertaking flood studies. Triggers could include undertaking a planning scheme review (review hydraulic components) and updated AR&R advice (update hydrological components).</p>	
<p>Recommendation 9—The review of SPP 1/03 should consider the applicability of the recommended planning response for Gayndah (as per Recommendation 4) to other parts of Queensland.</p> <p>The recommended planning responses for Gayndah township should be considered for applicability in other local government areas and to establish if the policy options provide an appropriate planning response to direct new development to areas with lower levels of flood risk now and in the future under climate change. This should include consideration of the utility of incorporating draft flood overlay codes (modelled on the draft flood constraint code developed for Gayndah) in the Queensland Planning Provisions (QPPs). An assessment of the useability of the draft flood constraint code developed for Gayndah should form part of this broader consideration of state-wide applicability.</p>	<p>a. Testing of AEP / climate change relationships (introduced in the IFS) for other catchments</p>
<p>Recommendation 11—The review of SPP 1/03 should consider issues concerning coincident flooding including: the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies conducted by local governments; and the most appropriate planning instrument to address coincident flooding in the future.</p> <p>The AR&R publication provides national guidance for undertaking flood studies. The publication is currently being reviewed to include consideration of climate change and incorporate new data and technological advances in rainfall/runoff assessment. This review is due for completion in 2014. One component of the AR&R review includes examining the interaction of coastal processes and severe weather events and should</p>	<p>a. Research into the potential impacts of coincident flooding</p> <p>b. A standard methodology for considering coincident flooding should be included in the standard methodology (Recommendation 5).</p> <p>c. An audit of flood studies (including riverine, flash and coincident flooding) in Queensland by local and state governments</p> <p>d. The audit should also be extended to include a gap analysis that identifies data and modelling requirements needed to</p>

<p>IFS Recommendations</p>	<p>result in guidelines for incorporating the joint effects of flood flows from storm rainfall and elevated ocean levels into flooding predictions (coincident flooding). Elevated ocean levels caused by the storm (storm surge) as well as those caused by climate change (sea level rise) will be considered. The Department of Environment and Resource Management has been allocated National Disaster Resilience Program funding to examine the impacts of coincident flooding in Queensland. The results of this research should be considered as part of the review of SPP 1/03 to determine how this issue should be addressed in Queensland's land use and disaster planning frameworks. National guidance on coincident flooding is expected to be provided from the AR&R review in 2014.</p>
	<p>SPP 1/03 review requirement for technical investigations</p> <p>raise flood studies to the standard methodology described against recommendation 5.</p>

IFS recommendations not in scope for SPP 1-03 Review technical investigations (flood)

<p>Recommendation 4—That North Burnett Regional Council consider the two implementation options identified in the paper Recommended Policy Options for Incorporating Climate Change into the Flood Risk Management Framework in Gayndah and implement its preferred approach in its planning scheme.</p>	<p>Recommendation 7—The review of SPP 1/03 should develop criteria that outline the circumstances where a DFE higher or lower than the 1 per cent AEP (Q100) is appropriate for residential land use planning.</p> <p>SPP 1/03 currently requires local governments to determine a DFE to set limits for land use and development in any floodplain area. SPP 1/03 specifies the 1 per cent AEP (Q100) as the preferred DFE for residential land use planning. SPP 1/03 guidelines indicate that the residual risk (the risk of a flood exceeding the DFE) should be addressed in local government counter disaster plans and emergency procedures. However, there are currently no criteria to determine when it may be appropriate for a council to use another DFE (i.e. above or below the 1 per cent AEP or Q100). In practice this has led to local governments adopting varying flood levels to constrain development without reference to any consistent criteria. The review of SPP 1/03 should develop clear and transparent criteria for use by local governments and referral agencies on the circumstances where a DFE above or below the 1 per cent AEP (Q100) is appropriate.</p>
<p>Recommendation 8—The review of SPP 1/03 should clarify what components of the SPP are compulsory and clarify what additional guidance local governments may need to meet those obligations.</p> <p>The review provides a useful opportunity to clarify the core components of what local governments must do to assess and manage their flood risk, as well as provide more detailed guidance on how local governments should meet those obligations (as per recommendations 1 and 2). This would help to address current inconsistencies in how local governments interpret and implement the SPP. More generally, the review provides an opportunity to provide clearer</p>	

<p>guidance to local governments on core requirements and standards, as well as those matters on which they continue to have discretion. This could include guidance on how the revised SPP should be reflected in statutory regional plans.</p>	<p>Recommendation 10—The review of SPP 1/03 should consider how to improve the integration of land use planning and disaster management planning. The SPP 1/03 guidelines currently outline how residual risk can be addressed in disaster management plans and emergency procedures developed by local governments. The review provides an opportunity to consider what changes need to be made to improve the integration of land use planning and disaster management planning, including whether any additional guidance is required and what, if any, elements of that guidance should become mandatory provisions under a revised SPP (for example, ensuring land use planning takes account of population growth and its impact on the efficient evacuation of people to a safe and secure area in an extreme event).</p>
<p>Recommendation 12—Working through the national Building Ministers' Forum (BMF) and the Australian Building Codes Board (ABCB) to support the development of a national code for the design and construction of new building work in areas designated as flood prone in local planning schemes Queensland is represented at the BMF by the Minister for Infrastructure and Planning.</p> <p>In 2009, the Minister sought recognition at the forum of the significant impact of flooding on buildings in Australia, the current lack of national building codes to address this issue, and for the ABCB to develop a national code for building in flood prone areas for regulatory adoption by individual States and Territories. Subsequently, the ABCB has drafted a proposal to develop national design and construction requirements under the Building Code of Australia for new building work in designated areas vulnerable to flooding. Minimum requirements under the Building Code of Australia would include performance requirements and deemed-to satisfy provisions to minimise damage to buildings and building materials from flooding. The ABCB is expected to develop this new code by the end of 2012. This code would be referenced in Queensland under the <i>Building Act 1975</i> and, once developed, will specify the design and construction requirements that apply in Queensland for new building work in designated flood prone areas.</p>	

National Disaster Resilience Program – Queensland

Coincident Flooding in Queensland Project Plan

Prepared by:


Queensland Climate Change Centre of Excellence

Department of Environment and Resource Management

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Definitions

AHD	Australian Height Datum
BOM	Bureau of Meteorology
COTS	Commercial Off-the-Shelf
CRCSI	Cooperative Research Centre for Spatial Information
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSW	Catalogue Service - Web
DCCEE	(Commonwealth) Department of Climate Change and Energy Efficiency
DCS	Department of Community Safety
DEEDI	Department of Employment, Economic Development and Innovation
DEM	Digital Elevation Model
DERM	Department of Environment and Resource Management
DIP	Department of Infrastructure and Planning
GA	Geoscience Australia
GIS	Geographic Information System
HAT	Highest Astronomical Tide
IPCC	Intergovernmental Panel on Climate Change
ITS	Information Technology Services {within DERM}
LGA	Local Government Area
LIDAR	Light Detection and Ranging – Airborne Laser Sensor
NDRP	National Disaster Resilience Program
OCC	Office of Climate Change
QCCCE	Queensland Climate Change Centre for Excellence
SIG	DERM's Spatial Information Group {within DERM}
SPP	State Planning Policy
UDEM	Urban Digital Elevation Model
WOG	Whole of Government

1 Executive Summary

This study will investigate the significance of the risk from the coincident occurrence of riverine flooding and storm tide inundation events in coastal areas of Queensland. The study is aligned with the ClimateQ Improved Coastal Mapping for Queensland Climate Change Responses (Improved Coastal Mapping) project lead by the Department of Environment and Resource Management (DERM) Office of Climate Change (OCC) to deliver precise mapping of potential climate change impacts. The results of this study will be incorporated into an interactive mapping tool which will be made available across government and to the community in 2011/2012. This will assist communities to understand the impacts of climate change and how their community may be affected.

The project proposal was established in partnership with Emergency Management Queensland (EMQ) to provide more detailed scientific advice on the affect of climate change on coincident flooding in Queensland to inform disaster planning and extend the current coastal evacuation zoning project. Detailed coincident flooding mapping will utilise the coastal Digital Elevation Model (DEM) and interactive mapping delivered by ClimateQ.

Consequences of climate change relevant to this plan include:

- Increased frequency and intensity of tropical storms
- Increased rainfall intensity with increasing temperature
- Increased sea levels.

The objectives of the project are to:

- Identify coastal areas and associated catchments likely to be at increased risk from coincident flooding
- Determine the implications of climate change on the combination of riverine and tidal storm-surge flood events
- Inform disaster management response, State Government policy and planning and climate change adaptation strategies.

The project benefits are:

- Improved understanding of the relative importance of coincident flooding in Queensland compared with riverine and coastal flooding
- Clearer characterisation of the types of catchments and coastal areas where coincident flooding may be significant
- Improved understanding on the relationship between climate change and coincident flooding in Queensland
- Improved tools for disaster planning and response.

This project will assist the Queensland Government in meeting its strategic objective to provide environmentally sustainable solutions for Queensland's future by informing sustainable development. This will be enabled through assisting business and industry plan to achieve better environmental performance as sea levels rise and the risk of coincident flooding increases; and build community knowledge and participation about the impacts of climate change on coastal communities. Outputs from the project will be in the form of a project report and any coincident flooding assessments performed with any associated GIS shape files.

OCC through the Queensland Climate Change Centre of Excellence (QCCCE) is taking urgent action to prepare detailed mapping of coastal hazards to underpin the Queensland Coastal Plan; support the regional planning processes coordinated by the Department of Infrastructure and Planning (DIP); and provide a suitable baseline against which to monitor the longer-term effects of rising sea levels and underpin future studies.

QCCCE is committed to providing project governance and control to maximise value for money returns on investment, optimum risk management and quality assurance. The core project team will comprise a project manager with 2 subordinate positions, responsible for performing the main project activities, within budget and schedule to appropriate quality standards. The project team will use external consultants, contractors and partners as necessary.

The allocation of funding for this project extends until 2012.

2 Introduction

The National Disaster Resilience Program (NDRP) is a four year grant program “to reduce Queensland communities’ vulnerability to natural hazards by supporting regional councils and other stakeholders to build community resilience.” In December 2010, QCCCE received funding over two years to complete a coincident flooding study. The study is aligned with the ClimateQ initiative “Improved Coastal Mapping for Queensland Climate Change Responses” which will deliver improved mapping of climate change impacts using a coastal DEM based on LiDAR gathered in 2010 and scheduled to be complete by September 2011. The coastal DEM will be an important tool in estimating the potential significance of coincident flooding across Queensland.

The Department of Community Safety (DCS) is embarking on a new round of inland LiDAR acquisition to establish a DEM to inform inland flooding mapping for emergency purposes. DCS has expressed an interest in better understanding the likelihood and consequence of potential coincident flooding in Queensland.

The Queensland Government has made a commitment to taking action to reduce the impact of climate change and flooding is one of Queensland’s highest natural hazard risks. Climate change is likely to have an impact on the following flooding mechanisms:

1. Climate change is expected to modify the frequency, intensity and duration of rainfall
2. Climate change is expected to result in significant sea level rise
3. As the intensity of storms increases with climate change, the likelihood of storm-tide inundation events in Queensland will also increase.

Understanding the impact of the combined occurrence of these events on flooding levels in Queensland is a major focus for this study. This research will enable State Government in partnership with Local Governments to better understand the significance of coincident flooding and inform the development of appropriate policy and planning instruments to mitigate any climate change risk.

Coincident Flooding and SPP 1/03

The inland flooding study 2010 – “Increasing Queensland’s resilience to inland flooding in a changing climate” – included a set of recommendations to be considered as part of the review of State Planning Policy (SPP) 1/03. The inland flooding study was a joint project of DERM, DIP and the Local Government Association of Queensland.

It has been requested that, where possible, this study should take into account the technical recommendations within its scope. Consequently, this study will incorporate and employ the scientific recommendations of the inland flooding study by implicitly using the figures from recommendations 1, 2 and 3. In addition, when preparing the project outputs, this study will recommend a standard method for QLD coincident flood studies to be considered when determining local Defined Flood Events (DFEs). The results of this coincident flooding study will be considered as part of the review of SPP 1/03 and therefore explicitly supports recommendation 11.

2.1 Scope

This project plan details the major products, activities and resources required to meet the time, cost, scope and quality targets for the coincident flooding project. The emphasis of the project is coincident flooding as opposed to either general riverine flooding or inundation of coastal areas by the sea.

Interpretation of coincident flooding

For the purpose of this project, coincident flooding is interpreted as the joint probability of flooding from one or more riverine events occurring simultaneously in the same location as inundation from storm surge and the two processes having a combined effect.

Other interpretations of coincident flooding are excluded such as flooding due to combinations of different intensities of rainfall in different parts of a catchment or river systems; or flooding at different times in the same location owing to rainfall and storm surge, even if they are dependent mechanisms (i.e. created by the same storm).

2.1.1 In Scope

The scope includes a review element, which will collate significant reports and research, and a number of subsequent analysis elements:

- Audit of existing data and research
- Evaluation of risks posed to Queensland at a high level from studies of synoptic weather patterns, catchment characteristics and climate change variables
- High-level vulnerability mapping
- Recommend of a standard method for undertaking a coincident flood study to feed into standard method recommendations for determining a DFE for inclusion in the SPP1/03 review (based on recommendation 5 from the Inland Flooding Study)

In addition to the major products and activities, the project team will take a broader view of its responsibilities and will:

- Take into account future or ongoing studies
- Investigate options to capitalise upon existing work or collaborate with other agencies to add value.

2.1.2 Out of Scope

During the initiation stage, the coincident flooding study considered what contribution, if any could be made to support the recommendations of the Inland Flooding Study:

- Recommendations 1, 2, 3 & 4 will be used to provide input conditions. Recommendation 5 is in scope
- Recommendation 6 – considers development triggers for undertaking extra local flooding studies and cost impacts. The coincident flooding study will exclude development triggers and costs but may be able to provide some recommendations concerning the time interval between flood studies bearing in mind the temporal change in drivers such as sea level rise and extent of storm surges
- Recommendations 7 & 8 - Out of scope
- Inland Flooding Study recommendation 9 – considers flood constraint codes and applicability beyond Gayndah. The majority of the recommendation is out of scope but the study may be able to exam the general principle of applying existing flood maps for more extreme events to approximate future flood levels
- Recommendation 10 – Out of scope (integration of land use and disaster management planning)
- Inland Flooding Study recommendation 11 - the outputs from this study will support recommendation 11 but will not include details on the most appropriate planning instruments to address coincident flooding
- Inland Flooding Study recommendation 12 – Out of scope (building standards).

2.2 Plan Prerequisites

The following aspects are fundamental to the plan and must remain in place for the plan to succeed:

- Continuing funding from NDRP
- A continuing requirement for the outputs and benefits of the study.

2.3 External Dependencies

The following dependencies exist that may affect the execution of the plan:

- Australian Rainfall and Runoff (AR&R) Project 18 will review the methodology for examining the impact of climate change on coincident flooding. Ideally, the Queensland coincident flooding project would adopt this methodology however the revision of this section of AR&R is due in 2012 and therefore unlikely to be completed in time to be fully incorporated.

- New South Wales has adopted a uniform state-wide application of a standard approach to coincident flood studies. This project will aim to review and adopt a similar approach. The project therefore has a dependency on access to that information.

2.4 Planning Assumptions

The following assumptions have been made in the preparation of this plan:

1. QCCCE can access sufficient resources to undertake the project
2. QCCCE is able to provide its contribution (\$150,000) to the project funding either in kind or in cash
3. Inputs from related studies will become available in time to inform this study
4. Tasks 2 and 3 (section 5.1.2) can be performed in parallel
5. Technical staff can be reused elsewhere on revenue generating or funded work when not working on this project
6. Agencies beyond control of this project can provide any necessary input or action within the necessary timeframe
7. No additional tasks will be placed-on the project
8. The initial technical steering committee meeting does not identify significant additional issues.

In the event that the assumptions are not realised, the following contingency situations have been considered:

1. The project can use external contractors to provide early inputs and the scope reviewed to ensure it can be met within budget
2. TBD
3. Phase the project timelines where possible and work closely with other studies and agencies to gain early advice and outputs from the other projects
4. Co-ordinate tasks 2 and 3 closely to minimise schedule risk
5. There is probably sufficient capacity to absorb one junior staff position full time on the project
6. See 3, above
7. Any additional tasks or issues will be reviewed and the plan reissued as necessary. If the project becomes unviable it will be stopped
8. See 7, above.

2.5 Lessons Incorporated

1. A technical steering committee will inform and advise progress
2. Clear, uninhibited communications are an important factor in the success of a project. All stakeholders should be open to approach and prepared to discuss issues concerning the project informally, rather than rely on meetings to air lower level issues
3. Meetings should have a clearly defined purpose and scope.

2.6 Monitoring and Control

The work will be monitored through regular progress reporting to QCCCE and to NDRP; frequent formal and informal team meetings and meetings with both senior users and suppliers. Control will be exercised through quality management, configuration management and formal project controls such as work packages, specifications and service level agreements. The project organisation and governance are outlined in section 4.

2.7 Budgets

The project is funded from NDRP with additional work funded through collaboration to support ClimateQ improved coastal mapping objectives. QCCCE will manage a sum of \$300,000, provided by NDRP, over two years to meet the business objectives. The detailed breakdown of the budget and planned expenditure is given in section 5.3.

2.8 Tolerances

The project must be complete by the end date.

2.9 Product Descriptions

This project defines 'a product' as any measurable intermediate or final output. Therefore a product may not be a physical, tangible object such as a document, a map or a piece of equipment; instead a product may be the satisfactory and quality-checked accomplishment of a defined and measurable activity. In this way, quality and traceability are built into every step of the project.

The products are outlined in the breakdown structure in section 7. Each product is defined with objective quality criteria in place and may be devolved into lower-level products.

2.10 Schedule

The proposed project schedule is based on a start date of March 2011, continuing until December 2012. The baseline estimates of duration and milestones are based on stakeholder feedback and known project commitments.

Key drivers for this project are:

- Provide critical decision making tools as soon as possible.

A current snapshot of the schedule is given in section 8.

3 Aims and Objectives

State Planning and Policy (SPP) 1/03 requires climate change impacts to be considered when undertaking natural hazard assessments for development proposals. The AR&R review is currently underway to revise the National guidelines being used to provide technical advice for flood risk assessment. However, this project has a 3 – 4 year timeframe and the first stage will be to update the rainfall data that underpins the scientific assessment. Advice from the project leaders is that the revised methodology to deal with climate change is unlikely to be available for 2 more years.

A Queensland state government case study approach (Increasing Queensland's resilience to inland flooding in a changing climate) applied a range of methodologies to characterise flooding for Gayndah in the Burnett catchment. It is proposed to extend this approach and now incorporate the risks associated with the coincident occurrence of a storm tide inundation event and a riverine flooding event.

3.1 Aims

This project is a technical project, which draws on the technical expertise and experience of QCCCE. The project outputs may inform policy where appropriate but will predominantly provide planning tools centred around coincident flooding and climate change.

The aims of this project are to:

- Quantitatively or otherwise objectively describe the risk posed to Queensland as a whole from coincident flooding under the influence of climate change
- Promote the adoption of a common approach to coincident flooding studies within Queensland
- Identify areas particularly susceptible to coincident flooding in Queensland as sea level rises and storms become more intense
- Identify the synoptic conditions and patterns most likely to result in coincident flooding events.

3.2 Objectives

The project will:

- Complete an audit of local government authorities that have undertaken coincident flooding activities
- Determine the characteristics of the catchments that are vulnerable to coincident flood and identify the infrastructure that is exposed in locations on Queensland's coast
- Complete sensitivity analysis of the climate change variables that will impact on coincident flooding events to assess the increased exposure that Queensland coastal communities face from climate change
- Determine the current level of risk that Queensland is exposed to in relation to coincident flooding and determine which catchments are critical
- Recommend a standard approach for coincident flooding assessments
- If assessment is to go ahead with stage 2, develop detailed project plan for coincident flood modelling.

3.3 Outputs

The project outputs will be a final report and shape files for ingestion by EMQ and visual mapping produced using technology developed by the ICM project.

3.4 Outcomes

The project outcomes are:

- Improved understanding of climate change impacts on coincident flooding
- Improved mapping and decision making tools to plan for coincident flooding events in Queensland
- Greater interoperation and commonality between coincident flooding assessments performed by different parties in Queensland
- State government will benefit from this project through an increased confidence in the methodologies used by regional authorities to assess their flood risks in a changing climate.

- Any revised methodology will be of benefit in assessing the trade-offs between the planning decisions that need to be made now, versus the increased costs of emergency responses when these decisions do not factor in the risks from extreme weather events.
- Communities will benefit through development that minimises damage to property and critical infrastructure and lowers insurance costs.

4 Organisation

4.1 Project Governance

The coincident flooding project will be managed by QCCCE and where possible use existing resources. The project organisation is represented in Figure 1.

4.1.1 Sponsor

The sponsor is responsible for commissioning the project and defining the project-level budget. The sponsor is NDRP.

4.1.2 Project Board

This project does not require a project board. Reporting, auditing and payment will be processed through the NDRP reporting system.

4.1.3 Project Manager

The project manager is responsible for the day-to-day management of the project within the constraints set-out by the NDRP. The project manager's prime responsibility is to ensure that the project produces the required products in accordance with the time, cost, scope, risk and benefit performance goals. The project manager will undertake the activities of the project office such as include configuration management, administering quality reviews, maintaining the registers and records and liaising with all work package managers to gather actual data and forecasts.

4.1.4 Technical Steering Committee

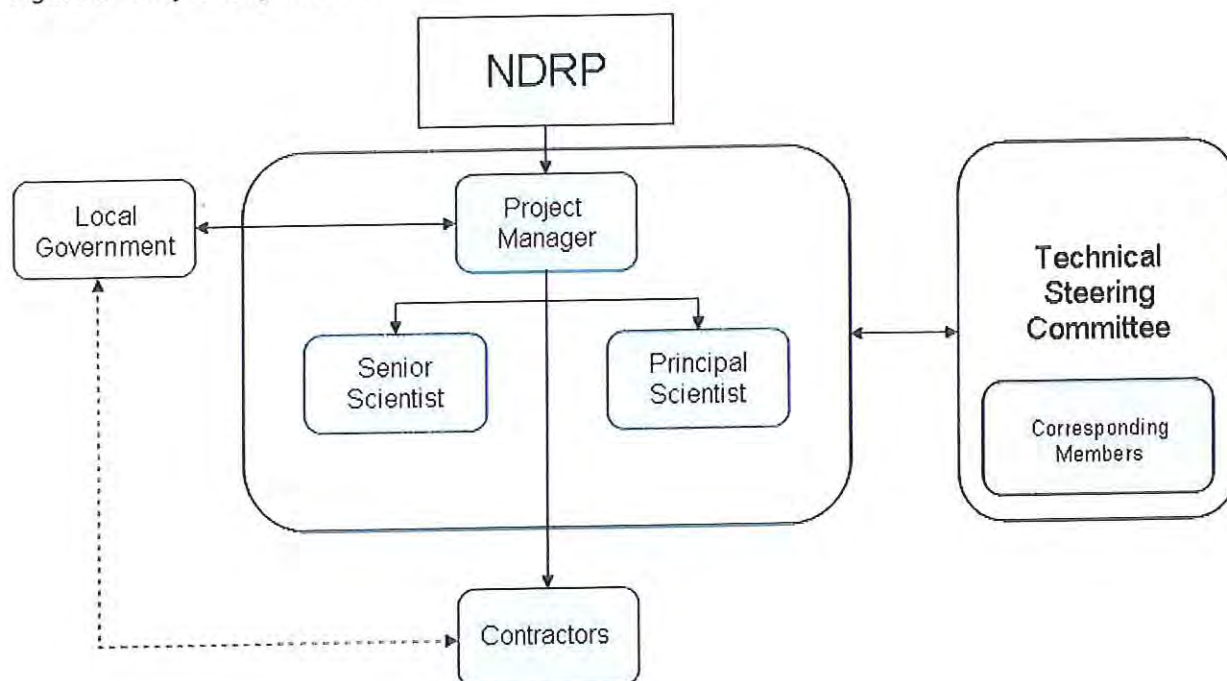
The study will be informed and lead by a technical steering committee which will provide direction as well as review and endorse the project outputs. The technical steering committee will offer technical advice to the project team, acting as an important resource for identifying wider issues concerning the project and recommending appropriate approaches to address them. As requirements change and details of ongoing studies emerge, the technical steering committee will provide advice on how to incorporate them into the project or modify the project objectives. As the project progresses the technical steering committee will review intermediate results and advise on how to progress further to best effect.

The following individuals have been approached to sit on the technical steering committee:

Team Member	Organisation	Title
	DERM, QCCCE	Senior Director, QCCCE
John Ruffini	DERM	Director, Water Science
	EMQ, DCS	Project Manager - SPP 1/03 Review
Michael Papageorgiou ¹	DIP	Executive Director, Planning Policy Division, Growth Management Queensland
	DECCW	Project Manager, Coincident Flooding
	TMR	Director, Hydraulics
	BoM	Queensland Hydrology Manager
	DERM, QCCCE	Manager Climate Science, QCCCE
	CSIRO	Research Scientist
	DERM, QCCCE	Chief Engineer, Coastal Unit, QCCCE

¹ Corresponding members

Figure 1 - Project Organisation



4.1.5 Coincident Flooding Project Team

The coincident flooding project team comprises a project manager (described above) and 2 principal scientist positions as shown in Figure 1. The project team will also call upon contractors to cover internal resource shortages or expertise and undertake specific packages of work such as detailed local coincident flooding assessments.

Since local governments already hold some coincident flooding assessments for their own areas, the team will consult with local authorities to build upon those resources, consider climate change factors and commission new assessments where appropriate. The internal roles are as follows:

Senior Scientist

This position is responsible for providing an overview of the current state of coincident flooding research. In particular this position will undertake the audit of existing projects and resources for coincident flooding across Queensland's coastal catchments during Stage 1.

The senior scientist will also be responsible for performing the analysis of the potential for coincident flooding events through studying the joint probabilities and will be informed by the outputs of the initial audit (above). In particular this position will undertake the analysis of the risk of coincident occurrence of riverine flooding and storm tide inundation events in Queensland during Stage 1.

Principal Scientist

This position is responsible for performing the study of synoptic weather patterns most likely to result in coincident flooding for specific catchments and the analysis of climate change variables that will impact upon the incidence of coincident flooding in a changing environment. This position will provide input and advice to the technical review of risk estimation methods in Stage 1.

5 Major Activities

The project has 2 major stages. Stage 1 is an audit of existing processes and research and characterises the threats in Queensland. Stage 2 will comprise detailed studies for areas highlighted in Stage 1.

5.1 Stage 1

5.1.1 Description

Assessment of the current significance of coincident flooding in Queensland particularly in relation to the potential to exceed existing 100 year flood and storm tide levels. Analysis of the potential for the coincident occurrence of riverine flooding and storm tide inundation events in Queensland and how the frequency of occurrence may change under climate change.

5.1.2 Activities

1. Audit of existing projects and resources for coincident flooding across Queensland's coastal catchments. This desk-based audit will provide the following baseline information:

- a. An account of existing coincident flooding projects, reports and papers both locally and internationally as well as coincident flooding assessments in Queensland.
- b. A technical review of existing methods for the estimation of the risk of coincident flooding, including joint probability and inter-variable dependence

Inter alia, activities 1a and 1b will provide the basis for a qualitative review of coincident flooding assessments across Queensland, detailing the underlying assumptions, data assessed and factors included. These findings will provide insights into how studies, albeit conducted differently, might be compared or combined and may also provide evidence for a preferred approach.

- c. A qualitative study to characterise the catchments most susceptible to coincident flooding and the conditions that can exacerbate those events; for example size, population and degree of development
- d. The synoptic weather types that produce the occurrence of coincident flood events in particular catchments
- e. The project team will produce a report detailing the findings and conclusions of the activities to date.

2. Analysis of the risk of the coincident occurrence of riverine flooding and storm tide inundation events in Queensland. Using the information and methods gathered in the audit, this task will broadly assess the current risk of coincident flooding across Queensland (i.e. frequency of events), specifically in relation to exceeding the 100 year flood and storm tide levels.

3. Analysis of the climate change variables that will impact on coincident flooding events. Building on the previous task, an analysis of the projected changes to the intensity, direction and behaviour of variables and drivers relevant to coincident events (e.g. cyclones, east coast lows) will be conducted to assess the increased exposure that Queensland coastal communities face from climate change.

4. Vulnerability mapping limited to identifying catchments. This task will provide a broad estimate of the Queensland coastal areas and associated catchments vulnerable to coincident flooding. The level of exposure will be a key determinant into the decision as to whether a more detailed assessment is required for areas vulnerable to coincident flooding in Queensland (i.e. whether Stage 2 proceeds).

5.2 Stage 2

5.2.1 Description

Modelling and recommendations to inform future coincident flood studies in Queensland. A recommendation of a standard coincident flooding assessment approach for adoption throughout Queensland to form an input to the review of SPP 1/03.

5.2.2 Activities

The stage two activities have two distinct outputs: The first output will be one or more policy recommendations; the other will be detailed modelling of specific catchments.

1. Policy recommendations:

- a. Prepare a recommendation for consideration in the SPP 1/03 review describing the underlying assumptions and methodology that could be established to perform coincident flooding analyses throughout Queensland, taking into account climate change factors. This might include the key drivers, the climate change inputs, the minimum data to be assessed, the process for combining input data and the boundaries – for example Q20 flood combined with a 100 year storm event and vice versa.
- b. Provide a recommendation regarding triggers to repeating coincident flooding studies in a catchment for example: Period between studies to account for changes in sea level or changes to average storm intensity, amount of new development since previous study or man-made changes to the water course.

2. Modelling.

- a. Using the Gayndah planning recommendations as a guide, model flooding in one or two catchments using the 0.5% AEP (Q200) and 0.2% AEP (Q500) flood levels. Compare these with flood models based on 2050 and 2100 climate change expectations.
- b. A detailed assessment of areas vulnerable to coincident flooding in Queensland, if the assessment in Stage 1 indicates that the level of risk from coincident flooding warrants more detailed work.

This element of the project will be a partnership approach with local governments. QCCCE will work with local government to undertake detailed coincident flood modelling and mapping. The Queensland DEM will be the underpinning bare earth model to which coincident flooding mapping is applied, to determine the extent of potential flooding. Key outputs are the identification of areas vulnerable to coincident flooding and detailed coincident flooding information to inform emergency response and regional planning activities.

5.3 Project Stage Summary

The project stages are outlined in Table 1.

Stage	Activity	Timeframe	Overview
1	March 2011 to December 2011		
	1a & 1c	March/April 2011	Audit of existing work and catchment characterisation <i>Skills: Water/hydrology/resource investigation</i>
	1b	March/April 2011	Technical review of existing methods for risk estimation <i>Skills: Joint probability/flooding</i>
	1d	April/May 2011	Study of synoptic weather types <i>Skills: Climate science/flooding/storm surge</i>
	Report	31 July 2011	Synthesis report detailing intermediate conclusions <i>Skills: Technical overview/editorial</i>
	2	August 2011 for 3-6 months	Analysis of risk within Queensland especially 100yr flood and storm tides scenarios <i>Skills: Flooding/storm surge/coincident flooding</i>
	3	August 2011 for 3-6 months	Analysis of climate change variables impacting coincident flooding. Scope to be agreed with Technical Committee <i>Skills: Climate science/coincident flooding</i>
	4	December 2011/January 2012	Identification of vulnerable catchments <i>Skills: Coincident flooding/GIS mapping</i>
2	January 2012 to December 2012		
	1a	January 2012	Recommendation for a state-wide coincident flooding assessment methodology <i>Skills: Report writing/quality/flooding/policy</i>
	1b	January 2012	Triggers to conducting a coincident flooding assessment update <i>Skills: Report writing/hydrology/flooding/policy</i>
	2a	Earliest January 2012	Comparison of Q200 flood level with 2030 climate change and Q500 with 2100 <i>Skills: Coincident flooding/GIS mapping</i>
	2b	Earliest January 2012	Detailed assessment of vulnerable areas as identified in Stage1 <i>Skills: Coincident flooding assessment</i>

Table 1 – Coincident Flooding in Queensland Project

6 Budget

6.1 Analysis of Costs

The costs in Table 2 for Stage 1 have been calculated based on PO3 and POS manpower assigned, with a management component.

Activity	Timeframe	Overview	Effort	Labour Cost
1.1a	Mar/Apr11	Audit of existing work	14d	\$3,750
1.1b	Mar/Apr 11	Technical review of existing methods for risk estimation	28d+3d	\$8,500
1.1c	Mar/Apr 11	Catchment characterisation	14d	\$3,750
1.1d	Apr/May 11	Study of synoptic weather types	28d	\$10,000
Report	Jul 11	Synthesis report detailing intermediate conclusions	14d	\$3,750
1.2	Aug 11 to Jan 12	Analysis of risk within Queensland especially 100yr flood and storm tides scenarios	3-6m	\$45,000
1.3	Aug 11 to Jan 12	Analysis of climate change variables impacting coincident flooding. Scope to be agreed with Technical Committee	3-6m	\$60,000
1.4	Dec 11/Jan 12	Identification of vulnerable catchments	28d	\$10,000
2.1a	Jan 12	Recommendation for a state-wide coincident flooding assessment methodology	28d	\$10,000
2.1b	Jan 12	Triggers to updating extant coincident flooding assessments	14d	\$3,750
2.2a	Jan/Feb 12	Comparison of current AEP flood levels and climate change coincident flooding predictions	56d	\$20,000
2.2b	Jan/Feb 12	Detailed assessment of vulnerable areas as identified in Stage1	TBD	Unknown
Ongoing		Management and overheads		\$17,850
Totals			Total	\$196,350

Table 2 - Summary of key project milestones and bottom-up cost

6.2 Stage 2 Provision

The scope and extent of Stage 2 will depend on the results of Stage 1. Value will be maximised by seeking partnerships with local authorities, however coincident flooding assessments will probably be performed by specialist contractors. The Stage 2 scope will be constrained by the remaining budget.

6.3 Availability, Utilisation and Risk

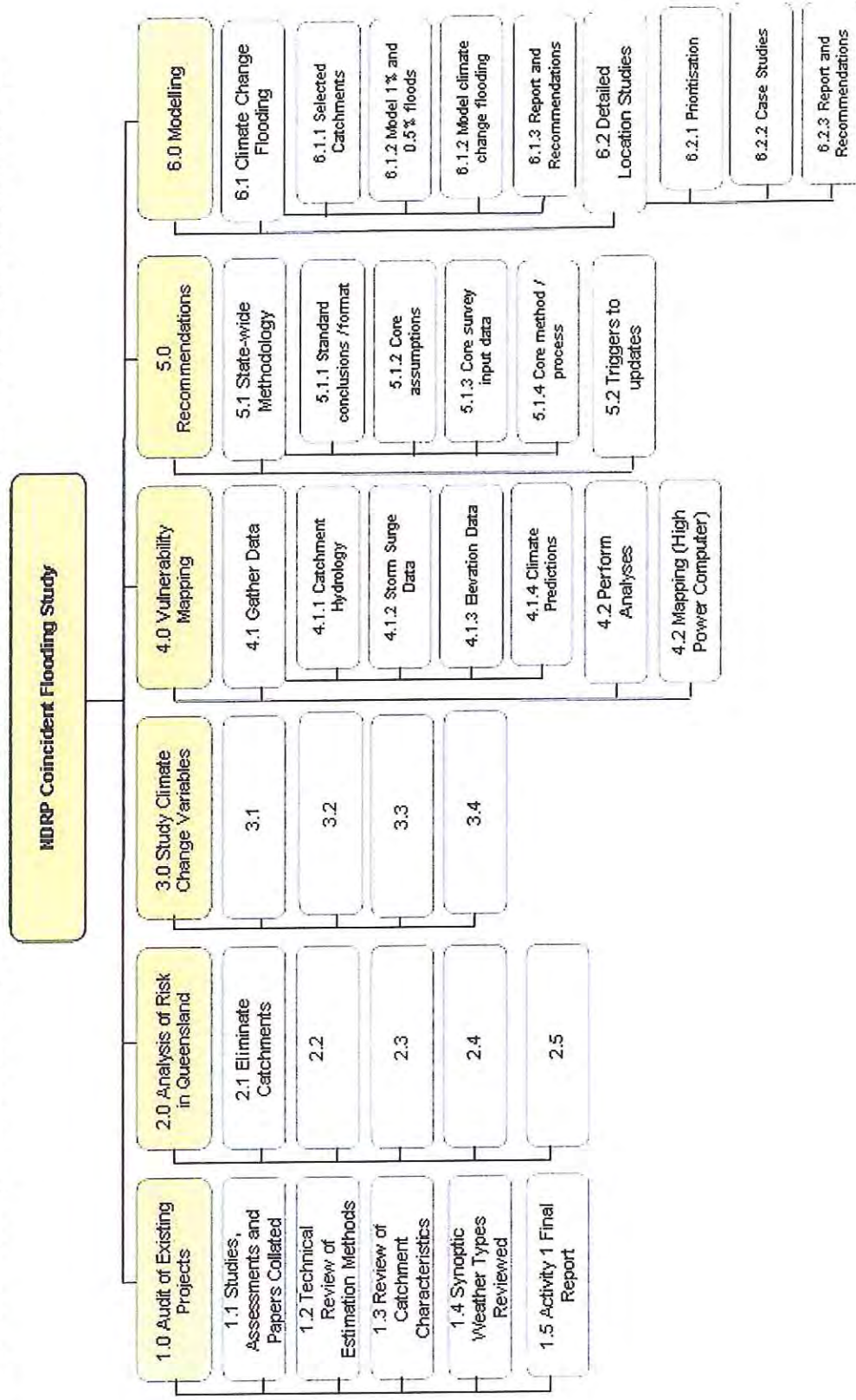
The forecast, above, demonstrates that both positions will be 100% utilised for the period from March 2011 until January 2012, assuming appropriate personnel are available. It is currently expected that a principal scientist will be available until mid 2011, thereafter the project may need to call upon contractors or consultants. This introduces substantial budget risk.

Allowing for a contractor rate of \$1000 per day increases the cost of undertaking either Task 1.2 or Task 1.3 to \$180,000. Therefore adequate risk budget must be allowed to cover this eventuality.

The cost of stage 1 may potentially increase from \$160,000 to \$250,000. This will have an impact on the scope of Stage 2.

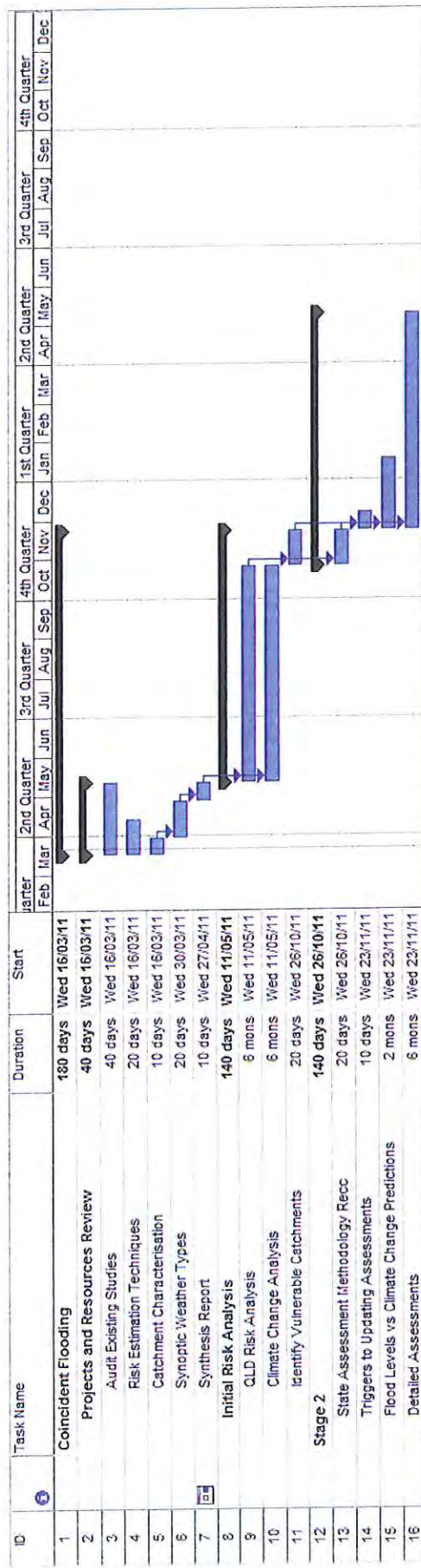
7 Product Breakdown Structure

The coincident flooding project is a technical project and will be managed to produce quality outputs within the approximate schedule boundaries.



8 Schedule

The schedule, below is an indicative guide to the expected start times and durations of activities. The project schedule is not a management tool since the project is output based not schedule based. The schedule will be updated with update of the project plan to provide a visual guide only.

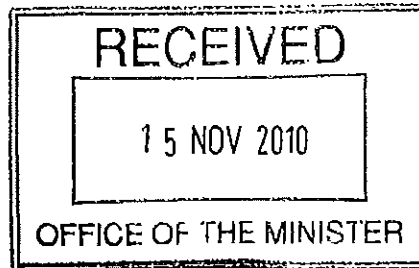


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Queensland
Government

Ref: CTS 20102/10

11 NOV 2010

The Hon. [REDACTED]
Minister for Police, Corrective Services and Emergency Services
PO Box 15195
CITY EAST QLD 4002

Dear Minister *Neil*

We are pleased to provide you with a copy of the joint Queensland Government and Local Government Association of Queensland (LGAQ) Inland Flood Study report which arose from the LGAQ's request for guidance on how councils should factor climate change into flood risk assessments.

The thoughtful and constructive participation of senior officers from the Department of Community Safety in this project through membership on the Project Board is greatly appreciated and has helped to provide practical tools for regional councils to better manage flood risks.

The report recommends a climate change factor of 5% increase in rainfall intensity per degree of global warming be incorporated into the 1% (Q100), 0.5% (Q200) and 0.2% (Q500) Annual Exceedance Probability (AEP) flood events recommended in State Planning Policy 1/03 *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (SPP 1/03). The following temperatures and planning horizons are also recommended for applying the climate change factor: 2°C by 2050, 3°C by 2070 and 4°C by 2100.

Using the climate change factor, the study also developed recommended policy options to incorporate climate change into the flood risk management frameworks for Gayndah township (the case study area) and identified broad findings for the review of SPP 1/03.

We would appreciate your department's consideration of the findings of this report in the review of SPP 1/03 and assessment of Natural Disaster Resilience Program (NDRP) funding applications.

The Inland Flood Study made a number of recommendations that relate to the review of SPP 1/03, and we would appreciate your consideration of the following recommendations as outlined in the report:

- the benefits of requiring a standard method for undertaking flood studies;
- identifying how frequently flood studies should be reviewed and/or updated;
- investigating the circumstances in which councils should be able to have a Defined Flood Event (DFE) that is higher or lower than the 1% AEP;
- clarifying the optional and mandatory components of SPP 1/03; and
- better integration of land use planning and disaster management planning.

The Hon. Stirling Hinchliffe MP
Minister for Infrastructure and Planning
Level 12
100 George Street, Brisbane
PO Box 15009, City East
Queensland 4002 Australia
Telephone +61 7 3224 4600
Facsimile +61 7 3224 4781

The Hon. Kate Jones MP
Minister for Climate Change and Sustainability
Level 13
400 George Street, Brisbane
GPO Box 2454, Brisbane
Queensland 4001 Australia
Telephone +61 7 3239 0844
Facsimile +61 7 3227 6309

We also ask that your department encourage councils to consider the climate change factor when applying for NDRP funding for flood studies.

We look forward to further collaborative work between our departments, particularly with regard to increasing the community's resilience to climate change.

If you have any questions about this project or its recommendations, please contact Ms Karen Touchie, Director, Office of Climate Change on telephone 3330 5868 or email at:

[Redacted]

Yours sincerely

[Redacted]

Stirling Hinchliffe MP

[Redacted]

Kate Jones MP



Hon Neil Roberts MP
Member for Nudgee



Queensland
Government

File No: (DES/02/0516/P7)
Ref No: (08701-2010)

Minister for Police, Corrective Services
and Emergency Services

16 DEC 2010

The Honourable Stirling Hinchliffe MP
Minister for Infrastructure and Planning
PO Box 15009
CITY EAST QLD 4002

Dear Minister

Thank you for your letter of 11 November 2010, regarding the joint Queensland Government and Local Government Association of Queensland (LGAQ) Inland Flood Study.

This has proven to be a useful project to highlight the potential impact of climate change on flooding, which is likely to have major ramifications for planning decisions in vulnerable communities across Queensland. I note the study's interim climate change factor for flood modelling will be reviewed and updated when a national position is finalised, as part of the review of the Australian Rainfall and Runoff (AR&R) publication by Engineers Australia, in approximately 2014.

I look forward to the implementation of the study findings through the review of *State Planning Policy 1/03: Mitigating the adverse impacts of flooding bushfires and landslides*.


As suggested, the Department of Community Safety will, in conjunction with the LGAQ, encourage councils to incorporate climate change factoring, in future applications for Natural Disaster Resilience Program funding.

Should you require further information, please contact Ms Corinne Mulholland, Senior Policy Advisor, on telephone number (07) 3239 0199.

Yours sincerely



**Minister for Police, Corrective Services
and Emergency Services**

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ABN 65 959 415 158



Hon Neil Roberts MP
Member for Nudgee



Queensland
Government

File No: (DES/02/0516/P7)
Ref No: (08701-2010)

Minister for Police, Corrective Services
and Emergency Services

16 DEC 2010

The Honourable Kate Jones MP
Minister for Climate Change and Sustainability
GPO Box 2454
Brisbane QLD 4001

Dear Minister

Thank you for your letter of 11 November 2010, regarding the joint Queensland Government and Local Government Association of Queensland Inland Flood Study.

This has proven to be a useful project to highlight the potential impact of climate change on flooding, which is likely to have major ramifications for planning decisions in vulnerable communities across Queensland. I note the study's interim climate change factor for flood modelling will be reviewed and updated when a national position is finalised, as part of the review of the Australian Rainfall and Runoff (AR&R) publication by Engineers Australia, in approximately 2014.

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Should you require further information, please contact Ms Corinne Mulholland, Senior Policy Advisor, on telephone number (07) 3239 0199.

Yours sincerely

Minister for Police, Corrective Services
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Department of Community Safety
State Planning Policy 1/03 Review

Inter-Departmental Committee (IDC) Meeting No 2

11:00am-12:00pm Wednesday 21 September 2011

Conference Room B1.24, Emergency Services Complex
Corner of Kedron Park and Park Roads, Kedron

Attendance:

[REDACTED] Executive Director, Policy & Legislative Reform (DCS) (Chair)
Michael Papageorgiou, Executive Director, Planning Policy (DIP)
[REDACTED] Director, Planning and Local Government (DPC)
[REDACTED] Director, Integrated Planning, Strategy and Policy (DERM)
[REDACTED] Director (Planning Legislation Unit) (TMR)
[REDACTED] Director - Housing and Property Portfolio, Project Services (DPW)
[REDACTED] Manager, Project Development and Facilitation (DEEDI)
[REDACTED] Director, Land Use Planning (QldRA)
John Ruffini, Director Water Planning Sciences (DERM)
[REDACTED] Director, Queensland Climate Change Centre of Excellence (DERM)
[REDACTED] Manager Strategic Initiatives, Queensland Climate Change Centre of Excellence (DERM)
[REDACTED] Director SPP 1/03 Review, Policy & Legislative Reform (DCS)
[REDACTED] Project Manager SPP 1/03 Review, Policy & Legislative Reform (DCS)

DRAFT AGENDA

1. Introduction - DCS [REDACTED]
2. Submissions received on SPP 1/3 Review – DCS ([REDACTED])
3. Interim report of the Queensland Floods Commission of Inquiry – DCS [REDACTED]
4. Current SPP Issues: Timing and approval of flood studies – DCS ([REDACTED])
5. *Planning for stronger more resilient floodplains (Part 2)* – Queensland Reconstruction Authority (Kate Isles)
6. Proposed technical studies – Flood – DERM ([REDACTED] / John Ruffini)
7. Proposed technical studies – Bushfires – DCS ([REDACTED])
8. Proposed technical studies – Landslides – DCS ([REDACTED])
9. Timeline / Milestones – DLGP / DCS (Michael Papageorgiou / [REDACTED])
10. Other business

Department of Community Safety
State Planning Policy 1/03 Review

Inter-Departmental Committee (IDC) Meeting No 2

11:00am-12:00pm Wednesday 21 September 2011

Conference Room B1.24, Emergency Services Complex
Corner of Kedron Park and Park Roads, Kedron

DRAFT AGENDA PAPERS

1. Introduction - DCS [REDACTED]

- This is the second meeting of the SPP 1/03 Review IDC
- Minutes of the first meeting on 9 December 2011 are provided for noting (Attachment 1.1¹).
- Meetings of the IDC meeting have been held in abeyance in view of the January 2011 floods and the Queensland Floods Commission of Inquiry (QFCOI).
- The purpose of this meeting is to (i) receive an update on progress of the review and the current work program, (ii) discuss recommendations of the interim report of the Queensland Floods Commission of Inquiry, and (iii) receive an update on work of the Queensland Reconstruction Authority relevant to the SPP 1/03 Review (refer letter of 12 August 2011) (Attachment 1.2).
- Current Terms of Reference for the IDC were endorsed at the first meeting of the IDC (Attachment 1.3).
- A Project Plan for the SPP 1/03 Review, indicating membership and timelines, was also endorsed at the first meeting of the SPP 1/03 Review (Attachment 1.4).

Recommendation 1: That Minutes from the first IDC meeting and the purpose of this meeting be noted, that the ToR for the IDC be considered in the light of the QFCOI, and that DCS be invited to update the Project Plan to reflect recommendations of this meeting.

2. Submissions received on SPP 1/3 Review – DCS [REDACTED]

- The SPP 1/03 submission received 42 submissions (Attachment 2.1).
- Submissions were summarised by DCS to indicate 10 primary issues and a number of sub-issues (Attachment 2.2).
- The Queensland Floods Commission of Inquiry has been provided with a copy of submissions.

Recommendation 2. That issues arising from submissions to the SPP 1/03 Review be noted.

3. Interim report of the Queensland Floods Commission of Inquiry – DCS (Graham Wiltshire)

- Recommendations of the Interim Report QFCOI relate principally to disaster management. The final report will consider land use planning.

¹ See List of Attachments on Page 4.

- Recommendation 3.2 of the Interim Report states:
"Risk management is fundamentally important to disaster management. The Queensland Government should, before the next wet season, ensure that the state-wide natural hazard risk assessment is completed and its results provided to local governments."
- The State Wide Natural Hazard Risk Assessment ([Attachment 3.1](#)) has been completed and is to be provided to local governments. This assessment will be used to inform the development of a State Risk Register for the 2012 wet season. The assessment indicates the high importance of flooding and cyclones compared to bushfires and landslides.

Recommendation 3. That the significantly higher risk of flooding compared to bushfires and landslide indicated by the State-wide Natural Hazard Risk Assessment be noted.

4. Current SPP Issues: Timing and approval of flood studies – DCS [REDACTED]

- A number of LGs have stated that flood studies to ensure adequate reflection of the flood component of SPP 1/03 will complete later than the State interest review process for revised draft planning schemes required under SPA (2009). This will result in cases (notably BCC and Central Highlands) where planning schemes will be undergoing the state interest review process and will not be able to appropriately reflect the SPP 1/03 due non-completion of hazard mapping required for flood overlays and the background studies necessary to articulate a Defined Flood Event.
- Officer level contact between DCS and DLGP on this issue has suggested that the revised draft planning scheme could, if appropriate following consideration of other state interests, be conditionally approved. The condition would be that the planning scheme is amended to adequately reflect SPP 1/03 as determined by DLGP on advice from DCS/DERM within a fixed time period of the flood study being completed to the satisfaction of DERM. Provision for such conditioning is detailed in sections 9.3 and 9.4 of Statutory Guideline 02/09.

Recommendation 4. That out-of-committee consideration of this issue by DLGP/DCS/DERM be noted.

5. Planning for stronger more resilient floodplains (Part 2) – Queensland Reconstruction Authority [REDACTED]

- Part 1 of *Planning for stronger more resilient floodplains* describes interim measures to support floodplain management in existing planning schemes and delivers a toolkit that includes interim planning scheme measures and supporting mapping to those Councils who currently do not have any mapping.
- Part 2 of *Planning for stronger more resilient floodplains* will describe a flood study template, standardised floodplain management provisions, and advice on transition strategies to provide more detailed floodplain assessment guidance to Councils who are looking to prepare new Planning Schemes.
- Part 2 has significant overlap with the flood component of a revised SPP 1/03 and, depending on the final conclusions of the QFCoI, may serve as a template for the revised SPP (flood).

Recommendation 5. That following the final recommendations of the QFCoI, the IDC consider the use of Part 2 of *Planning for stronger more resilient floodplains* as a template for the flood hazard component of a revised SPI (see Item 6).

6. Proposed technical studies – Flood – DERM [REDACTED]

- Arising from recommendation 11 of the inland flooding, DERM have received funding via the NDRP program to investigate the implications of coincident flooding ([Attachment 6.1](#)).
- DCS has requested that DERM re-shape the project to also undertake an audit of local government flood studies, develop guidelines for undertaking flood hazard studies, to test the rigour of hydraulic assumptions under climate change arising from the IFS for additional catchments, and to consider implications of national projects including updating of the AR&R guidelines and SCAM report.
- Aspects of this proposed DERM work program may not be required for the SPP 1/03 review if already being undertaken by QldRA for Part 2 of *Planning for stronger more resilient floodplains*.

Recommendation 6. That the scope of technical studies by DERM be considered in the light of Part 2 of *Planning for stronger more resilient floodplains* (see Item 5).

7. Proposed technical studies – Bushfires – DCS [REDACTED]

- As highlighted by submissions to the SPP 1/03 Review, the rigour of bushfire hazard mapping and mapping guidance could be a limitation, particularly with respect to climate change.
- DCS has submitted an NDRP funding proposal for CSIRO to develop an improved bushfire hazard mapping methodology that reflects best Australian practice and provides specific allowance for climate change. This would be produced as a guideline for hazard assessment for use by Queensland local governments as an attachment to a future SPI. ([Attachment 7.1](#)). A decision on funding of this project is to be announced shortly.

Recommendation 7. That this funding proposal be noted, and that members nominate officers to join a SPP 1/03 Review Bushfire Advisory Group led by DCS and QFRS, to provide strategic technical input to this project should this funding bid be successful and if appropriate to their agency interests.

8. Proposed technical studies – Landslides – DCS [REDACTED]

- As highlighted by submissions to the SPP 1/03 Review, the landslide assessment trigger of 15% slope has a number of strengths and limitations.
- The Australian Geomechanics Society (AGS) has developed a proposal to develop guidelines for landslide hazard assessment for use by Queensland local governments that would accompany a future SPI ([Attachment 8.1](#)).
- The State Wide Natural Hazard Risk Assessment judged the risk of landslide as low.
- Funding for the proposed AGS project is not yet secured.

Recommendation 8. That the need for the AGS project be considered and, if confirmed, that members nominate officers to join a SPP 1/03 Review Landslide Advisory Group led by DCS, to provide strategic technical input to this project.

9. Timeline / Milestones – DLGP / DCS (Michael Papageorgiou [REDACTED])

- The QFCOI will provide a final report on 24 February 2012.
- Work of the Queensland Reconstruction Authority on *Planning for stronger more resilient floodplains is expected to deliver urgent interim guidance to enable Councils to implement* stronger consideration of flooding in land use planning.
- The need for any additional work in addition that undertaken by QldRA (above) on the flood component of a revised SPI should await final recommendations of the QFCOI.
- Technical studies on bushfires and (possibly) landslides may be required to strengthen these components of a revised SPI.
- A replacement instrument to SPP 1/03 is required by September 2013 – though SPA permits an extension of up to two years.

Recommendation 9. That DCS and DLGP prepare recommendations to the Deputy Premier and Minister for Planning, and the Minister for Police, Corrective Services and Emergency Services regarding the suitable timing and responsibilities for completion of the SPP 1/03 Review.

10. Other business

List of Attachments

Attachment 1.1 SPP 103 Review IDC Meeting 01 Draft Minutes.doc
Attachment 1.2 DLGP to DCS 12 Aug 2011.pdf
Attachment 1.3 IDC TOR.doc
Attachment 1.4 SPP 103 Review Project Plan ver 2-1.doc
Attachment 2.1 SPP 103 Review Submission Index.doc
Attachment 2.2 SPP 103 Review Submission Issues 18 Feb 2011.doc
Attachment 3.1 SWNHRA Project summary.pdf
Attachment 6.1 Inland Flood Study.pdf
Attachment 7.1 CSIRO QLD bushfire project proposal.docx
Attachment 8.1 AGS Landslide Proposal.pdf

Department of Community Safety

State Planning Policy 1/03 Review

Inter-Departmental Committee (IDC) Meeting No 1

10:00 am-11:30 am

Thursday, 9 December 2010

Conference Room C3.07
Emergency Services Complex
Corner of Kedron Park and Park Roads, Kedron

Attendance:

Present [REDACTED] Executive Director, Policy & Legislative Reform (DCS) (Chair)
Michael Papageorgiou, Executive Director, Planning Policy (DIP)
[REDACTED], Director, Planning and Local Government (DPC)
[REDACTED], Manager, Planning Coordination (DERM) (proxy for John Lane)
[REDACTED], Senior Advisor (Policy), Planning Legislation Unit (TMR)
(proxy for Randall Fletcher)
[REDACTED] Director Accommodation Office, Property Performance and
Management Group (DPW)
[REDACTED] Manager, Project Development and Facilitation
Employment and Economic Development (DEEDI)
[REDACTED] Principal Project Officer, Resource Planning, Geological Survey
of Queensland (DEEDI)
[REDACTED] Director, Strategy, Policy & Legislative Reform (DCS)
(Chair of Working Group)
[REDACTED] Principal Project Officer, Policy & Legislative Reform (DCS)
(IDC Secretary)

Apologies [REDACTED] Director, Integrated Planning (DERM),
[REDACTED], Director, Planning Legislation Unit (TMR)

DRAFT MINUTES

1. Introduction

- All thanked for attending the inaugural meeting of the SPP 1/03 Review IDC.
- The review will require a good deal of collaboration and input from other agencies under leadership of DCS.
- This is the first state instrument to be reviewed under the Sustainable Planning Act (2009).

2. Overview

(a) Progress to date

- The project is divided into five phases (see Attachment 1 to minutes) being (1) Pre planning (2) Prepare the draft instrument (3) Public consultation on the draft instrument and prepare the final instrument (4) Adopt final instrument and (5) Implementation.

- The project in the early stages of Phase 1 and will produce an initial Policy Issues Paper in February 2011 and a second paper in June 2011.
- The first meeting of the Working Group on 30 Nov 2010 explored possible issues for the review and endorsed TOR for the WG and IDC for consideration at this meeting. LGAQ asked for an extension until 14 Jan 2011 to provide advice on issues. The WG suggested that this deadline flow onto other government stakeholders. DCS tabled key issues for the review including the need for land use planning to build community resilience and the need to improve links between disaster management planning and land use planning. The next meeting of the WG is Thu 27 Jan 2011.
- It is important that the IDC and relevant Ministers confirm the scope of the project and all significant issues at an early stage. Without early consideration of issues there is a risk that the project would take longer than the current timeline.

Resolution 2 (a) Progress to date noted. The review will place emphasis on definition of in-scope issues so that the project delivers essential outputs on time.

(b) Correspondence

- DCS has written to all state agencies, local governments, the LGAQ, and key stakeholders.

Resolution 2 (b) Outgoing correspondence noted.

3. Membership and Terms of Reference of committees

(a) Inter-Departmental Committee

- The IDC will provide an important strategic role for the project to keep Ministers and Executive informed of progress and any substantive issues.
- While the majority of state interests could be achieved through DCS, DERM, DIP and DPC, other agencies such as DEEDI, TMR, DPW and DOC may also wish to become involved. Other agencies will be in a better position to indicate their interests in IDC membership once they have considered all relevant issues and implications.
- The Purpose statement of the IDC would be improved by using a statement from the project plan regarding the coordination of agency and stakeholder interests.

Resolution 3 (a) TOR for the IDC endorsed subject to revision of the purpose statement. Membership to be finalised at next meeting of the IDC - 10 Feb 2011.

(b) Working Group

- The WG has an operational role in assisting DCS with papers for consideration by the IDC. It will meet more frequently than the IDC.
- DEEDI, TMR and DPW would like to participate in the Working Group. Participation should also be extended to DOC following discussion.

Resolution 3 (b) TOR for the WG endorsed. Membership to include DCS, DERM, DIP plus DEEDI, TMR, DPW and DOC (if available).

4. Project Plan

- The Project Plan defines the scope, processes and milestones for the project.
- The Project Plan is framed around the 2009 DIP SPI Guideline.
- The draft Project Plan was endorsed by the Working Group. It includes minor changes suggested by DIP to include a new Appendix A (Issues Analysis Framework) to link with the two policy issues papers (Feb 2011, June 2011).
- Membership of the IDC and WG should be amended to reflect the above decisions (Item 3a and 3b).
- Governance should be amended to include provision of regular briefings to the Growth Management CEO Committee and the Growth Management Cabinet Committee.
- The issues identification and analysis phase should not be restricted to development impacts but also include hazard impacts on land management issues (e.g. biodiversity). This will coincide with the scoping of state issues and identification of appropriate planning and non-planning mechanisms.
- While it is very likely that the review will develop a replacement SPP, the Project Plan should refer throughout to a future SPI not a future SPP.
- The Project Plan should also include a review of initiatives in other jurisdictions.

Resolution 4. Project Plan endorsed subject to amendments (i) governance arrangements to include GM committees, (ii) early issue identification and analysis phase to include land management and (iii) refer to a future SPI throughout not a future SPP.

5. Frequently Asked Questions

- FAQ for the review have been prepared to provide consistent messaging.
- The FAQ can be updated as the project moves forward.
- It is important to keep all stakeholders informed about the project. This could be achieved by including the FAQ on the DCS web site and invite LGAQ to post.
- The FAQ should also refer to a future SPI throughout and not a future SPP.
- Term 'multi-hazard zone' - adopted from Inland Flooding Study – may not be understood by the lay reader and should be amended accordingly.
- The FAQ should also include reference to a review of initiatives in other jurisdictions.
- It may be useful to include a glossary - as time permits.
- FAQ should be finalised and released as soon as reasonably possible and amended as required throughout the project.

Resolution 5. SPP 1/03 Review FAQ endorsed subject to amendments (i) refer to a future SPI throughout instead of a future SPP, (ii) amend reference to 'multi-hazard zone' for lay readers, (iii) include references to review of initiatives in other jurisdictions. DCS to load on web site and invite LGAQ to also post.

6. Preliminary issues and interests

- The issue identification and analysis stage of the project will confirm the scope of state interests to be addressed in the review.
- DCS has received initial feedback from several agencies (DIP, DPC, DEEDI, TMR) about proposed issues for the review.
- It will be helpful for all agencies to also assess their full range of state interests for the review as they now understand the project, and provide additional feedback to DCS in line with the deadline for local government comment (14 Jan 2011).
- It may be useful for DIP to also define its interests in spatial planning outcomes e.g. development inside urban footprints of regional plans.
- The issues analysis should also identify state interests that have potential for conflict with the outcomes of SPP 1/03.
- Where possible, the review should seek outcomes that value add to the development process and not just add overly prescriptive regulation. Local governments need scope to implement innovative approaches.
- The review may need to look at implementation of State flood mitigation responses and the link with local government planning. There are some instances where the state has purchased land for community infrastructure in hazard prone areas. There may be greater opportunities for the state to lead by example.
- Once approved by relevant Ministers, final issues for the review will need to be communicated to stakeholders and the public so that expectations are kept within scope.
- The definition of Landslides may need to be examined to include rock fall.
- The state has a low level of resident expertise in Landslides and external advice may be required.
- Local Government views on operation of the SPP will be critical as they have substantial experience with its application.
- Climate Change is an important dimension for the review as Queensland moves to a different climate environment. Developments need to be located and designed for the climate of 50 years hence (or more) not today's climate.
- There is a need to determine how data quality for hazard studies has impacted on implementation of the SPP and how this data can be upgraded. The review could also look at opportunities for the State to assist local governments in need of support to improve consistency across local government areas.
- The review will need to recognise the evolving nature of data on climate change recognising that SPPs need to be reviewed every 10 years.
- Coincident flooding or the additive risk of riverine flooding and storm tides is also a matter for the review.

<p>Resolution 6. All agencies to assess their full range of state issues and interests for the review and provide additional feedback to DCS by 14 January 2011.</p>

7. Other business

- Nil

8. Next meeting

- 10am-11:30am Thu 10 Feb 2011 (two weeks after WG meeting on 27 Jan 2011)



Queensland
Government

Department of
Local Government and Planning

Our ref: OUT11/7272

12 AUG 2011

[REDACTED]
Director-General
Department of Community Safety
GPO Box 1425
Brisbane QLD 4001

Dear [REDACTED]

**Re: Queensland Reconstruction Authority work on advice to Local Governments
on flood mitigation**

I refer to email correspondence received by the Department of Local Government and Planning (DLGP) from your Assistant Director-General, Mr Gary Mahon, dated 26 July 2011.

As you are aware, the State Planning Instruments Program (1 July 2010 to 30 June 2011) confirmed that, as the lead agency, the Department of Community Safety (DCS) would review State Planning Policy 1/03 – *Mitigating the adverse impacts of flood, bushfire and landslide* including its development and implementation.

In view of this, I would be grateful if DCS would arrange an inter-departmental committee (IDC) meeting as soon as practical. This will provide an opportunity for the IDC to be updated on the progress of the review, the current work program and discuss the recommendations of the recently released interim report by the Queensland Floods Commission of Inquiry.

As you would appreciate, the IDC meeting would benefit from an update from the Queensland Reconstruction Authority on its current work activities. This may also inform any revisions to the current work program.

Executive Building
100 George Street
PO Box 15009
City East Queensland 4002
Telephone +61 7 3227 8548
Facsimile +61 7 3224 4683
Website www.dlgp.qld.gov.au

If you require any further information, please contact Mr Michael Papageorgiou,
Executive Director, Planning Policy Division on 3238 3010 or email at
[REDACTED] who will be pleased to assist.

Yours sincerely

for [REDACTED] Director-General
Department of Local Government and Planning

Department of Community Safety
State Planning Policy 1/03 Review
IDC Terms of Reference and Membership

13 December 2010

(a) Chair

The Department of Community Safety will chair the inter-departmental committee (IDC) for the review of SPP 1/03 as lead agency.

(b) Membership

Membership includes representatives of all state government departments that are likely to have a state interest affected by the proposed SPP.

In the first instance, members of the IDC are:

[REDACTED] Department of Community Safety (Chair)
Michael Papageorgiou - Department of Infrastructure and Planning
[REDACTED] Department of Environment and Resource Management
[REDACTED] Department of Premier and Cabinet
TBA - Department of Employment, Economic Development and Innovation
TBA - Department of Transport and Main Roads
TBA - Department of Public Works

(c) Purpose

The purpose of the IDC is to:

- Appoint representatives to a Working Group who will prepare papers for consideration by the IDC
- Consider and endorse papers and recommendations prior to consideration by relevant Ministers
- Consider and endorse a project plan for the review of SPP 1/03 and any amendments that may be required
- Advise the Chair of any matters relevant to the review that may be of interest or concern to the lead agency
- Coordinate the analysis of state agency and stakeholder interests and the timely provision of advice and recommendations to relevant Ministers and Cabinet as required.¹

(d) Key responsibilities

- Assist the identification of issues and opportunities for the SPP review
- Assist the development of risk management strategies
- Assist the identification of solutions to meet the needs of government, relevant industries and community
- Agree on preferred options for Cabinet consideration.

(e) Meetings

Meetings will occur on a 'needs' basis, but not less than once every 4 months.

¹ Added from Project Plan to reflect decision of IDC Meeting 9 Dec 2010

Department of Community Safety

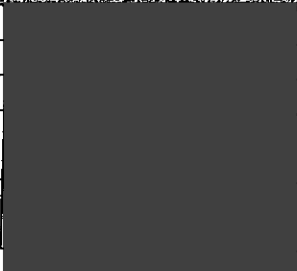
State Planning Policy 1/03 Review

Project Plan




December 2010

Version	2.1
Owner:	[REDACTED] Project Manager – SPP 1/03 Review
Contact Details:	Ph: 3635 3782; Email: [REDACTED]
Division/Unit:	Strategic Policy Division / Policy & Legislative Reform Branch
Document Status:	Draft

Revision History

Revision Date	Version No.	Author	Description of Change/Revision
18 Oct 10	1.0		Original draft
19 Nov 10	1.1		Amended to incorporate recent approvals
26 Nov 10	1.2		Incorporates comments from NW, PW, BT
03 Dec 10	2.0		Incorporates suggestions from Andrew Walls incl. new attachment A.
13 Dec 10	2.1		Incorporates changes requested at IDC Meeting 9 Dec 2010

Endorsement

Name	Members	Date
Inter-Departmental Committee	 (DCS), Michael Papageorgiou (DIP), 	9 Dec 2010
Working Group		30 Nov 2010

Approvals

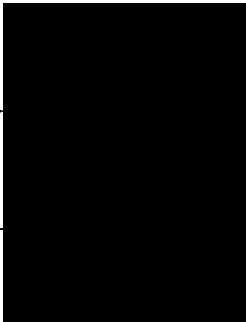
Name	Title	Signature	Date
Gary Mahon	Project Executive/Sponsor		
	Project Executive Director		
	Project Director		
	Project Manager		

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1. Project Definition

1.1 Project Background

State Planning Policy 1/03 *Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (SPP 1/03) is one of four types of State Planning Instruments (SPIs) used to implement the Sustainable Planning Act 2009 (SPA) to influence land use planning and development in Queensland.

The four types of state planning instruments are:

- state planning regulatory provisions (SPRP)
- regional plans
- state planning policies (SPP)
- standard planning scheme provisions, known as the Queensland Planning Provisions (QPP).

SPP 1/03 was originally drafted under the Integrated Planning Act (1997) and came into effect on 1 September 2003. Under SPA, SPPs expire ten years after they are made.

The purpose of SPP 1/03 is to describe the State's interest in ensuring that the natural hazards of flood, bushfire and landslide are adequately considered when making decisions about development. Its coverage of natural hazards is complementary to coastal hazards that will be managed through a State Planning Policy - Coastal Protection (i.e. coastal inundation, erosion and storm tide inundation - including the effects of climate change on sea level rise and increased storm intensity).

The Department of Community Safety is reviewing SPP 1/03 as part of the Statutory Instruments Program for 2010/11, as approved by Cabinet in March 2010. An action plan for the review of SPP has also been prepared for publication in the SEQ Regional Plan Climate Change Management Plan. This review is being conducted in accordance with the State Planning Instruments Program Guideline, produced by the Department of Infrastructure and Planning, and with the assistance of an Inter-Departmental Committee (IDC) and Working Group (WG). The working group includes a representative from the Local Government Association of Queensland (LGAQ).

1.2 Project Objectives

The objectives of this project are:

- (1) To provide advice to relevant Ministers on the state policy position with respect major interests and issues for the review of SPP 1/03 including:

- accurate definition of current state interests,
- preferred planning and non-planning options,
- criteria and methods to delineate areas of interest, and
- implications for the state government and local governments

by conducting a thorough analysis of state agency, local government, LGAQ and key stakeholder issues and interests (regarding development, land use and land management), with consideration of initiatives and approaches used in other jurisdictions, as outlined in Attachment A, including:

- priority issues that arise from an evaluation of the current SPP and current state policy (Policy Issues Paper 1),
 - recommended policy issues that need to be addressed through the planning framework or other means.(Policy Issues Paper 2)
- (2) To ensure the state's interests in flood, bushfire and landslides are adequately addressed in accordance with recommendations endorsed from relevant Ministers by:
- preparing planning instruments and other products as appropriate for cabinet approval and public comment
 - receiving and analysing public submission
 - preparing final planning instruments and other products as appropriate for cabinet approval
- (3) To prepare drafting instructions for the preparation of SPI required to better reflect state interests.
- (4) To document possible implications for industry, the community or other stakeholders via preparation of a Regulatory Assessment Statement (RAS)
- (5) To coordinate the analysis of state agency and stakeholder interests and the timely provision of advice and recommendations to relevant Ministers and Cabinet as required.

1.3 Project Scope

The following are included in the scope of the project:

- state interests relevant to ensuring that the natural hazards of flood, bushfire and landslide are adequately considered when making decisions about development in accordance with the Sustainable Planning Act (2009).
- consideration of state, industry, community and stakeholder implications

The following are outside the scope of the project:

- Matters outside of scope of this project will be determined through preparation and endorsement of Policy Issues Paper and Policy Research Paper prepared during Phase 1 of this project.

1.4 Products

The Products that will be delivered by this project (also refer Attachment B) are:

- A first Policy Issues Paper (Milestone 1.5) that identifies priority issues for the review of SPP 1/03 - to be endorsed by an interdepartmental committee (IDC) and relevant Ministers and a second Policy Issues Paper (Milestone 1.7) that provides recommendations for the development of Statutory Planning Instruments (such as a replacement SPP) and other appropriate non-planning instruments, based on more detailed investigation of priority issues - to be endorsed by an interdepartmental committee (IDC) and relevant Ministers (output from Phase 1)
- A replacement Draft SPI and / or drafting instructions for modifications to other Statutory Planning Instruments (Milestone 2.6) to be endorsed by the IDC, approved by relevant Ministers or Cabinet for public consultation (output from Phase 2)
- Final replacement SPI, modifications to other Statutory Planning Instruments SPIs and other appropriate non-planning instruments (Milestone 4.2) endorsed by the IDC, relevant Ministers and approved by Cabinet - published by way of gazette and newspaper (output from Phase 3 and 4).

1.5 Assumptions and Constraints

The following assumptions have been made during the planning of this project:

- that agencies outside the control of the project, which need to provide input or undertake action needed by the project, are able to do so and within the timings allowed;
- approval from the relevant Ministers will be obtained within reasonable timeframes;
- Cabinet consideration to occur as scheduled;
- that there would be no additional tasks outside the current scope of the project plan placed upon the project during the course of the project;
- that external consultation does not identify significant issues not yet considered and which would delay project timeframes

The following constraints have been placed on this project:

- funding will depend on matters identified and agreed through consideration of a Policy Issues Paper (Phase 1). Funding is to be drawn by DCS from Natural Disaster Resilience Program subject to relevant approval processes.

1.6 Project Schedule

This is an indicative timeframe only and is subject to the above assumptions.

Phase	Deliverable	Est. Date of Completion
1. Pre-Planning	An initial Policy Issues Paper and second Policy Issues Paper to be endorsed by an interdepartmental committee (IDC) and relevant Ministers.	June 2011
2. Preparation of draft instrument	Draft replacement SPI to be endorsed by the IDC, approved by relevant Ministers or Cabinet for public consultation	November 2011
3. Consultation and preparation of final instrument	Final replacement SPI, endorsed by the IDC	October 2012
4. Adoption	The replacement SPI, endorsed by the relevant Ministers and approved by Cabinet, will be published by way of gazette and newspaper	January 2013
5. Implementation	Initial implementation and ongoing monitoring and reporting of implementation	February-August 2013

* Ongoing implementation and related reporting not to be completed by project team.

An indicative timeline for this project is shown in Appendix C.

2. Project Roles

2.1 Relevant Ministers

The relevant Minister for the review of SPP 1/03 are:

- the Minister for Police, Corrective Services and Emergency Services
- the Minister for Infrastructure and Planning

2.2 Growth Management Committees

The Growth Management CEO Committee and the Growth Management Cabinet Sub-Committee will consider and endorse all major proposals arising from the review.

Role	Responsibilities
The Growth Management Sub-Committee of Cabinet (GMSCC)	Discuss and develop a whole-of-Government response to the review of SPP 1/03 in line with associated strategic growth management policy issues.
Growth Management Chief Executive Officer Committee (GMCEOC)	Provide strategic direction and Whole of Government leadership for the review of SPP 1/03 in line with the Government's growth management agenda.

2.3 Project Executive – Lead agency

The project executive of the lead agency (Department of Community Safety) is:

Role	Responsibilities
Project Executive – Gary Mahon Assistant Director-General (DCS)	The Project Executive has ultimate responsibility for satisfactory completion of the project and provision of advice to the Minister for Police, Corrective Services and Emergency Services through the Director General, Department of Community Safety.
Project Executive Director [REDACTED] (DCS)	The Project Executive Director has responsibility for ensuring the Project Executive is fully advised of state and key stakeholder interests and concerns, and that the project is delivered in accordance with the approved project plan.

2.4 Inter-Departmental Committee

The role of the Inter-Departmental Committee (SPP 1/03 review) will be ensure comprehensive cross-government identification and consideration of relevant issues. This committee will enable the coordination of state agency input to preparation of the replacement SPI outside the formal consultation stages.

The IDC representative from the Department of Infrastructure and Planning has responsibility for the provision of advice to the Minister for Infrastructure and Planning and the GMCEOC based on advice from the Chair of the IDC.

Agencies represented on the IDC and members nominated by respective Director Generals are:

Agency	Member
Department of Community Safety (Lead agency)	██████████ Executive Director, Policy and Legislation Reform (Chair)
Department of Infrastructure and Planning	Michael Papageorgiou, Executive Director, Planning Policy
Department of Environment and Resource Management.	██████████ Director, Director, Integrated Planning, Strategy and Policy
Department of Premier and Cabinet	██████████ Director, Environment and Resources

Membership by the Department of Employment, Economic Development and Innovation, Department of Transport and Main Roads, Department of Public Works, Department of Communities and other agencies to be confirmed at the next IDC meeting on 10 February 2010.

2.5 Project Team

The project team is responsible for the preparation of all reports and information considered by the IDC and Project Executive with the support of a Working Group. The project team also provides secretariat support to the IDC.

Agency / organisation	Member
Project Director - Graham Wiltshire Director, Strategy (DCS)	The Project Director has responsibility for ensuring that the project is delivered on time and within budget and for reporting to the Project Executive.
Project Manager – ██████████ Principal Policy Advisor (DCS)	The Project Manager will manage the project on a day-to-day basis on behalf of the Project Executive and Project Director and will coordinate stakeholder consultation, the preparation of research and policy papers, and the draft and final instruments by team members and contractors.
Project Team Member/s ██████████ (DCS), ██████████ (DCS),	The Project Team Member/s will be responsible for the delivery of discrete components of the project, aspects of consultation, the preparation of research and policy papers, and the draft and final instruments. Project team members will report to the Project Director and Project Manager.

2.6 Working Group

A working group has been established to support the project team, preparation of matters considered by the IDC and to incorporate views of the LGAQ and other key stakeholders as required. Members of the working group will coordinate agency / organisational input to the review of SPP 1/03.

Role	Members
Department of Community Safety (Lead agency)	
Department of Infrastructure and Planning	
Department of Environment and Resource Management.	
LGAQ	
Department of Employment, Economic Development and Innovation	
Department of Transport and Main Roads	
Department of Public Works	TBA
Department of Communities	TBA

3. Related Initiatives

The projects and other initiatives shown in the table below have a bearing, or are in some way dependent on this project:

Related Project/Initiative	Nature of Relationship
Inland Flood Study	Recommendations of the study will influence the policy issues to be explored as part of this project.
Queensland Coastal Plan and State Planning Policy Coastal Protection	As the Qld Coastal Plan also looks at issues involving flooding/inundation, there is a need to ensure consistency between the two instruments
Victorian Bushfires Royal Commission and Queensland IDC Sub-group on Planning and Building	The recommendations of the Royal Commission include matters relating to land use planning and will be considered as part of this project.
Coincident Flooding Research by QCCE using NDRM funds	The study will identify issues concerning coincident flooding including potential impacts; the extent that coincident flooding is already covered in flood studies and the most appropriate planning instrument to address coincident flooding.
Assessment of Natural Hazard Disaster Risk in Queensland	An assessment of the current natural hazard risk profile, consideration of alternative risk mitigation treatments and potential climate change impacts (study by Risk Frontiers – Macquarie University- in prep).

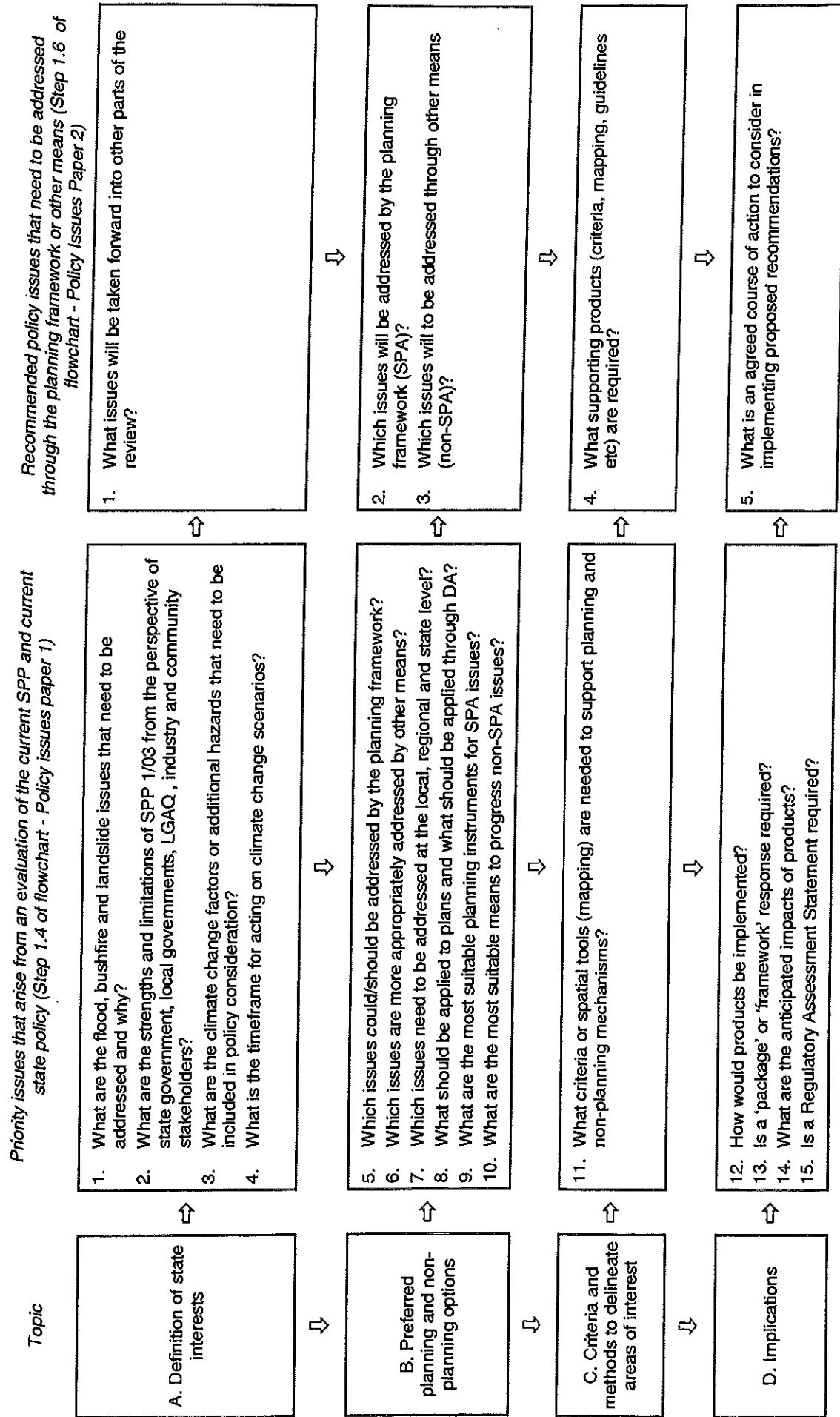
4. Stakeholder consultation

The following consultation with stakeholders will be undertaken during Phase 1 (Pre planning) and Phase 2 (Preparation of Draft Instrument) of the Project.

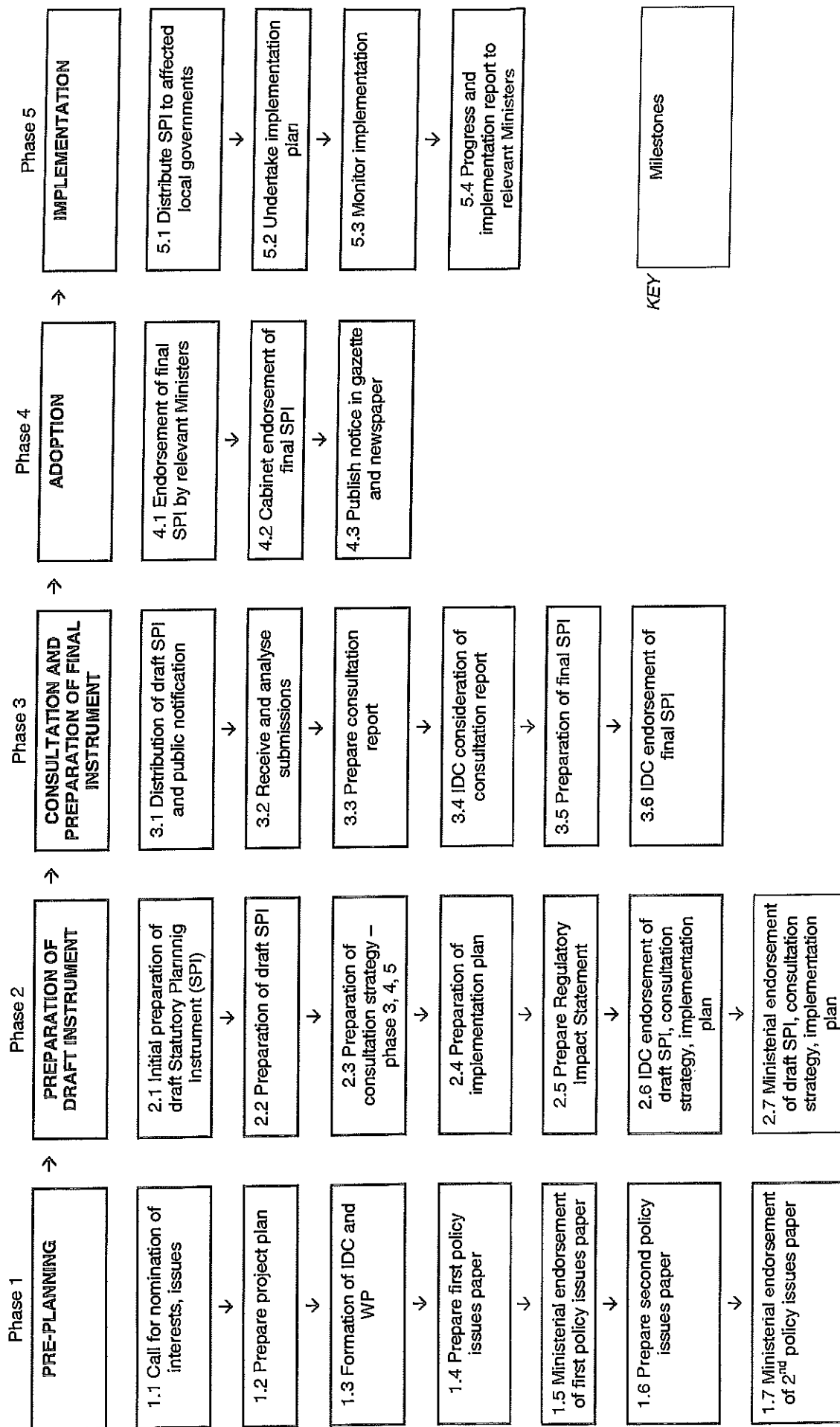
- The Local Government Association of Queensland (LGAQ) will be invited to identify issues considered in the review, and participate on the Working Group to assist with development of the Policy Issues Paper, draft replacement SPI, and final SPI.
- All of Queensland Local Governments will be invited to suggest issues that they would like to see addressed in the review of SPP 1/03 by way of completing a questionnaire.
- Key stakeholders (Appendix D) will be invited to also suggest issues that they would like to see addressed in the review
- Additional public consultation as may be required,

Plans for stakeholder consultation during Phase 3, 4 and 5 will be developed during Phase 2 of the project.

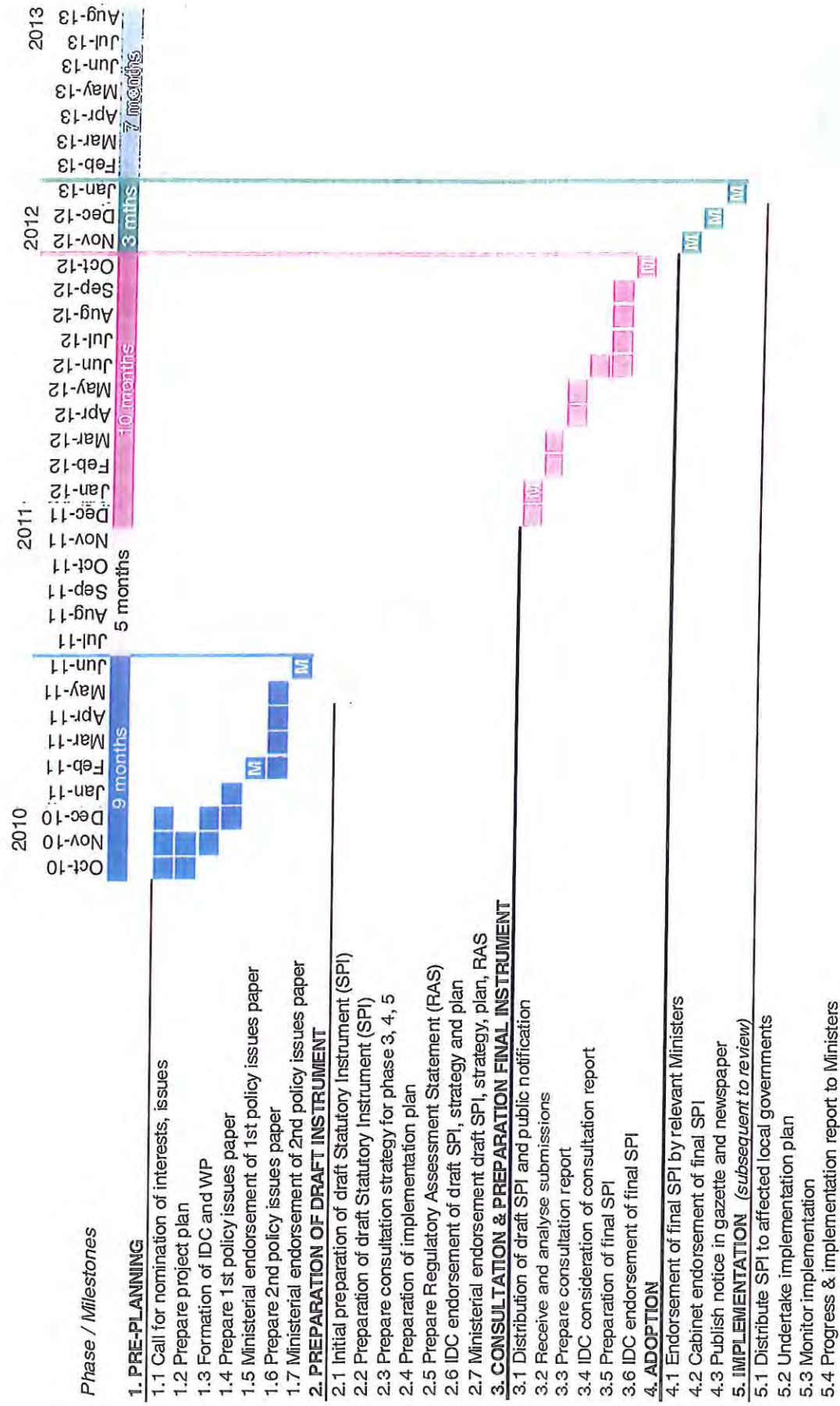
Appendix A – Issues Analysis Framework



Appendix B – Indicative Flowchart



Appendix C – Indicative Timeline



Appendix D – Community and Industry Stakeholders

Academic	CSIRO Climate Adaptation Flagship
	Griffith University
	James Cook University
	National Climate Change Adaptation Research Facility
	Queensland University of Technology
	Sunshine Coast University
	University of Queensland
Bushfire	Australian Institute of Building Surveyors - Queensland/Northern Territory Chapter
	Fire Protection Association Australia - Queensland State Committee
Commonwealth	Attorney General's Department
	Bureau of Meteorology
	Department of Climate Change and Energy Efficiency
Disaster Management	Emergency Services Advisory Council
Environment	Environment Institute of Australia and New Zealand
	Environmental Defenders Office
	Queensland Conservation Council
Flooding	Engineers Australia - Queensland Division
	Institute of Public Works Engineering
	The Board of Professional Engineers of Queensland
Landslide	Australian Geomechanics Society
Law	Queensland Environmental Law Association
	Queensland Law Society
Local Government	Local Government Association of Queensland
Property	Planning Institute of Australia (Queensland)
	Property Council of Australia - Queensland Division
	Real Estate Institute of Queensland
	Urban Development Institute of Australia (Queensland)
	Urban Land Development Authority
Utility	Brisbane Airport Corporation Pty Ltd
	Energex Limited
	Ergon Energy
	Powerlink Queensland

Department of Community Safety

Submissions received on the Review of State Planning Policy SPP 1/03

No.	Date	From (author)	Organisation	Pages
1	9 Nov 2010		Department of Community Safety	1
2	9 Nov 2010		Department of Community Safety	1
3	17 Nov 2010		Department of Justice and Attorney-General	1
4	26 Nov 2010		Department of Community Safety	1
5	26 Nov 2010		Department of Community Safety	2
6	26 Nov 2010		Department of Infrastructure and Planning	2
7	2 Dec 2010		Department of Transport and Main Roads	2
8	2 Dec 2010	Ken Smith	Department of Premier and Cabinet	1
9	6 Dec 2010		Queensland Police Service	2
10	8 Dec 2010		Department of Education and Training	1
11	8 Dec 2010	John Bradley	Department of Environment and Natural Resources	1
12	15 Dec 2010		Department of Communities	1
13	23 Dec 2010		Department of Public Works	2
14	2 Jan 2011		Cherbourg Aboriginal Shire Council	2
15	16 Jan 2011		Southern Downs Regional Council	7
16	5 Jan 2011		Hinchinbrook Shire Council	5
17	13 Jan 2011		SEQ Fire and Biodiversity Consortium	4
18	14 Jan 2011		Sunshine Coast Regional Council	22
19	14 Jan 2011		James Cook University	65
20	14 Jan 2011		Brisbane Airport Corporation	3
21	14 Jan 2011		Maranoa Regional Council	2
22	14 Jan 2011		Cairns Regional Council	5
23	17 Jan 2011		CSIRO	2
24	19 Jan 2011		Ipswich City Council	7
25	20 Jan 2011		National Climate Change Adaptation Research Facility	1
26	21 Jan 2011		Scenic Rim Regional Council	5
27	22 Jan 2011		ESAC	2
28	22 Jan 2011		ESAC	2
29	25 Jan 2011		Townsville City Council	4
30	25 Jan 2011		Fraser Coast Regional Council	7
31	25 Jan 2011	Lisa Desmond	Planning Institute of Australia (Qld Division)	1
32	26 Jan 2011		James Cook University	26
33	27 Jan 2011		Pormpuraaw Aboriginal Shire Council	1

<i>No.</i>	<i>Date</i>	<i>From (author)</i>	<i>Organisation</i>	<i>Pages</i>
34	28 Jan 2011		Moreton Bay Regional Council	11
35	28 Jan 2011		Department of Transport and Main Roads	3
35	31 Jan 2011		Department of Employment, Economic Development and Innovation	7
36	1 Feb 2011		Local Government Association of Queensland	3
37	1 Feb 2011		Powerlink (Qld)	2
37	8 Feb 2011		Planning Institute of Australia (Qld Division)	3
38	11 Feb 2011		Griffith University	3
39	14 Feb 2011		Energex	
40	18 Feb 2011		EIANZ	5
41	28 Feb 2011		Department of Environment and Natural Resources	7
42	28 Feb 2011		Department of Environment and Natural Resources	11
43			Department of Community Safety	3

SPP 1/03 Review - Summary of Issues and Interests arising from Submissions

18 Feb 2011

<i>General issue</i>	<i>Issue or interest</i>
1. Capacity – ways to improve in local government and community	<ul style="list-style-type: none"> (a) Capacity and competency to undertake technical aspects of development proposals (b) Case studies or examples to be included in guidelines (c) Community capacity to enabled to undertake self risk assessments (d) Consistency in Implementation of new instrument needs to be greater than current SPP – need strategies to ensure this result (e) Guidelines need to assist local government implementation of SPP (f) Public education on SPP – Improve to raise compliance (g) Register of agencies and resources available to assist local governments
2. Disaster management - specific mitigation strategies to protect people	<ul style="list-style-type: none"> (a) Cumulative impacts – need to embrace strategic approach to floodplain management (b) Disaster management planning for new developments – how to achieve better outcomes (c) Health impacts such as disease control, potential psychological impacts also need consideration (d) Human life – Improve policies, guidance and tools to improve protection measures
3. Institutional responsibility and relationships	<ul style="list-style-type: none"> (a) Flood commission of enquiry – address relationship with (b) Public asset providers – improve links with (c) Role of State in development approval – what is effective and efficient (d) Role of State in risk and hazard assessment – clarity required
4. Locations or types of development requiring special consideration	<ul style="list-style-type: none"> (a) Communities with no opportunity to avoid development in flood prone areas (b) Community infrastructure – scope to include all significant public assets and critical infrastructure (c) Existing properties with unutilised development commitments in areas proven to be hazard prone since that commitment was provided may require special consideration (d) Growth pressures V hazard reduction – how to reconcile competing objectives and reduce disaster risk (e) Infill development applications in existing urban areas – risk mitigation requirements to be upgraded (f) Land filling – minimise risks arising from (g) Nature-based tourism Development risk profiles need special consideration in SPP (h) Non-residential (commercial and industrial) land uses – risk mitigation requirements to be upgraded (i) Partially affected properties need special consideration (j) Refuse sites – may need special consideration (k) Rural development applications - risk mitigation requirements to be upgraded (l) Rural development applications isolated townships and single detached dwellings – risk mitigation requirements to be upgraded (m) Steep topography with growth pressures – risk mitigation needs to be upgraded
5. Minor wording or structural changes	<ul style="list-style-type: none"> (a) Hazard assessment method – describe in single appendix (b) LGA list – update or review requirement (c) Protection measures apply only to areas of high or medium bushfire hazard
6. Planning process or guidance	<ul style="list-style-type: none"> (a) Adaptation strategy policies and guidelines for local government needed for existing and climate change hazards (b) Definition and coverage of flooding types (c) Definitions to be consistent with QPP

General issue	Issue or interest
	<ul style="list-style-type: none"> (d) Development outcomes to be more tightly defined (e) Flowcharts and decision support tools be included in revised instrument (f) Framework of new instrument to be expressed like more recent SPPs (g) Indigenous Shire Planning schemes - acknowledge and address how to influence (h) Injurious affection and associated legal and financial implications considered (i) Legal implications arising from inadequate conditioning of development – mitigate risks (j) Minimum or mandatory requirement and best practice – improve distinction and provide examples (k) Ongoing management and enforcement of development conditions (l) Over-riding need definitions should be consistent across state planning policies having regard to case law (m) Provisions should be applicable even where local government has not defined a local hazard management area (n) State Development areas, industrial land and infrastructure corridors may need provisions different to other land tenures (o) Urban footprint provisions need to be different to those for rural areas defined in Regional Plans
7. Relationship between policies or programs	<ul style="list-style-type: none"> (a) BCA QDC – Improve relationship with SPP (b) BCA QDC and AS 3959 – Improve relationship with SPP (c) Coastal SPP and SPP 1/03 Flooding need strong alignment including sea level rise allowance and DM aspects (d) Framework for more integrated application of SPP with other instruments (e) National Disaster Resilience Strategy – improve links with SPP (f) QPP – Improve relationship with SPP (g) Queensland's Disaster Management Act 2003 – ensure effective links with (h) State infrastructure providers – establish effective links with agency policies and regulations (i) Timber Plantations QPP - increase connection with SPP (j) VMA – improve relationship with SPP (k) Wetlands SPP – Need to reconcile relationship
8. Resilience - strategies to improve in balance with other objectives	<ul style="list-style-type: none"> (a) Economic and social costs of alternative risk mitigation policies considered in decision making (b) Outcome is a balanced and proportionate response to identified issues (c) Planning and building standards – increase to improve resilience of new developments (d) Transport infrastructure costs V hazard reduction – how to reconcile competing objectives and reduce disaster risk
9. Resilience - ways to improve in balance with other objectives	<ul style="list-style-type: none"> (a) Direct new development to areas of lowest risk (b) Direct new development to areas with lower levels of risk with consideration of climate change and flooding up to PMF (c) Economic benefits are included in criteria to select DFE and other significant development decisions (d) Housing affordability V hazard reduction – how to reconcile competing objectives and reduce disaster risk (e) Multiple hazard zones instead of single zone approach (f) Nature conservation V hazard reduction – how to reconcile competing objectives and reduce disaster risk (g) Outcome is a balanced and proportionate response to identified issues (h) Planning and building standards – increase to improve resilience of new developments (i) Social and economic costs of natural disasters included in criteria to select DFE and other significant development decisions
10. Risk and hazard assessment	<ul style="list-style-type: none"> (a) Climate change – Determine factor and methods to incorporate in

General issue	Issue or interest
	<p>assessment</p> <p>(b) Climate change – Incorporate factor and methods from IFS</p> <p>(c) Coincident flooding – harmonise assessment methods and criteria for all sources of inundation - storm surge, river flooding, flash flooding, tides and sea level rise</p> <p>(d) Dynamics of risk – Recognise and consider in risk and hazard assessment</p> <p>(e) Flash flooding to be addressed separate to river flood risk</p> <p>(f) Flood study methods to be standardised, reliable, regionally appropriate, up to date</p> <p>(g) Mapping methods and criteria - improve robustness consistency and regional applicability</p> <p>(h) Mapping methods and criteria to align with site assessment methods and criteria</p> <p>(i) Risk assessment methodology needed in addition to hazard assessment</p> <p>(j) Risk assessment needed in addition to hazard assessment</p>

State-wide Natural Hazard Risk Assessment

Project Summary



Prepared by Risk Frontiers

Commissioned and funded by the Queensland Government

July 2000



Funded by



Queensland Government



Australian Government
Attorney-General's Department

Project Summary

Scope

The assessment focuses on Queensland's natural hazards that have a significant impact on people and property: riverine and flash flooding, winds from tropical cyclones, hail from severe storms, bushfires, thunderstorm wind gusts, tornadoes, earthquakes, landslides and coastal hazards such as tsunamis, storm surge, and coastal erosion.

Methods

The assessment has been conducted by examining a number of different dimensions of Queensland's risk profile to natural hazards. This has involved the examination of historically significant natural hazards, detailed mapping of exposure to natural hazards, analysis of the implications of climate change, and specialist investigations for key natural hazards.

Key findings for each significant natural hazard

This assessment has identified the following outcomes for each of Queensland's significant natural hazards.

Flooding

- This assessment has identified that flooding (including both riverine and flash flooding) is historically the most destructive natural hazard in Queensland. On average, about two severe flooding events occur each year, causing significant damage to property, disruption to businesses and communities and on occasion, death and serious injury.
 - About 39% (about \$1b) of Queensland's Natural Disaster Relief and Recovery (NDRRA) expenditure since 2002/3 related to flood damage, slightly less than the 41% of expenditure related to tropical cyclones.
 - The most extensive and severe floods in Queensland's history include the Clermont floods of December 1916 (64 deaths and extensive property damage), the Toowoomba and Lockyer Valley floods of January 2011 (23 deaths and extensive property damage), the Brisbane and Ipswich Floods in January 1974 following Tropical Cyclone Wanda (resulting in 16 deaths and extensive property damage) and the Great Brisbane River Flood of February 1893 (resulting in 11 deaths).
 - Flash flooding is a significant cause of fatalities and property damage because of the high velocity of water and short warning time. It is estimated that 122 people died in flash floods in Queensland between 1950 and 2011. More people died during flash floods while trying to cross a bridge or watercourse than any other recorded activity.
 - Flooding is the second most fatal natural hazard in Queensland after Tropical Cyclones. 45% of lives lost to natural disasters in Queensland between 1900 and 1999 (approximately 427 people) were caused by flooding.
 - The equivalent of about 4,084 houses were destroyed by floods in Queensland between 1900 and 1999 – about 43% of all housing losses to natural disasters in the state during this
-

period. Flooding in Queensland accounts for about 9% of all damage caused by natural disasters to housing in Australia.

- It is estimated that approximately 59,439 residential addresses in Queensland are susceptible to inundation from a 1-in-100 year flood event in Queensland (as at December 2010). About 30% of these addresses (17,585) are in the catchments of the Brisbane and Bremer Rivers (Brisbane and Ipswich City Council), 24% are in the Nerang and Coomera River Catchments (Gold Coast City Council) and 14% are in the Pioneer River Catchment (Mackay City Council).
- Of areas inundated during the recent 2010-11 floods, Brisbane City and Ipswich City have the highest number of critical public buildings exposed to flooding (76 and 21 respectively).
- Flooding is estimated to be the second most costly disaster in Queensland, with insured losses of around \$1.3 billion projected on a 1% annual chance of occurrence. This estimate is approximately 5.5 times less than the estimated damage to residential buildings from tropical cyclone winds.
- 16% of all addresses in flood plains (below the Probable Maximum Flood) of seven of Queensland's most flood prone districts (Gold Coast, Brisbane, Ipswich, Rockhampton, Dalby, Mackay, Cairns) are estimated to lie below the 1 in 50 year flood line. These addresses would contribute up to 72% of future flood losses.
- Under a climate change scenario derived from the Queensland Government's Inland Flooding Study, the average annual damage cost from flooding to all addresses in Brisbane is estimated to rise from about \$33m per annum to approximately \$94m by 2050, assuming no changes to building density or building standards.

Tropical Cyclone winds and storm surge

- This assessment has identified that Tropical Cyclone winds and storm surge are historically the most fatal natural hazard and the second most damaging natural hazard in Queensland.
 - There have been 207 known impacts from tropical cyclones along the east coast of Queensland since 1858. Australia's deadliest tropical cyclone occurred on 4th March 1899 when Tropical Cyclone Mahina and an associated massive storm surge hit a pearling fleet in Princess Charlotte Bay to the north of Cooktown. This event caused 307 known fatalities. The three most costly cyclones to have affected Queensland between 1970 and 2010 were Tropical Cyclone Larry (Innisfail - March 2006), Tropical Cyclone Althea (Townsville - December 1971) and Tropical Cyclone Ada (Proserpine - January 1970).
 - Tropical Cyclone Yasi (Mission Beach – February 2011) is one of the most powerful cyclones to have affected Queensland since records commenced. Previous cyclones of a comparable measured intensity include Tropical Cyclone Mahina in March 1899, and two cyclones in 1918 at Mackay (January) and Innisfail (March).
 - Tropical cyclones (including associated flooding) are historically the most fatal natural disasters in Queensland – accounting for 511 fatalities between 1900 and 1999 – about 53% of all fatalities from natural disasters.
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- The equivalent of about 3,462 houses were destroyed by Tropical Cyclone winds or (to a lesser extent) storm surge in Queensland between 1900 and 1999 – about 36% of all damage from natural disasters in the State. Tropical cyclones in Queensland have accounted for about 8% of all damage caused by natural disasters in Australia over this period.
- More NDRRA expenditure was allocated to Tropical Cyclone response and recovery (41% - about \$1.1b) since 2002/3 than any other type of natural hazard.
- Although a substantial majority of Tropical Cyclones have impacted the far north of Queensland, they sometimes affect coastal areas in central and southern Queensland. Historically, over 90% of cyclones have occurred in the summer months, mostly from December to April.
- Locations with relatively high exposure to damaging winds from Tropical Cyclones include Cairns, Townsville, Mackay, Rockhampton, Gladstone, Bundaberg, Maryborough, Nambour, Brisbane and the Gold Coast.
- Queensland Local Governments with highest exposure to storm surge or other hazards such as sea level rise are likely to include the Gold Coast City, Sunshine Coast Region, Brisbane City, Moreton Bay Region, Fraser Coast Region, Redland City, Cairns City, Mackay City, Townsville City, Rockhampton City and Bundaberg City.
- Critical public buildings and roads are highly exposed to coastal hazards in urbanised coastal local government areas (LGAs) of Queensland such as the Gold Coast, Brisbane, Cairns and the Sunshine Coast. Other LGAs with a moderate exposure of critical infrastructure to coastal hazards include Moreton Bay, Townsville, Whitsunday, Redland City, Tablelands, the Fraser Coast, Rockhampton, Bundaberg and Gladstone.
- A relatively high number of public buildings are exposed to potentially damaging cyclonic winds (above 28 m/s) in coastal local government areas such as Brisbane, Rockhampton, Townsville, the Sunshine Coast, Moreton Bay, Townsville, Whitsunday, Redland City, Tablelands, Fraser Coast and Rockhampton Local Government Areas, Mackay, the Gold Coast and Cairns. Roads in many of these local government areas are also susceptible to damaging cyclonic winds.
- Tropical Cyclone winds are estimated to be the most costly disaster in Queensland, with insured losses of around \$7.0 billion projected on a 1% annual chance of occurrence.
- While there is contrasting evidence on the effect of climate change on Tropical Cyclones, it appears that on a global scale it is most likely that the overall frequency will decrease slightly, but that the frequency of more intense Tropical Cyclones will increase.

Thunderstorm wind gusts, downbursts and tornadoes

- After flooding and tropical cyclones, thunderstorm wind gusts, downbursts and tornadoes are historically Queensland's third most damaging natural hazard. Severe gusting winds from thunderstorms cause damage to homes, trees, homes and powerlines.
 - The strongest reported tornado in Australia with a wind speed of between 333 km/h and 418 km/h went through Bucca, to the west of Bundaberg, on 29 November 1992. Australia's deadliest tornado took 3 lives in Kin Kin near Noosa on 14 August 1971.
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- The strongest thunderstorm wind gust recorded in Queensland was at Double Island Point Lighthouse on 16 December 2006, with a magnitude of 196 km/h. The wind speed of this downburst event is identical to the maximum wind gust recorded in Townsville during the passage of Tropical Cyclone Althea in 1971.
- One of Queensland's most damaging thunderstorms occurred in the afternoon of 16 November 2008. This cell produced a strong downburst event over the suburb of The Gap in western Brisbane and continued on a northerly path to the Sunshine Coast. A swathe of damage ran for about 8 km in a north-north easterly direction and with a width of around 4 km. Over 4,000 homes were damaged - 300 severely and 25 rendered unliveable. One person died in flooding associated with the storm. Fatalities from thunderstorms and tornadoes in Queensland are infrequent.
- The equivalent of about 1,436 houses were destroyed by thunderstorm wind gusts, downbursts or tornadoes in Queensland between 1900 and 1999 – about 15% of all housing losses to natural disasters in the state during this period. Thunderstorm winds and tornadoes in Queensland accounts for about 3% of all damage caused by natural disasters to housing in Australia.
- Approximately \$25m of Queensland's Natural Disaster Relief and Recovery (NDRRA) expenditure since 2002/3 was for storm damage.
- Modelling of the spatial pattern of thunderstorm impacts on residential addresses or critical infrastructure has not been conducted because of the difficulty in mapping the geographical trends in thunderstorm movement.
- While climate change may influence the incidence of thunderstorms this issue has not been considered in this assessment.

Hail storms

- Hail storms are a product of severe convective storms, a fairly common event in Queensland, particularly in the summer months from October to January. Fortunately, most convective storms produce small hailstones over fairly small areas and cause little or no damage, and relatively few people die during hail storms.
 - Occasionally, extensive storms with very large hailstones cause significant damage in the urban areas such as South East Queensland. South East Queensland experienced a damaging hail storm on average twice per year between 1955 and 2000.
 - A hailstorm in Brisbane on 18 January 1985 was the second most destructive hailstorm observed in Australia (surpassed only by the April 1999 Sydney hailstorm). Insured losses ran to \$1.8 billion (2006 values). One person died and twenty people were injured during the storm.
 - Hail storms can also cause significant local damage to crops and rural townships. For example, a severe hailstorm with hailstones over 4 cm in diameter hit the town of Stanthorpe and surrounding farmlands on 17 December 1982. Losses to fruit and vegetable crops amounted to \$12 million at that time.
 - Insured losses from hail storms are estimated to be around \$1.0 billion projected on a 1% annual chance of occurrence.
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- Hail storms are Queensland's fourth most damaging natural disaster.

Bushfires

- While bushfires historically cause about 28% of all natural hazard-related damage to residential homes across Australia, they cause much lower levels of damage to housing in Queensland. Bushfires cause extensive damage to crops, pastures, livestock and fencing.
- One of Queensland's most extreme fires impacted the Granite Belt region of southern Queensland between 17 and 24 October 2002. The fire destroyed six houses, 11 buildings, six cars and several vineyards and orchards, and forced the evacuation of many homes. A woman died after becoming trapped in her burning home. Bushfires in Queensland have caused few fatalities in contrast to the consequences of extreme bushfires in southern Australia.
- The equivalent of about 25 houses have been destroyed by bushfires in Queensland between 1900 and 1999 – less than 1% of all housing losses to natural disasters in the state during this period. On average, only about one home is destroyed by bushfires every four years in Queensland. This is in stark contrast to the national average of well over 100 buildings destroyed by bushfires each year on average for the period 1900-2009.
- Despite the relatively low incidence of damaging bushfires in Queensland, houses within about 100m of bushland are at threat from uncontrolled fire. Nine local governments in South East Queensland have more than 10,000 addresses within 100 m of forest.
- Severe bushfires are more frequent in southern Queensland compared to north Queensland because of the coincidence of higher fuel loads, lower humidity and the relatively high numbers of houses in steep bushland areas.
- In the future, insured losses from bushfires are estimated to be around \$14 million projected on a 1% annual chance of occurrence. This is less than 1% of the estimated damage to residential buildings from tropical cyclone winds.
- Under climate change, CSIRO has predicted a significant increase in the frequency of very high and extreme fire hazard days for Brisbane, Amberley, Rockhampton and Charleville. As with other natural hazards, these effects can not yet be identified in historic natural disaster damage data.

Landslides

- Landslides are one of Queensland's less damaging natural hazards. 58 noteworthy landslides have been recorded in Queensland since 1907. These landslides have caused a combined loss of buildings of 9.3 house equivalents. There is only one recorded fatality from landslide in Queensland.
 - One of Queensland's notable landslides took place between 29 and 30 June 2005 on the slopes of Currumbin Hill, a suburb on the Gold Coast. The largest landslide caused several hundred thousand dollars worth of damage to several residential properties. The landslides occurred after several days of exceptionally heavy rainfall.
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- Four local government areas in Queensland (Gold Coast City, Brisbane City, Sunshine Coast Regional, Cairns Regional Council) may have more than 5,000 properties exposed to landslide risk (i.e. occur at locations of greater than 15% slope).

Tsunamis

- The short recorded history of tsunami occurrence in Queensland shows that, whilst the coast has been subjected to the impact of tsunami a number of times during historical times, these have all been relatively small. The main contributors to the tsunami hazard in Queensland are expected to come from earthquakes in the New Hebrides, Tonga-Kermadec and Solomon Islands. These subduction zones, unlike those off Alaska and Chile, do not generate large-scale tsunamis that are potentially damaging throughout the Pacific Ocean.
- A tsunami of note was caused by a magnitude 9.6 earthquake off the Chilean coast on 22 May 1960, producing a tsunami in Townsville with a maximum run-up of 0.32 m, and a little under 0.3 m in Mackay. Run-up in Brisbane was 0.2 m.
- It is estimated that the return interval of such events on the Queensland Coast is approximately once in 100 years.
- Tsunamis are thus one of Queensland's less damaging hazards.

Earthquakes

- The strongest earthquake to have struck Queensland was at Bundaberg on 7 June 1918. With a magnitude of 6.3, it was more severe than the 5.6 Newcastle earthquake of 1989. Fortunately only minor structural damage (amounting to 8.7 house equivalents) occurred in Bundaberg and Rockhampton.
 - No fatalities have been caused by earthquakes in Queensland between 1900 and 1999.
 - Earthquakes are thus also one of Queensland's less damaging hazards.
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Detailed reports

This assessment has resulted in the production of eight detailed reports as follows:

- **Report 1:** *Significant historical natural hazards in Queensland: An overview*
- **Report 2:** *Historical analysis of natural hazard housing losses, fatalities and expenditure*
- **Report 3:** *Current exposure of property addresses to natural hazards*
- **Report 4:** *Exposure of critical infrastructure to natural hazard risks*
- **Report 5:** *Projected cost of natural disasters to losses of residential property*
- **Report 6:** *Australian natural disaster losses and climate change: Implications for disaster risk management*
- **Report 7:** *Studies in natural hazard risks: Flooding, bushfire and landslide*
- **Report 8:** *Major historical flash flooding in Queensland.*

Significant historical natural hazards in Queensland (Report 1)

Some of the most significant natural hazards events in Queensland that have led to major losses and extreme emergency scenarios in Queensland are listed below. An appreciation of these severe events set the scene and context for more detailed quantitative assessment of natural hazards in Queensland,

Flooding

- February 1893 – “The Great Flood” on the Brisbane River
- 26 January 1974 – The Cyclone Wanda flood on the Brisbane River
- The 1990 Great Floods of Central Queensland

Tropical cyclone winds and storm surge

- Cyclones in the Queensland Gulf - TC Audrey (January 1964) and TC Ted (December 1976)
- Cyclones over far north Cape York – TC Monica (April 2006) and TC Ingrid (March 2005)
- TC Althea (Townsville) – December 197
- TC Larry (Innisfail) – March 2006

Thunderstorm wind gusts, downbursts and tornadoes

- Downburst wind gusts in southeast Queensland – 16 November 2008
- Brisbane tornado – 4 November 1973

Hail storms

- Brisbane – 18 January 1985
- Gold Coast – 12 October 2005

Bushfires

- Hughenden and Warenda Stations – 28 September 1917
-

- Saltern Creek – 28 October 1918
- Sunshine Coast and Bribie Island – 27-29 September 1994 and 4-7 November 1994
- Granite Belt bushfires – 17-24 October 2002

Historical analysis of natural hazard housing losses, fatalities and expenditure (Report 2)

Three quantitative risk measures have been used in this assessment in an attempt to corroborate evidence of the relative risk of different natural hazards in Queensland. While several of these measures are used by the insurance sector, indicators such as housing losses have a direct relationship with the need for shelter – a critical requirement for personal safety and community resilience. A complicating aspect of risk management in the natural disaster sector is how to balance the risk to both people and property. It is difficult to combine metrics for both people and property into a single overall measure (e.g. combining fatalities and dollar losses arising out of lost assets or state disaster assistance provided) because of the difficulty in determining the relative weight of each of the factors.

Risk measures used in this assessment are: “House Equivalent” losses, human fatalities and Natural Disaster Relief and Recovery Arrangements (NDRRA) expenditure.

Because damage to buildings is usually only partial, it is possible to calculate a common basis of “house equivalent losses” that takes into account factors such as relative building costs over time, changes to average house size, and relative floor areas for different non-residential buildings. One lost House Equivalent is equivalent to the loss of a single median-sized residential home. The calculation of House Equivalent loss uses a simple formula that multiplies the number of houses damaged by the cost of damage. For example, the loss of one complete home is assumed to be equivalent to the loss of two homes that are each 50% destroyed or 10 homes that each experience 10% damage. House Equivalent losses is used throughout this assessment to provide a quantitative indicator of the likely risk of communities to natural hazards. While House Equivalent loss is not a perfect measure of these factors, it provides a comparable base for comparison over time, geographically and between different hazards and is used in several areas of investigation in this assessment.

The number of human fatalities is also a useful indicator of the risk and impact of a natural hazard. It is also important to recognise that the number of human fatalities is also proportional to the number of people present or exposed to the hazard. Data on human fatalities is fairly reliable as it is usually reported in media and is available from coroner’s reports.

Government expenditure on natural disasters is another indicator of risk. The Australian Government provides funding to help pay for natural disaster relief and recovery costs through the Natural Disaster Relief and Recovery Arrangements (NDRRA). NDRRA assistance can be in the form of emergency assistance that is given to individuals to alleviate their personal hardship or distress arising as a direct result of a natural disaster, a loan, subsidy or grant to alleviate the financial burden of costs incurred by certain businesses, primary producers, voluntary non-profit bodies and individuals as a direct result of a natural disaster, or for the restoration or replacement of certain essential public assets damaged as a direct result of a natural disaster.

Queensland’s Natural Hazard profile is strongly dominated by tropical cyclones and flooding when compared to the impact of natural hazards across Australia (Figure 1). This comparison

integrates the impact of natural disasters using House Equivalent losses as an indicator of impact severity.

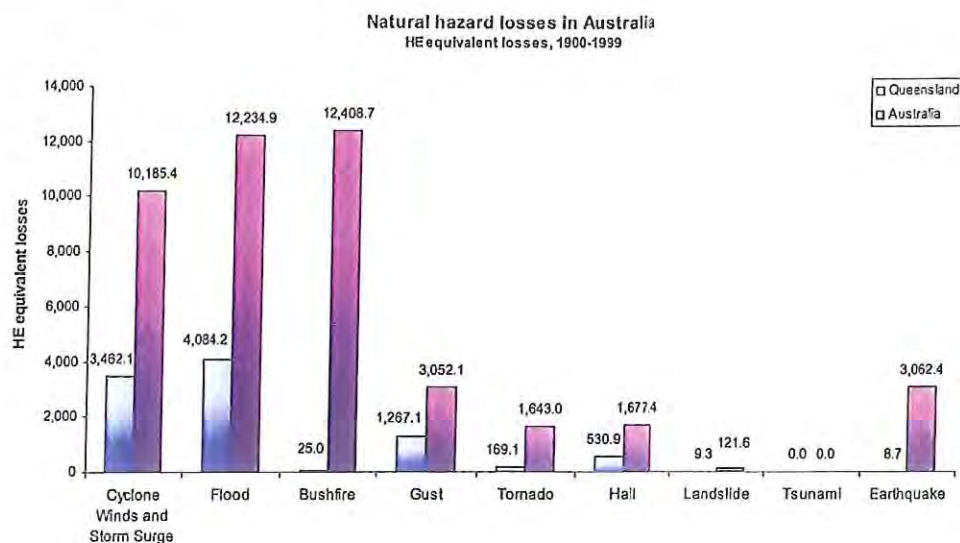


Figure 1: House equivalent losses for all states in Australia and for Queensland for climatic- and geological-related natural hazard categories from 1900 to 1999. (Source: Risk Frontiers' PerilAUS database)

A historical analysis of House Equivalent losses in Queensland between 1900 and 1999 shows that flooding, followed by tropical cyclones are Queensland's most damaging natural hazards (Figure 2). The implications of climate change on these natural hazards needs to be considered in longer term disaster management planning and emergency response capacity. It is likely that the figures for flood underestimate the true historical record.

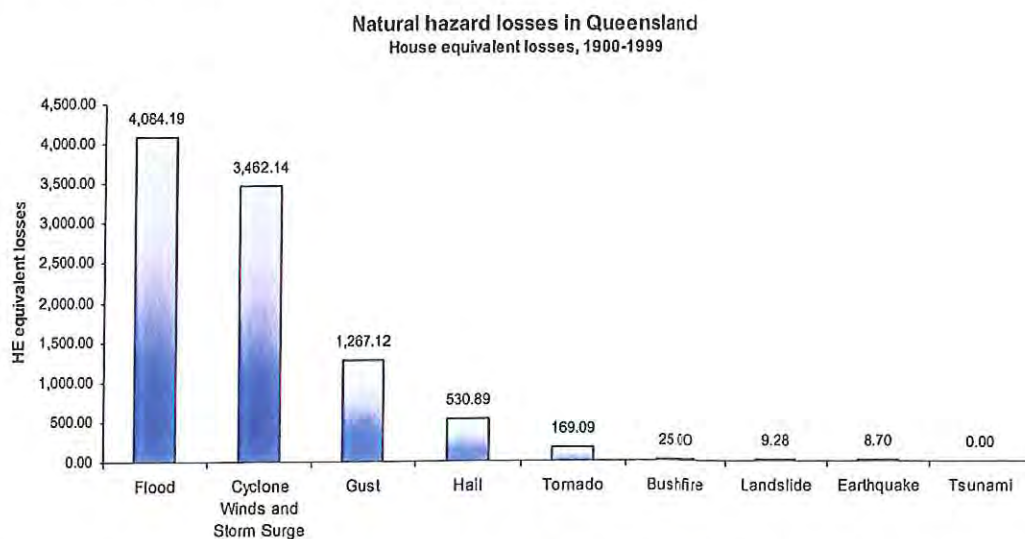


Figure 2: House equivalent losses for Queensland for all natural hazards, ordered by decreasing HE loss natural hazard categories 1900 to 1999. (Source: Risk Frontiers' PerilAUS database)

An analysis of human fatalities attributed to each natural hazard since 1900 shows that tropical cyclones and flood have historically been responsible for the most natural hazard disaster deaths in Queensland, between them accountable for 97.7% of all human fatalities (Figure 3).

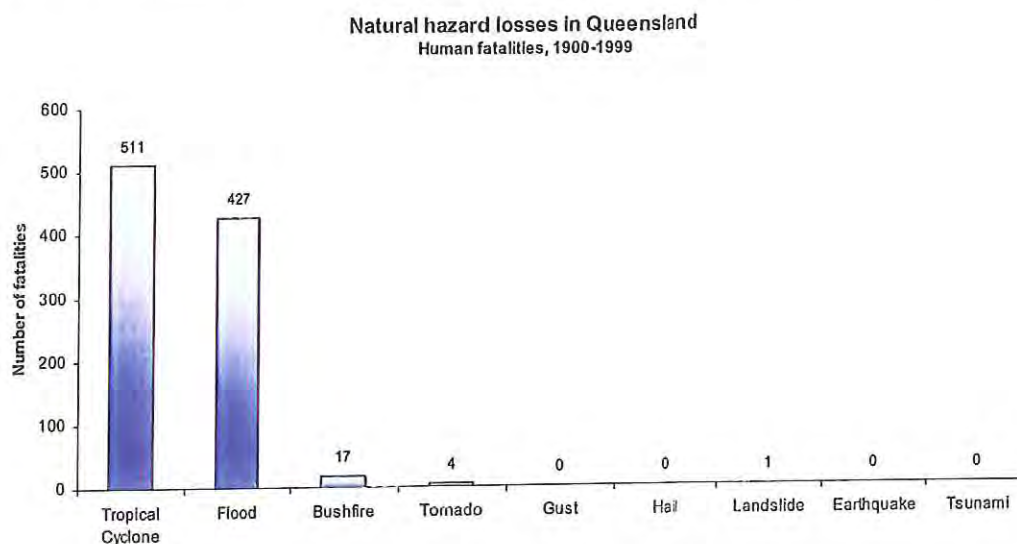


Figure 3: Number of human fatalities in Queensland for all natural natural hazards, 1900 to 1999. (Source: Risk Frontiers' PerilAUS database)

A simplified analysis of NDRRA expenditure in Queensland for the period 2002/03 to 2010/11 provides a third indication of the relative impact of natural hazards on Queensland communities.

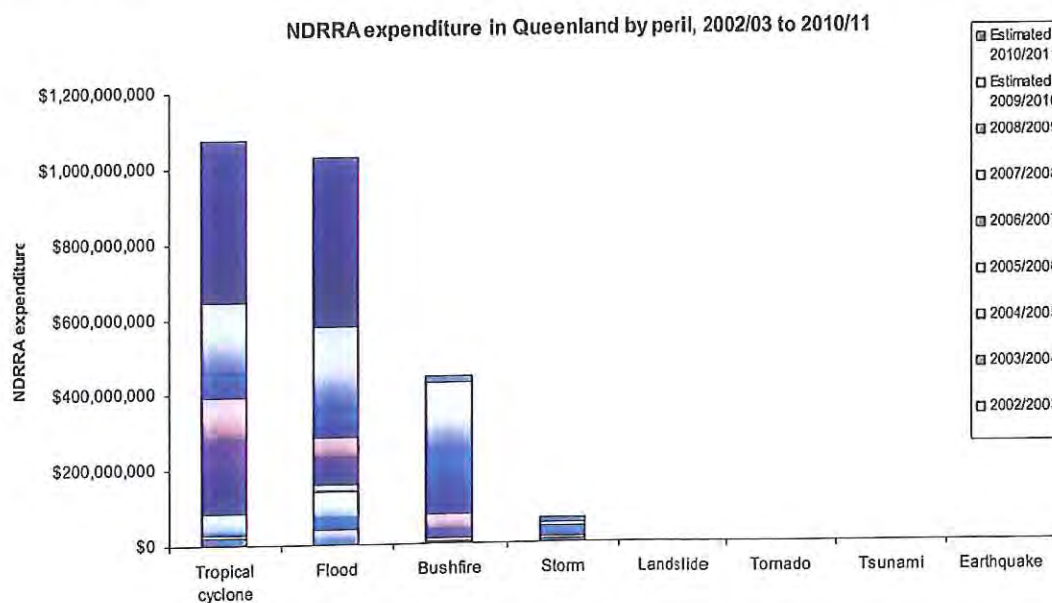


Figure 4: NDRRA expenditure in Queensland for all natural natural hazards, 2002/03 to 2010/11. (Source: After data supplied by Queensland DCS)

Notes: (1) Figures for 2009/2010 are unaudited, and are subject to change.
(2) Figures for 2010/2011 are as at 31 August 2010; they are unaudited, and are subject to change.

This analysis shows that historically, flood and tropical cyclones pose the greatest risk to Queensland in terms of asset losses and human fatalities. Whilst bushfire has resulted in a number of deaths it has not been responsible for a great deal of asset losses. Wind and hail events on the other hand have resulted in significant asset losses but very low loss of life.

Current exposure of residential addresses to natural hazards (Report 3)

Natural hazard exposure maps for bushfire, coastal exposure, riverine flooding and tropical cyclone winds at a resolution of 1 km, 25 km and for Queensland local government areas provide an indication of the location and frequency of natural hazards and the community's exposure to the risk.

The nine local governments in Queensland with highest exposure to *bushfire hazard* (i.e. more than 10,000 addresses within 100 m of forest) and the approximate number of exposed addresses are:

- Sunshine Coast Regional (39,428)
- Gold Coast City (37,670)
- Logan City (25,198)
- Brisbane City (22,845)
- Moreton Bay Regional (22,800)
- Redland City (13,961)
- Scenic Rim Regional (11,256)
- Fraser Coast Regional (10,327)
- Ipswich City (10,089)

These are depicted in Figure 5.

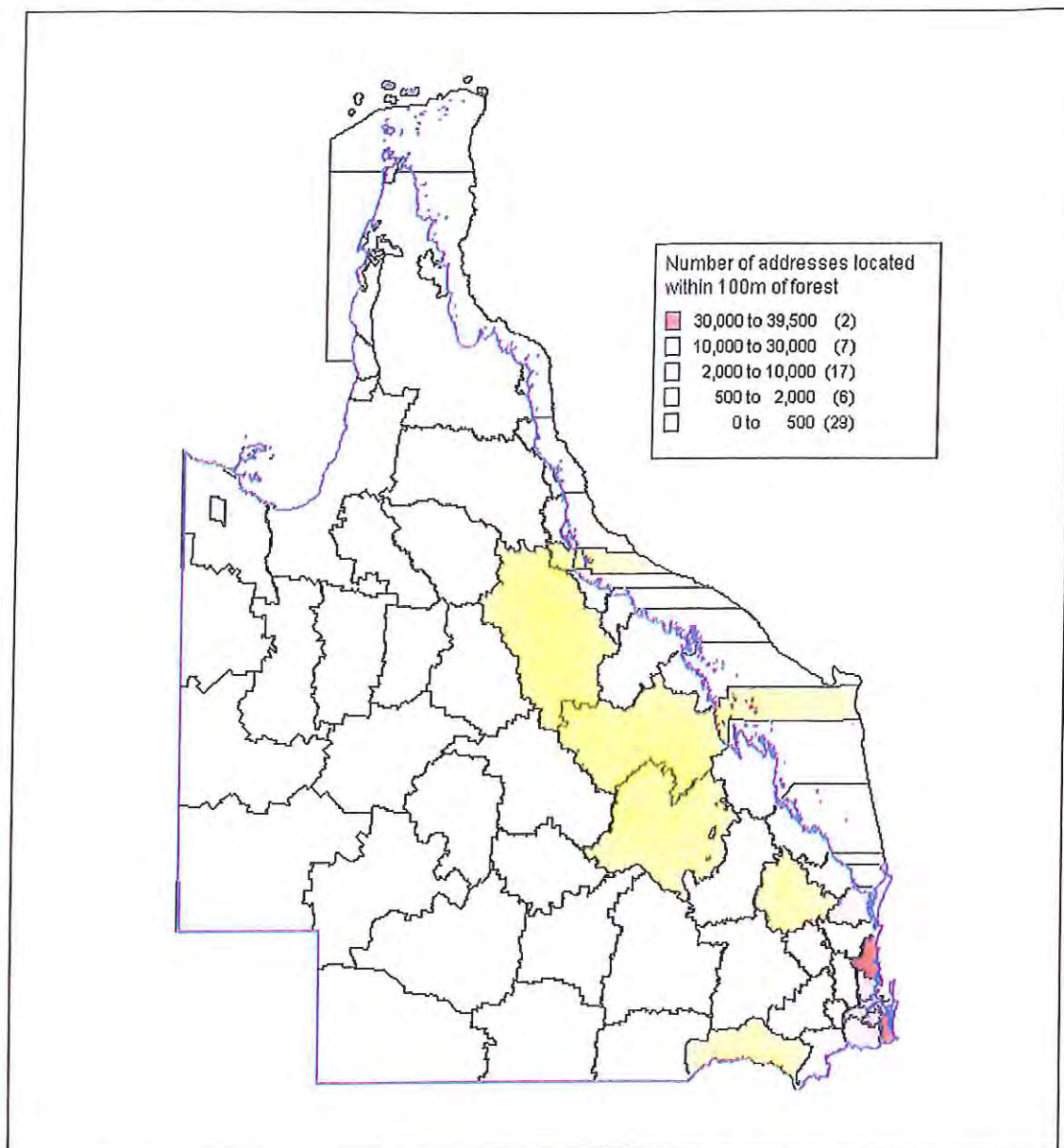


Figure 5: Overview of the number of addresses located within 100 m of natural vegetation, at local government area level. The local government area boundary is provided by DCS.

The study also quantifies potential *coastal exposure risk* in terms of the number of addresses with respect to elevation above mean sea level (6 m) and proximity to the coast (3 km). The 10 local government areas in Queensland with highest exposure to coastal exposure (each with more than 1,550 addresses) and the number of exposed addresses are

- Gold Coast City (85,776)
- Sunshine Coast Regional (32,605)
- Brisbane City (16,944)
- Moreton Bay Regional (14,035)
- Fraser Coast Regional (6,052)
- Redland City (5,662)
- Cairns Regional (4,412)

- Mackay Regional (3,324)
- Townsville City (2,087)
- Bundaberg Regional (1,573)

These are depicted in Figure 6.

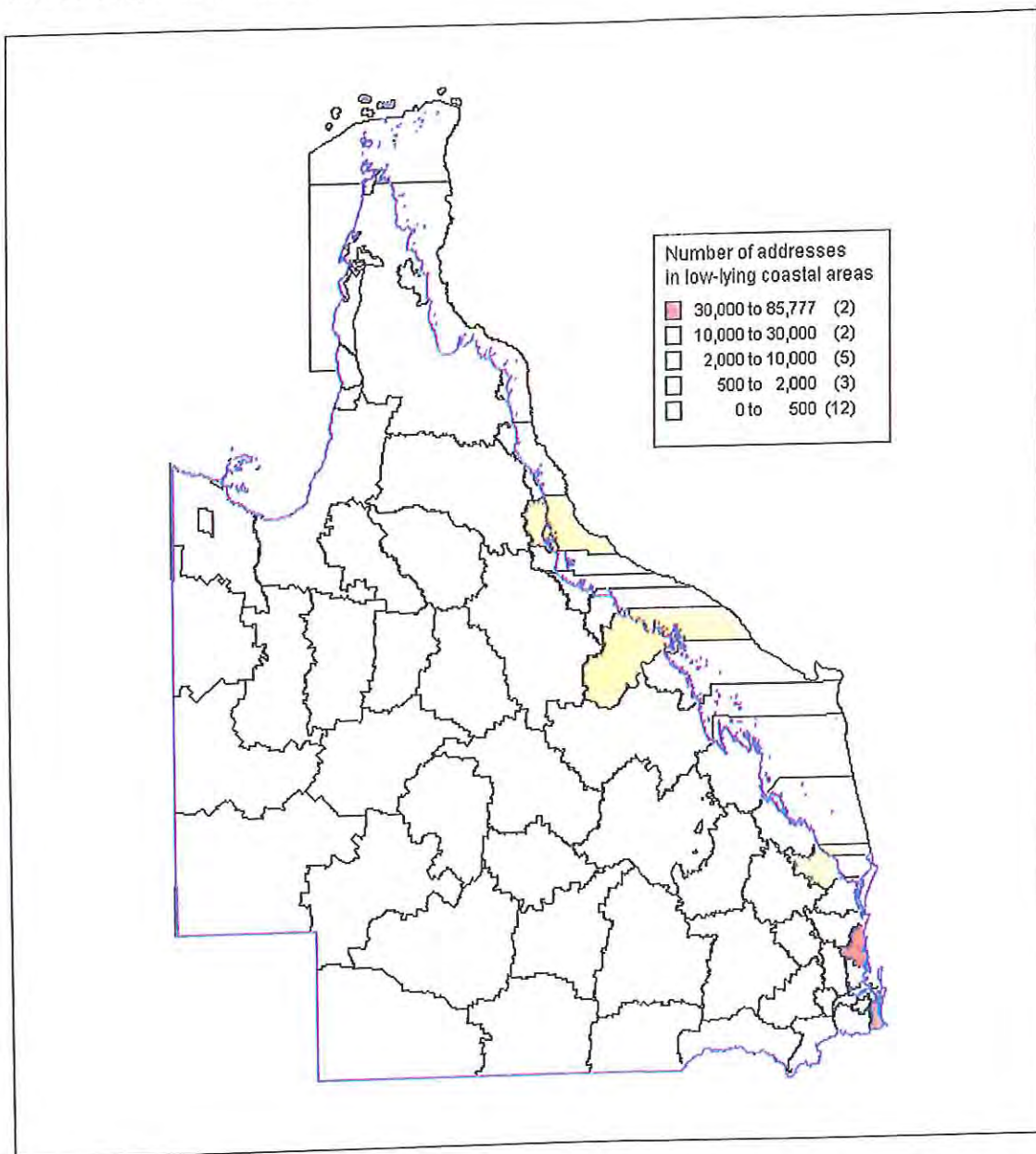


Figure 6: The number of addresses subject to coastal vulnerability at local government area level. Addresses located within 3 km of the shoreline and with elevation less than 6 m above mean sea level are used.

This project has compiled information on *flood-related exposure* by estimating the number of residential properties liable to inundation by an ARI 100-year flood¹ at a state level.

Detailed exposure maps were prepared for seven population centres in Queensland where detailed flood information is available through Risk Frontiers' *FloodAUS* project. These are the Gold Coast (Nerang River catchment and Coomera River catchment), Brisbane, Ipswich, Dalby, Rockhampton, Mackay and Cairns.

Both assessments are for riverine flooding only, and do not include consideration of flash flooding, storm water overflow, or coastal flooding due to sea level rise. The assessment incorporates the effect of levees, and it is assumed that the levees operate as designed.

This analysis identified that 47,085 residential addresses across these locations have an ARI of 100 years or less. This accounts for about 79.2% of all flood-prone residential addresses in Queensland. As an example, the distribution (on a 1-km grid) of ARI 100-year flood-prone addresses in Brisbane and Ipswich, are illustrated in Figure 7.

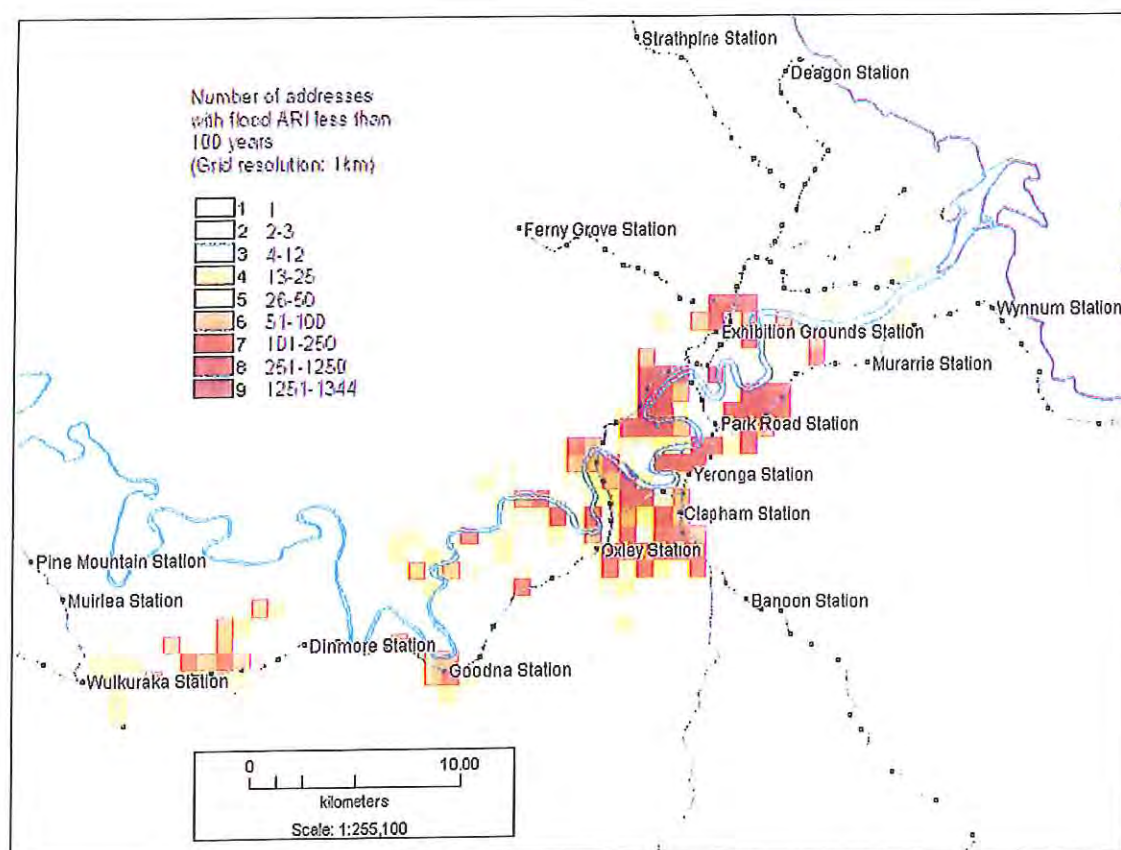


Figure 7: Number of flood-prone addresses in Brisbane and Ipswich with an ARI less than 100 years (resolution 1 km).

¹ The probability of experiencing a flood of a particular magnitude is generally expressed in terms of an Average Recurrence Interval (ARI, in years) or Return Period (RP). A flood in a particular catchment with an ARI of 100 years (also known as the 1% Annual Exceedance Probability – AEP, adopted in the State Planning Policy 1/03) is often used to define a severe flood for planning purposes.

Exposure to *winds from tropical cyclones* was quantified for regions north of latitude 30°S, including all areas and addresses in coastal Queensland. Hazard exposure results at the local government area level are presented in Figure 8. The combination of windspeed hazard and concentrations of exposure clearly indicates hotspots, including Cairns, Townsville, Mackay, Rockhampton, Gladstone, Bundaberg, Maryborough, Nambour, Brisbane and the Gold Coast.

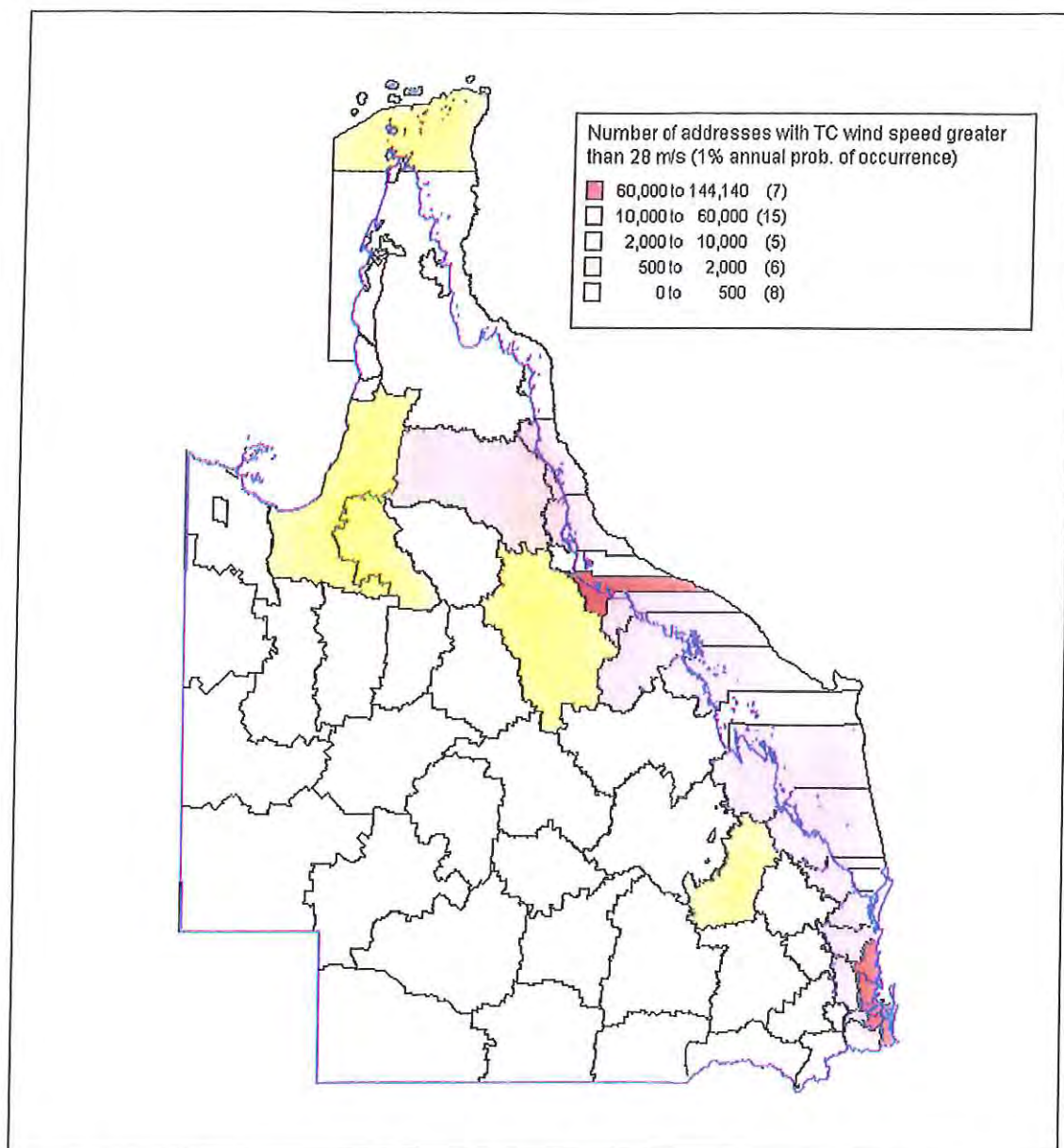


Figure 8: Number of addresses with tropical cyclone windspeed greater than 28 m/s under a 1% annual probability of occurrence, at local government area level.

Critical public infrastructure - An analysis of exposure to natural hazards (Report 4)

An analysis was conducted to identify and map risk to public infrastructure in terms of its location, and thus exposure to natural hazards. Exposure to bushfire, coastal hazards, floods and tropical cyclone winds was analysed. The investigation used infrastructure GIS data provided by the Department of Community Safety (DCS), including major critical infrastructure and social infrastructure. Data provided by DCS was categorised according to the critical nature of functioning at the time of, and immediately following, a natural disaster as either:

- Critical for state or regional functioning at time of (and immediately following) a natural disaster (e.g. Power, communications, main roads, railways, powerlines) or
- Important for local function at time of (and immediately following) natural disaster (e.g. Schools, hospitals).

This analysis was used to indicate the number of critical public infrastructure buildings or points at risk in each LGA, and for linear infrastructure, the length (in km) of the critical public infrastructure at risk in the LGA.

Projected cost of natural disasters to losses of annual residential property (Report 5)

A priority ranking of natural hazard risks facing Queensland was developed using damage models and methods used by the Australian insurance industry. This approach complements other analysis of historical natural hazard damages. The methodology and results use a forward-looking approach based on the expected cost of building damage to the insurance and reinsurance industry. Natural hazards modelled include bushfire, riverine flood, hail and tropical cyclone wind losses.

These models estimate the annual probability of experiencing a loss in excess of given thresholds and the average annual return interval (ARI) for the loss (i.e. the average time between loss events in excess of a certain magnitude). Data produced from these models provides an estimate of the relative risk to private residential property. These estimates provide a good surrogate for the effort demanded of emergency services in natural disasters.

Table 6 shows the insured losses of residential property that an insurer of the Queensland market portfolio would expect to bear on average for an event with a given ARI based on losses.

Table 6: Estimated losses (in \$ millions) for insured residential property for the Queensland market portfolio for events with given ARIs.

ARI event loss	Bushfire	Hail	Riverine Flood	Tropical Cyclone Winds
50	\$5 m	\$623 m	\$736 m	\$4,317 m
100	\$14 m	\$1,040 m	\$1,266 m	\$6,978 m
250	\$32 m	\$1,771 m	\$1,301 m	\$11,502 m

These results indicate that the Queensland market portfolio could expect, on average, a flood event with insured losses of around \$1.3 billion once in 100 years. Similarly, an insured loss from tropical cyclonic winds of around \$7 billion would occur once in 100 years. This estimated loss for tropical cyclone winds is approximately 5.5 times the losses of the 1-in-100 year loss flood. These results suggest that of the four hazards modelled in this study, the relative level of risk to Queensland communities at 1-in-100 year risk level² in the future will be:

- highest for tropical cyclone winds
- second highest for riverine floods
- third highest for hail.

Australian natural disaster losses and climate change: Implications for disaster risk management (Report 6)

Historical trend analysis and literature reviews suggests that in Australia societal changes are the predominant drivers of historical increases in disaster losses to date, and that climate change has not yet caused any substantial changes in losses to residential buildings. It is likely that the effects of climate change may take some time before evidence of climate change impacts on natural hazard disaster losses can be detected (Crompton *et al.* 2011). The dominant role of social and economic vulnerabilities in disaster causation is evident in the strategies and reports of the UNISDR and IPCC.

In contrast, a number of studies of climate change using global circulation models and our understanding of atmospheric physics point to the possibility of significant changes in the frequency or magnitude of some meteorological hazards (rather than losses) – particularly flooding and bushfires.

Despite the contrasting conclusions from these different methods of inquiry about the impacts of climate change, it is important that emergency managers act responsibly to reduce underlying social and economic vulnerabilities and enhance the capacity of communities to respond to and recover from meteorological disasters.

Given the prospect and uncertainty of climate change and the current reality of natural hazards in Queensland, it is important to reduce the community's vulnerability to future natural disasters in the short and long term by directing policies and research to help communities adapt to extreme weather events. Efforts to reduce the physical, social and economic vulnerability of communities to extreme events under the present climate will pay dividends under any future climate.

Special investigations of bushfires, flooding and landslides (Report 7)

- Bushfires

Empirical analysis of extreme bushfires in Australia has shown that establishing an effective buffer distance from bushland of about 100 m is likely to result in a significant reduction of up to 85% in property loss, and by inference, loss of life in Queensland.

² At higher risk levels (e.g. 1-in-250 years) the expected losses from a significant hail event exceeds that of a flood event.

- Flooding

For the seven flood-prone areas in Queensland studied (i.e. the Gold Coast, Brisbane, Ipswich, Rockhampton, Dalby, Mackay and Cairns), an analysis (Figure 9) indicates that a large number of addresses (35,353) are very flood-prone (with ARI less than 50 years); these addresses are likely to contribute to the majority of potential flood losses. This chart also shows the number of addresses likely to experience a lower incidence of flooding between ARI of 100 and 200 years (48,675 addresses), between ARI of 200 and 500 years (28,369 addresses) and 79,710 properties between ARI 500 years and the Probable Maximum Flood (PMF, typically set as 10,001 years).

A number of alternative mitigation scenarios reflecting (a) potential changes to planning policies relating to flood-prone addresses, and (b) potential changes to building code policy were tested. Impacts were reported as changes to the Average Annual Damage (AAD, defined as the average cost of flood damage per year to a nominated development situation caused by flooding over a long period of time) shows that AADs decrease only slightly (about -3%) from the least stringent planning controls to the most stringent planning controls. It can be inferred that the effectiveness of planning controls for potential loss mitigation under these scenarios is limited. Only marginal gains can be achieved if the change of floor heights is taken into consideration. Addresses with ARI below 50 years contribute as much as 71.9% of this baseline AAD, and addresses with ARI between 50 and 100 years contribute a further 10.2%. This scenario analysis clearly indicates that loss mitigation is unlikely to be effective until impacts on the most at-risk flood-prone addresses (e.g. ARI less than 50 year) are resolved.

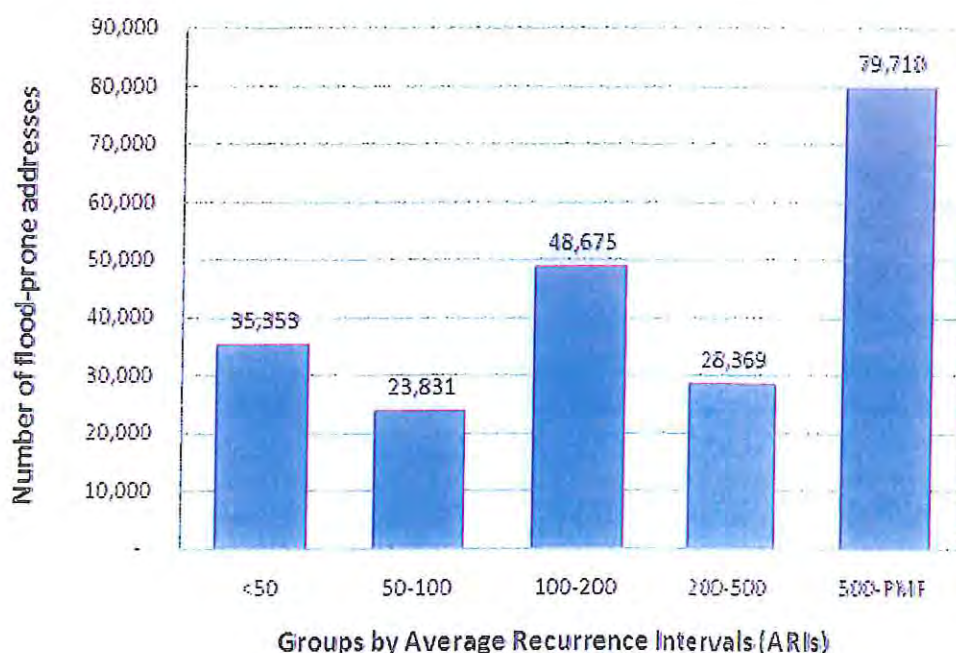


Figure 9: Number of flood-prone addresses in seven areas (i.e. the Gold Coast, Brisbane, Ipswich, Rockhampton, Dalby, Mackay and Cairns) by ARIs.

A case study for the Brisbane River catchment within the Brisbane City Council area examined potential losses from a change of flood frequency and magnitude in the Brisbane River. This analysis shows a marked increase in AADs from the current situation (approx \$33m) to scenarios with increasing flood frequency and magnitude under a warming climate of \$94m by 2050 and

\$102m by 2100. This results from more frequent larger magnitude events that cause more addresses and areas to be inundated, and indicates the profound potential implications of climate change on flooding, and suggests the need for more comprehensive and larger studies of the issues raised.

- Landslide

Three factors, slope, intense rainfall and geology, combine to generate risk from *landslides*. None of these factors alone is a good guide to the instability of an area and possible landslide activity.

An analysis of observed landslide activity confirms that they are more likely on slopes exceeding 15%, especially in areas that experience very intense rainfall, such as the area between Bowen and Cairns, and in the coastal areas in south east Queensland. Development in areas with these characteristics will increase losses due to landslide activity. About 87,000 addresses in Queensland (approximately 3.4% of the 2,558,675 residential addresses in the state) are located in areas with a slope of 15% or greater. The top four LGAs (Gold Coast City, Brisbane City, Sunshine Coastal Regional, and Cairns Regional) are situated in two "hotspot" regions for landslide activity.

While the two hotspot regions are characterised by steeper slopes, these regions also have a higher density of population settlement. It is likely that the larger number of reported landslide incidents in these regions is also due to the higher numbers of people available to observe the impacts of landslides. This analysis suggests that slope threshold alone is not sufficient to identify areas susceptible to landslide.

Major historical flash flooding in Queensland (Report 8)

An overview of historical flash floods in Queensland identifies and describes two of the most significant flash floods (in terms of loss of life and damage) to have occurred in the state – the Clermont flood of December 1916 and the recent Toowoomba and Lockyer Valley flash floods of January 2011. The report also provides an analysis of the demographics and circumstances of death of all fatalities from flash floods in Queensland from 1950 until February 2011, and compares the results with those from the rest of Australia. This analysis highlights the importance of considering flash flooding in the design and location of housing and infrastructure, and the high risk of travelling by vehicle through flash flood waters.

Conclusions

- Flooding is historically Queensland's most damaging natural hazard that has also caused significant fatalities, especially by flash flooding. The damage from flooding is likely to continue into the future and would be exacerbated by climate change under scenarios developed the Queensland Government, particularly for addresses under the one in 50 year flood line. Some of Queensland's local government areas with high numbers of addresses exposed to flooding include Brisbane, Ipswich, the Gold Coast and Mackay.
 - Tropical cyclone winds, and to a lesser extent, storm surge generated from Tropical Cyclones are historically Queensland's second most damaging natural hazard, and Queensland's most fatal natural hazard. In the future the impact of Tropical Cyclone winds is expected to cause as much as 5 times the damage from flooding, largely because of the destructive power of cyclonic winds and the high levels of recent coastal development.
-

Local Governments with relatively high exposure to damaging cyclone winds or storm surge include Gold Coast City, Sunshine Coast Region, Brisbane City, Moreton Bay Region, Fraser Coast Region, Redland City, Cairns City, Mackay City, Townsville City, Rockhampton City and Bundaberg Regional Council.

- After flooding and tropical cyclones, thunderstorm wind gusts, downbursts and tornadoes are Queensland's third most damaging natural hazard, and cause significant damage to powerlines, trees and housing in urban areas.
 - Hail storms are Queensland's fourth most damaging natural hazard.
 - Bushfires in Queensland historically cause much lower levels of damage to housing in Queensland. Bushfires cause extensive damage to crops, pastures, livestock and fencing. Climate change may have a significant effect on the severity and frequency of bushfires in the future, although no historical evidence is available to support these projections.
 - Landslides, earthquakes and tsunamis are of much lower significance than other natural hazards in Queensland.
 - Disaster management planning at all levels of Government in Queensland would be enhanced by greater awareness of natural hazard risks that could be achieved through improved mapping of flooding, tropical cyclone winds, storm surge and bushfires under climate change, and provision of these data in a format that can be readily accessed and maintained by State Agencies and Local Governments in Queensland.
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Glossary of Terms

Annual exceedance probability (AEP)	The probability (or chance) that an event greater than or equal in size to a given event will occur in a given year.
Annual return interval (ARI)	The average time between loss events in excess of a certain magnitude.
Average Annual Damage (AAD) or Average Annual Loss (AAL)	The total damage or loss (in \$) that is expected to accrue in one year from a given hazard.
Average house equivalent (HE) loss per hazard	The average House Equivalent loss for a given natural hazard, where the average is taken across only those events for which there was a non-zero HE loss.
Bushfire	Any uncontrolled, non-structural fire burning in a grass, scrub, bush or forested area.
Cadastre	A comprehensive register of the metes-and-bounds of real property. A cadastre commonly includes details of the precise location (including GPS coordinates), the dimensions and area.
Centroid	The geometric center of a property address.
Climate change	A statistical description of weather conditions and their variations including both averages and extremes, over a long period of time. Greenhouse gasses play an important role in determining climate and causing climate change (Australian Academy of Science, 2010)
Climate change projections	Future projections of changes to climate factors, such as temperature, rainfall and evaporation.
Consequential hazard	The consequence of some natural hazard event, e.g. a tropical cyclone (origin) may give rise to flood-producing rainfall (consequence).
Critical importance rating	An index indicating the relative importance of infrastructure to the state or community during or following a natural disaster event.
Digital elevation model (DEM)	A spatial representation of the height of an area of land above sea level in a Geographic Information System.
Digital terrain model (DTM)	A raster or height map representing height information of the <i>bare ground surface</i> of an area of land, without any objects like plants and buildings.
Earthquake	An earthquake is the shaking and vibration at the surface of the earth caused by underground movement along a fault plane or by volcanic activity (Geoscience Australia)
Exposure	The people, buildings or infrastructure that are in the direct path of a natural hazard event.
Extreme Value Analysis (EVA)	A statistical technique to describe and understand quantifiable but rare events.
Flash flood	A flood of short duration with a relatively high peak discharge. (Bureau of Meteorology) A flood that rises quite rapidly with little or no advance warning, usually as a result of an intense rainfall over a small area or, possibly, an ice jam, a dam failure, etc. (Emergency Management Australia)
Flooding	A flood is an overflow of an expanse of water that submerges land
Flood mitigation sensitivity analysis	An analysis indicating the change in expected annual damage from flooding when various mitigation measures are employed.
Flood risk	The risk posed to a property by the occurrence of flooding.

Flood surface	The spatial extent of a given flood event.
Geo-located National Address File (G-NAF)	A database of all property addresses in Australia, including GPS co-ordinates of the property's centroid.
GIS	Geographical Information System – a tool to store and analyse spatial data.
Global warming	The gradual increase of the earth's average surface temperature, due to greenhouse gases in the atmosphere.
Hailstorm	A hailstorm is any storm that produces hailstones that fall to the ground. It is usually used when the amount or size of the hail is considered significant.
High (medium) emissions scenario	A plausible representation of the future development of emissions of greenhouse gases and aerosols that can influence global climate. A high emissions scenario represents the assumption that emissions will be at the higher end of the plausible range.
House equivalent (HE) losses	A common basis for comparing building losses through natural hazards, using relative building costs over time, changes to average house size, and relative floor areas for different types of non-residential buildings. One lost HE loss is equivalent to the loss of a single median-sized residential home.
Infrastructure	A service, facility, or a group of services or facilities, the loss of which will have adverse effects on the physical, social, economic or environmental well being or safety of the community. (Emergency Management Australia)
Insurance	A form of risk management primarily used to hedge against the risk of a contingent uncertain loss.
Insured losses	The financial losses incurred by insurers due to a specified event.
Landslide	The movement of a mass of rock, debris or earth down a slope as a result of shear failure at the boundaries of the mass, and driven by the force of gravity. Landslides occur when the inherent strength of soil or weathered rock is no longer sufficient to resist the forces of gravity acting on the materials.
Linear infrastructure	Infrastructure extending across a network, e.g. a gas pipeline, or a powerline network, or a road or railway network.
Mitigation options	Alternative options that could be instituted to reduce the risk of a natural hazard event.
Monte Carlo simulation	Use of a computational algorithm that relies on repeated random sampling from a distribution of historical data to generate a result (in this case the losses attributable to a natural hazard of a given magnitude).
Natural Disaster Relief and Recovery Arrangements (NDRRA)	Funding provided by the Commonwealth Government through the Natural Disaster Relief and Recovery Arrangements (NDRRA) to help pay for natural disaster relief and recovery costs.
Natural hazard	A threat of a naturally-occurring event that will have a negative effect on people or the environment, for example floods, tropical cyclones, earthquakes and tsunamis.
Natural hazard exposure	A measure of the people, buildings or infrastructure in the direct path of the natural hazard event.
Natural hazard risk	The likelihood of a loss from a natural hazard, given a particular hazard, exposure and vulnerability. Losses may include damage to property, fatalities or injury, economic or other social losses.

Normalisation	The process of adjusting historical disaster losses in order to estimate the loss had the event been imposed upon current societal conditions. In practice, it involves adjusting for changes in population, wealth, inflation and (where appropriate) improved construction standards.
Origin-based losses	Losses from natural hazard events which are categorised by the originating meteorological or geological event, rather than the consequential losses.
Point infrastructure	Infrastructure located at a specific address, e.g. a power station, an airport or hospital.
Probabilistic catastrophe loss model	The process of using computer-assisted calculations to estimate the financial losses that could be sustained due to a catastrophic natural hazard event such as a flood or an earthquake.
Probabilistic loss model	The process of using computer-assisted calculations to estimate the financial losses that could be sustained due to a catastrophic natural hazard event such as a flood or an earthquake.
Probable Maximum Flood (PMF)	The greatest flood that might be expected, usually set as a flood with ARI of 10,001 years.
Reinsurance	Insurance that is purchased by an insurance company (<i>insurer</i>) from another insurance company (<i>reinsurer</i>) as a means of risk management, to transfer risk from the <i>insurer</i> to the <i>reinsurer</i> .
Resilience	The capacity of people, communities or physical assets to successfully respond to stress or adversity.
Risk rating	A measure of an infrastructure's level of risk to each natural hazard under consideration.
Riverine flooding	Overland inundation when water overflows the banks of a defined river course.
Setback distance	The separation distance between a property and bushland or natural forest.
SRTM elevation data	Elevation data (at 90-m resolution level) from NASA's Shuttle Radar Topography Mission.
Stochastic loss model	A tool for estimating potential loss outcomes by allowing for random variation based on fluctuations observed in historical data in one or more inputs over time.
Storm surge	A rise above the normal water level along a shore that is the result of strong onshore winds and /or reduced atmospheric pressure. Storm surges often accompany a tropical cyclone as it comes ashore.
Thunderstorm wind gust	Wind gusts are generated in thunderstorms when falling rain and hail drag the surrounding air downwards. Evaporation of the raindrops and hail cools the descending air, increasing the air's density, and accelerating the downward rush. The strong downdraft then spreads out once it reaches the ground, producing a cool, gusty wind that can cause damage to trees, powerlines and buildings.
Tornado	A tight low pressure vortex that pulls air in from the surrounding environment and lifts it into a storm as it rotates around a central core. The rotating column of air is in contact with both the surface of the earth and a cumulonimbus cloud or, in rare cases, the base of a cumulus cloud.
Tropical cyclone	A non-frontal large scale low pressure system developing over warm waters, having organized convection and a maximum mean wind speed of 63 km/h or greater extending more than half way around near the

	centre and persisting for at least 6 hours (Bureau of Meteorology)
Tsunami	A tsunami is a series of ocean waves with very long wavelengths (typically hundreds of kilometres) caused by large-scale disturbances of the ocean, such as earthquakes, landslide, volcanic eruptions, explosions or meteorites. (Bureau of Meteorology)
Vulnerability	The level of potential damage or injury to assets or people if impacted by a natural hazard event of a given intensity.
Vulnerability curve	A chart or graph showing the relationship between the damage caused to exposed assets if impacted by a natural hazard of a given intensity, and a measure of the magnitude or intensity of the natural hazard.

Increasing Queensland's resilience to inland flooding in a changing climate:

Final report on the Inland Flooding Study

A joint project of:

Department of Environment and Resource Management

Department of Infrastructure and Planning

Local Government Association of Queensland

Prepared by:

Office of Climate Change—Department of Environment and Resource Management
Department of Infrastructure and Planning
Local Government Association of Queensland

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Executive summary

Flooding causes significant impacts on Queensland communities and the economy—and with our changing climate, flooding events are likely to become more frequent and more intense. Effective land use planning will ensure our communities are ready for the impacts of climate change.

The Local Government Association of Queensland (LGAQ) approached the Queensland Government to provide a benchmark figure for taking climate change into account when assessing inland flooding risk.

An Inland Flooding Study project was established by the Minister for Climate Change and Sustainability and the Minister for Infrastructure and Planning in partnership with LGAQ to deliver:

1. An improved methodology for assessing inland flooding risk while accounting for climate change.
2. Specific policy options for improved flood risk management in the case study area—Gayndah in the North Burnett Regional Council.
3. General policy options for consideration as part of the review of State Planning Policy 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (SPP 1/03).

As a result, this Inland Flooding Study combines the best available science and planning options to provide clear guidance and practical tools to enhance flood risk management by local governments.

This study provides Queensland local governments with a climate change factor for increased rainfall intensity for incorporation into flood studies. It proposes a 5 per cent increase in rainfall intensity per degree of global warming.

This 5 per cent increase in rainfall intensity per degree of global warming can be incorporated into the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) Annual Exceedance Probability (AEP)¹ flood events recommended in SPP 1/03. For the purpose of applying this climate change factor local governments should use the following temperature increases and planning horizons: 2°C by 2050, 3°C by 2070 and 4°C by 2100.

This climate change factor will be reviewed and updated when a national position on how to factor climate change into flood studies is finalised as part of the current review of Australian Rainfall and Runoff Engineers Australia Publication (AR&R). The outcomes of this review are not expected to be available before 2014.

In the interim, local governments can use the recommended climate change factor from this project to better identify flood risks. Further technical information on how this climate change factor was derived can be found at www.derm.qld.gov.au.

Using this climate change factor, the Inland Flooding Study developed recommended policy options to incorporate climate change into the flood risk management framework for Gayndah. These options are included in a draft flood constraint code for assessing development applications, which defines four flood hazard areas linked to the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood levels. The draft flood constraint code outlines the appropriate land uses for each of these hazard areas. This is a major step forward in shifting the focus from the 1 per cent AEP (Q100) as the only relevant flood level for residential development to the reality that there are varying levels of flood risk that local governments need to consider.

The recommendations also include two implementation options for addressing the increased flood intensity risk from climate change. These two options allow the North Burnett Regional Council to choose how best to represent this risk in its planning scheme.

The first option uses three new flood maps that include the climate change factor:

- Map 1: 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood extents projected for 2050.
- Map 2: 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood extents projected for 2070.
- Map 3: 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood extents projected for 2100.

These maps are used to apply development constraints based on the asset life and location of a development proposal in relation to the revised flood maps.

¹ The Annual Exceedance Probability (AEP) refers to the likelihood of occurrence of a flood of a given size (or larger) in any one year. The 1 per cent AEP flood event is also known as the 1-in-100 year Average Recurrence Interval (ARI) or Q100 event, the 0.5 per cent AEP is also known as the 1-in-200 year ARI or Q200 event, and the 0.2 per cent AEP is also known as the 1-in-500 year (ARI) or Q500 event.

The second option uses Gayndah's existing flood maps and increases the level of constraint on development proposals to account for the climate change factor. In effect this extends the area subject to current 1 per cent AEP (Q100) development constraints to:

- an area equivalent to the present day 0.5 per cent AEP (Q200) flood level for areas subject to a development commitment
- an area equivalent to the present day 0.2 per cent AEP (Q500) flood level for new urban development.

This approach is based on the current 0.5 per cent AEP (Q200) approximating the 1 per cent AEP (Q100) level by 2050 and the current 0.2 per cent AEP (Q500) approximating the 1 per cent AEP (Q100) level by 2100.

The two implementation options apply the same climate change factor of a 5 per cent increase in rainfall intensity per degree Celsius of global warming.

The recommended policy options provide the North Burnett Regional Council with interim guidance on how to better manage flood risk for the Gayndah township area in advance of the review of SPP 1/03. While these options are specific to the issues identified by this project for the Gayndah township, the policy approach underpinning the draft flood constraint code will be of interest to other local governments as an example of how the impact of climate change on flood risk can be addressed in planning schemes. A copy of the recommended policy options paper prepared for Gayndah can be found at <www.derm.qld.gov.au>.

The Inland Flooding Study raised issues that will be considered by the Queensland Government as part of the review of SPP1/03, including:

- the benefits of requiring a standard hydrological methodology for flood studies
- identifying how frequently flood studies should be reviewed and/or updated
- investigating the circumstances in which local governments should be able to have a Defined Flood Event (DFE)² that is higher or lower than the 1 per cent AEP (Q100)
- clarifying which components of the SPP, as they relate to flood risk management, are optional or mandatory
- identifying how to better integrate land use planning and disaster management planning, for example making sure there are sufficient evacuation routes to get people to a safe and secure area in an extreme event (e.g. storm, flood or fire).

The key recommendations from the study are:

- **Recommendation 1**—Local governments should factor a 5 per cent increase in rainfall intensity per degree of global warming into the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood events recommended in SPP 1/03 for the location and design of new development.
- **Recommendation 2**—The following temperatures and timeframes should be used for the purposes of applying the climate change factor in Recommendation 1:
 - 2°C by 2050
 - 3°C by 2070
 - 4°C by 2100.
- **Recommendation 3**—The Queensland Government will review and update this climate change factor when a national position on how to factor climate change into flood studies is finalised as part of the current review of AR&R.
- **Recommendation 4**—That North Burnett Regional Council consider the two implementation options identified in the paper *Recommended Policy Options for Incorporating Climate Change into the Flood Risk Management Framework in Gayndah* and implement its preferred approach in its planning scheme.
- **Recommendation 5**—The review of SPP 1/03 should consider the benefits of requiring a standard method for undertaking a flood study and determining a DFE.
- **Recommendation 6**—The review of SPP 1/03 should consider whether there is a need to specify how frequently a flood study should be reviewed or updated.
- **Recommendation 7**—The review of SPP 1/03 should develop criteria that outline the circumstances where a DFE higher or lower than the 1 per cent AEP (Q100) is appropriate for residential land use planning.

² The DFE is the flood event adopted for the management of development in a particular locality. The 1 per cent AEP is the recommended DFE under SPP1/03.

- **Recommendation 8**—The review of SPP 1/03 should clarify what components of the SPP are compulsory and clarify what additional guidance local governments may need to meet those obligations.
- **Recommendation 9**—The review of SPP 1/03 should consider the applicability of the recommended planning response for Gayndah (as per recommendation 4) to other parts of Queensland.
- **Recommendation 10**—The review of SPP 1/03 should consider how to improve the integration of land use planning and disaster management planning.
- **Recommendation 11**—The review of SPP 1/03 should consider issues concerning coincident flooding including: the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies conducted by local governments; and the most appropriate planning instrument to address coincident flooding in the future.
- **Recommendation 12**—Working through the national Building Ministers' Forum (BMF) and the Australian Building Codes Board (ABCB), support the development of a national code for the design and construction of new building work in areas designated as flood prone in local planning schemes.

The Inland Flooding Study has been a joint project of the Queensland Government and the LGAQ. Further information on the project outcomes, including specific recommendations, are set out in the remainder of this report.

Methodology and project governance

Project methodology

The Inland Flooding Study comprised two components:

1. a climate change science component to incorporate climate change into flood studies
2. a planning policy component to recommend policy options for Gayndah and to carry forward to the review of SPP 1/03.

Both components included an analysis of approaches in national and international jurisdictions with a similar propensity for flooding and comparable planning frameworks and governance models.

Various scientific methodologies were examined to identify benchmark figures for planning to take account of the projected impacts of climate change on flood risks. These methods were based on the theory that precipitable water in the atmosphere will increase as global temperature increases. Analysis was undertaken to determine the extent of evidence in the Queensland historical record for this physical relationship. This analysis included both land surface temperatures and sea surface temperatures.

The recent work of Rafter and Abbs (2010)³ was also considered, which uses extreme value analyses to calculate the percentage increases of intense rainfall from a suite of Global Climate Models. The project also took into account the recently released report from the US National Academy of Sciences (2010) which concludes that: "Extreme precipitation is likely to increase as the atmospheric moisture content increases in a warming climate. Typical magnitudes are 3-10 per cent per degree C warming, with potentially larger values in the tropics, and in the most extreme events globally."

A desktop assessment of relevant planning policy responses in selected national and international jurisdictions identified a number of promising practices to improve Queensland's land use planning response to flood risk management. The most effective practices have informed the planning policy recommendations included in this report.

Gayndah case study

A case study was undertaken in Gayndah in North Burnett Regional Council to trial the increased rainfall intensity climate change factor and consider policy options for improved flood risk management. This was in addition to desktop analyses of relevant science and policy.

³ Rafter T. and Abbs D. (2010). Calculation of Australian extreme rainfall within GCM simulations using Extreme Value Analyses. Unpublished.

In 2008, the former Gayndah Shire Council undertook a flood study to inform its planning and development assessment. The consultant's report recommended that the Council adopt a climate change impact allowance of 20 per cent (i.e. increase river peak flow discharges from the Gayndah catchment by 20 per cent). This increased the area of Gayndah township that would be considered at flood risk for land use planning and development assessment purposes, effectively moving the current 1 per cent AEP (Q₁₀₀) event up to the current 0.5 per cent AEP (Q₂₀₀) event.

In January 2009, LGAQ approached the Queensland Government for verification of the advice given to Gayndah Shire Council and to obtain clearer guidance on how to factor climate change into flood studies and land use planning.

As a result, the Queensland Government, in collaboration with LGAQ, undertook this project to deliver a more definitive approach to managing inland flooding risks in a changing climate, based on the best available science and implemented via the Queensland land use planning framework.

Gayndah provides a useful case study area for Queensland on the basis that:

- It is an inland catchment that is not influenced by coastal inundation or sea level rise (therefore the impacts associated with potential changes in rainfall intensity can be clearly measured).
- A recent, calibrated flood study had been completed to current standards including consideration of climate change as a basis for assessment.
- Flood conditions in the area are sensitive to changes in peak discharge (with a secondary flow path opening up at a particular threshold) and therefore the potential impacts of climate change are significant.
- It is within a representative inland catchment being medium-large in size (23 350 km²).

Project governance

A Project Board was established to oversee both components of the project. The Project Board was chaired by the Office of Climate Change (OCC) and comprised senior representatives from:

- LGAQ
- CSIRO Climate Adaptation Flagship
- the National Climate Change Adaptation Research Facility
- Griffith University
- Department of Infrastructure and Planning
- Department of Community Safety
- Department of Environment and Resource Management.

The science component of the project was led by the Queensland Climate Change Centre of Excellence (QCCCE) within the Department of Environment and Resource Management. The science deliverables for the project were reviewed and endorsed by a Scientific Advisory Group (SAG), comprising scientists and flood specialists from leading scientific institutions and stakeholder organisations. Members of the SAG are listed in Appendix 1.

The recommended climate change factor derived through this project was also discussed and reviewed at an end user workshop on 27 September 2010. Organisations represented at the workshop are listed in Appendix 2.

The policy component of the project was led by the Planning Policy and Legislation Branch in the Department of Infrastructure and Planning (DIP). A Planning Policy Advisory Group (PPAG) reviewed and endorsed the deliverables for the policy component of the project. Members of the PPAG are listed in Appendix 3. Consultations with senior officers from North Burnett Regional Council also occurred on 5 August 2010 and 13 October 2010 to seek their feedback and endorsement of the recommended policy options.

Key findings and recommendations

Context

Flooding is number one in the hierarchy of risks from natural hazards in Queensland, and has significant economic impacts on Queensland communities.

In March 2009 floods occurred across North West Queensland and in Mackay, costing state and local governments approximately \$234 million in damage to infrastructure. This event saw one million square kilometres, or 62 per cent of the State underwater. In March 2010, serious flooding occurred across large areas of the State including south-west Queensland.

Although flooding is a natural occurrence, climate change science is indicating that despite a projected decrease in rainfall across most of Queensland, a projected increase in rainfall intensity could result in more flooding events⁴.

Effective land use planning can help reduce the impact of flood events by ensuring dwellings, critical infrastructure (such as hospitals) and sensitive land uses (such as storage of fuel) are located where there is a lower risk of flooding or are built to withstand the impacts of flood events (for example, building houses on stumps). This report looks at how the planning framework can assist and how it can be better integrated with disaster management.

By combining the best available science and planning options on climate change and flood risk, the Inland Flooding Study has provided clearer guidance and practical tools for local governments to better understand and manage flood risk in a changing climate when conducting flood risk assessments and developing or reviewing local planning schemes.

Scientific recommendations

Recommendation 1: Local governments should factor a 5 per cent increase in rainfall for every per degree of global warming into the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood events recommended in SPP 1703 for the location and design of new development.

Recommendation 2: The following temperatures and timeframes should be used for the purposes of applying the climate change factor in Recommendation 1:

- 2°C by 2050
- 3°C by 2070
- 4°C by 2100

Recommendation 3: The Queensland Government will review and update this climate change factor when a national position on how to factor climate change into flood studies is finalised as part of the current review of AR&R.

More detailed information on the rationale for deriving the climate change factor can be found at www.derm.qld.gov.au.

In summary, the climate change factor is based on the proposition that as the lower atmosphere warms, the atmospheric water vapour also increases, which increases the risk of more intense rainfall events.

The rate of atmospheric warming over time is derived from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report A1FI (high) greenhouse gas emissions scenario. The A1FI scenario assumes continued dependence on fossil fuels. Global temperatures for the past decade have been the warmest on record and are currently tracking at the upper limits of the A1FI scenario.

Using the A1FI emissions scenario, the best estimate of projected changes in annual global mean temperatures is outlined in Table 1.

Table 1: Global warming best estimate and representative ranges relative to 1990 for relevant planning horizons for the A1F1 scenario

	2050		2070		2100	
	Best estimate	Representative range	Best estimate	Representative range	Best estimate	Representative range
A1F1	1.8°C	1.08–2.88°C	2.9°C	1.74–4.64°C	4.0°C	2.4–6.4°C

Local governments should use the temperatures and timeframes outlined in Recommendation 2 when producing new flood maps. However, local governments may be able to use their existing flood maps to approximate future flood levels that incorporate the recommended climate change factor for example, in the Gayndah case study area the following approximations were used⁵.

Table 2: Approximate change to flood level with climate change

Existing flood level	Temperature change scenario	Changes to a future flood level
0.5 per cent AEP (Q200)	2°C warming by 2050	1 per cent AEP (Q100) by 2050
0.2 per cent AEP (Q500)	2°C warming by 2050	0.5 per cent AEP (Q200) by 2050
0.2 per cent AEP (Q500)	4°C warming by 2100	1 per cent AEP (Q100) by 2100

This project acknowledges that the AR&R publication provides the nationally accepted methodologies for undertaking flood studies. However, the publication has not been updated for 23 years and does not consider the impacts of climate change.

While the Australian Government is supporting a review of the AR&R publication, the outcomes of this review are not expected to be available before 2014. This project was therefore undertaken to meet the needs of local governments on how to consider climate change and better identify flood risks.

In that context, the climate change factor identified by this project for incorporation into flood studies will be reviewed and updated when a national position on how to factor climate change into flood studies is finalised as part of the current review of the AR&R publication.

Issues not explicitly addressed by this project will also be considered by the the AR&R publication review. For example, how antecedent conditions (the wetness or dryness of the catchment) may impact on hydrological models with climate change. For the purposes of this project, the current evidence suggests that maintaining the existing antecedent characteristics of the catchment is reasonable and warranted.

Similarly, the review will consider the implications of revised global emissions scenarios provided in the IPCC's Fifth Assessment Report (AR5) on rainfall intensity and flooding. The AR5 is scheduled for release in 2014.

Advice on how to use the climate change factor in flood studies

To account for the impacts of climate change, the nationally accepted methodologies for undertaking flood studies outlined in the AR&R publication should be followed, with the only change being that design rainfall depths are increased by a climate change factor of 5 per cent per degree Celsius of global warming.

Design rainfall depths should be determined through an appropriate method such as the method in the AR&R publication or CRC-FORGE. Given that the climate change factor of 5 per cent is per degree Celsius of global warming, the actual percentage increase used will depend on the timeframe and temperature outlined in Recommendation 2. For example, there will be a 10 per cent increase in rainfall depth for a timeframe of 2050 (i.e. a 2°C increase in global warming by 2050), a 15 per cent increase for 2070 (i.e. a 3°C increase in global warming by 2070), and a 20 per cent increase for 2100 (i.e. a 4°C increase in global warming by 2100).

⁵ This is general guidance only and local governments need to check with flood hydrologists whether this is a valid approach for their existing flood studies and particular catchments.

The climate change factor of 5 per cent per degree of global warming should be applied to rainfall depths and not directly to hydrographs (i.e. the quantity of water flowing in the river). The scaled rainfall depths should then be applied to the hydrological model in the same way as the current event-based methods to produce design flood hydrographs for climate change scenarios.

There is currently no requirement to adjust the remaining data inputs (temporal patterns, loss models) or modify the hydrological model parameters. The determined climate change hydrographs should, in turn, be applied to the hydraulic model to calculate the flood level, depth and extents for climate change design events.

Note: This climate change factor is limited to flood risk management for planning purposes as described by the SPP 1/03 and does not extend to more frequent events (i.e. >2 per cent AEP or Q50) or more extreme events (i.e. probable maximum flood). The climate change factor applies to floods arising from rainfall events of at least one hour or more.

Policy recommendations

Recommendation 4 – That North Burnett Regional Council consider the climate change scenarios – please identified in the paper, Recommended Policy Options for Incorporating a Climate Change Scenario into the 2017/18 Management Framework for Council and implement its preferred approach to its planning scheme.

The Inland Flooding Study has identified two policy options for the North Burnett Regional Council to incorporate the effect of climate change on flooding into its planning scheme.

Both options comprise three components:

1. A policy that incorporates different approaches depending on a development commitment being in place or not

For proposals already subject to a development commitment, conditions will ensure that development is subject to stringent design and evacuation standards. To achieve this, development either has to be consistent with appropriate land uses for specific flood hazard areas or development must be designed and constructed to appropriate flood level and height of habitable rooms. In addition, evacuation routes must be maintained to specific flood levels.

For land that is not already subject to a development commitment, the policy directs development to areas of lowest flood hazard based on the proposed land use by requiring that new development is built above specific flood levels and that evacuation routes must also be maintained to specific flood levels.

2. A draft flood constraint code to address development in flood affected areas

A flood constraint code is a requirement within local planning schemes for flood affected areas. The draft flood constraint code developed through this project for Gayndah defines four flood hazard areas based on the three relevant flood levels described in the SPP1/03—the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEPs.

A land use table included in the draft flood constraint code outlines the appropriate land uses for each of these hazard areas. This is a major step in shifting the focus from the 1 per cent AEP (Q100) as the most important flood level for residential development to the reality that there are many flood hazard levels and associated risks that local governments need to consider.

3. A choice of flood overlay maps based on different planning horizons

Using the new climate change factor outlined in recommendations 1 and 2, flood overlay maps for different planning horizons were developed for the Gayndah township. These maps will allow North Burnett Regional Council to identify the geographic areas affected by flooding risks over time and will inform application of the draft flood constraint code.

The policy approach proposed for Gayndah is intended to minimise the risk to life and property in flood affected areas, including the accentuated risk from climate change, by:

- reducing the adverse impacts of flooding by encouraging, for example, flood resilient design and layout
- facilitating development in lower probability flooding areas
- maintaining local floodplain processes (water storage and flows; river discharge and capacity; banks of river, streams and water bodies protected from erosion)

- maintaining a network of evacuation routes
- maintaining critical emergency infrastructure and services during flood events
- maintaining functionality of community infrastructure during and immediately following flood events.

These policy options have been developed specifically for the Gayndah township and in response to a request by the North Burnett Regional Council and LGAQ for advice and guidance. While the outcomes of the study have been developed for Gayndah, the findings will be of interest to other local governments in Queensland. Further information can be found in the publication *Recommended Policy Options for Incorporating Climate Change into the Flood Risk Management Framework in Gayndah* available at <www.derm.qld.gov.au>.

The policy options provided for Gayndah are transitional arrangements in advance of the current review of SPP 1/03 (due for completion in 2013). The review of SPP 1/03 will provide all Queensland local governments with definitive policy requirements on how to address flood, bushfire and landslide hazards in their planning schemes. Until this review is complete, any council seeking to amend their planning schemes must continue to reflect the current policy requirements in SPP 1/03.

General recommendations for consideration as part of the review of SPP 1/03

In the context of this review, planners, consultants, engineers and council representatives were consulted on the practical issues associated with implementation of the current SPP 1/03. The Project Board has had regard to all of the issues that were identified during those discussions in formulating the following recommendations for consideration as part of the broader review of SPP 1/03.

Recommendation 5 The review of SPP 1/03 should consider the transition to using a standard method for undertaking a flood study and determining a DFE

There is currently no requirement on local governments to use a standard calibrated engineering method for undertaking flood studies. Under the current SPP, local governments may elect instead to use, for example, historical flood data (including the lack of data) to determine their DFE. This discretion in how local governments assess their flood risk results in varying degrees of accuracy and predictive value of current and future flood hazards.

Development of a standard method for flood studies which includes advice on the Queensland Government's endorsed climate change factors and takes account of different catchment characteristics (e.g. large rural catchments and highly developed urban catchments) would improve the consistency and accuracy of flood studies in Queensland. On this issue, the Project Board and advisory group members identified that New South Wales appears to have overcome issues of accuracy in the assessment of flood hazards by requiring uniform state-wide application of a standard method for flood studies.

Recommendation 6 The review of SPP 1/03 should consider whether there is a need to specify how frequently a flood study should be reviewed or updated

While SPP 1/03 requires that a flood study be undertaken for natural hazard management areas, there is currently no guidance on when local governments should review or update those studies. In practice, this means that local governments may be using flood studies that do not reflect recent development in the area and the impact of that development on potential flood risks.

Therefore it is recommended that the review of SPP 1/03 identify appropriate triggers to guide when local governments need to review and/or update their flood studies, taking into consideration the likely cost impacts on local governments of increasing the frequency of undertaking flood studies. Triggers could include undertaking a planning scheme review (review hydraulic components) and updated AR&R advice (update hydrological components).

Recommendation 7 The review of SPP 1/03 should develop criteria that outline how a council can choose a DFE higher or lower than the 1 per cent AEP (Q100) is appropriate for residential land use planning

SPP 1/03 currently requires local governments to determine a DFE to set limits for land use and development in any floodplain area. SPP 1/03 specifies the 1 per cent AEP (Q100) as the preferred DFE for residential land use planning. SPP 1/03 guidelines indicate that the residual risk (the risk of a flood exceeding the DFE) should be addressed in local government counter disaster plans and emergency procedures.

However, there are currently no criteria to determine when it may be appropriate for a council to use another DFE (i.e. above or below the 1 per cent AEP or Q100). In practice this has led to local governments adopting varying flood levels to constrain development without reference to any consistent criteria. The review of SPP 1/03 should develop clear and transparent criteria for use by local governments and referral agencies on the circumstances where a DFE above or below the 1 per cent AEP (Q100) is appropriate.

Recommendation 8 - The review of SPP 1/03 should clarify what components of the SPP are mandatory and clarify what additional guidance local governments may need to meet those obligations.

The review provides a useful opportunity to clarify the core components of what local governments must do to assess and manage their flood risk, as well as provide more detailed guidance on how local governments should meet those obligations (as per recommendations 1 and 2). This would help to address current inconsistencies in how local governments interpret and implement the SPP. More generally, the review provides an opportunity to provide clearer guidance to local governments on core requirements and standards, as well as those matters on which they continue to have discretion. This could include guidance on how the revised SPP should be reflected in statutory regional plans.

Recommendation 9 - The review of SPP 1/03 should consider the applicability of the recommended planning response for Gayndah (as per Recommendation 5) to other parts of Queensland.

The recommended planning responses for Gayndah township should be considered for applicability in other local government areas and to establish if the policy options provide an appropriate planning response to direct new development to areas with lower levels of flood risk now and in the future under climate change.

This should include consideration of the utility of incorporating draft flood overlay codes (modelled on the draft flood constraint code developed for Gayndah) in the Queensland Planning Provisions (QPPs).

An assessment of the useability of the draft flood constraint code developed for Gayndah should form part of this broader consideration of state-wide applicability.

Recommendation 10 - The review of SPP 1/03 should consider how to improve the integration of land use planning and disaster management planning.

The SPP 1/03 guidelines currently outline how residual risk can be addressed in disaster management plans and emergency procedures developed by local governments.

The review provides an opportunity to consider what changes need to be made to improve the integration of land use planning and disaster management planning, including whether any additional guidance is required and what, if any, elements of that guidance should become mandatory provisions under a revised SPP (for example, ensuring land use planning takes account of population growth and its impact on the efficient evacuation of people to a safe and secure area in an extreme event).

Recommendation 11 - The review of SPP 1/03 should consider issues concerning coincident flooding including the results of any research into the potential impacts; the extent to which coincident flooding is already covered in flood studies conducted by local governments; and the most appropriate planning instrument to address coincident flooding in the future.

The AR&R publication provides national guidance for undertaking flood studies. The publication is currently being reviewed to include consideration of climate change and incorporate new data and technological advances in rainfall/runoff assessment. This review is due for completion in 2014.

One component of the AR&R review includes examining the interaction of coastal processes and severe weather events and should result in guidelines for incorporating the joint effects of flood flows from storm rainfall and elevated ocean levels into flooding predictions (coincident flooding). Elevated ocean levels caused by the storm (storm surge) as well as those caused by climate change (sea level rise) will be considered.

The Department of Environment and Resource Management has been allocated National Disaster Resilience Program funding to examine the impacts of coincident flooding in Queensland.

The results of this research should be considered as part of the review of SPP 1/03 to determine how this issue should be addressed in Queensland's land use and disaster planning frameworks.

National guidance on coincident flooding is expected to be provided from the AR&R review in 2014.

Recommendation 12 -- Working through the national Building Ministers' Forum (BMF) and the Australian Building Codes Board (ABCB) to support the development of a national code for the design and construction of new building work in areas designated as flood prone in local planning schemes.

Queensland is represented at the BMF by the Minister for Infrastructure and Planning. In 2009, the Minister sought recognition at the forum of the significant impact of flooding on buildings in Australia, the current lack of national building codes to address this issue, and for the ABCB to develop a national code for building in flood prone areas for regulatory adoption by individual States and Territories.

Subsequently, the ABCB has drafted a proposal to develop national design and construction requirements under the Building Code of Australia for new building work in designated areas vulnerable to flooding. Minimum requirements under the Building Code of Australia would include performance requirements and deemed-to-satisfy provisions to minimise damage to buildings and building materials from flooding.

The ABCB is expected to develop this new code by the end of 2012. This code would be referenced in Queensland under the *Building Act 1975* and, once developed, will specify the design and construction requirements that apply in Queensland for new building work in designated flood prone areas.

Conclusion

The outcomes from this project provide guidance to local governments on how to better manage their flood risks and land use planning responses in a changing climate. This has been done by providing a climate change factor for incorporation into flood studies, developing specific land use policy options to improve the flood risk management framework in Gayndah, and identifying a series of recommendations for consideration in the SPP 1/03 review.

The project provides all Queensland local governments with a climate change factor for incorporation into the 1 per cent (Q100), 0.5 per cent (Q200) and 0.2 per cent (Q500) AEP flood events recommended in SPP 1/03 for the location of new development. This approach will be reviewed and updated when a national position on how to factor climate change into flood studies is finalised as part of the current review of the AR&R publication. In the interim, Queensland local governments can use the approach from this project to better identify flood risks.

A progressive policy approach for the Gayndah township has also been developed that incorporates multiple flood hazard zones and reduces reliance on one flood level in local government planning. The broader applicability of this approach will be considered as part of the review of SPP 1/03.

The project also makes recommendations to address challenges in the planning framework and its consistent implementation through the review of SPP 1/03. These recommendations are designed to address challenges and gaps in the current planning framework and improve the connectivity between disaster management and land use planning.

By integrating the best available science and innovative planning options through multiple flood hazard zones and reducing reliance on one flood level in local government planning, this joint project between the Queensland Government and the LGAQ has delivered clearer guidance and practical tools for local governments so they are better positioned to manage flood risk for Queensland communities.

Appendix 1: Membership of the Inland Flooding Study Scientific Advisory Group

Name	Organisation
Prof Colin Apelt	University of Queensland (retired)
	Director, Walker Institute for Climate System Research
	Queensland Hydrology Manager, Bureau of Meteorology
	Chief Scientist, Coastal Impacts Unit, Queensland Climate Change Centre of Excellence
	Research Scientist, CSIRO
	Principal Engineer, Water and Environment, Brisbane City Council
	Director, NCCARF (National Climate Change Adaptation Research Facility)
	Hydrologist, Bureau of Meteorology
	Director, Regional Water Supplies, Department of Environment and Resource Management
	Director, Coastal Impacts Unit, Queensland Climate Change Centre of Excellence
John Ruffini	Director, Water Science, Department of Environment and Resource Management
	Director (Hydraulics), Department of Transport and Main Roads

Appendix 2: Organisations represented at the Inland Flooding Study Workshop

The following organisations were represented at the Inland Flooding Study Workshop held in Brisbane on 27 September 2010:

- Department of Environment and Resource Management
- Department of Infrastructure and Planning
- Office of Climate Change
- Queensland Climate Change Centre of Excellence
- Bureau of Meteorology
- Local Government Association of Queensland
- SEQ Water
- Brisbane City Council
- Ipswich City Council
- Redland City Council
- Moreton Bay Regional Council
- Cardno Associates
- BMT WBM
- Sinclair Knight Merz
- Kellogg Brown and Root.

Appendix 3: Membership of the Inland Flooding Study Policy and Planning Advisory Group

Name	Organisation
	Project Manager, Industry Projects Facilitation, Department of Infrastructure and Planning
	Director, Planning Policy and Legislation, Growth Management Queensland
	Chief Scientist, Coastal Impacts Unit, Queensland Climate Change Centre of Excellence
	Senior Project Officer, Office of Climate Change
	Senior Advisor, Local Government Association of Queensland
	Principal Planner, Planning Services, Department of Infrastructure and Planning
	Director, Planning Services, Department of Infrastructure and Planning
	Principal Advisor, Building Codes Queensland
	Principal Advisor, Planning Policy and Major Development, Department of Transport and Main Roads
	Manager, Environment and Planning, Local Government Association of Queensland
	Manager, Climate Change, Planning Policy and Legislation, Growth Management Queensland
	Senior Project Officer, Climate Change, Planning Policy and Legislation, Growth Management Queensland
	Principal Policy Officer, Office of Climate Change
	Director, Strategic Policy, Department of Community Safety



Queensland Bushfire Risk Land Use Planning Project

- Project Proposal

TRIM Reference Number:

Reporting Period:

External Project Sponsor:

External Project Manager:

Telephone:

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Research Provider:

CSIRO

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<Project Manager Name>			

Document Control Information

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Background

Fire weather severity topography and vegetation that influences Bushfire behaviour varies extensively across Australia's landscape as does the resultant impact of unplanned Bushfire on the Community. As such there is no single approach to bushfire planning and risk mitigation that fits all regions of Australia and all circumstances. Climate change provides a new challenge in generating the need for pre-emptive planning to anticipate how bushfire behaviour will change in different regions in the future.

Recent research into the correlation between losses of life and property with fire weather severity in the southern states of Australia have now reached a stage of development that allows them to be applied to weather regions in northern Australia, and to look at the impact of climate change on bushfire in these regions. Weather conditions experienced in northern Australia are a subset of the range in bushfire severity experienced in the southern states. The research provides a basis of a risk based planning approach can be developed using predicted return periods of severe weather that can be integrated with relevant topographic and other landscape drivers.

Queensland contains a unique set of climatic and vegetation zones which require a considered approach to bushfire risk mapping for land use planning and the incorporation of climate change implications. Hazard and risk assessments founded on a strong research base will provide net benefits to Queensland by avoiding either an over-response or under response of bushfire related land use planning requirements reflected in current State Planning Policy 1/03 – Mitigating the Adverse Impacts of Flooding, Bushfires and Landslides (SPP 1/03) – released in 2003. It is important to adopt bushfire mitigation policies that are appropriate to extreme weather and vegetation in each of Queensland's regions.

SPP 1/03 is currently being reviewed to response to Government and stakeholder interests in developing a revised State Planning Instrument that reflects the needs of Queensland's growing population.

Business Objective

This project will provide a scientific basis for the description of land use planning related bushfire hazard and risk mitigation measures related policies that seek to reduce risks to people (community) and property (built assets) in Queensland in the light of a changing climate context. The project will involve the following steps:

- Provide a short appraisal of the strengths and limitations of the current bushfire hazard methodology and risk mitigation measures as defined in planning guidelines SPP 1/03 and as applied by the Queensland Fire and Rescue Service (QFRS) and selected Queensland Local Governments

- Develop and document a credible and pragmatic methodology for planning related bushfire hazard mapping in Queensland for land use planning as a draft guideline to a future State Planning Instrument.
- Develop and document a methodology for regional level bushfire susceptibility assessment in Queensland for land use planning suitable for application by Local Governments, as a draft guideline to a future State Planning Instruments.

Project Objective

The objective is to develop a scientific basis and example methodologies for bushfire related land use planning policies in Queensland. This involves bushfire hazard mapping for land use planning, and more detailed scale assessment for the design of urban developments regulate by State and Local Government planning instruments. This work will focus on reducing risks to communities and related built assets. It will incorporate simple assumptions relating to the prevalence of bushfire in the landscape.

In achieving the delivery of a landscape scale bushfire hazard mapping approach the project will:

- Draw on best practice approaches from bushfire hazard mapping else where in Australia.
- Consider and integrate the observations and predictions (out to 2050) of climate change research in defining changes in frequency and severity of fire weather.
- Align the approach with standardised hazard metrics such as return interval (ARI) or average exceedance probability (AEP) as used in mapping of flood hazard
- Define and communicating the uncertainty of bushfire hazard mapping by using confidence intervals.
- Align with requirements of the Queensland statutory planning framework used in Queensland under the Sustainable Planning Act (2009).
- Identify the necessary spatial data requirements necessary for effective bushfire risk mapping in Queensland, ideally drawing on existing regionally consistent datasets.

In Delivery of higher resolution assessments for urban design we plan to:

- Develop a companion guideline to the landscape scale bushfire hazard mapping approach
- Identify building and non-building related risk mitigation measures for different forms of development
- Cover the range of development forms regulated by the current SPP 1/03
- Ensure relevance to the climate and built environment context of Queensland's regions and sub-regions.
- Identify a risk measure that reflects risk to both human health and property
- Provide specific guidance on disaster mitigation strategies which can be addressed through land use planning and its linkages to building practices
- Ensure relevance to land use planning decisions with a planning horizon of 30+ years. *The project will not define methodologies to assess seasonal or short term changes in bushfire risk.*

Project Relationships

This project relies on collaborative links with:

- Queensland Fire and Rescue Service
- Department of Community Safety Queensland

Project Scope

In Scope

Development of risk assessment parameters and techniques that can inform land use planning policies.

Example case studies to demonstrate parameters and techniques.

Impact of climate change on bushfire weather

Incorporating existing research knowledge of vegetation response to climate change.

Out of Scope

Developing new or novel approaches to predicting fire prevalence in the landscape that are not known to CSIRO.

Consideration of fire ignition potential in the landscape.

Developing new and novel approaches to prediction fire behaviour and spread in the landscape that are not known to CSIRO.

Risk mapping relevant to elements other than human health and related residential, commercial and industrial built assets

Development of new policy or policy frameworks.

Developing new theories for the expected vegetation response to climate change.

Human demographic factors that may contribute to bushfire life risk

Health impacts of bushfires that are unrelated to urban developments and their location in the landscape.

Approach

Bushfire hazard mapping is the quantification of the arrival likelihood and severity of bushfires while susceptibility mapping defines the expected outcome to urban assets to the arrival event. The combination of hazard and susceptibility assessments provide the foundation for a bushfire risk management framework.

This project will use simple assumptions about the fire prevalence in the landscape by defining a simple likelihood of unplanned fire as a function of fire weather severity. If necessary, landscape features that influence suppression likelihood (such as fuel breaks and inaccessible terrain) may be included in this function. Parameters for the designation of likelihood of unplanned fire will be developed in close consultation with QFRS.

A process of incorporating existing climate change projections will be incorporated in to the hazard mapping approach by extracting parameters from available climate change predictions for Queensland into the methodology, and demonstrating their effect. The method will be suitable for application in climate zones (defined by this project) with similar climatic parameters relevant to bushfire behaviour and land use planning.

Susceptibility mapping will draw on techniques developed by CSIRO and the Bushfire CRC (BCRC) and adapted for:

- The range of weather parameters experienced in the various climate zones in Queensland (which will define the dominant mechanisms of attack and the moisture content range of urban elements).
- The vegetation classes relevant to Queensland
- The managed interface fuel types in Queensland
- The common construction styles and materials of buildings in Queensland
- The common man made interface fuel elements.

The approach will result in a set of defining parameters such as:

- setback distance from bushland fuels
- separation distances from adjacent structure
- separation distance from other interface fuel elements (eg fences)
- defining parameters to classify building generic susceptibility that can be generically applied to suburbs (relating to age and style of construction)
- how the susceptibility of urban assets varies with weather conditions

Examples of how the hazard mapping and susceptibility mapping are integrated to form an overarching risk approach will be defined and demonstrated in three case studies needed to confidently develop and demonstrate bushfire hazard and risk methodologies

Project Deliverables

	Deliverable	Area Responsible	Expected Delivery Date
Stage 1	A report detailed description of the projects approach, datasets and parameters to be used after in depth consultation.	CSIRO	September 2011
Stage 2	A report appraising the strengths and limitations of the current bushfire hazard methodology and risk mitigation measures as defined in planning guidelines SPP 1/03 and as applied by the QFRS and selected Queensland Local Governments	CSIRO	February 2012
	A draft guideline methodology for planning related bushfire hazard mapping in Queensland for land use planning as to a future State Planning Instrument, including example case study.	CSIRO	May 2012
	A draft guideline methodology for sub-division level bushfire susceptibility assessment in Queensland for land use planning to help guide future State Planning Instrument, including example case study that align with the previous studies.	CSIRO	September 2012

Project Budget

The budget amounts are assuming a CSIRO co-investment model and with a client funding amount of \$148k. The funding ratio is 65% external and 35% internal.

The total project budget is allocated to labour costs except for \$28k for travel and other expenses as a significant component of the work will be delivered with staff working from Queensland.

The project is defined in two stages with independence funding for each:

- Stage 1 - \$32k
- Stage 2 - \$112k

Signing of the contract will secure Stage 1 funding to be paid on delivery of the stage 1 report. Stage 2 funding is subject to approval in late August as it is dependant on a secondary funding approvals process.

Project Closure

The project will be closed when all three deliverables are submitted after an approvals process, noting that there should be a reasonable limit to the time taken for the approvals process.

9th September 2011

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Email: [REDACTED]

Re: Proposal for Provision of Geotechnical Services to assist with the Review and Revision of State Planning Policy SPP1/03.
Ref 568/01/11-DRAFT V2 awaiting National Committee Approval.

Dear Robert,

The Australian Geomechanics Society (AGS) Sub Committee on Landslide Risk Management (LRM) in association with individual committee member companies (A.S. Miner Geotechnical (ASMG), Jeffery and Katauskas (J&K) and GHD) is pleased to submit this proposal to the Queensland State Government Department of Community Safety (DCS) for the provision of geotechnical services to assist with review and revision of SPP1/03. This proposal specifically relates to the development of guidelines for technical investigations into planning for landslides. This project is to be conducted under the auspices of the Institution of Engineers Australia (IEAust) as the parent body for the AGS.

1. TECHNICAL APPROACH

Project overview

Queensland is the only state which has a current statewide policy dealing with landslide risk as part of the state planning provisions (i.e. SPP1/03). As part of the presentations of the national roadshow on LRM completed by the AGS LRM Subcommittee throughout the early part of 2011, discussions were held in late May 2011 between the AGS LRM subcommittee in Brisbane and members of the current SPP1/03 Review Landslide Advisory Group chaired by Mr Robert Preston. It became evident during these discussions that the knowledge and understanding of landslide zonation and risk management processes held by members of the AGS LRM Subcommittee and detailed in the AGS's 2007 guideline on Landslide Risk Management (AGS2007), would be of significant benefit to the review process being conducted by the Review Landslide Advisory Group.

As a result, a request was made to the AGS LRM subcommittee for the preparation of a proposal to assist DCS in the review of SP1/03. The scope of the project proposal is based on the requirements provided by Mr Robert Preston (DCS) sent via email on the 19th July 2011. These requirements (which are included as Attachment 1) comprises 2 main stages as follows:

- Stage 1. Produce a short report on the strengths and limitations of the current landslide hazard methodology as defined in SPP 1/03 and as applied by selected Queensland Local Governments.
- Stage 2. Develop and document a credible and pragmatic standard methodology or methodologies for landslide hazard or susceptibility mapping in Queensland for land use planning as a draft guideline to a future State Planning Instrument (SPI).

The main project outcomes for each stage are detailed in the requirements prepared by Mr Preston and reproduced in Attachment 1

Project methodology consisting of a series of task aligned with these requirements is included as Attachment 2 and can be summarized as follows :

Stage 1

- Initial consultation meeting with SPP1/03 Review Landslide Advisory Group in Brisbane.
- Data collation and preparation on all QLD LGAs which have LRM provisions (assuming assistance from DCS staff).
- Reviewing existing information on planning scheme in QLD LGAs.
- Assess a number of selected case studies.
- Evaluate the current SP1/03's "15% slope gradient" rule.
- Assess consistency of terminology and application of AGS2007 to QLD planning schemes.
- Internal AGS review of processes and findings.
- Documentation and Reporting.

Stage 2

- Initial consultation meeting with the SPP1/03 Review Landslide Advisory Group in Brisbane as the opening part of a weeklong visit by a key LRM subcommittee member.
- Review other risk based approaches in SPP1/03 and review consistency across hazards and methodologies.
- Data collation on available mapped landslide occurrences (existing inventory) and existing methods of susceptibility, hazard and risk modelling in QLD.
- On site discussions with some key local shires and councils as well as other members of the advisory group during a weeklong visit.
- Assess issues of likelihood and consequence as specific to the Queensland context.
- Review best practice for LRM in planning schemes and land use within Australia.
- Identify and develop preferred method(s) for susceptibility, hazard and risk modelling if and where appropriate.
- Review policy implications of climate change, alignment with other Queensland statutory policy and explore process of implementation and funding opportunities.
- Ensure consistency of developed process with AGS2007.
- Internal AGS review of processes and findings.
- Documentation and Reporting .

Project Tasks

A detailed breakdown of tasks, allocated resources, estimated times and costs are shown in Attachment 2

Deliverables

The project deliverables are as follows:

- Attendance of key meetings with the SPP1/03 Review Landslide Advisory Group
- Site visits and discussions with key LGAs
- Ongoing progress updates to project manager
- Stage 1 report
- Identification / development of preferred method(s) for landslide susceptibility, hazard and/or risk as appropriate.
- Stage 2 report.

Deliverables will be issued under the imprimatur of the AGS.

2. PROJECT TEAM

The proposed project team is a combination of AGS LRM Subcommittee members and a QLD geological engineering resource as designated by the DCS.. Key AGS team members include Mr Tony Miner (ASMG) serving as the project coordinator, principal geotechnical engineer and landslide zonation and planning specialist. In addition, Mr Bruce Walker (J&K) and Mr Andrew Leventhal (GHD), principal geotechnical engineers, will provide specialist technical input on landslide risk management and overall project review/quality control.

Local geological engineering expertise will be provided by Mr Warwick Willmott, principal engineering geologist, who will provide expert local geological knowledge and planning advice.

Tony Miner will serve as the key AGS project facilitator and manager whilst seeking key input and review from the other team members.

3. ESTIMATED PROJECT COSTS

The work for this project will be performed on a time-and-material basis but with the provision of a not to exceed amount. Estimated cost for project tasks as detailed in Attachment 2 are as follows:

Stage 1	\$19,800 <u>plus</u> GST.
Stage 2	\$31,180 <u>plus</u> GST

Note: Costs are included for all AGS subcommittee members and Mr. Willmott who will be paid directly by the AGS..

Acceptance of the proposal is to be confirmed through the preparation of a contract between DCS and the Institution of Engineers Australia (IEAust) as the parent body for the AGS.

This proposal expires 60 days from the date of issue (9th September 2011).

4. SCDHEDULE FOR COMPLETION

Work could commence immediately following authorization to proceed. Timeframes for completion would generally be in line with those indicated in Attachment 1. Stage 1 could start by 1st November 2011 and a report could be ready by February 2012. Stage 2 could start late January with an interim report completed around May 2012 with a final Stage 2 report available end of June 2012.


Key meetings with the SPP1/03 Review Landslide Advisory Group should occur early in each stage .

5. ACCEPTANCE OF PROPOSAL

If the scope of works and costs described in this proposal are acceptable, please sign the Project Authorisation Form (Attachment 3) and return it to the AGS . The project team will commence work on the project upon receipt of the Project Authorisation Form.

The AGS Subcommittee on Landslide Risk Management greatly appreciates the opportunity to assist the Queensland State Government and in particular the Department of Community Safety in this matter and looks forward to a successful partnership in delivering this important project.

Regards


Geotechnical Engineer
On behalf of the AGS Subcommittee on LRM

Attachment 1

SPP1/03 Requirements for technical investigations (landslides).

As provided by [REDACTED] QLD DCS)

(See accompanying table)

Attachment 2

Methodology/ Project Tasks and Cost Estimate

(See accompanying table)

[REDACTED]

From: [REDACTED]
Sent: Friday, 7 January 2011 4:23 PM
To: [REDACTED]
Subject: SPP 103 Review - State Issues v02 21 Dec 2010.doc
Follow Up Flag: Follow up
Flag Status: Red
Attachments: SPP 103 Review - State Issues v02 21 Dec 2010.doc

[REDACTED] I have reviewed the minutes, FAQs and updated project plan and have nothing to add to these documents. I have, however, added two points to the attached state issues for DPC (highlighted in yellow).

The only other point I would like to make is to flag the need to establish close links with the recently established Queensland Flood Recovery Taskforce. I am sure that their experience at the coal face of flood disaster relief and recovery will provide valuable input into our work on the SPP.

Regards

[REDACTED]
Director - Planning and Local Government
Policy Division
Department of the Premier and Cabinet
Phone: 322 58030
Mobile: [REDACTED]
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Review of State Planning Policy 1/03

State Issues and Interests

Last updated: 21 December 2010

Agency	Date	From	Contact officer/s	Status	Issues
Department of Justice and Attorney-General	17 Nov 10	[REDACTED] Executive Manager, Corporate Governance	Nil	Nil	<ol style="list-style-type: none"> DJAG has no comment/issues with the current State Planning Policy 1/03. DJAG will not need to provide a contact officer for this issue.
Department of Infrastructure and Planning	29 Nov 10	[REDACTED] Director General	Michael Papageorgiou, Executive Director Planning Policy [REDACTED] Manager Policy Coordination, Strategic Policy and Legislation		<ol style="list-style-type: none"> The Department's primary concern for all planning and development related State interests is that the interest itself is clearly articulated, and that the most appropriate planning instrument/s to protect the interest are in place. In this regard, I ask that the Department of Community Safety revisits the scope of the State interest, analyses the effectiveness of SPP 1/03 in achieving its purpose, and reviews existing approaches and mechanisms used by other jurisdictions. This work will assist in determining whether the interest needs to be redefined and/or whether a new SPP should be refocused and considered as part of a package of planning instruments to achieve required outcomes. As this is the first SPP review to commence since the Sustainable Planning Act 2009 came into effect, the Department is keen to work with you and would appreciate your advice and feedback in relation to the process for reviews as it progresses.
Department of Premier and	2 Dec 10	Ken Smith Director General	[REDACTED] Director Environment		<ol style="list-style-type: none"> This review will be important in re-evaluating the effectiveness of the State Planning Policy in mitigating the adverse impacts of

Agency	Date	From	Contact officer/s	Status	Issues
Cabinet			and Resource Policy		<p>flood, bushfire and landslide in Queensland.</p> <ol style="list-style-type: none"> The review should incorporate additional relevant strategies that have been developed, including the National Disaster Resilience Strategy. The review should also consider issues raised in the Victorian Bushfire Royal Commission's final report recommendations relating to planning and building, specifically those recommendations around mapping bushfire risk, a regional settlement policy, amendments to State Planning Provisions, assessment of permit applications and bushfire risk mitigation through vegetation removal. The lack of comprehensive data and models (including DEMs) to delineate hazard areas across Queensland will remain a challenge. The review may wish to address/highlight data needs in this area. Factors to account for the expected impacts on climate change must be defensible and therefore should be based on latest IPCC projections.
Department of Transport and Main Roads	2 Dec 10	Director General	<p>Director (Planning Legislation Unit)</p> <p>Senior Advisor (Policy)</p>	Interim	<ol style="list-style-type: none"> Page 6, Section 6.7 - The absence of proper management of upstream stormwater drainage in areas above road cuttings to control water flows and sediment, is the cause of most slips and flooding within road corridors. Controlled drainage lines also assist in vegetation management during times of high fire danger. Page 8, Section 6.16 - Construction of community infrastructure, especially roads and road structures, is limited in scope due to available corridor space. In these cases, allowing full access for maintenance requirements should be included in design criteria.

Agency	Date	From	Contact officer/s	Status	Issues
					<p>3. Page 10, Section 8.5 - Include TMR as a source of policy advice, to allow for consideration of potential downstream impacts on road corridors.</p> <p>4. Page 11, Landslide - The definition of landslide should be expanded to include land or rock slides, as either type of slide can pose great risk to the community and its infrastructure.</p> <p>5. General Comment- To assist in clarity of the SPP 1/03, the use of examples or case studies is recommended.</p>
Department of Employment, Economic Development and Innovation	6 Dec 10		<p>[REDACTED] Manager Project Development and Facilitation Employment and Economic Development</p> <p>[REDACTED] Principal Project Officer, Resource Planning</p>	Interim	<p>1. DEEDI seeks consultation with the Department of Community Services in relation to provisions relevant to timber plantations (plantation forestry). As part of the implementation of the Queensland Government's Timber Plantation Strategy 2020, DEEDI is currently preparing a statutory standard code under the Queensland Planning Provisions relevant to development applications for timber plantations. This standard code may include issues relevant to fire hazard and DEEDI would like to discuss the connectivity between policies and also avoid duplication/overlap of issues or solutions.</p> <p>2. The SPP provides an exception where there is an 'overriding need' for the development 'in the public interest' . . . there have been issues around the interpretation of these terms in the past. There is a significant amount of case law surrounding these terms or similar. Consideration should be given to establishing a consistent definition such as in other SPPs or statutory regional plans such as FNQ2031 or SEQ. Public interest needs to address either a regional or local perspective.</p> <p>3. The new SPP will need to address how it can be incorporated into the new Indigenous Shire Planning schemes.</p>

Agency	Date	From	Contact officer/s	Status	Issues
					<p>4. In hindsight of the Victorian Bushfires, consider the relevance of the exemption for Community infrastructure if built for specific purposes e.g. bushfires and its location.</p> <p>5. The Review of the SPP 1/03 needs to be consistent with and assess potential consequences of the new SPPs developed such as the Temporary SPP for Protecting Wetlands of high Ecological Significance in the Great Barrier Reef Catchments in terms of mitigation and relevant flood levels both river and local. DERM have developed a waterway envelope concept for FNQ2013 regional plan and are proposing to develop guidelines for Councils. This proposal is suggesting no development including sports fields etc other than for biodiversity outcomes or some passive recreation parks within the envelope and buffers. This may need to be considered in relation to land available for development in Greenfield sites and opportunities for development that can assist in flood detention basins.</p> <p>6. Consistency of the new SPP with the new definitions of land use defined within the QPP e.g. agriculture and plantation forestry are included in the same definition whereas Forestry for Carbon sequestration is defined differently. The application of the new SPP needs to account for the new definitions in the Qld planning provisions.</p>
Queensland Police Service	6 Dec 10	Deputy Commissioner, Specialist Operations	Senior Policy Officer, Counter Terrorism Strategic Policy Branch		<p>1. The recent amendments to Queensland's Disaster Management Act 2003.</p> <p>2. The outcomes of the Victorian Bushfires Royal Commission</p>
Department of Community	7 Dec 10		Director Strategy	Interim	<p>1. Better ways to limit or design development in a way that improves community resilience to reduce the future social and</p>

Agency	Date	From	Contact officer/s	Status	Issues
Safety			<div></div> Project Manager, SPP 1/03 Review		<p>economic impact of flooding, bushfires and landslides.</p> <ol style="list-style-type: none"> 2. Improve linkages between land use planning and disaster management planning to reduce the risk of loss of human life, illness or injury to people in an effort to close any major gaps that would place future communities at risk. 3. The need for more exact criteria and methods for identifying areas prone to flooding, bushfires and landslides, including factors to take account of climate change, that reduce the long term cost of adaptation. 4. How to improve the integrated application of a future SPP with other instruments such as building codes, Regional Plans and Standard Planning Scheme Provisions to improve local government and industry implementation of state policies. 5. The advantages of a multi-zone approach for hazard mapping and risk management that provide local governments with a pragmatic and flexible set of mitigation responses that direct future development towards areas less hazard-prone. 6. More effective State involvement in the approval of developments and hazard studies to ensure land use planning responses are proportional to level of the risk and the effectiveness of a planning response.
Department of Education and Training	8 Dec 10	<div></div> Director General	<div></div> A / Assistant Director General, Infrastructure Delivery and Operations	Nil	<ol style="list-style-type: none"> 1. DET has no policy issues with the current version and no other interest which requires addressing through the review process.
Department of Communities	13 Dec 10	<div></div> Director, State-wide	<div></div> Manager, Capability	Interim	<ol style="list-style-type: none"> 1. Both within our role as lead agency for community recovery and as a collaborator in the development of strategies to build

Agency	Date	From	Contact officer/s	Status	Issues
		Services	Development Youth Detention Operations and Community Recovery		<p>communities' resilience to natural hazards, we value the development of policies and guidelines which reduce potential harm and maximises resilience for communities at risk of natural hazards.</p> <p>2. Further, these guidelines will assist the Department of Communities when deliberating on the most appropriate approach to supporting individuals and communities to rebuild after catastrophic impact to dwellings and other related infrastructure.</p>

Robert Preston

From: [REDACTED]

Sent: Wednesday, 2 February 2011 2:49 PM

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: SPP 103 Review - Cancellation of WG meeting - 3 Feb 2010

Importance: High

Attachments: SPP 103 Review - Stakeholder issues v02 02 Feb 2011.doc

Dear Colleagues

I must apologise for the short notice, but wish to advise that tomorrow's meeting of the SPP 1/03 Review Working Group is cancelled in view of the recent widespread flooding, announcement of the new flood recovery authority, the commission of inquiry and the unfolding events in North Queensland.

We will keep you informed of developments and advise you of a new meeting date once a policy position on the review with respect to the above has been established.

A decision on the IDC meeting - currently scheduled for Thu 10 Feb - will also be advised before cob this Friday.

For your information I have attached an updated set of stakeholder issues that includes recent comments from LGAQ and Powerlink.

Please feel free to call should you wish to discuss.

Project Manager - SPP 1/03 Review

Policy & Legislative Reform Branch

Strategic Policy Division

Department of Community Safety

GPO Box 1425 Brisbane Queensland 4001

Phone: 07 3635 3782 (x53782)

Fax: 3247 8798

Email: [REDACTED]

Review of State Planning Policy 1/03

Stakeholder Issues and Interests

Last updated: 02 Feb 2011

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Advice

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	1. SEQ Fire and Biodiversity Consortium (SEQFABC)			
2.	1. As a result of discussions and interest on the day, the SEQFBC would like to provide the below suggestions for consideration during the review, and also offer to provide further input and feedback to the review via the SPP Review Working Group, in relation to how the SPP could be revised to provide improved outcomes regarding community resilience, bushfire management, urban design and biodiversity conservation in SEQ. We understand that this input will be most critical during 2011, and also that some limited involvement in 2012 may also be required. The meeting raised the following matters that are most relevant to the review:	B		
3.	2. Greater inclusion of biodiversity and natural resource management targets, in relation to bushfire hazard mitigation, in SPP 1/03 as some smaller local governments do not have or have limited biodiversity constraint codes. Thus without the support of the SPP it may be difficult for individual planning schemes to achieve biodiversity targets and deliver sustainable outcomes when considering development applications in bushfire hazard areas. The inclusion of greater biodiversity and landscape sustainability provisions	B	A B	1

¹ Hazard type. Flooding, Bushfires, Landslides

² Topic. A. Definition of state interests, B. Preferred planning and non-planning options, C. Criteria and methods to delineate areas of interest, D. Implications

³ Priority. 1 = Imperative. 2 = Important. 3 = Less important

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A.. D) ²	Priority (1-3) ³
	within the SPP will provide local governments and land managers with increased capacity to achieve improved biodiversity and ecologically sustainable fire management outcomes;			
4.	3. The SPP 1/03 consider provisions that require the development of decision tools (including a standardised methodology or framework within the SPP) and landscape scale strategic fire management plans (as produced by the NSW RFS, DERM and some SEQ local governments) so as to strike the balance between life and property protection and biodiversity conservation . Such decision support tools and associated landscape scale fire management plans will allow conservation land managers and town planners to prioritise bushfire hazard mitigation works in the areas of highest risk and where possible avoid such works in the areas of highest conservation value. In addition, calculating building attack levels at the property or development level will greatly assist in the determination of high risk areas and thus such information should be included and analysed in the decision support tools (see below for comment on this matter);	B	A B	2
5.	4. There was much discussion about the issue of bushfire hazard mapping, or a lack there of in some cases and the application of suitable methodology to achieve the same. It was recognised that the availability and quality of mapping varied across Queensland and throughout the SEQ region , was largely dependent upon the resources available to local governments and land managers. The workshop highlighted the significant need for better mapping and that this required a discussion between GIS technicians, remote sensing experts, on-ground land managers, fire ecologists and town planners to develop a new standard methodology that takes advantage of advances in remote sensing data and analysis tools that have emerged since 2003. Whilst the SEQFBC is not in a position to provide technical feedback or advice on bushfire hazard mapping methodology, the issues raised in this workshop need to be communicated to the SPP Review Working Group and the SEQFBC are willing to provide this feedback in more detail;	B	A C	1
6.	5. The review of SPP 1/03 may wish to consider planning provisions to differentiate between hazard mapping and subsequent risk assessment .. Many local governments map bushfire hazard (using the current SPP 1/03 methodology or variations there of based on remotely sensed data) and some then use this information to conduct risk assessments, however there is no standard methodology for such risk assessments. To this end, the SPP 1/03 should	B	A C	1

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	consider developing and applying a risk management analysis methodology that can be applied at a landscape level and investigate the application of bushfire simulation models (for example, Phoenix by The University of Melbourne, fuel cell by Rastermatics and the work by CALM in Western Australia) to provide such analyses. These simulation models will also allow town planners and conservation land managers to run different climate change scenarios;			
7.	6. Need to improve education of the community to create greater community awareness and resilience concerning bushfire hazard and mitigation;	F	A B C	2
8.	7. There were some concerns that the SPP 1/03 was being superseded or "over-ruled" by the current Queensland Planning Provisions. In addition, some local governments have met strong resistance from the Department of Infrastructure and Planning (DIP) on bushfire management provisions within planning schemes. For example, DIP did not support performance criterion in planning schemes that sought to define suitable and safe locations within a lot and other criterion that sought to achieve best practice on the design, availability and delivery of water supplies for fire fighters. Therefore there is a need to better establish the planning hierarchy and define the types of development and infrastructure that the SPP applies to, for example, the current QPP exemption for lots less than 2000m ² , is problematic. Many local government areas are experiencing strong demand for such lots (i.e. subdivision of larger properties for "lifestyle" blocks) and lots of this size may have limited capacity to provide adequate asset protection zones/defendable space within the lot boundaries (see next dot point below);	F	A B	2
9.	8. Many participants had serious concerns with the recurring problem of proposed Asset Protection Zones (APZ)/defendable space being included on neighbouring properties (i.e. not the property subject to the development application) and land managers (i.e. local government, DERM etc) having difficulties enforcing changes to have APZ moved onto land they manage. It was strongly suggested that the SPP review consider this issue (even though it is not technically part of the SPP) to provide land managers with greater support when dealing with this issue;	B	A B	2
10.	9. The SPP should consider mandating the use of accepted formulas to calculate the level of pressure bushfire may exert on properties or developments. For example, NSW bushfire planning provisions require that any new lot created by subdivision must have a Building Attack Level (BAL) less than or equal to 29. Other formulas such as the House Ignition Likelihood	B	B	2

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	Index (HILI by Tolhurst and CSIRO) could be used as well. The use of such formulas should not be limited to just sub-divisions and can be successfully applied to all development. The application of such methodology will ensure that asset protection zones are accurately calculated and designed;			
11.	10. Need for greater alignment in general between SPP 1/03, building codes and AS 3959. SPP 1/03 should ensure that AS 3959 is applied to all classes of building and the SPP may also wish to work around some of the shortcomings of AS 3959 (for example, the lack of ember attack provisions and the limited number of building certifiers that are qualified to assess buildings against the standard, please refer to the Victorian Bushfires Royal Commission for more detailed discussion on problems concerning AS 3959 and its application).	B	A B	1
	2. James Cook University			
	<i>A. Floods</i>			
12.	<p>1. There are three types of flood:</p> <ul style="list-style-type: none"> • riverine flood • flash flood or severe storm event – landslides are particularly associated with this hazard • storm surge -- driven by tropical cyclones, severe storms and probably a feature of sea level rise. <p>SPP1/03 deals only with riverine floods. Storm surge is dealt with in separate legislation. However in many natural disasters, specifically cyclones and severe storms, there is no simple dividing line between the impacts of storm surge, overland and flash flooding and related riverine flooding.</p>	F	A B C D	1
13.	<p>2. Riverine flooding.</p> <p>SPP1/03 uses the Q100 or 100ARI as a standard against which to define flood prone land. Records of river flooding in Queensland are of short duration -- 150 years. There have been far too many one in 100 year floods and even events that have been defined as one in a thousand years, during that short period of records for the Q100 to be a serious measure of a rare, one in 100 year event. There needs to be a serious review of what Q100 is and what alternative flood measures might be made available to land use planners. For example, some locations are entirely below Q100 and need some sensible guidance for future urban development. Unfortunately the SPP 1/03 outcome 1 - "Within natural hazard management areas, development to which this SPP applies is compatible with the nature of the natural hazardThe Queensland Government's position is that, generally, the appropriate flood event for determining a natural hazard management area (flood) is the 1% Annual Exceedance Probability (AEP) flood. However, it may be appropriate to adopt a different DFE</p>	F	A B C D	1

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	<p>depending on the circumstances of individual localities" – is compromised by the Queensland Development Code NMP 1.5 (see attachment 1) which allows for the construction of dwellings within a proscribed natural hazard area, ie below Q100, as long as habitable rooms or a room is 300 mms above the identified flood line, such as Q100.</p> <p>The Quarternary record consists of riverine deposits that exist below the surface. These provide a flood record that goes back many thousands of years. Scientists who specialize in the study of such records, from cores taken through the deposits, assert that severe flood events are extremely common and they challenge the Q100 and the probability calculations on which it is based. Quarternary studies are a standard long established area of science (Geography, Geology, Earth Sciences). Definitions of probable flood levels should reflect the record of past flood events from quarternary records. Significant amounts of data already exist.</p> <p>Recommendation: redefine or modify the flood standard using words that people understand (people don't understand probability, average recurrence or 1 in 100 year events). The 100ARI should not be fixed permanently on maps. With each flood it is supposed to be recalculated, such that it will change in height over time. Climate change makes any absolute standard a relative point of measure. Past events are indicators of future events, but the probability is increased.</p> <p>Recommendation: use the quarternary record to redefine flood frequency.</p>			
14.	<p>3. Flash flooding.</p> <p>Very severe rainfall events occur regularly in Queensland. SPP1/03 gives no guidance on planning for severe overland flow. (The 2011 Toowoomba event was an exceptional flash flood – this recommendation is concerned with events that have been much more regular throughout Queensland as a consequence of severe storms, tropical lows and cyclones.) There are drainage standards and design guidelines, but these are not related directly to hazard zones. Very flat areas outside and riverine flooding and storm surge zones are vulnerable to short-term flooding. Urban development on such terrain exacerbates overland flow and increases the impact of flash flooding. Developments also increase the vulnerability of locations prone to riverine flooding and storm surge. Both riverine flooding and storm surge impound overland flow from areas outside river and storm surge flood zones. Physical measures to mitigate the impact of riverine and storm surge flooding, such as levees and barriers, can contribute to an impounding of overland flow and intensify the impacts of flash floods.</p>	F	A B C D	1

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	<p>Recommendation: address flash flood risk in hazard mitigation planning.</p> <p>Recommendation: locally define flash flood risk independently from river flood risk.</p> <p>Recommendation: identify urban design and planning trends that contribute to increased flash flood vulnerability.</p>			
15.	<p>4. Storm surge.</p> <p>The primary death rate from tropical cyclones is a consequence of drowning. The storm surge zone is also a tsunami impact zone, estuary areas are additionally prone to riverine flooding, severe storms can create surges similar to those of cyclones and flash flooding impacts low-lying coastal zones. For land use planners all flood prone areas present similar problems for future urban development. The separation of flood zones and storm surge zones into different pieces of legislation is at the least an administrative inconvenience, but more importantly a piecemeal approach to hazard land use planning undermines the effectiveness of both pieces of legislation.</p> <p>Recommendation: combine storm surge risk with other hazards.</p>	F	A B C D	1
16.	<p>5. Business, industry, infrastructure and lifelines in flood zones.</p> <p>Compared to residential dwellings, business and industry, are essential infrastructure and lifelines that are critical to disaster response and recovery are concentrated in the low lying areas of towns and cities. Most commercial districts in Queensland originally developed close to ports and river crossings. While there has been a trend for commercial activities to move into large suburban shopping centres, the very size of these places has also located them on flat, often low lying, land. Industrial premises require access to transport infrastructure, and large areas of flat land. Infrastructure and lifelines, such as power, water and sewerage processing plants, port facilities, airports and transport hubs, as well as emergency services such as hospitals, have been located in proximity to commercial or industrial zones such that they are disproportionately concentrated in flood and storm surge zones. It is a rational land-use planning strategy to designate extensive low-lying and flat areas of land as unsuitable for residential development, but perfectly suitable for industrial development, which over a period of time can incorporate increasing concentrations of commercial activities -- warehouses, shopping centres etc. The designation of low lying flood prone lands as suitable for commerce and industry increases the vulnerability of the economy to flood impact, adding to problems of economic recovery.</p> <p>The conversion of low lying areas, that formerly acted as natural flood retention, into industrial estates increases the overland flow, exacerbates drainage problems and</p>	F	A B	1

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	<p>increases the flood vulnerability of neighbouring (residential) land uses.</p> <p>The State planning policy allows for certain types of development in flood prone areas as long as mitigation strategies or structures are put in place. This highly flexible condition puts the decision as to what is suitable onto local government, potentially compromising governance.</p> <p>Recommendation: as for flash floods above.</p> <p>a. The construction of critical infrastructure and lifelines must avoid hazard prone areas, other than in the necessity to cross such areas in which case they must be flood proof. Existing critical infrastructure requires long term strategies for relocation to places outside hazard zones.</p> <p>Industrial premises on flood prone land need to be constructed to minimise flood damage. Flood protection measures such as levees and drainage need to be specified as conditions of development and such conditions must be built into legislation. In particular, industry involving hazardous materials must require stringent conditions to flood proof structures in order to avoid secondary hazards such as chemical/fuel spills etc.</p>			
17.	<p>6. Housing design and flood mitigation features.</p> <p>The trend in housing in Queensland has been away from high set, and even low set, houses to block structures on a concrete pad. Councils have increasingly raised the required level of the pad -- for example 600 mm above ground level, or road height, and this definitely contributes to the capacity of new residential developments to cope with short-term flash floods. However, block of houses on concrete pads increase overland flow. Roads are designed to carry the flow of flood waters and to disburse these into large drainage channels. The corresponding trends in housing and residential development have been an increase in the size of dwellings, so that they occupy more of the land area, and consolidation which aims to increase the density of housing for reasons of sustainability and greater efficiency in the provision of linear services. The effect of these two trends is that a much greater area of new housing estates is covered by buildings, concrete and asphalt. Councils have reported that builders have lost the skills and designs to construct high set houses. Overall, these trends in Housing and development increase the vulnerability of cities to the impacts of flash floods.</p> <p>Recommendation: as for flash floods above.</p> <p>New residential developments need to use raised pad levels more carefully in conjunction with drainage facilities. There needs to be effective modelling of flash flood impacts in all new developments, and the effect of such flash floods on surrounding urban and non urban areas. Development conditions may then be imposed in relation to riverine and</p>			

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	<p>flash flood modelling.</p> <p>Best practice residential development should target high set housing in flood prone areas. Blockhouses on pads are highly prone to river floods and increase the impacts of flash floods. It is recommended that positive support be shown to the construction of high set housing, with low set or on ground housing actively discouraged in all flood and flash flood prone areas.</p>			
18.	<p>7. Legislation and Sequencing -- all hazards covered by SPP1/03</p> <p>Our original submission to the Department of Emergency Services in 1997 just as the Integrated Planning Act was enacted, was the suggestion that emergency services (that part which is EMQ) would act as a referral agency under the act. The Department of Transport and EPA had initially been designated as such. There were problems in specifying such a function at that time because of the dearth of adequate hazard mapping. Such mapping has been required by the IPA and now exists as a local government resource. Other States in Australia, such as Victoria, operate such a process for planning development particularly in relation to bushfire and flood prone areas. If EMQ were a referral agency under the planning act, land-use developments in hazard prone areas would need to be approved or have conditions put in place by emergency managers. The state planning policy avoids the empowerment of emergency managers and places interpretation of hazard risk in the hands of local government planners, who are always under pressure from developers, politicians (and ultimately the planning and environment Court) to facilitate development.</p> <p>A brief survey of planners indicated that there was a widespread impression that the state planning policy SPP1/03 was an advisory document, rather than legislation. There was a tendency to regard it in the same way as the Australian Model Code of Residential Development, AMCORD, as best practice rather than a legal requirement. That this impression amongst planners is erroneous is unfortunate, but it is a reality in addressing the weakness of SPP1/03.</p> <p>The sequencing of the hazard mitigation planning policy has also been unfortunate. The introduction of IPA in 1997 required all councils to commence drafting their planning schemes. They were fully engaged in this process in 2003 when the state planning policy was introduced. It was too late at that stage for most councils to incorporate Hazard mitigation into their current planning scheme. They added hazard mapping later after the planning schemes completed. The new planning act, SPA in 2009 requires a new planning scheme on which all local governments are now fully engaged, and which will incorporate Hazard</p>	FB L	AD	1

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	mitigation strategies as identified in SPP1/03. The new policy in 2013 is therefore not going to influence the current generation of planning schemes. Recommendation: EMQ should be directly involved in strategic development assessments of hazard risk areas.			
19.	<p>8 Peri-urban areas</p> <p>Large urban councils are well resourced and exhibit greater capacity in areas of hazard mitigation planning. At the edges of our cities are many rural or semi-rural shires that are experiencing pressures for no density urban expansion, spilling over from the city, alongside the decline of many rural activities and an ageing of farm populations. Thus while city councils may be practising consolidation which incorporates limits on outer suburban growth, their peri-urban neighbours are facilitating low density urbanisation on former agricultural land. This process is introducing urban dwellers into rural and bush environments that are often flood and or bushfire prone. These new semi-rural dwellers lack local knowledge of hazard risk. This is the so-called tree change demographic process.</p> <p>A lack of planning capacity, and frequently governance, coupled with the economic decline of the former agricultural base of these semi-rural shires, increases their vulnerability to poor hazard planning decisions. These shires in particular need strong legislation to guide their future planning.</p> <p>Recommendation: whatever legislative form hazard mitigation planning takes in the future it needs to be stronger, more precise and less open to interpretation. In matters of public safety, prescription is better than best practice.</p>	FB L	AD	1
	<i>Supplementary Recommendations from Thomas et al paper (attached)</i>			
20.	9. State disaster planning legislation and policy need to be harmonious with state coastal legislation and policy concerning flood disaster events and anticipated sea level rise levels to avoid confusion for individuals, developers, Councils and the legal system.	F	AD	1
21.	10. A mechanism should be initiated in local government development assessment processes, either at the planning scheme or council decision making end, so that the total land infill impacts are factored into the consideration of the approval of new developments, particularly estates, in flood prone areas.	F	B	2
22.	11. Use a cost-benefit analysis or other economic model alongside social impact assessment to account for the greater costs incurred to the council and subsequently rate paying residents from any disaster impacts on proposed developments.	F	AB	1

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
23.	12. Ensure that new developments incorporate adequate measures so that they are built off the ground and allow for water passage at the ground level.	F	B	2
24.	13. Include a gradient overlay in the local government planning scheme.	F	B	2
25.	14. Undertake research detailing the comprehensive costs from road outages due to flooding including validating historic figures and future estimates, so that future flood mitigation and road maintenance business cases can be presented to decision makers in government at the state and federal levels.	F	A B D	1
26.	15. Ensure that terminology is more specifically defined under the successor to SPP 1/03 and ensure a greater focus on the intended outcomes of the recommended processes. Use scenarios in the rewriting of the SPP 1/03 to make it understandable to practitioners.	F	A B	1
27.	16. To design more resilient communities, create provisions that require flood damaged houses to be rebuilt above the 1/100 ARI flood line or its substitute, and appropriate building materials, such as plastic cladding rather than timber cladding, are used in houses located in floodplains.	F	A B	1
28.	17. Commence a campaign that assists individuals and businesses to consider the impacts of climate change into their own risk assessments of property location purchases to bring about a transition of cost-sharing across individual, business and government sectors.	F	A D	1
	B. Bushfires. Submission from Sharon Harwood. Comments relate to the conditioning of development by Council (as Assessment Manager) for the mitigation of bushfire hazards.			
29.	1. There is conflict in legislative provisions regarding the width of fire breaks (VMA) and planning schemes (Herberton and Mareeba as examples)	B	A B	2
30.	2. There is no consistency in conditions attached to rural development regarding bushfire mitigation. No set flow rates, or water capacity - is a 10 000litre capacity enough to suppress a fire storm?	B	B	2
31.	3. Assessment Managers (planning) are not qualified to assess the adequacy of a BMP.	B	B D	2
32.	4. What are the legal ramifications of having unqualified people assess BMP's and condition development accordingly in the event of a disaster?	B	B D	2
33.	5. There is a need to require planning knowledge (traditional and scientific) to draw upon and develop conditions for development and to identify appropriate development locations.	B	B	2
34.	6. There is a need to require a Referral Agency with expertise to assess and condition development that	B	A B D	2

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	requires a BMP.			
	<i>Concerns are as follows:</i>			
35.	7. There are no criteria that addresses how the Vegetation Management Act is triggered (clearing width for firebreak in the VMA (exemption) is 10m – in the current SPP ranges from 6-20m). If the break is greater than 10m then the applicants trigger the VMA (application fee apply).	B	A B	2
36.	8. There is a difference in fires for hazard reduction burning and pasture improvement burning practices and the promotion of specific ecosystems (eg protection of wet sclerophyll from rainforest invasion). Some sort of delineation must be made between the purposes of the fire event and the subsequent risk to creating a disaster.	B	A	2
37.	9. What is the relationship between bushfire and fire protection in a rural area? I have seen some conditions attached to development for example this one relates to a rural motor home tourism operation adjacent to a rainforest: 'a reliable reticulated water supply (fire reel and fire hydrants) that has sufficient flow and pressure characteristics for fire fighting purposes at all times (minimum pressure and flow is 10 litres a second at 200kPa or other volume and pressure approved by the manager of engineering services and the Qld Fire service) must be located within 90m of each motor home site. The applicant must provide a report including test results by a suitably qualified professional demonstrating that the above is achievable'. The proponent is unable to gain information from the Fire Service as this is beyond their core urban business and the rate of flow is such that it is greater than that required to support an overhead irrigator system used in intensive agriculture. Incidentally this condition was set in the P and E Court – and is an urban planning requirement imposed on a rural development. The point to be made is that there is a huge policy gap in fire mitigation in rural areas, and very little information or qualified people to assist in providing advice on fire hazards in non urban settings.	B	B D	2
38.	10. Related to the above point – the Herberton planning scheme (Natural Hazards code) requires 'Premises have a dam, on-site water tank or swimming pool having a total minimum capacity of 10,000L for Fire fighting purposes in times of bushfire emergency' – but applies no flow rate requirements. What is the appropriate flow rate to suppress a bushfire, and what water holding capacity is sufficient to support the flow rate – in a worse case scenario?	B	B D	2
39.	11. Not required to ensure that 10000water tank is full at all times for the sole purpose of fire fighting! This means that the domestic drinking water tank would meet the capacity criteria – but not in September when the tanks are at their lowest before the spring rains!	B	B	2

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A.. D) ²	Priority (1-3) ³
40.	12. The SPP outlines the minimum contents of a Bushfire Management Plan (BMP) to be developed in conjunction with development conditions. Despite the SPP stating that 'town planners' are able to assess and review these documents – it is not a core component of urban and regional planning courses. Therefore the assessment manager (planning) is not qualified to assess the adequacy of a BMP (as a condition of approval) and the contents of the mitigation strategies.	B	B D	2
41.	13. There is no assessment mechanism to determine whether the strategies written by a proponent in response to a planning scheme requirement adequately address the bushfire risk.	B	B D	2
42.	14. What are the legal ramifications to a council/state government if a bushfire does cause damage – where a proponent has a bushfire management plan in place – ie one that meets the planning scheme and SPP requirements?	B	B D	2
43.	15. The SPP restricts intensification of development (ie people) in places where high bushfire risk is present. However, risk is not a static notion – the risk can vary one season and one year to another...irrespective of the slope and vegetation type. What are the economic ramifications of this upon rural communities in terms of how they diversify their economic base? Can development be intensified in the cases where adequate mitigation is in place? What is adequate mitigation and how can this be objectively and consistently assessed?	B	A	1
44.	16. If the bushfire component is to be retained with the SPP, then there needs to be a referral agency to undertake an assessment of bushfire management plans. There also needs to be a concise outline of what is expected to be within these plans, how they will be assessed and the professional expertise/accreditation that is expected from those completing the plans.	B	A B	1
3. Brisbane Airport Corporation				
45.	1. In the SPP review, we suggest you apply a consistent approach as to that contained in the recent development of the Queensland Coastal Plan (QCP) being prepared by the Department of Environment and Natural Resources. The QCP recognises Brisbane Airport as being significant and as a public benefit asset.	F	A B	2
46.	2. We note that the OCP covers determining storm tide inundation areas. The SPP should be consistent with the QCP and Coastal Hazard Guidelines in providing planning and mapping requirements for storm tide and flood inundation areas. The SPP should also include requirements to integrate potential impacts of climate change when identifying natural hazard management areas.	F	A C	2

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A...D) ²	Priority (1-3) ³
47.	3. In relation to flood hazard, the SPP should further address the issue of cumulative impact, such as the impact of development in combination with other developments in floodplains, and include provisions to ensure individual developments minimise flood hazard. To that extent, land use planning controls should address the effects of cumulative filling of waterways and floodplains on flooding downstream, upstream and adjacent communities and businesses. Local governments should review cumulative impacts during planning and development assessment to ensure no adverse impact occurs on the flooding or drainage of nearby public benefit assets whilst retaining the ecological functions of waterways. Specially, the SPP should reassess the trigger of net filling exceeding 50 cubic metres as development to which the SPP applies.	F	A B D	1
48.	4. BAG suggests that the SPP should guide the authorities (State and Local Government) to coordinate management of natural hazards and include the owners of public benefit assets.	F	A	1
49.	We take this opportunity to acknowledge the preparedness and professional response to this week's extreme flood events by all agencies; particularly the State, and advise that as the operator of what is a critical public resource at such a time, BAC is keen to work with all agencies to understand how we can further improve that response through planning: policy and communication processes.	F	D	3
	4. CSIRO's Climate Adaptation Flagship			
	From our perspective, there are three key areas within the existing policy (SPP1/03, June 2003) where recent and ongoing CSIRO research stands to directly inform the review.			
50.	1. Climate projections: The frequency, location and intensity of flood, bushfire and landslides which currently informs SPP1/03 are likely to change in future climates. The implications of projected changes need to inform any review. CSIRO is part of the ongoing review of Australian Rainfall and Runoff which will help planning for mitigating the adverse impacts of future flooding, but parallel exercises may be needed for landslides and bushfire weather in particular.	F B L	A C	1
51.	2. Integrative assessments of natural hazards: Integrative assessment of the vulnerability of areas to flood, bushfire and landslide supplement models of risk management with an understanding of adaptive capacity (the ability of the cope with such events). Alternatively, methodologies for assessing natural hazards which seek to capture adaptive capacity could be considered.	F B L	A C	2
52.	3. Bushfire management plans, including siting building	B	B C	2

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A.. D) ²	Priority (1-3) ³
	principles: CSIRO has research teams in both bush fire dynamics and urban design for bush fire defence. This research can help to refine definitions of areas that are (and will be) prone to bushfire. It can also help to refine how vulnerable human settlements are in the event that they are exposed.			
	We look forward to participating in this review.			
	5. NCCARF			
53.	1. The existing SPP 1/03 does not deal adequately with the issue of climate change. Although it is mentioned on more than one occasion, there is no meaningful attempt to incorporate it into the SPP. In the light of the advances which have taken place in recent years in climate change science, it is feasible to incorporate a consideration of climate change into the revision of the SPP. In the light of recent events, such as the floods in Queensland and Victoria, and Black Saturday bushfires in Victoria, it is clearly necessary to do so.	F B L	A C	2
54.	2. The Inland Flood Study recently completed by the Queensland Government provides a basis for a review of flooding guidelines in the SPP, taking into account climate change.	F	A C	2
	6. Emergency Services Advisory Council (ESAC)			
	I will précis comments from members and send through two reports from members who can be contacted for further comment.			
55.	1. Flood definition pg 11 SPP. In light of the current problems being faced by those flood affected ie Insurance providers definition of flood cover and wording on policy documents.	F	A B C D	1
56.	2. The transportation of food, goods and produce to form part of the upgraded access for essential services into affected area.	F	A B D	1
57.	3. The impact of Council Amalgamations on local planning schemes.	F B L	D	2
58.	4. Register of agencies and resources available incorporated into overall regional plan including physical and human resources available.	F B L	B	2
59.	5. This review should be postponed until the outcome of the current enquiry is published and/or the wet season is over.	F B L	A	1
	<i>Report 1</i>			
60.	1. In view of recent events, I see the need for some more accurate recognition and definition of types of floods - in Section 4.2 and Section 9 the glossary.	F	A B C D	1
61.	2. At least two types of flood come to mind: riverine and large waterway flooding and localised flash flooding	F	A B C D	1

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	following very heavy rainfall from severe storm cells. Each has different implications for planning and may require different mitigation strategies. If care is taken to define these flooding types accurately, these definitions can then be imposed on/used by insurance providers.			
62.	3. Apart from that, the outcomes from the enquiry over the next year may well result in a major overhaul of this policy and guideline.	F	A D	1
	<i>Report 2</i>			
63.	1. Given the current situation I think that if a review is to have any substance it will wait for the current situation to abate and include reports/input from a raft of people / agencies.	F	A D	1
64.	2. Current SPP needs to reflect the Amalgamation of Councils and planning schemes	F B L	B	2
65.	3. Needs to reflect a review and reporting process for mining/extraction approvals that are functional or have been closed.	F B L	A	3
66.	7.5 of the SPP – Flood Plains and waterways - All infrastructure including sewerage treatment plants / reservoirs / dams / weirs / refuse sites/ open cut mine sites - Private and Public sectors (size and pathway for potential overflow or degradation of structural barrier / wall will be a determining factor for the requirement to report) where there is capacity to hold water need to have a maintenance plan and review process developed or attached to any new application. The reports should be undertaken by the party responsible for the structure / infrastructure and submitted to Local Governments in the area annually.	F	A B D	2
67.	7.6 & 7.7 All new requests for funding for any structure must have a detailed plan of use in emergency mitigation requirements. I have done time and motion studies on many sites in a raft of communities and there is a serious lack of consideration for full potential to be realised in the embryo stages of planning.	F	A B	2
68.	All new applications must reflect an evaluation of any impact on the roads and other transport systems, schools, police, medical and other community capacity. The footprint on the area covered by major towns and cities is overwhelming and clearly the capacity to cope with human and physical needs is at a maximum and not working efficiently.	F B L	A B	2
69.	The development assessment tables and codes needs to have a sliding scale on assessment.... Eg. Shopping centre application – blanket policy needs attention to reflect the number of people using the facility.... Should require different standards to be set for applications in very small communities v's larger communities when considering impacts of tyranny of distance, capacity on the ground etc.	F B L	A B D	2

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
70.	Placement of refuse sites need to be considered and greater consideration given to pollutants and ocean through run off from floods etc.	FB L	A B D	2
71.	The issue of planning and use of all available resources in a structured manner to cover evacuation and management of premises /suburbs / areas in the absence of owners / occupiers must form part of the planning policy. (Should volunteers be also trained in crowd control and lower level security.	FB L	E	3
72.	I have found no mention in the SPP of the impacts of infectious diseases control and process for managing deceased persons and animal carcass or mention of management of trauma related to an event. I believe this to be a major issue and while Red Cross are tasked they are not reflected in the SPP	FB L	A	2
73.	The SPP should require that regional plans should show all agencies and provide details of all physical and human resources with annually reviewed registers and MOU's for the assets available in the area.			
	<i>Outside SPP but relevant</i>			
74.	Insurance review on policy wording	FB L	A	2
	7. LGAQ			
	<p>LGAQ comments related to the Survey of Local Government Land Use Planning and Development Assessment Issues Associated with the Functionality of the Existing State Planning Policy 1/03 – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide.</p> <p>Thanks for the opportunity to comment and provide the Department of Community Safety a response to the survey. Whilst many of the questions were operational in nature the Association has provided comments sourced from members and the organisation's own experience in this area.</p>			
75.	1. There is a perception that natural hazards dealt with under SPP 1/03 may be inconsistently implemented across various local government areas throughout Queensland. This is potentially due a lack of a referral agent in the IDAS process for flooding, bushfire, and landslide issues.	FB L	A D	1
76.	2. Consideration should be given to the format of the revised SPP and whether implementation of the policy objectives will be achieved through individual and specific local government planning scheme provisions or the policy objectives will be included in a separate document such as a mandatory code . These must also be considered in addition to any local government planning scheme provisions.	FB L	A	1
77.	3. Flowcharts and decision support tools can be of	FB	AB	2

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A..D) ²	Priority (1-3) ³
	significant assistance to development assessment officers and development applicants. It is suggested that the revised SPP and/or associated guideline contains such elements. Additionally, the existing SPP has a significant number of references to outside documents. Limiting reference to other legislation and documents is considered beneficial.	L	D	
78.	4. Partially affected properties by natural hazards are often difficult to manage by local government development assessment officers. Further information and guidance on determining appropriate levels of assessment and performance criteria for development in natural hazard areas (ie. when a property is only partially affected) is necessary. This has potential to reduce the cost of minor development whereby a compliance assessment may be required rather than a code or impact assessable Material Change of Use.	F B L	A B	2
	<i>Flooding Specifically</i>			
79.	5. There is a significant need for reliable flood data across the entire State. Individual local governments have had some difficulty in determining an appropriate Defined Flood Event (DFE) either due to a lack of funding available for hydrology consultants or a lack of local knowledge of the last major flood event. Additionally, there is significant pressure on local governments to approve development in flood fringe areas and vacant lots in previously developed areas which are now considered to be in a flood hazard area.	F	A C	1
80.	6. The recommendations of the Increasing Queensland's resilience to inland flooding in a changing climate: Final report on the Inland Flooding Study related to the review of SPP 1/03 are supported by LGAQ and should be pursued.	F	A	1
	<i>Bushfire Specifically</i>			
81.	7. Suitably qualified and knowledgeable officers of bushfire matters are often not consulted or are not available to assist with development assessment when in a bushfire hazard area. Consideration should be given to providing local government with additional information and guidance on how to appropriately assess and condition development in bushfire hazard areas. Additionally, should the Queensland Fire and Rescue Service be maintained as an Advice Agency, it may be appropriate to include a threshold (i.e. number of proposed lots, a certain increase in residential dwellings etc.) whereby they become a Concurrence Agency.	B	A	2
	<i>Landslide Specifically</i>			
82.	8. Landslide is less likely to be controlled during the planning/development assessment process than flooding and bushfire risk when outside of wet tropic areas. There may be an opportunity to identify and assess landslide	L	A	1

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	issues through building and/or operational works assessment rather than material change of use or reconfiguring a lot processes. Similarly, there may be an opportunity to limit and control development related to bushfire risk when in wet tropic areas.			
83.	LGAQ supports the review of SPP 1/03 and highlights that there is a significant opportunity to revisit and understand the needs of local government in implementing natural hazard mitigation measures in assessing and approving development.	F B L	A D	2
	8. Powerlink			
	Further to our letter of 23 December 2010 and recent conversations with Mr Robert Preston, Powerlink nominates the follow key policy issues and areas of interest which we would like to see addressed through the review process:-			
84.	Recognition of other considerations: Powerlink notes that the scope of the SPPI/03 and the development outcomes are currently limited to mitigating risks of natural hazard and therefore there is potential that achieving outcomes may cause development of conflict with other policy outcomes with competing objectives. Powerlink identifies a need that a review of the SPP 1/03 should consider the relationship the policy objectives have with other policy outcomes and overriding public interest needs.	F B L	A	1
	Natural hazard management areas:			
85.	Powerlink notes the use of the concept of natural hazard management areas as the main mechanism for triggering the SPP 1/03 development assessment against development outcomes. Powerlink identifies a need for the coordination and implementation of improved hazard management area mapping given recent advances in spatial technology.	F B L	A C	1
86.	Powerlink notes the current lack of information available regarding areas that may be adversely affected by a landslide event in non-urban areas such as National Parks and Forests.	L	C D	2
87.	Natural hazard risk methodologies: Powerlink's experience with working with different consultants has revealed various techniques to measure bushfire risk. Powerlink identifies a need to update methodologies and techniques for measuring natural hazard risks with consideration for the adoption of a standard model, incorporating allowances for regional variations.	F B L	A C	1
88.	Further research Powerlink notes that there has been comprehensive research undertaken into the impacts of climate change leading to events such as storm surge and cyclones however notes the lack of information available and attention given to other relevant impacts such as extreme fire weather days and factors effecting bushfire.	B	A C	1

No	Issue or interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	Powerlink identifies a need for further research into these areas that would assist to underpin any policy outcomes relevant to bushfire mitigation.			
	Powerlink welcomes the opportunity to be involved in the future review of State Planning Policy 1/03 and look forwards to receipt of the draft statutory instrument in 2012 and the opportunity to be involved in further public consultation.			
	9. Energex			
	Details to come by 7 Feb 2010			
	10. Planning Institute of Australia (PIA)			
	Details to come by 7 Feb 2010			

[REDACTED]
Sent: Friday, 4 February 2011 4:06 PM

To: [REDACTED]; [REDACTED] Michael Papageorgiou

Cc: [REDACTED]; [REDACTED]
[REDACTED] Mark Piorkowski
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Subject: Postponed: SPP 1/03 Review IDC Meeting 2

Dear Colleagues

I wish to advise that the second meeting of the SPP 1/03 IDC (scheduled for 10am-11.30am Thu 10 Feb) is postponed in view of the recent widespread flooding, announcement of the new flood recovery authority, the commission of inquiry and the unfolding events in North Queensland.

We will keep you informed of developments, and advise the new meeting date once a policy position on the review with respect to the above has been established.

Please feel free to call should you wish to discuss.

Regards

[REDACTED]
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Email: [REDACTED]

28/10/2011

Sent: Wednesday, 1 December 2010 10:05 AM

To:

Subject: RE: SPP 1/03 Review - Working Group Meeting 01 - Agenda Papers

Hi Robert

I've now had a chance to take a closer look at both the TOR for the Working Group and the Project Plan. Please identify that Mark Prokowsky is from the Local Government Association of Queensland and not DPC in section (b) of the terms of reference. Otherwise I have no changes or comments related to either document.

However, in addition to the above, LGAQ would like to note its concern related to the due date of the survey of local government. The survey will likely be completed by the same council departments and council officers involved with reviewing the *Infrastructure Charges Taskforce Report* as requested by DIP, and the submission dates coincide. This could be a risk for the SPP review project.

Should you have any questions please feel free to contact me.

Regards,
Tracy

BES (Hons)
Senior Advisor - Advocate

Owned by, Governed by, Working for: Councils
[Local Government Association of Queensland](#)

25 Evelyn Street, Newstead
PO Box 2230, Fortitude Valley BC, QLD 4006
P(07)3000 2291 F(07)3252 4473

From:

Sent: Monday, 29 November 2010 11:16 AM

To:

Cc:

Subject: SPP 1/03 Review - Working Group Meeting 01 - Agenda Papers

Please find attached agenda papers for tomorrow's meeting of the SPP 1/03 Working Group at 9:30am.

- Agenda
- Item 3 - Preliminary Issues
- Item 4a - IDC TOR
- Item 4b - WG TOR
- Item 4c - Project Plan

Also attached is a map of the building - please find your way to security / visitor reception and ask for me. I'll escort you to the meeting room - B3.01

If needed please call my mobile 0417 272 218.

Looking forward to seeing you tomorrow.

Project Manager - SPP 1/03 Review
Policy & Legislative Reform Branch
Strategic Policy Division
Department of Community Safety
GPO Box 1425 Brisbane Queensland 4001
Phone: 07 3635 3782 (x53782)
Fax: 3247 8798
Email:

This correspondence is for the named persons only. It may contain confidential

All reasonable precautions will be taken to respect the privacy of individuals

[REDACTED]

Sent: Monday, 29 November 2010 12:42 PM

To: [REDACTED]

Cc: [REDACTED]

Subject: SPP 1/03 Review - Local Government Survey

Attachments: SPP 103 review local government survey 26 Nov 2010.doc; DCS DG to GCCC CEO 26 Nov 2010.pdf

[REDACTED]

As discussed, I am pleased to advise that the Director General of the Department of Community Safety has sent a letter to your CEO and all other Queensland Local Governments to inform them that the review of SPP 1/03 is underway, and to invite feedback about the current SPP. I have attached a copy of the letter and accompanying questionnaire FYI. You will note that we have extended the timeframe for responses until 14 January 2011 in view of the impending Christmas break. We have also sent similar letters to executive officers of key industry and community stakeholders.

I would like to reiterate our thanks for your earlier feedback about this survey, and are hopeful of a positive response that will ultimately help local governments in their efforts to build disaster resilient local communities.

Should you receive any feedback or questions about the questionnaire or letters, please direct them to myself or the Director for the review of SPP 1/03 - Graham Wiltshire.

[REDACTED]
Director - SPP 1/03 Review
Department of Community Safety
Tel: 07 3635 3317
Mob: [REDACTED]
email: [REDACTED]

Thank you for your support.

P.S. I would also be happy to send you a word template to assist your completion of the questionnaire, if this would be of assistance.

[REDACTED]
Project Manager - SPP 1/03 Review
Policy & Legislative Reform Branch
Strategic Policy Division
Department of Community Safety
GPO Box 1425 Brisbane Queensland 4001
Phone: 07 3635 3782 (x53782)
Fax: 3247 8798
Email: [REDACTED]

Department of Community Safety

Review of SPP 1/03 - Mitigating the Adverse Impacts of Flooding, Bushfires and Landslides

SURVEY OF LOCAL GOVERNMENT LAND USE PLANNING AND DEVELOPMENT ASSESSMENT ISSUES

November 2010

Introduction

The Department of Community Safety is leading the Queensland Government's review of State Planning Policy 1/03 - Mitigating the Adverse Impacts of Flooding, Bushfires and Landslides (SPP 1/03) and the associated guideline¹. The review is being conducted in accordance with the State Planning Instruments Program Guideline², produced by the Department of Infrastructure and Planning.

The purpose of SPP 1/03 is to describe the State's interest in ensuring that the natural hazards of flood, bushfire and landslide are adequately considered when making decisions about development. Its coverage of natural hazards is complementary to coastal hazards that will be managed through a State Planning Policy - Coastal Protection³ (i.e. coastal inundation, erosion and storm tide inundation - including the effects of climate change on sea level rise and increased storm intensity).

A revised statutory instrument and guideline will be in operation by September 2013.

Your response to this survey will help to identify matters considered in the review, and will establish a better understanding of the issues that Local Governments have experienced in implementing SPP 1/03 and the SPP 1/03 guideline through their planning schemes since they were released in 2003.

In addition to land use planning and development assessment views on SPP 1/03, it would be useful if your response could also reflect disaster management considerations.

It would be appreciated if you could forward your electronic response by email to [redacted] by Friday 10 December 2010. If you have any questions about how to complete this questionnaire please contact the Project Manager of the SPP 1/03 Review, [redacted] on [redacted] or [redacted] on [redacted].

Your contribution is greatly appreciated. A summary of responses to this survey will be made available on request.

¹ The current SPP 1/03 can be downloaded from: <http://www.emergency.qld.gov.au/publications/spp/>

² Available at: <http://www.dip.qld.gov.au/statewide-planning/state-planning-instruments-program.html>

³ Available at: http://www.derm.qld.gov.au/coastalplan/pdf/policy_coastal_protection.pdf

Questions – Suggested issues for the review of SPP 1/03

1. Of the three hazards covered by SPP 1/03 (a) flooding, (b) bushfires and (c) landslides, which have had most impact on property and people in your local government area?

For the following questions, could you please provide separate responses for (a) flooding, (b) bushfires (c) landslides and supply additional details or case studies where information is readily available.

2. What forms of development and type of locations (e.g. small sub-divisions in hilly remote bushland areas) have proven most difficult to achieve SPP 1/03 outcomes (minimise risks to people and property)?
3. How is SPP 1/03 reflected in your current planning scheme? Please indicate relevant areas of your planning scheme.
4. Which parts of your planning scheme that deal with natural hazards are your council seeking to improve, and what are some of the most significant innovations you are looking to introduce in future revisions of your planning scheme?
5. What is the source of hazard or risk mapping used to inform your current scheme? What year were these studies undertaken? Have new studies been undertaken to inform development of your new schemes or are any new studies planned? If so, when do you anticipate these new studies will be completed? Any additional information on the methodology used, coverage of your LGA would be appreciated.
6. Are you considering an allowance for climate change in hazard or risk mapping that will inform a future revision of your planning scheme? What technical approach will you use to achieve this? What are the most significant challenges you are facing and how could they be overcome?
7. What aspects of SPP 1/03 have proven to be *most useful* in guiding the preparation of your scheme and have ultimately helped to achieve good planning outcomes for new developments with respect to the objectives of SPP 1/03? These aspects would (ideally) be retained with little modification in any future instrument.
8. What aspects of SPP 1/03 have been *least useful* in guiding the preparation of your scheme and have ultimately not been especially helpful in achieving good planning outcomes for new developments with respect to the objectives of the SPP? Ideally, these aspects would be amended in a future instrument.
9. What aspects of SPP 1/03 have been could be significantly improved through *simple amendment*?
10. When defending your hazard mapping or planning scheme within the Planning and Environment Court, are there any instances where SPP 1/03 has been either useful or not useful in achieving outcomes sought by your Council.
11. Have you obtained external advice on the implementation of SPP 1/03, from whom, and has this advice been incorporated into your scheme?
12. Are there any other issues or suggestions that would be important to consider in the review of SPP 1/03 that would readily improve planning outcomes in your local government area?

Could you please also provide the name, position, email and phone number of (a) the executive officer responsible for implementing SPP 1/03 and (b) your planning or technical officer/s should we need to clarify any of your responses.



Queensland
Government

File No: (ODG/04/0385/P2)
Ref No: (08765-2010)

Office of the
Director-General

Department of
Community Safety

Chief Executive Officer
Gold Coast City Council
PO Box 5042
GOLD COAST MC QLD 9729

Dear [REDACTED]

As you would be aware, the Department of Community Safety (DCS) is responsible for the administration of *State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*, which is scheduled to expire on 31 August 2013.

The DCS is leading a review into SPP 1/03, in accordance with the Statutory Instruments Program for 2010-11, as approved by Cabinet in March 2010. The review is being conducted in accordance with the *State Planning Instruments Program Guideline*, produced by the Department of Infrastructure and Planning.

As part of that review, DCS is eager to canvas the views of local governments who are required to incorporate the requirements of SPP 1/03 into their planning schemes. I have attached a short questionnaire and would appreciate any feedback you have which would inform the review process.

All stakeholders, including local governments, will have a further opportunity to comment when the draft statutory instrument is released for public comment (anticipated for late 2011).

It would be appreciated if your response could be provided by no later than Friday 14 January 2011. I thank you for your cooperation in this regard.

Should you require further information, please contact Mr Graham Wiltshire, Director, SPP 1/03 Review on telephone number (07) 3635 3317 or on email at graham.wiltshire@dcs.qld.gov.au.

Yours sincerely

[REDACTED]
Director-General

Enc

Creating a safer Queensland
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ABN 19 823 962 345



QUEENSLAND POLICE SERVICE

DEPUTY COMMISSIONER
(SPECIALIST OPERATIONS)
200 ROMA STREET BRISBANE QLD 4000 AUSTRALIA
GPO BOX 1440 BRISBANE QLD 4001 AUSTRALIA
TELEPHONE 07 3364 8111 FACSIMILE 07 3364 8161



06 DEC 2010

Our Ref. 10010/836472

Your Ref

[REDACTED]
Acting Director-General
Department of Community Safety
GPO Box 1425
Brisbane QLD 4001

Dear [REDACTED]

I acknowledge receipt of your correspondence dated 9 November 2010 regarding the review of *State Planning Policy 1/03: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide*.

I note from your correspondence that input is currently being sought for a policy issues paper as part of the initial stages of the review. In response to your request, I recommend the following factors be considered as part of the review:

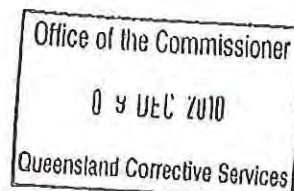
- The recent amendments to Queensland's *Disaster Management Act 2003*;
- The outcomes from the 2009 Victorian Bushfires Royal Commission.

The Queensland Police Service strongly supports initiatives which continue to improve the protection of Queenslanders from the risks of floods, bushfires and landslides and looks forward to participating in the review.

Mr John English, Senior Policy Officer, Counter-Terrorism Strategic Policy Branch is the contact officer for this matter. Mr English can be contacted on telephone number 07 3406 3676 or by email at english.johnm@police.qld.gov.au.

Yours sincerely

[REDACTED]
[REDACTED]
DEPUTY COMMISSIONER
(SPECIALIST OPERATIONS)



Robert Preston

From: [REDACTED]
Sent: Monday, 31 January 2011 8:41 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: SPP 103 Review LG survey issues summary v03 27 Jan 2011.doc
Attachments: SPP 103 Review LG survey issues summary v03 27 Jan 2011.doc

Good morning!

Attached is your summary of the survey responses. I've included a few comments, but generally I think the essence of the responses has been captured. I would recommend utilising the spell/grammar tool before disseminating, unless this is to be an internal document. Additionally, I would limit the use of short forms as they get confusing, particularly if there are significant acronyms as well. Finally, I would identify that this summary is based on X number of responses from 73 + however many other agencies/organisations.

Please give me a call if you would like to discuss prior to the working group meeting.

Cheers,
[REDACTED]

SPP 1/03 Review - Local Government Issues

Based on responses received to cob 24 Jan 2011

1. Problem hazards, areas and types of development (from responses to Q1, 2)

(a) Flooding

- Flooding is clearly the most significant hazard for most local governments. While all forms of development in floodplains are problematic, two situations deserve special consideration being (i) isolated townships and single detached dwellings in rural areas, and (ii) infill development in currently developed urban areas. Additionally, there is a complexity to both rural development and infill development when land filling is proposed e.g. add soil to maintain ground level above the DFE.

(b) Bushfires

- Bushfires are also an important issue for local governments with growth pressures in areas of steep topography esp South East Queensland, Southern and Central Queensland. The main problem is with approvals for single detached dwellings in steep topography.
- There are pressures to relax bushfire mitigation measures because of the cost implications.
- Some mitigation measures are difficult to achieve (e.g. fire trails, vegetation clearing) without compromising environmental and nature conservation outcomes.
- Disconnect between mitigation measures in the SPP 1/03, BCA and AS causes problems for the public, building certifiers and councils.

(c) Landslides

- Landslides and associated steep slope management is a problem for local governments with development pressures in steep slope areas, particularly in far north Queensland. This is applicable to both small or medium Greenfield developments and individual applications for MCU.

(d) General

- There is also a problem in areas where either (i) there is an existing but unutilised development commitment; or (ii) there is growth pressure in urban fringe areas; and the development commitment or growth pressure is not proportional to the level of hazard indicated by new information and studies. Some Councils have indicated the desire to 'pull back entitlements' or reduce development yields in hazard prone areas.

2. Issues with implementation of SPP in Planning Schemes (from responses to Q3)

General

- Highly varied planning provisions, mapping standards, and mapping coverage in pre-amalgamation planning schemes. This problem indicates opportunity for improved provisions, consistency of codes, mapping, and guidance in the future instrument. The latitude allowed in the SPP for utilising various approaches to identify hazard prone areas and mitigation measures has caused considerable inconsistency in pre-amalgamation planning schemes.
- Some pre-amalgamation schemes do not reflect SPP 1/03.
- This varied situation causes challenges for local governments in moving forward with new provisions or hazard mapping.

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3. Proposed scheme improvements for SPP implementation (from responses to Q4)

General

- Greatest focus for Councils at present is to achieve consistency in terminology, identified locations, and mitigation measures for hazard prone areas.
- Stronger alignment with QPP tools, Regional Plans, Emergency Management requirements e.g. access.
- Major focus is to develop improved and consistent hazard maps (for flooding and bushfires in particular) across amalgamated lga and corresponding planning provisions.

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4. Mapping source and improvements (from responses to Q5)

(a) Flooding

- The variety of approaches to produce flood hazard mapping has highlighted significant challenges in achieving consistency. Significantly, the extent(s) of the original studies undertaken often did not make consideration for an entire flood plain or catchment area, whereby this is now necessary for appropriate understanding of flood hazards.
- The flexibility given under the SPP has resulted in the use of a range of techniques carried out by development consultants for flood hazard assessments and mitigation measures which is challenging for councils to interpret and condition. It may be beneficial to identify a specific approach (as apposed to a specific consultant) for each flood catchment.

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(b) Bushfires

- State-wide mapping from QFRS is a useful starting point but not sufficiently accurate for local government planning (for most councils). Some councils see state mapping as adequate.
- Varied mapping standards used in pre-amalgamation councils are not consistent and will be improved in some councils.

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(c) Landslides

- Some local governments are undertaking new landslide hazard mapping based on guidelines developed by the Australian Geomechanics Society (2007).

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5. Climate Change consideration (from responses to Q6)

(a) Flooding

- In most situations, councils are considering the implications of climate change, however are not incorporating any provisions in schemes or hazard assessments to account for climate change, as they are awaiting information and guidance from the State. Coastal councils have raised the question of alignment with the Coastal Management Plan and the need for consistency between the two policies and national standards/approaches. Consideration of sea-level rise may be necessary.

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(b) Bushfires

- Councils are awaiting further explicit advice and standards on how to incorporate climate change into bushfire mapping.

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- In the interim a conservative approach is being adopted by some councils as bushfire hazard is likely to increase with rising temperatures, increased drought etc.
- It may be possible to incorporate climate change considerations into bushfire hazard mapping using scenario mapping.

(c) Landslides

- While local governments recognise that climate change may impact on climate change they await guidance from the state on appropriate standards and guidance.
- Some local governments may identify areas which higher risk of landslide as a result of projected increases of rainfall under climate change.

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Comment [TH1]: Climate Change impact on Climate Change?? Was this meant to be impact on Landslides?

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6. Useful elements of the SPP (from responses to Q7)

(a) Flooding

- References and use of the flood plain management guide (FPMG, SCARM 73) are beneficial, however more concerted incorporation of the practices and principles with respect to mitigation measures up to the Probable Maximum Flood (PMF) could be made
- Much of the guideline is beneficial and provides a practical application of the policy, particularly the triggers for assessable development in Appendix 5. Consideration should be given to developing a single instrument which incorporates the relevant aspects of the guideline.
- The SPP Outcomes 1 through 6 are useful. There is a need to link the new SPP with the QPP and QPP compliant schemes.

(b) Bushfires

- The SPP provides a generally sound framework for integrated hazard mapping and risk mitigation.
- Specification of setbacks in the SPP guidelines minimises the loss of vegetation.
- The requirement for adequate road access is one of the most useful aspects of the SPP.

(c) Landslides

- The provision of outcomes and methodologies for achieving outcomes is appreciated.

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7. Least useful elements of the SPP (from responses to Q8)

(a) Flooding

- A lack of clarity and guidance on how to manage natural hazards in light of climate change.
- A lack importance placed on a range of flood hazards and mitigation responses up to the PMF.
- A lack of consideration for mitigation responses to non-residential development.

(b) Bushfires

- The coarse scale of mapping is one of the greatest limitations of the SPP.
- The absence of any guidance w.r.t. climate change is not helpful to council implementation.
- It would be helpful to improve clarity and consistency in the SPP as to when a BMP is required.

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- Setback requirements based on mapping may well be inaccurate. This requirement should be replaced with a site based requirement.
- The blanket setback requirement of 1.5x height of vegetation is not always appropriate and should be reviewed.
- Setback requirements are at times in conflict with the SPP goal of minimising adverse impacts on nature conservation values.
- Higher coordination between nature conservation and bushfire hazard assessments is appropriate in areas of high nature conservation value.
- Guidance with respect to the location of fire maintenance trails should be reviewed.

(c) Landslides

- The Guideline does not make reference to the more recent AGS guideline (2007).

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8. Possible simple amendments (from responses to Q8)

(a) Flooding

- Stipulation that guidance is compulsory with an indication of which documents i.e. ARR, IPWAA, QUDM are appropriate for use in order to minimise discrepancies in methodologies applied in flood studies.

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(b) Bushfires

- It would be simple to edit the document to ensure that all protection measures apply only to areas of high or medium bushfire hazard (i.e. not low hazard areas).
- It would be helpful to describe criteria and calculation for bushfire hazard assessment in one appendix only.

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(c) Landslides

- It would be helpful to make reference to the more recent AGS guideline (2007).

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9. Greater integration of hazard response policies (from responses to Q12)

(a) Flooding

- An integrated approach to flooding, storm-tide inundation, and sea-level rise needs to be considered
- More comprehensive guidance on cumulative impacts and how to assess development in consideration of these impacts, e.g. multiple event occurrences, increased occurrences, and new hazards
- Consideration of what is appropriately assessed and managed at a planning application stage versus a building application stage versus an operational works stage e.g. earthquake, landslide, storm-tide

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(b) Bushfires

- Greater consideration should be given to the balancing of competing objectives for bushfire hazard mitigation and vegetation protection for nature conservation purposes.

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10. Greater integration of planning and building tools (from responses to Q12)

(a) Flooding

- More functional relationships between the outcomes identified in building legislation and the outcomes identified in planning legislation i.e. is it

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appropriate to re-assess a residential house in terms of natural hazard when proposing a deck extension?

(b) Bushfires

- Need better reconciliation between SPP 1/03, BCA and AS requirements for bushfire mitigation including ready ability for incorporation of above minimum standards to take account of local circumstances.

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11. Disaster mitigation requirements and guidance

(a) Flooding

- Need for increased provision and guidance on disaster mitigation especially access routes and emergency management planning.

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(b) Bushfires

- Need greater documentation of evacuation plans incl. design of evacuation routes, backup power, transport for evacuation, alternative accommodation esp. high risk facilities (e.g. Nursing or high care facilities).

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12. Consideration of critical infrastructure

(a) Flooding

- Greater consideration of measures to protect critical infrastructure and access to that infrastructure e.g. hospitals, power generation, sanitation

(b) Bushfires

- Nil

Comment [TH2]: Identification that there were nil comments re: landslide?

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13. Improved guidance, documentation, communication

(a) Flooding

-

(b) Bushfires

- Need improved case study / documentation of examples esp. Bushfire management Plans, bushfire hazard assessments, emergency management plans

(c) Landslides

- There is a need and opportunity to improve understanding of how to design developments on sloping sites that retain landform and vegetation instead of benching the site.

Review of State Planning Policy SPP 1/03

Local Government Issues and Interests

Based on responses from 12 Councils received to 31 January 2011

No.	Issue / Interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	1. Problem hazards, areas and types of development (responses to Q1, 2)			
	(a) Flooding			
1.	<ul style="list-style-type: none"> Flooding is clearly the most significant hazard for most local governments. While all forms of development in floodplains are problematic, two situations deserve special consideration being (i) isolated townships and single detached dwellings in rural areas, and (ii) infill development in currently developed urban areas. Additionally, there is a complexity to both rural development and infill development when land filling is proposed e.g. add soil to maintain ground level above the Defined Flood Event (DFE). 	F	A	2
	(b) Bushfires			
2.	<ul style="list-style-type: none"> Bushfires are also an important issue for local governments with growth pressures in areas of steep topography esp. South East Queensland, Southern and Central Queensland. The main problem is with approvals for single detached dwellings in steep topography. 	B	A	2
3.	<ul style="list-style-type: none"> There are pressures to relax bushfire mitigation measures because of the cost implications. 	B	A	2
4.	<ul style="list-style-type: none"> Some mitigation measures are difficult to achieve (e.g. fire trails, vegetation clearing) without compromising environmental and nature conservation outcomes. 	B	A	1
5.	<ul style="list-style-type: none"> Disconnect between mitigation measures in the SPP 1/03, Building Code of Australia 	B	A	1

¹ Hazard type. Flooding, Bushfires, Landslides

² Topic. A. Definition of state interests, B. Preferred planning and non-planning options, C. Criteria and methods to delineate areas of interest, D. Implications

³ Priority. 1 = Imperative. 2 = Important. 3 = Less important

No.	Issue / Interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	(BCA) and Australian Standard (AS) causes problems for the public, building certifiers and councils.			
	(c) Landslides			
6.	<ul style="list-style-type: none"> Landslides and associated steep slope management is a problem for local governments with development pressures in steep slope areas, particularly in far north Queensland. This is applicable to both small or medium Greenfield developments and individual applications for Material Change of Use (MCU). 	L	A	2
	(d) General			
7.	<ul style="list-style-type: none"> There is a problem in areas where either (i) there is an existing but unutilised development commitment; or (ii) there is growth pressure in urban fringe areas; and the development commitment or growth pressure is not proportional to the level of hazard indicated by new information and studies. Some Councils have indicated the desire to 'pull back entitlements' or reduce development yields in hazard prone areas. 	FBL	A	1
	2. Issues with Implementation of SPP in Planning Schemes (responses to Q3)			
	General			
8.	<ul style="list-style-type: none"> Highly varied planning provisions, mapping standards, and mapping coverage in pre-amalgamation planning schemes. This problem indicates opportunity for improved provisions, consistency of codes, mapping, and guidance in the future instrument. The latitude allowed in the SPP for utilising various approaches to identify hazard prone areas and mitigation measures has caused considerable inconsistency in pre-amalgamation planning schemes. 	FBL	B	1
9.	<ul style="list-style-type: none"> Some pre-amalgamation schemes do not reflect SPP 1/03. This varied situation causes challenges for local governments in moving forward with new provisions or hazard mapping. 	FBL	A	2
	3. Proposed scheme improvements for SPP			

No.	Issue / Interest	Hazard (F, B, L) ¹	Topic (A...D) ²	Priority (1-3) ³
	Implementation (responses to Q4)			
	General			
10.	<ul style="list-style-type: none"> Greatest focus for Councils at present is to achieve consistency in terminology, identified locations, and mitigation measures for hazard prone areas. 	FBL	B	2
11.	<ul style="list-style-type: none"> Stronger alignment with Queensland Planning Provision (QPP) tools, Regional Plans, Emergency Management requirements e.g. access. 	FBL	A, B	1
12.	<ul style="list-style-type: none"> Major focus is to develop improved and consistent hazard maps (for flooding and bushfires in particular) across amalgamated lga and corresponding planning provisions. 	FBL	C	2
	4. Mapping source and improvements (responses to Q5)			
	(a) Flooding			
13.	<ul style="list-style-type: none"> The variety of approaches to produce flood hazard mapping has highlighted significant challenges in achieving consistency. Significantly, the extent(s) of the original studies undertaken often did not make consideration for an entire flood plain or catchment area, whereby this is now necessary for appropriate understanding of flood hazards. 	F	C	1
14.	<ul style="list-style-type: none"> The flexibility given under the SPP has resulted in the use of a range of techniques carried out by development consultants for flood hazard assessments and mitigation measures which is challenging for councils to interpret and condition. It may be beneficial to identify a specific approach (as apposed to a specific consultant) for each flood catchment. 	F	C	1
	(b) Bushfires			
15.	<ul style="list-style-type: none"> State-wide mapping from Queensland Fire and Rescue Service (QFRS) is a useful starting point but not sufficiently accurate for local government planning (for most councils). Some councils see state mapping as adequate. 	B	C	1

No.	Issue / Interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
16.	<ul style="list-style-type: none"> Varied mapping standards used in pre-amalgamation councils are not consistent and will be improved in some councils. 	B	C	3
	(c) Landslides			
17.	<ul style="list-style-type: none"> Some local governments are undertaking new landslide hazard mapping based on guidelines developed by the Australian Geomechanics Society (2007) (AGS). 	L	C	2
	5. Climate Change consideration (responses to Q6)			
	(a) Flooding			
18.	<ul style="list-style-type: none"> In most situations, councils are considering the implications of climate change, however are not incorporating any provisions in schemes or hazard assessments to account for climate change, as they are awaiting information and guidance from the State. 	F	C	2
19	<ul style="list-style-type: none"> Coastal councils have raised the question of alignment with the Coastal Management Plan and the need for consistency between the two policies and national standards/approaches. Consideration of sea-level rise may be necessary. 	F	A	1
	(b) Bushfires			
20.	<ul style="list-style-type: none"> Councils are awaiting further explicit advice and standards on how to incorporate climate change into bushfire mapping. 	B	A, C	1
21.	<ul style="list-style-type: none"> In the interim a conservative approach is being adopted by some councils as bushfire hazard is likely to increase with rising temperatures, increased drought etc. 	B	C	3
22.	<ul style="list-style-type: none"> It may be possible to incorporate climate change considerations into bushfire hazard mapping using scenario mapping. 	B	C	2
	(c) Landslides			
23.	<ul style="list-style-type: none"> While local governments recognise that climate change may impact on landslides they await guidance from the state on appropriate standards and guidance. 	L	A	2

No.	Issue / Interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
24.	<ul style="list-style-type: none"> Some local governments may identify areas which higher risk of landslide as a result of projected increases of rainfall under climate change. 	L	C	3
	6. Useful elements of the SPP (responses to Q7)			
	(a) Flooding			
25.	<ul style="list-style-type: none"> References and use of the Floodplain Management in Australia: Best Practice Principles and Guidelines (FPMABPPG) are beneficial, however more concerted incorporation of the practices and principles with respect to mitigation measures up to the Probable Maximum Flood (PMF) could be made 	F	A, C	1
26.	<ul style="list-style-type: none"> Much of the guideline is beneficial and provides a practical application of the policy, particularly the triggers for assessable development in Appendix 5. Consideration should be given to developing a single instrument which incorporates the relevant aspects of the guideline. 	F	B	2
27.	<ul style="list-style-type: none"> The SPP Outcomes 1 through 6 are useful. There is a need to link the new SPP with the QPP and QPP compliant schemes. 	F	B	1
	(b) Bushfires			
28.	<ul style="list-style-type: none"> The SPP provides a generally sound framework for integrated hazard mapping and risk mitigation. 	B	B	3
29.	<ul style="list-style-type: none"> Specification of setbacks in the SPP guidelines minimises the loss of vegetation. 	B	B	3
30.	<ul style="list-style-type: none"> The requirement for adequate road access is one of the most useful aspects of the SPP. 	B	B	2
	(c) Landslides			
31.	<ul style="list-style-type: none"> The provision of outcomes and methodologies for achieving outcomes is appreciated. 	L	B	3
	7. Least useful elements of the SPP (responses to Q8)			

No.	Issue / Interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	(a) Flooding			
32.	<ul style="list-style-type: none"> A lack of clarity and guidance on how to manage natural hazards in light of climate change. 	F	A C	2
33.	<ul style="list-style-type: none"> A lack importance placed on a range of flood hazards and mitigation responses up to the PMF. 	F	A B C D	2
34.	<ul style="list-style-type: none"> A lack of consideration for mitigation responses to non-residential development. 	F	A B	2
	(b) Bushfires			
35.	<ul style="list-style-type: none"> The coarse scale of mapping is one of the greatest limitations of the SPP. 	B	C D	1
36.	<ul style="list-style-type: none"> The absence of any guidance w.r.t. climate change is not helpful to council implementation. 	B	A C	1
37.	<ul style="list-style-type: none"> It would be helpful to improve clarity and consistency in the SPP as to when a best management practice is required. 	B	A B C D	2
38.	<ul style="list-style-type: none"> Setback requirements based on mapping may well be inaccurate. This requirement should be replaced with a site based requirement. 	B	B C D	2
39.	<ul style="list-style-type: none"> The blanket setback requirement of 1.5x height of vegetation is not always appropriate and should be reviewed scientifically. 	B	B C	2
40.	<ul style="list-style-type: none"> Setback requirements are at times in conflict with the SPP goal of minimising adverse impacts on nature conservation values. 	B	A	1
41.	<ul style="list-style-type: none"> Higher coordination between nature conservation and bushfire hazard assessments is appropriate in areas of high nature conservation value. 	B	B D	2
42.	<ul style="list-style-type: none"> Guidance with respect to the location of fire maintenance trails should be reviewed. 	B	B	2
	(c) Landslides			
43.	<ul style="list-style-type: none"> The Guideline does not make reference to the more recent AGS guideline (2007). 	L	B C	2

No.	Issue / Interest	Hazard (F, B, L) ¹	Topic (A .. D) ²	Priority (1-3) ³
	8. Possible simple amendments (responses to Q8)			
	(a) Flooding			
44.	<ul style="list-style-type: none"> Stipulation that guidance is compulsory with an indication of which guidance documents i.e. FPMABPPG, Australian Rainfall and Runoff (AR&R), Queensland Urban Drainage Manual (QUDM) are appropriate for use in order to minimise discrepancies in methodologies applied in undertaking and interpreting flood studies. 	F	A B C	2
	(b) Bushfires			
45.	<ul style="list-style-type: none"> It would be simple to edit the document to ensure that all protection measures apply only to areas of high or medium bushfire hazard (i.e. not low hazard areas). 	B	B	2
46.	<ul style="list-style-type: none"> It would be helpful to describe criteria and calculation for bushfire hazard assessment in one appendix only. 	B	B C	2
	(c) Landslides			
47.	<ul style="list-style-type: none"> It would be helpful to make reference to the more recent AGS guideline (2007). 	L	B C	2
	9. Greater integration of hazard response policies (responses to Q12)			
	(a) Flooding			
48.	<ul style="list-style-type: none"> An integrated approach to flooding, storm-tide inundation, and sea-level rise needs to be considered 	F	A B C D	1
49.	<ul style="list-style-type: none"> More comprehensive guidance on cumulative impacts and how to assess development in consideration of these impacts, e.g. multiple event occurrences, increased occurrences, and new hazards 	F	B C D	1
50.	<ul style="list-style-type: none"> Consideration of what is appropriately assessed and managed at a planning application stage versus a building application stage versus an operational works stage e.g. earthquake, landslide, storm-tide 	F	A B D	1
	(b) Bushfires			

No.	Issue / Interest	Hazard (F, B, L) ¹	Topic (A.. D) ²	Priority (1-3) ³
51.	<ul style="list-style-type: none"> Greater consideration should be given to the balancing of competing objectives for bushfire hazard mitigation and vegetation protection for nature conservation purposes. 	B	A B C	1
	10. Greater integration of planning and building tools (responses to Q12)			
	(a) Flooding			
52.	<ul style="list-style-type: none"> More functional relationships between the outcomes identified in building legislation and the outcomes identified in planning legislation i.e. is it appropriate to re-assess a residential house in terms of natural hazard when proposing a deck extension? 	F	A B	1
	(b) Bushfires			
53.	<ul style="list-style-type: none"> Need better reconciliation between SPP 1/03, BCA and AS requirements for bushfire mitigation including ready ability for incorporation of above minimum standards to take account of local circumstances. 	B	A B	1
	11. Disaster mitigation requirements and guidance			
	(a) Flooding			
54.	<ul style="list-style-type: none"> Need for increased provision and guidance on disaster mitigation especially access routes and emergency management planning. 	F	A B	1
	(b) Bushfires			
55.	<ul style="list-style-type: none"> Need greater documentation of evacuation plans incl. design of evacuation routes, backup power, transport for evacuation, alternative accommodation esp. high risk facilities (e.g. Nursing or high care facilities). 	B	A B	1
	12. Consideration of critical Infrastructure			
	(a) Flooding			
56.	<ul style="list-style-type: none"> Greater consideration of measures to protect critical infrastructure and access to that infrastructure e.g. hospitals, power generation, sanitation 	F	A B	1
	13. Improved guidance, documentation,			

No.	Issue / Interest	Hazard (F, B, L) ¹	Topic (A ... D) ²	Priority (1-3) ³
	communication			
	(b) Bushfires			
57.	<ul style="list-style-type: none"> Need improved case study / documentation of examples esp. Bushfire management Plans, bushfire hazard assessments, emergency management plans 	B	B	1
	(c) Landslides			
58.	<ul style="list-style-type: none"> There is a need and opportunity to improve understanding of how to design developments on sloping sites that retain landform and vegetation instead of benching the site. 	L	B	2

[REDACTED]

Sent: Tuesday, 1 February 2011 2:56 PM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: SPP 103 Review - Material for WG meeting - 3 Feb 2010
Follow Up Flag: Follow up
Flag Status: Red
Attachments: Final Comments on the functionality of the existing SPP 1_03.doc

[REDACTED]

Please find attached (1) GAQ comments related to the review of SPP103 and the DC5 Survey. Apologies that it took so much additional time to get these comments to you.

Should you have any questions or concerns, please feel free to contact me.

Regards,

[REDACTED]
BES (Hons)
Senior Advisor - Advocate

Owned by, Governed by, Working for: Councils
[Local Government Association of Queensland](#)

25 Evelyn Street, Newstead
PO Box 7230, Fortitude Valley BC, QLD 4006
P [REDACTED]

From: [REDACTED] [mailto:[REDACTED]]
Sent: Monday, 31 January 2011 6:49 PM
To: [REDACTED]

Cc: [REDACTED]
Subject: SPP 103 Review - Material for WG meeting - 3 Feb 2010

Dear Colleagues

I am pleased to forward to you a copy of all available issues made available to date that include summary feedback from Local Governments, State Agencies, Stakeholders.

We have yet to receive advice from LGAQ, PIA, Energex, Powerlink and DERM. Information from these organisations will be provided as it becomes available.

You will see from the summary attachment that I have conducted a preliminary sorting of issues by hazard and review topic. I have also allocated a nominal priority. I have also included source material that may be used to track the source of the comment.

You may care to peruse this information prior to our meeting on Thursday and give some consideration to further categorisation needed to assist in preparation of papers for the IDC meeting on 10 Feb.

Please feel free to call if you wish to discuss.

[REDACTED]
Project Manager - SPP 1/03 Review
Policy & Legislative Reform Branch
Strategic Policy Division
Department of Community Safety
GPO Box 1425 Brisbane Queensland 4001
Phone: [REDACTED]
Fax: [REDACTED]
Email: [REDACTED]

This correspondence is for the named persons only. It may contain confidential
All reasonable precautions will be taken to respect the privacy of individuals

LGAQ comments related to:

The Survey of Local Government Land Use Planning and Development Assessment Issues Associated with the Functionality of the Existing State Planning Policy 1/03 - Mitigating the Adverse Impacts of Flood, Bushfire and Landslide

Thanks for the opportunity to comment and provide the Department of Community Safety a response to the survey. Whilst many of the questions were operational in nature the Association has provided comments sourced from members and the organisation's own experience in this area.

1. There is a perception that natural hazards dealt with under SPP 1/03 may be inconsistently implemented across various local government areas throughout Queensland. This is potentially due a lack of a referral agent in the IDAS process for flooding, bushfire, and landslide issues.
2. Consideration should be given to the format of the revised SPP and whether implementation of the policy objectives will be achieved through individual and specific local government planning scheme provisions or the policy objectives will be included in a separate document such as a mandatory code. These must also be considered in addition to any local government planning scheme provisions.
3. Flowcharts and decision support tools can be of significant assistance to development assessment officers and development applicants. It is suggested that the revised SPP and/or associated guideline contains such elements. Additionally, the existing SPP has a significant number of references to outside documents. Limiting reference to other legislation and documents is considered beneficial.
4. Partially affected properties by natural hazards are often difficult to manage by local government development assessment officers. Further information and guidance on determining appropriate levels of assessment and performance criteria for development in natural hazard areas (ie. when a property is only partially affected) is necessary. This has potential to reduce the cost of minor development whereby a compliance assessment may be required rather than a code or impact assessable Material Change of Use.

Flooding Specifically

5. There is a significant need for reliable flood data across the entire State. Individual local governments have had some difficulty in determining an appropriate Defined Flood Event (DFE) either due to a lack of funding available for hydrology consultants or a lack of local knowledge of the last major flood event. Additionally, there is significant pressure on local governments to approve development in flood fringe areas and vacant lots in previously developed areas which are now considered to be in a flood hazard area.
6. The recommendations of the *Increasing Queensland's resilience to inland flooding in a changing climate: Final report on the Inland Flooding Study* related to the review of SPP 1/03 are supported by LGAQ and should be pursued.

Bushfire Specifically

7. Suitably qualified and knowledgeable officers of bushfire matters are often not consulted or are not available to assist with development assessment when in a bushfire hazard area. Consideration should be given to providing local government with additional information and guidance on how to appropriately assess and condition development in bushfire hazard areas. Additionally, should the Queensland Fire and Rescue Service be maintained as an Advice Agency, it may be appropriate to

include a threshold (i.e. number of proposed lots, a certain increase in residential dwellings etc.) whereby they become a Concurrence Agency.

Landslide Specifically

8. Landslide is less likely to be controlled during the planning/development assessment process than flooding and bushfire risk when outside of wet tropic areas. There may be an opportunity to identify and assess landslide issues through building and/or operational works assessment rather than material change of use or reconfiguring a lot processes. Similarly, there may be an opportunity to limit and control development related to bushfire risk when in wet tropic areas.

LGAQ supports the review of SPP 1/03 and highlights that there is a significant opportunity to revisit and understand the needs of local government in implementing natural hazard mitigation measures in assessing and approving development.

[REDACTED]

From: [REDACTED]
Sent: Tuesday, 1 March 2011 11:13 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: SPP1/03 - Review of comments from DLGP perspective
Follow Up Flag: Follow up
Flag Status: Red
Attachments: SPP103 review comments - DIP review.xls

[REDACTED]

Thanks for coming to see us today. As per our conversation: Attached is the electronic copy of comments from DLGP (Ex-DIP) perspective. I have yet to summarise the analysis into a report. I will provide this once completed.

Catherine will follow-up with our colleagues in Planning to determine DLGP position and progress to date before we re-schedule another meeting with you.

Thanks

[REDACTED]

[REDACTED]

Senior Policy Officer
Strategic Policy and Legislation
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Comment ID	Stakeholder	Hazard	Policy Issue	to explanation)	Relevance to DIP
		Bushfire Landslide Flooding	Policy Implementation Responsibilities Hazard and Response determination Planning	Policy Conflicts	Building Planning LG Infrastructure
v1		✓	Comment: (DIP Interpretation) The State should ensure that the mapping used to determine building and planning controls is based on the best available science and takes account of all relevant aspects of bushfire risk.		✓
v1		✓	The State should map and designate Bushfire-prone Areas for the purposes of planning and building controls, in consultation with municipal councils and fire agencies		✓
v1		✓	The State should finalise the alignment of site-assessment methods for planning and building purposes, taking into account bushfire risk to human safety as well as to property		✓
v2		✓	The State should implement a regional settlement policy that: (a) takes account of the management of bushfire risk, including that associated with small, undeveloped rural lots (b) includes a process for responding to bushfire risk at the planning stage for new urban developments in regional cities	Settlement patterns	✓
v3		✓	The State should have Planning Provisions that give priority to the protection of human life, adopt a clear objective of substantially restricting development in the areas of highest bushfire risk-giving due consideration to biodiversity conservation-and provide clear guidance for decision makers.	Settlement patterns	✓
v3		✓	Planning Provisions should: (a) outline the State's objectives for managing bushfire risk through land-use planning	Settlement patterns	✓
v3		✓	Planning Provisions should: (b) allow municipal councils to include a minimum lot size for use of land for a dwelling.	Adaptation planning	✓
v4		✓	Planning Provisions should: (c) provide a comprehensive Bushfire-prone Overlay provision.	Design and location of buildings	✓
v4		✓	Substantially restrict new developments and subdivisions in those areas of highest risk	Development restrictions	✓
v4		✓	The State should set out the guidelines for assessing permit applications for dwellings, non-dwellings and subdivisions-including the minimum defendable space requirements for different risk levels	Development restrictions	✓
v4		✓	The State should approve new developments and subdivisions only if the recommended bushfire protection measures-including the minimum defendable space-can be created and maintained on a continuing basis	Development restrictions	✓
v4		✓	The State should include permit conditions for the creation and maintenance of minimum defendable space to be maintained for the life of the development.	Design and location of buildings	✓
v5		✓	When assessing a permit to remove native vegetation around an existing dwelling, the responsible authority should take into account fire hazard and give weight to fire protection purposes; (b) develop guidelines for determining the maximum level of native vegetation removal for bushfire risk mitigation, beyond which level the application would be rejected.	Design and location of buildings	✓
v6		✓	The Department of Sustainability and Environment should develop and administer a collective offset solution for individual landholders who are permitted to remove native vegetation for the purpose of fire protection.	Design and location of buildings	✓
s36	James Cook University	✓	There is a difference in fires for hazard reduction burning and pasture improvement burning practices and the promotion of specific ecosystems (eg protection of wet sclerophyll from rainforest invasion).	Environmental	✓
s43	James Cook University	✓	Some sort of delineation must be made between the purposes of the fire event and the subsequent risk to creating a disaster.	Environmental	✓
s43	James Cook University	✓	RE: restricting intensification of development (ie people) in places where high bushfire risk is present. Risk is not a static notion -- the risk can vary one season and one year to another...irrespective of the slope and vegetation type.	Development constraints	✓
s43	James Cook University	✓	RE: restricting intensification of development: What are the economic ramifications of this upon rural communities in terms of how they diversify their economic base?	Economic	✓
l2		✓	What is adequate mitigation and how can this be objectively and consistently assessed? Can development be intensified in the cases where adequate mitigation is in place?	Development constraints	✓
l3		✓	Bushfires are also an important issue for local governments with growth pressures in areas of steep topography esp. South East Queensland, Southern and Central Queensland. The main problem is with approvals for single detached dwellings in steep topography.	Development Assessment	✓
l4		✓	There are pressures to relax bushfire mitigation measures because of the cost implications. Some mitigation measures are difficult to achieve (e.g. fire trails, vegetation clearing) without compromising environmental and nature conservation outcomes	Building constraints	✓
l5		✓	Disconnect between mitigation measures in the SPP 1/03, Building Code of Australia (BCA) and Australian Standard (AS) causes problems for the public, building certifiers and councils.	Environmental	✓
l40		✓	Seiback requirements are at times in conflict with the SPP goal of minimising adverse impacts on nature conservation values.	National standards and codes	✓
s3	SEQFABC	✓	There needs to be greater inclusion of biodiversity and natural resource management targets, in relation to bushfire hazard mitigation, in SPP 1/03 as some smaller local governments do not have or have limited biodiversity constraint codes. Thus without the support of the SPP it may be difficult for individual planning schemes to achieve biodiversity targets and deliver sustainable outcomes when considering development applications in bushfire hazard areas. The inclusion of greater biodiversity and landscape sustainability provisions within the SPP will provide local governments and land managers with increased capacity to achieve improved biodiversity and ecologically sustainable fire management outcomes;	Environmental	✓
s4	SEQFABC	✓	The SPP 1/03 consider provisions that require the development of decision tools (including a standardised methodology or framework within the SPP) and landscape scale strategic fire management plans (as produced by the NSW RFS, DERM and some SEQ local governments) so as to strike the balance between life and property protection and biodiversity conservation. Such decision support tools and associated landscape scale fire management plans will allow conservation land managers and town planners to prioritise bushfire hazard mitigation works in the areas of highest risk and where possible avoid such works in the areas of highest conservation value.	Environmental	✓
s4	SEQFABC	✓	Calculating building attack levels at the property or development level will greatly assist in the determination of high risk areas and thus such information should be included and analysed in the decision support tools (see below for comment on this matter);	Scenarios	✓
s9	SEQFABC	✓	Many participants had serious concerns with the recurring problem of proposed Asset Protection Zones (APZ)/defendable space being included on neighbouring properties (i.e. not the property subject to the development application) and land managers (i.e. local government, DERM etc) having difficulties enforcing changes to have APZ moved onto land they manage. It was strongly suggested that the SPP review consider this issue (even though it is not technically part of the SPP) to provide land managers with greater support when dealing with this issue;	Development constraints	✓
s11	SEQFABC	✓	Need for greater alignment in general between SPP 1/03, building codes and AS 3959. SPP 1/03 should ensure that AS 3959 is applied to all classes of building and the SPP may also wish to work around some of the shortcomings of AS 3959 (for example, the lack of ember attack provisions and the limited number of building certifiers that are qualified to assess buildings against the standard, please refer to the Victorian Bushfires Royal Commission for more detailed discussion on problems concerning AS 3959 and its application).	National standards and codes	✓
s29	James Cook University	✓	There is conflict in legislative provisions regarding the width of fire breaks (VMA) and planning schemes (Herberton and Mareeba as examples)	Environmental	✓
s35	James Cook University	✓	There are no criteria that addresses how the Vegetation Management Act is triggered (clearing width for firebreak in the VMA (exemption) is 10m -- in the current SPP ranges from 6-20m). If the break is greater than 10m then the applicants trigger the VMA (application fee apply).	Conflicts between Qld instruments	✓
s44	James Cook University	✓	If the bushfire component is to be retained with the SPP, then there needs to be a referral agency to undertake an assessment of bushfire management plans. There also needs to be a concise outline of what is expected to be within these plans, how they will be assessed and the professional expertise/accreditation that is expected from those completing the plans.	Policy implementation tool	✓
q32	DEED	✓	Planning schemes should include strategies to prevent development (such as plantation forestry) from increasing bushfire risk for existing and planned communities and facilities.	Mitigation Planning	✓
q32	DEED	✓	As part of the implementation of the Queensland Government's Timber Plantation Strategy 2020, DEED is currently preparing a statutory standard code under the Queensland Planning Provisions (QPP) relating to applications for the development of timber plantations. This code may include issues relevant to fire hazard. The Department of Community Services is requested to consult with DEED in relation to likely bushfire risk arising from timber plantations (plantation forestry) and provisions relevant the likely location of these plantations.	Evacuation	✓
l53		✓	DEED seeks consultation with the Department of Community Safety to discuss the connectivity between policies relating to plantation forestry to avoid duplication of issues or solutions.	Evacuation	✓
l55		✓	Need better reconciliation between SPP 1/03, BCA and AS requirements for bushfire mitigation including ready ability for incorporation of above minimum standards to take account of local circumstances.	National standards and codes	✓
l51		✓	Need greater documentation of evacuation plans incl. design of evacuation routes, backup power, transport for evacuation, alternative accommodation esp. high risk facilities (e.g. Nursing or high care facilities).	Evacuation	✓
q19	DPC	✓	Greater consideration should be given to the balancing of competing objectives for bushfire hazard mitigation and vegetation protection for nature conservation purposes.	Environmental	✓
l37	James Cook University	✓	The review should also consider issues raised in the Victorian Bushfire Royal Commission's final report recommendations relating to planning and building, specifically those recommendations around mapping bushfire risk, a regional settlement policy, amendments to State Planning Provisions, assessment of permit applications and bushfire risk mitigation through vegetation removal.	Settlement patterns	✓
s34	James Cook University	✓	It would be helpful to improve clarity and consistency in the SPP as to when a best management practice is required.	Assessment methodology	✓
		✓	There is a need to require a Referral Agency with expertise to assess and condition development that requires a BMP.	Development Assessment	✓

Comment ID	Stakeholder		Hazaro	Policy Iss'	explanation)	Relevance to DIP
		Comment (DIP interpretation)	Bushfire Landslide Flooding	Roles and Responsibilities	Hazard and Response determination	Planning Building LG Infrastructure
s5	SEQFABC	There was much discussion about the issue of bushfire hazard mapping, or a lack there of in some cases and the application of suitable methodology to achieve the same. It was recognised that the availability and quality of mapping varied across Queensland and throughout the SEQ region, was largely dependent upon the resources available to local governments and land managers. The workshop highlighted the significant need for better mapping and that this required a discussion between GIS technicians, remote sensing experts, on-ground land managers, fire ecologists and town planners to develop a new standard methodology that takes advantage of advances in remote sensing data and analysis tools that have emerged since 2003. Whilst the SEQFBC is not in a position to provide technical feedback or advice on bushfire hazard mapping methodology, the issues raised in this workshop need to be communicated to the SPP Review Working Group and the SEQFBC are willing to provide this feedback in more detail.	✓	Decision support tools	Assessment methodology	✓
s6	SEQFABC	The review of SPP 1/03 may wish to consider planning provisions to differentiate between hazard mapping and subsequent risk assessment. Many local governments map bushfire hazard (using the current SPP 1/03 methodology or variations there of based on remotely sensed data) and some then use this information to conduct risk assessments, however there is no standard methodology for such risk assessments. To this end, the SPP 1/03 should consider developing and applying a risk management analysis methodology that can be applied at a landscape level and investigate the application of bushfire simulation models (for example, Phoenix by The University of Melbourne, fuel cell by Fastermatics and the work by CALM in Western Australia) to provide such analyses. These simulation models will also allow town planners and conservation land managers to run different climate change scenarios;	✓		Climate Change	
s36		The absence of any guidance w.r.t. climate change is not helpful to council implementation.	✓	Powers	Climate Change	
s36		Councils are awaiting further explicit advice and standards on how to incorporate climate change into bushfire mapping.	✓			
s10	SEQFABC	The SPP should consider mandating the use of accepted formulas to calculate the level of pressure bushfire may exert on properties or developments. For example, NSW bushfire planning provisions require that any lot created by subdivision must have a Building Attack Level (BAL) less than or equal to 29. Other formulas such as the House Ignition Likelihood Index (HILI by Tohurst and CSIRO) could be used as well. The use of such formulas should not be limited to just sub-divisions and can be successfully applied to all development. The application of such methodology will ensure that asset protection zones are accurately calculated and designed.	✓	Scenarios	Scenarios	✓
s30	James Cook University	There is no consistency in conditions attached to rural development regarding bushfire mitigation. No set flow rates, or water capacity - is a 10 000litre capacity enough to suppress a fire storm?	✓	Decision support tools	Mitigation Planning	✓
s33	James Cook University	There is a need to require planning knowledge (traditional and scientific) to draw upon and develop conditions for development and to identify appropriate development locations.	✓			✓
s39	James Cook University	Not required to ensure that 10000water tank is full at all times for the sole purpose of fire fighting! This means that the domestic drinking water tank would meet the capacity criteria – but not in September when the tanks are at their lowest before the spring rains!	✓	Mitigation	Design and location of buildings	✓
s28		The SPP provides a generally sound framework for integrated hazard mapping and risk mitigation.	✓	Policy implementation tool	Water storage	✓
s28		Specification of setbacks in the SPP guidelines minimises the loss of vegetation.	✓			
s30		The requirement for adequate road access is one of the most useful aspects of the SPP.	✓	Evacuation	Environmental	✓
s42		Guidance with respect to the location of fire maintenance trails should be reviewed.	✓	Evacuation	Evacuation	✓
s45		It would be simple to edit the document to ensure that all protection measures apply only to areas of high or medium bushfire hazard (i.e. not low hazard areas).	✓	Scenarios	Scenarios	✓
s57		Need improved case study / documentation of examples esp. Bushfire management Plans, bushfire hazard assessments, emergency management plans	✓	Decision support tools	Assessment methodology	✓
s52	CSIRO	Bushfire management plans, including siting building principles: CSIRO has research teams in both bush fire dynamics and urban design for bush fire defence. This research can help to refine definitions of areas that are (and will be) prone to bushfire. It can also help to refine how vulnerable human settlements are in the event that they are exposed.	✓	Assessment methodology	Science	
s39		The blanket setback requirement of 1.5x height of vegetation is not always appropriate and should be reviewed scientifically.	✓	Decision support tools	Assessment methodology	✓
s46		It would be helpful to describe criteria and calculation for bushfire hazard assessment in one appendix only.	✓	Development assessment	Assessment methodology	✓
s38	James Cook University	Setback requirements based on mapping may well be inaccurate. This requirement should be replaced with a site based requirement.	✓			✓
s31	James Cook University	Assessment Managers (planning) are not qualified to assess the adequacy of a BMP.	✓			✓
s32	James Cook University	What are the legal ramifications of having unqualified people assess BMP's and condition development accordingly in the event of a disaster?	✓			✓
s37	James Cook University	Fire mitigation in rural locations requires unique policies. EG, conditions attached to development for a rural motor home tourism operation adjacent to a rainforest 'a reliable reticulated water supply (fire reel and fire hydrants) that has sufficient flow and pressure characteristics for fire fighting purposes at all times (minimum pressure and flow is 10 litres a second at 200kPa or other volume and pressure approved by the manager of engineering services and the Old Fire service) must be located within 90m of each motor home site. The applicant must provide a report including test results by a suitably qualified professional demonstrating that the above is achievable'. However, this is not possible as the Fire Service has stated that the area is beyond their core urban business . Incidentally this condition was set in the P and E Court-- and is an urban planning requirement imposed on a rural development. There is a huge policy gap in fire mitigation in rural areas, and very little information or qualified people to assist in providing advice on fire hazards in non urban settings.	✓	Powers	Water storage	✓
s38	James Cook University	The Herberton planning scheme (Natural Hazards code) requires 'Promises have a dam, on-site water tank or swimming pool having a total minimum capacity of 10,000L for fire fighting purposes in times of bushfire emergency' – but applies no flow rate requirements. What is the appropriate flow rate to suppress a bushfire, and what water holding capacity is sufficient to support the flow rate -- in a worse case scenario?	✓	Scenarios	Water storage	✓
s40	James Cook University	The SPP outlines the minimum contents of a Bushfire Management Plan (BMP) to be developed in conjunction with development conditions. Despite the SPP stating that 'town planners' are able to assess and review these documents – it is not a core component of urban and regional planning courses. Therefore the assessment manager (planning) is not qualified to assess the adequacy of a BMP (as a condition of approval) and the contents of the mitigation strategies.	✓	Decision support tools		✓
s41	James Cook University	There is no assessment mechanism to determine whether the strategies written by a proponent in response to a planning scheme requirement adequately address the bushfire risk.	✓	Decision support tools		✓
s42	James Cook University	What are the legal ramifications to a council/state government if a bushfire does cause damage – where a proponent has a bushfire management plan in place – ie one that meets the planning scheme and SPP requirements?	✓	Powers		✓
s41		Higher coordination between nature conservation and bushfire hazard assessments is appropriate in areas of high nature conservation value.	✓	Decision support tools	Environmental	✓
s15		State-wide mapping from Queensland Fire and Rescue Services (QFRS) is a useful starting point but not sufficiently accurate for local government planning (for most councils). Some councils see state mapping as adequate.	✓	Decision support tools	Assessment methodology	✓
s21		In the interim a conservative approach is being adopted by some councils as bushfire hazard is likely to increase with rising temperatures, increased drought etc.	✓	Decision support tools	Climate Change	✓
s22		It may be possible to incorporate climate change considerations into bushfire hazard mapping using scenario mapping.	✓	Decision support tools	Climate Change	✓
s35		The coarse scale of mapping is one of the greatest limitations of the SPP.	✓	Decision support tools		✓
q53	DPW Brisbane Airport Corporation	Rather than specify local government areas, it is suggested that this could have general application and the code be drafted to have differing acceptable solutions to reflect the assessment of risk in a specified area.	✓	Powers		✓
s48		The SPP should guide the authorities (State and Local Government) to coordinate management of natural hazards and include the owners of public benefit assets	✓			✓
s11		Flooding is clearly the most significant hazard for most local governments. While all forms of development in floodplains are problematic, two situations deserve special consideration being (i) isolated townships and single detached dwellings in rural areas, and (ii) infill development in currently developed urban areas. Additionally, there is a complexity to both rural development and infill development when land filling is proposed e.g. add soil to maintain ground level above the Defined Flood Event (DFE).	✓	Settlement patterns	National standards and codes	✓
s19		Coastal councils have raised the question of alignment with the Coastal Management Plan and the need for consistency between the two policies and national standards/approaches. Consideration of sea-level rise may be necessary.	✓	Climate Change		✓
s17	James Cook University	The trend in housing in Queensland has been away from high set, and even low set, houses to block structures on a concrete pad. Councils have increasingly raised the required level of the pad – for example 600 mm above ground level, or road height, and this definitely contributes to the capacity of new residential developments to cope with short-term flash floods. However, block of houses on concrete pads increase overland flow.	✓	Scenarios		✓
s17	James Cook University	Roads are designed to carry the flow of flood waters and to disburse these into large drainage channels. The corresponding trends in housing and residential development have been an increase in the size of dwellings, so that they occupy more of the land area, and consolidation which aims to increase the density of housing for reasons of sustainability and greater efficiency in the provision of linear services. The effect of these two trends is that a much greater area of new housing estates is covered by buildings, concrete and asphalt. Councils have reported that builders have lost the skills and designs to construct high set houses. Overall, these trends in Housing and development increase the vulnerability of cities to the impacts of flash floods.	✓	Mitigation	Design and location of buildings	✓

Roles and Responsibilities	Explanation	Count	Hazard and Response determination	Explanation	Count	Planning	Explanation	Count	Policy Conflicts	Explanation	Count	Building and Plumbing	Explanation	Count
Decision support tools	What tools should be developed and made available to assist decision making processes. Where should these tools be located and who should they be targeted at	37	Assessment methodology	How do you assess what the hazard is. How do you determine if an application is within a hazardous area?	36	Settlement patterns	Where should new settlements be placed? <i>How do you assess what the hazard is. How do you determine if an application is within a hazardous area?</i>	11	Environmental	Hazard protection policies would cause damage to environment or contravene environmental policies	12	Scenarios	What threshold is used to determine when a building is likely to be impacted by a hazard. How are these thresholds defined?	3
Policy implementation tool	What tool should be used, what should it contain and who should develop it. Suggestions for inclusion in the implementation tool / SPP	20	Science	What is the best available science. Incorporation of new science into policy tools	3	Adaptation planning	Planning policies can be used to improve resilience to inevitable hazards.	12	Development constraints	Hazard protection policies would cause development constraints	6	Development Assessment	certain issues should be considered during development approval processes	4
Powers	What level of government should have the greatest role. Who is the responsible authority? What powers should each level of government have	25	Climate Change	What implications will climate change have for hazardous events and how can this be incorporated into policy	16	Evacuation	Planning policies can be used to ensure evacuation routes and procedures are maintained (e.g. placement of houses in relation to roads and hospitals). This is a form of adaptation planning	7	National standards and codes	There needs to be greater alignment with national standards and codes. There also needs to be greater clarity about how to deal with conflicting standards	12	Design and location of buildings	The design and location of buildings and infrastructure should be considered as a means to avoid natural hazards	22
Development assessment	Who should be responsible for development assessment	10	Scenarios	What thresholds are the most suitable (e.g. 1:100AEP or 1:200AEP). How do you determine high hazard vs. low hazard	13	Development restrictions	Planning policies need to restrict new development form occurring in areas that are subject to hazards	6	Economic	Restricting development for hazard purposes may conflict with economic development, particularly in rural and regional areas.	2	Building Constraints	Development constraints are a means to mitigate against natural hazards	1
Evacuation	Who should be responsible for evacuation planning and emergency response	1	Mitigation	What is mitigation. What level of mitigation is needed to protect desired percentage of people and property. How do we best achieve mitigation outcomes	8	Mitigation Planning	Planning policies can be used to avoid or limit impacts of hazards on existing communities	28	Conflicts between Qld Instruments	Implementation of one instrument causing contravene of another. Not necessarily instruments that directly relate to hazard mitigation or adaptation.	29	Water storage	The lack of water is an issue for reducing the impacts of fire whereas storage of excess water is an issue for flooding. Policies to reflect seasons and locations could be used to avoid either scenario.	4
			Evacuation	What is the best evacuation method? How do we plan for evacuations? What hazard threshold or scenario warrants evacuation?	9			0				Drainage	How do you design developments to maximise drainage and minimise overland flow.	6
			Recovery	Issues or solutions impacting the success of hazard recovery	9			0						

Roles and Responsibilities - Decision support tools	What tools should be developed and made available to assist decision making processes. Where should these tools be located and who should they be targeted at	37
Hazard and Response determination - Assessment methodology	How do you assess what the hazard is. How do you determine if an application is within a hazardous area?	36
Policy Conflicts - Conflicts between Qld Instruments	Implementation of one instrument causing contravene of another. Not necessarily instruments that directly relate to hazard mitigation or adaptation.	29
Planning - Mitigation Planning	Planning policies can be used to avoid or limit impacts of hazards on existing communities	28
Roles and Responsibilities - Powers	What level of government should have the greatest role. Who is the responsible authority? What powers should each level of government have	25
Building and Plumbing Design and location of buildings	The design and location of buildings and infrastructure should be considered as a means to avoid natural hazards	22
Roles and Responsibilities - Policy Implementation tool	What tool should be used, what should it contain and who should develop it. Suggestions for inclusion in the implementation tool / SPP	20
Hazard and Response determination - Climate Change	What implications will climate change have for hazardous events and how can this be incorporated into policy	16
Hazard and Response determination - Scenarios	What thresholds are the most suitable (e.g. 1:100AEP or 1:200AEP) How do you determine high hazard vs. low hazard	13
Planning - Adaptation planning	Planning policies can be used to improve resilience to inevitable hazards.	12
Policy Conflicts Environmental	Hazard protection policies would cause damage to environment or contravene environmental policies	12
Policy Conflicts National standards and codes	There needs to be greater alignment with national standards and codes. There also needs to be greater clarity about how to deal with conflicting standards	12
Planning - Settlement patterns	Where should new settlements be placed? <i>Rural structures were particularly prominent</i>	11
Roles and Responsibilities - Development assessment	Who should be responsible for development assessment	10

Hazard and Response determination - Evacuation	What is the best evacuation method? How do we plan for evacuations? What hazard threshold or scenario warrants evacuation?	9
Hazard and Response determination - Recovery	Issues or solutions impacting the success of hazard recovery	9
Hazard and Response determination - Mitigation	What is mitigation. What level of mitigation is needed to protect desired percentage of people and property. How do we best achieve mitigation outcomes	8
Planning - Evacuation	Planning policies can be used to ensure evacuation routes and procedures are maintained (e.g. placement of houses in relation to roads and hospitals). This is a form of adaptation planning	7
Planning - Development restrictions	Planning policies need to restrict new development form occurring in areas that are subject to hazards	6
Policy Conflicts Development constraints	Hazard protection policies would cause development constraints	6
Building and Plumbing Drainage	How do you design developments to maximise drainage and minimise overland flow.	6
Building and Plumbing Development Assessment	certain issues should be considered during development approval processes	4
Building and Plumbing Water storage	The lack of water is an issue for reducing the impacts of fire whereas storage of excess water is an issue for flooding. Policies to reflect seasons and locations could be used to avoid either scenario.	4
Hazard and Response determination - Science	What is the best available science. Incorporation of new science into policy tools	3
Building and Plumbing Scenarios	What threshold is used to determine when a building is likely to be impacted by a hazard. How are these thresholds defined?	3
Policy Conflicts - Economic	Restricting development for hazard purposes may conflict with economic development, particularly in rural and regional areas	2
Roles and Responsibilities - Evacuation	Who should be responsible for evacuation planning and emergency response	1
Building and Plumbing Building Constraints	Development constraints are a means to mitigate against natural hazards	1

[REDACTED]

From: [REDACTED]
Sent: Monday, 31 October 2011 10:25 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Input to SPP 1/03 Review
Attachments: SPP 103 submission.pdf; Submission Letter RFAQ to DCS re SPP 1-03 2011.pdf

*Dear Graham,
Please find attached the submission from our association.
I have also attached a cover letter with it. Any further inquiries please email or call myself or the authors of the document.
Thank you for your time with re this matter.
Bruce*

From: [REDACTED]
Sent: Tuesday, 20 September 2011 9:48 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: Input to SPP 1/03 Review

Dear [REDACTED]

I refer to your recent representations to the Minister for Police, Corrective Services and Emergency Services.

I am pleased to advise that the Department of Community Safety would be happy to receive a submission from the Rural Fires Association of Queensland on priority issues that you see as being important to the review. I will make sure that your submission is then made available members of the SPP 1/03 Review Inter-Departmental Committee .

It would be helpful if you were able to provide suggestions before the end of October 2011, if possible.

Please feel free to contact me or our Project Manager, Robert Preston (email [REDACTED] or phone 07 3635 3782) should you have any questions.

Regards

[REDACTED]
Director - SPP Review
Tel: 07-3635-3317
Mob: [REDACTED]

No virus found in this message.

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Version: 2012.0.1834 / Virus Database: 2092/4585 - Release Date: 10/30/11

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All reasonable precautions will be taken to respect the privacy of individuals

Submission To: The Department of Community Safety

Subject: Review of the State Planning Policy 1/03 – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide

Submission From: The Rural Fire Association of Queensland Inc. (RFAQ)

Date: 28th October, 2011.

Introduction

This submission is made for consideration in the review of the current State Planning Policy 1/03 – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (SPP 1/03) and its associated guideline SPP Guideline 1/03, with a focus on the bushfire aspects of the planning policy.

This submission is made by the RFAQ, which as part of its charter, is an industry representative body for Bushfire Management Consultants. These consultants utilise the SPP 1/03 on a daily basis and have provided the following advice, contained within this submission, so as to help improve the policy and enable a more efficient approach to achieving planned bushfire mitigation for housing and development in Queensland. Their collective experience, knowledge and skills, identifies issues and solutions experienced every day at the front line of implementing the SPP 1/03 and subsequent Local Government Planning Schemes derived from it. The members of the RFAQ view the SPP 1/03 as a very important document and tool in achieving community safety in Queensland from bushfire at the planning stage.

We understand the reasons for the original SPP 1/03 being somewhat flexible and generalised in many of the requirements, allowing for Local Governments to specify local requirements. However history has proven that in reality Local Governments lack the expertise within their personnel to do this correctly, leading to many errors or omissions when designing bushfire requirements. The RFAQ therefore believes that some criteria, such as fire trail design and water supplies, need to be more specific to ensure consistency, public safety and safety of fire suppression personnel. The specific requirements recommended in this submission are already successfully practiced by experienced competent Bushfire Management Consultants and have been developed over time through firsthand experience and consultation with appropriate parties, such as Council Officers and QFRS personnel.

There has been a lot of conjecture regarding the role of the SPP 1/03 and AS3959 Construction of buildings in bushfire-prone areas and how these two documents interact. The RFAQ is of the strong belief that the role of the two documents is clear. The SPP 1/03 is a planning document outlining the measures required to mitigate the impact of bushfire to an acceptable and manageable level, playing a very important role in the design and construction of developments. The AS3959 is a last resort defensive mechanism designed to improve the survivability of a dwelling during a bushfire event, it does not mitigate the impact of a bushfire. In the same way that the SPP 1/03 mitigates not prevents bushfire, the AS3959 improves not guarantees survivability of dwellings. It is important that the AS3959 is not confused as a mitigation tool and not used as an alternative to measures required under the SPP 1/03.

Whilst the two documents are different, they both have a role to play and need to interact and support each other. Moving forward, we believe that as a general principle and from a mitigation planning perspective, that new developments resulting in multiple lots or dwellings, should achieve a level of mitigation that reduces the impact of bushfire, so that when the time comes for the application of AS3959, a Bushfire Attack Level (BAL) rating of no more than 29 should be achieved. In cases where BAL-40 or Flame Zone ratings occur, it is our opinion that mitigation has failed or not been sufficiently applied. We consider that this would be a realistic aim when dealing with new developments resulting in multiple lots or dwellings. We believe that to unnecessarily allow the construction of dwellings potentially within direct flame contact of a bushfire is not and should not be acceptable to the general public, fire suppression agencies or professionals such as our members, either from a safety perspective, political perspective or financial perspective. This belief is further demonstrated in the recommendations outlined in item 8.2.

We hope that you find this submission useful, if there are any items that you would like more information or clarification on, or if there are items you disagree with, please feel free to contact us as we would be more than happy to discuss it further.

Questions in relation to the information outlined in this submission may be directed to either:

Mr. [REDACTED] or
Email: [REDACTED]
Ph: [REDACTED] or [REDACTED]

Mr. [REDACTED]
Email: [REDACTED]
Ph: [REDACTED] or [REDACTED]

Or in writing to the Association Secretary, [REDACTED] at No. 39 Farrell Drive, Wallon, Qld, 4306.

The RFAQ would like to thank the Department of Community Safety for the opportunity to make a submission to the review of the SPP 1/03 and look forward to enhancing the SPP 1/03 for the benefit of all Queenslanders.

1. Identification of a Bushfire Hazard Area

Generally, Bushfire Hazard Areas are identified using overlay mapping developed by the Local Government or Queensland Fire and Rescue Service (QFRS). The ratings identified on these maps are a guide and require further site specific assessment to 'ground truth' the accuracy of the mapping.

Whilst this is stated in A3.3 of SPP Guideline 1/03, it needs to be more clearly identified that mapping is a guide and triggering mechanism only and must be subject site specific assessment, in accordance with the assessment methodology outlined in the SPP Guideline 1/03, to confirm accuracy.

Our association members have reported numerous occasions where disputes have occurred, with either Building Certifiers or Local Government Planning Staff, in regard to enforcing outdated mapping, with the aforementioned persons falsely believing that the mapping is the 'be all and end all'. Numerous occasions have also occurred where assessment has not been triggered, even though it was needed, due to maps failing to identify a hazard area.

Vegetation changes, and with mapping being up to 12 years old in some cases, serious errors can occur. The SPP 1/03 needs to very clearly state that mapping, regardless of its source or date published, must be confirmed through site specific assessment, when application for development is made. Councils must acknowledge in their planning scheme that the bushfire hazard overlay map is indicative and that site based assessment, in accordance with the SPP 1/03 is required to accurately reflect the site specific bushfire hazard.

The following extracts from the Gold Coast Planning Scheme are a good example of how Councils must address this issue, unfortunately most Local Governments have failed to do this.

“Land Identified on Overlay Map OM10 – Potential Bushfire Hazard Areas, and confirmed through site-based assessment as being in a medium or high Potential Bushfire Hazard Area, should be considered as designated bushfire prone areas for the purpose of the Building Code of Australia.....” (Part 7, Div 3, Ch 2, s1, paragraph 3).

“In particular this code applies to land identified on Overlay Map OM10 – Potential Bushfire Hazard Areas as being of at least Medium Potential Bushfire Hazard. As the map has been prepared at a citywide scale, it should be used as a trigger for the consideration of bushfire hazard issues. In each case, detailed site specific assessment will be required as part of the development process to determine the level of potential bushfire hazard on the site and therefore, actual development requirements.” (Part 7, Div 3, Ch 2, s2.2).

The RFAQ strongly recommends that the SPP 1/03 require similar wording to be incorporated into all Local Government Planning Schemes.

2. Bushfire Management Plan

The term Bushfire Management Plan is used throughout the SPP 1/03 to identify the report prepared to accompany development applications for addressing bushfire requirements. The requirements in the SPP 1/03 are in relation to Mitigation not Management. A management plan identifies how to manage a bushfire as it occurs, i.e. control and suppression. The role of the SPP 1/03 is mitigating of the impact of bushfire, as the title suggests. Therefore all references to Bushfire Management Plan should be changed to Bushfire Mitigation Plan.

3. Safety Buffers

Sections A3.12, A3.23 and A3.24 discuss “safety buffers”, where land within 100 metres of a high hazard area is also rated high and land within 50 metres of a medium hazard area is also rated medium. As an example, a site located less than 50 metres from medium rated vegetation would have a medium rating, where as a site located more than 50 metres from medium rated vegetation would have a low rating.

Our members report that there have been several occurrences where inexperienced persons have interpreted these safety buffers as being a minimum requirement for separation from bushland.

The RFAQ suggests that the term “safety buffers” be replaced by a different term, such as “inclusion zones”. It is also suggested that the SPP Guideline 1/03 contain a statement to the effect of “... these zones are not a minimum requirement of separation...”

These zones are for the purpose of mapping or identifying the area possibly subject to the impact of bushfire from adjoining hazardous bushland and are therefore a mapping/assessment tool, not a bushfire mitigation tool.

4. Hazard Scoring

Overall the RFAQ supports the hazard scoring system used in the SPP 1/03 assessment methodology. It is clear, simple to use and practical, the RFAQ does not see any need for significant change to the current scoring system. We also believe that consistency is important across the State. We do not see a need for Local Government Planning Schemes to require a different personalised assessment methodology (e.g. Pine Rivers Planning Scheme).

The RFAQ does recommend a minor change in Table A3.1 (vegetation table). The vegetation community currently called “Grazed grasslands, slashed grass” should be renamed as “Forest, woodland or grassland that is grazed, slashed or mown”. This accommodates areas that may have mature canopy trees but slashed or grazed grassland underneath, with no mid-storey, ladder fuels or understorey to support a fire. These commonly occurring community types are not currently accommodated in the SPP 1/03.

5. Footnote 45

Footnote 45 should be removed. It is incorrect, out dated and contravenes the Building Code of Australia (BCA).

6. SPP 1/03 Guideline Errata

The three corrections identified in the SPP 1/03 Guideline Errata should be incorporated into the updated version.

7. Frequently Asked Questions

The definitions outlined in the FAQ Version 2, November 2003, in relation to “hazardous vegetation”, “firebreak” and “retained vegetation strips or small areas of vegetation” should be incorporated into the SPP Guideline 1/03.

However we believe that the response to the fourth bushfire question needs amendment. The question asked is “What is the minimum area of hazardous vegetation that should be considered when conducting a natural hazard assessment for bushfire?” The response provided states “Small areas of vegetation (i.e. under 5 hectares) and linking vegetation strips that comply with the requirements set out in response to the previous question do not need to be assessed”. This allows all pockets under 5Ha to be classified as non-assessable.

Our concern is that for certain types of vegetation or where steep slopes are involved, 5Ha may be too large for automatic classification as non-assessable.

We believe the following parameters should be applied:

- All areas under 5Ha are classified as “small areas” and therefore the minimum setback of 10 metres under solution 1.2(a) 3rd dot point is to be applied, regardless of being deemed assessable or not.
- For small areas of 1Ha or less in size:
 - Areas with a vegetation score of 4, 5 or 6 are deemed non-assessable.
 - Areas with a vegetation score of 8 or 10 are assessable.
- For small areas over 1Ha and less than or equal to 5Ha in size:
 - Areas with a vegetation score of 4, 5 or 6, on a slope of 20% or less, are deemed non-assessable.
 - Areas with a vegetation score of 4, 5 or 6, on a slope greater than 20%, are assessable.
 - Areas with a vegetation score of 8 or 10 are assessable.

N.B. These vegetation scores are gross scores prior to the application of any discounts for being a linear corridor under Table A3.1 Note 1. Vegetation scores of 2 or less are automatically given a low rating as per the current policies of the SPP 1/03.

The RFAQ believes that these requirements are simple and more realistic and would provide a more appropriate level of mitigation.

8. Separation Requirements

8.1. Lots Greater or Less than 2500m²

Appendix 5, Table B, solution 1.2 specifies separation requirements for lots greater than or less than 2500m².

Lots over 2500m² are required to achieve a specified separation whilst Lots less than 2500m² are merely required to maximise separation.

Our members report that these requirements have been incorrectly interpreted on numerous occasions by inexperienced persons. For example, when compiling a Bushfire Mitigation Plan for a residential development adjoining bushland, the argument has been used that the proposed new lots within the development are less than 2500m² and therefore do not need to meet the separation requirements, but simply maximise separation within the lots. Unfortunately inexperienced assessment officers within Local Governments have allowed this and approved these flawed Bushfire Management Plans, and in some cases, the plans have even been supported by QFRS personnel.

Even though this issue is dealt with under solution 1.4(b), given historical occurrences, it is obvious that the correct requirements need to be better highlighted.

The RFAQ recommends that a note be included in the comments column with solution 1.2(b) indicating the requirement of minimum buffers for developments resulting in multiple lots or buildings.

8.2. Minimum Separation from Hazardous Vegetation

Appendix 5, Table B, solution 1.2 specifies a minimum distance of “*1.5 times the predominant mature canopy height or 10 metres, whichever is the greater*”.

The RFAQ believes that the distance of 1.5 times the predominant mature canopy height is excessive and unwarranted, in most circumstances. It is our belief that this specification was adopted in the original SPP 1/03 through the misinterpretation of the exemptions for Essential Management relating to “establish or maintain a firebreak to protect infrastructure” as provided by the *Vegetation Management Act (1999)*.

The *Vegetation Management Act (1999)* allows for a maximum clearing of 1.5 times the predominant mature canopy height. This maximum was then misinterpreted as a minimum in the drafting of the SPP 1/03 and was then subsequently adopted into Local Government Planning Schemes. Discussions with one of the authors of the SPP 1/03 have reinforced this belief. Reference to 1.5 times predominant mature canopy tree height should be deleted.

Having a minimum 20 metres of separation from hazardous vegetation, has been adopted as accepted industry practice and is widely used by consultants and accepted by Local Government Authorities and The Planning and Environment Court.

The distance of 20 metres was adopted for want of a more realistic and reasonable requirement at the time. The RFAQ recognises that, while this has served as a sufficient rule of thumb suitable for the majority of circumstance witnessed in Queensland, having a set arbitrary distance with no relation to vegetation type or slope may not be the most effective means of determining the most suitable separation distance.

The RFAQ suggests the following amendment to solution 1.2(a) 2nd dot point:

- are provided a minimum setback from hazardous vegetation of 20 metres or the distance required to achieve a Bushfire Attack Level BAL-29 (as identified under AS3959), whichever is the greater; and

By utilising the Bushfire Attack Level steep slopes will be taken into account more effectively. *Note – This is on the basis of FDI 40 being used in calculating the BAL rating, if the QFRS succeed in their current endeavours to unnecessarily raise the FDI to 70 then this requirement would be unrealistic.*

It should also be clearly noted in the SPP 1/03 that, to utilise a higher construction rating under AS3959 is not an alternative solution to meeting minimum setback requirements under the SPP 1/03.

There has been increasing pressure from some Councils and Government Departments, particularly from environmental sections, to utilise higher building construction levels in lieu of mitigation measures, such as vegetation management and buffers. This is not acceptable, it is not what AS3959 was designed for and can only lead to devastating results for safety and the environment, recently witnessed in southern states. AS3959 is not a bushfire mitigation planning tool it is a last resort defence mechanism, it does not mitigate the impact of bushfire as required under the SPP 1/03. Planning for safe outcomes is infinitely better than reacting to a dangerous situation by relying on construction standards. This reaction approach takes in no account of prevention, safety of people, safety of fire fighters or escape. The aim of achieving as many mitigating actions as possible at the planning stages, relates to not relying on last resort construction levels to try and solve problems.

8.3. Zoned Separation

Many inexperienced persons, on a regular basis, mistakenly assume that the minimum setbacks from hazardous vegetation requires the complete removal of all vegetation within that setback, when in fact, separation may take the form of a zoned approach to vegetation management. An example of a 20 metre setback may take the form of; an inner zone of 10 metres, which is predominantly cleared utilising lawns and landscaping, and a 10 metre outer zone where ground fuel levels are managed, mid-storey is thinned and mature trees retained providing a dis-continuous canopy. A zoned approach is already widely and successfully used throughout the industry.

The RFAQ recommends that a generalised explanation of the acceptability of a zoned approach should be included in the SPP Guideline 1/03 and that complete clearing is not necessarily required in most circumstances.

8.4. Solution 1.5(a), Table B, Appendix 5

Solution 1.5(a) requires a fire break consisting of a perimeter road that separates lots from areas of bushfire hazard and the road is to have a cleared width of 20 metres. The following issues exist:

- The word perimeter causes confusion. Does this mean that if the bushfire hazard area is within the development, road separation is not required? This would be an internal road not a perimeter road.
- In some cases the road separation may only be to an internal linear park corridor which only requires a 10 metre separation under solution 1.2(a), 3rd dot point. This situation may also occur where the perimeter of the development adjoins a linear park.
- Separation should be measured as being between buildings and bushland, not lots and bushland.

We would suggest that the width of the road may not be completely relevant provided that the full minimum separation specified in solution 1.2(a) is achieved. The separation should also be able to take into account, adjoining managed parkland strips and setbacks within lots. Perhaps roadway separation can be specified without quoting a specific road width, or require a minimum 10 metre wide road, within the overall separation buffer, required under solution 1.2(a).

8.5. Solution 1.5(b), Table B, Appendix 5

The substitution of a 6 metre wide fire trail in place of a 20 metre wide roadway has created many errors in bushfire management plans. Inexperienced persons are substituting the 20 metre separation for a 6 metre separation, while completely ignoring the requirement of separation under solution 1.2(a). The requirement of the minimum separation under solution 1.2(a) needs to be reinforced once again, in the comments column, specifying that the 6 metre fire trail is only part of the larger separation distance required. Our members have reported numerous cases where the 6 metre fire trail is the only separation that has been provided.

9. Water Supplies

Where there is no reticulated water supply, on-site water storage of not less than 5000 litres is required. The RFAQ does not consider a dam as being a reliable water source unless fed by a spring or other water source. The worst fires happen during drought conditions when dams are often low or empty.

The Brigade tank fitting needs to be identified, as our members report that some Local Government Officers are enforcing the use of the wrong fittings, leading to inconsistency across the State. The correct fitting, State wide, is a 50mm Male Camlock.

The RFAQ recognises that the QFRS has recently adopted the policy from the Australasian Fire Authority Council (AFAC) to gradually phase in storz fittings for suction. However as the tank fittings will be exposed to the outdoors, fittings with rubber seals such as storz fittings or Female Camlock fittings, are inappropriate and will most likely fail when needed most, due to lack of maintenance. Male Camlock fittings are the simplest fitting with no moving parts or perishable seals and do not need maintenance.

Accessibility of non-reticulated water supplies, should take into account the possibility of structural fire. Water supplies need to be accessible if the dwelling is on fire.

The RFAQ suggests the following amendment to solution 1.3, 2nd dot point:

- A reliable, on-site, water storage of not less than 5000 litres (e.g. tank with a 50mm Male Camlock fitting or swimming pool). A dam is not considered reliable unless fed by a spring, bore or other reliable water source. The water access point is to be accessible in the event of a bushfire or structural fire, with a fire appliance being able to be positioned within 4 metres of the access point.

10. Access to Dwellings

Appendix 5, Table B, Solution 1.4, discusses long driveway access. The following specifications for driveways should be identified within the SPP Guideline 1/03:

- Driveways are to have a minimum vertical clearance of 4 metres.
- Driveways within areas of hazardous vegetation should have a minimum cleared width of 6 metres and formed width of 4 metres. Vegetation understorey along the sides of driveways should be managed to mitigate against access/egress being denied by bushfire.
- The RFAQ recommends that driveways, to dwellings located more than 60 metres from the roadway, are to provide a minimum turning circle, near the dwelling, equivalent to a 20m diameter and may take the shape of a hammerhead, T or Y turning area.

11. Fire Trails

Standard fire trail specifications, for new trails, need to be outlined in the SPP Guideline 1/03, to enable Local Governments to correctly adopt the standard required to ensure the safe use and efficiency of fire trails.

The standard fire trail specifications should include:

- Fire trails should have a minimum cleared width of 6 metres and a minimum formed width of 4 metres.
- Fire trails should not exceed 25% in gradient.
- Fire trails should not exceed 5% in cross slope.
- Fire trails should be through trails with connections to roadways at each end.
- Fire trails should have passing bays at least every 200 metres.
- Fire trails should have access/egress points at least every 400 metres where possible.
- Fire trails should preferably be located on public land as close as possible, to allotment boundaries.
- Where fire trails are needed to be located on private land, this should only occur within larger rural allotments, not residential or park living lots. Fire trails on private land are to be within an access easement in favour of the Local Government and QFRS with unimpeded access.

N.B. Existing trails already in use, that do not meet the above criteria, should be able to be retained.

12. Suitably Qualified Professionals

Appendix 8, section A8.2 identifies who should prepare a Bushfire Management Plan.

The list of professionals in the 2nd sentence should include 'Bushfire Consultants'.

The following wording "with bushfire experience" should be added to the end of the second sentence.

13. Who should be consulted

Appendix 8, section A8.3;

- should have the following wording inserted at the end of the first sentence – "where confidentiality requirements allow".
- should have the following wording inserted between the first and second sentence – "However it is recognised that Rural Fire Brigade Volunteers are not in a position, or authorised by QFRS, to provide advice in writing."

14. Triggering the bushfire provisions under the BCA and assessment under AS3959.

The RFAQ submitted this item to the Department of Local Government and Planning (DLGP), as part of our submission to the Draft Queensland Planning Provisions (QPP) version 2, however it was determined by the DLGP that it be better addressed in the review of the SPP 1/03. Whilst we believe that this was passing the buck, the SPP 1/03 does also have a role to play in this issue.

The bushfire provisions of the BCA, including assessment under AS3959, are applied to Class 1, 2 & 3 buildings and associated Class 10a buildings, located in designated bushfire prone areas.

A designated bushfire prone area is defined as follows:

“Designated bushfire prone area means land which has been designated under a power in legislation as being subject, or likely to be subject, to bushfires” (BCA 1.1.1 Definitions).

That designation is done by Local Government Planning Schemes, through their bushfire overlay codes and overlay mapping, which of course is derived from the SPP 1/03.

Whilst some Local Governments have the appropriate wording in their planning schemes to manage this, many do not. Also some planning schemes only trigger the BCA bushfire provisions for high bushfire hazard areas only, which we believe to be inappropriate.

We believe that the QPP and the SPP 1/03 both have a role to play in ensuring that Planning Schemes are written correctly to allow for the efficient correlation between the various legislations applying to bushfire planning.

The following extract from Gold Coast Planning Scheme is a good example of how a Planning Scheme should address this issue:

“Land identified on Overlay Map OM10 – Potential Bushfire Hazard Areas, and confirmed through site-based assessment as being in a Medium or High Potential Bushfire Hazard Area, should be considered as designated bushfire prone areas for the purposes of the Building Code of Australia and AS 3959 Construction of Buildings in Bushfire-Prone Areas, and all Building Work must be carried out in a manner consistent with this standard.” (GCCC Planning Scheme, section 7.3.2.1)

The RFAQ strongly recommends that the SPP 1/03 specify that such wording is made compulsory in all Local Government Planning Schemes. The SPP 1/03 also needs to ensure that both medium and high bushfire hazard areas are triggered.

Conclusion

Once again the RFAQ thanks the DCS for the invitation to make a submission as part of the review of such an important planning document. We look forward to working with you on this project to achieve a realistic, viable and effective policy that will ultimately benefit public safety, fire fighter safety and environmental values.



RURAL FIRES ASSOCIATION OF QUEENSLAND

INCORPORATED UNDER ASSOCIATIONS INCORPORATION ACT 1981. CERT No. 1239

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The Department Of Community Safety
Attn [REDACTED]
Director SPP 1/03 Review

Friday, October 28, 2011

Dear [REDACTED]

Please find attached to this email a submission from the above-mentioned association re the "Review of the State Planning Policy 1/03 – Mitigating the Adverse Impacts of Flood, Bushfire and Landslide".

If you have any further queries please do not hesitate to contact me or the members of our association that have been heavily involved with this submission Mr Brett Bain or Mr Les Hawkes directly.

We thank you again for this opportunity and look forward to a favourable and acceptable outcome from the review.

[REDACTED] Ad Dip Public Safety (Fire-fighting Management), MRFAQ (Exec), AIMM, FSA JP C-Dec

Secretary RFAQ Inc