Assessing Cumulative Flood Risk in Large Urban Release Areas in the Camden Local Government Area in Sydney’s South West

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Overview

• Sydney’s Growth Centres
• Planning Process for Growth Centres
• Sydney’s South West Growth Centre
  - Upper South Creek Floodplain
• Water Management Strategies for Planning Process
• Flood-related development controls for future development
• Need to assess cumulative flood risk
  - Modelling of cumulative flood risk
  - Recommendations future dev’ment.

Source:
www.skynews.com.au
www.abc.net.au

Sydney’s Growth Centres

• identified by NSW Government in 2005:
  - 180,000 new dwellings, next 25 to 50 years
• North West Growth Centre:
  - 70,000 dwellings over 10,000ha
  - Baulkham Hills, Blacktown and Hawkesbury LGAs
• South West Growth Centre:
  - 110,000 dwellings over 17,000ha
  - about size of Canberra
  - Liverpool, Camden and Campbelltown LGAs
State Environmental Planning Policy (Sydney Region Growth Centres) 2006:
- known as Growth Centres SEPP
- legislation that establishes planning rules and objectives of North West and South West Growth Centres
- Councils consent authority for most land-use planning decisions:
  - must apply Growth Centres SEPP when making those decisions

Precinct Plans:
- Growth Centres divided into Precincts:
  - to facilitate and accelerate development
  - analyse development potential each Precinct
  - investigate:
    - land-use options:
      - town centre, housing mix, conservation
    - infrastructure and transport requirements
    - environmental constraints:
      - topography, bushfire hazard, flood risk
- prepared by NSW Govt (Dept Planning & Infrastructure) with input from local Council
- once exhibited and approved by Minister, becomes part of Growth Centres SEPP

Development Control Plan:
- developed as part of Precinct Plan
- detailed development controls for Precinct
- once exhibited and approved by Minister, also becomes part of Growth Centres SEPP

Once Precinct Plan & Development Control Plan adopted and included in Growth Centres SEPP:
- Council’s Local Environmental Plan (LEP) and any DCPs no longer apply to land in that Precinct
**Planning Process for Sydney’s Growth Centres**

- Development Applications (DAs) for proposed development:
  - once Precinct Plan and DCP adopted:
    - DAs may be lodged with local Council
    - local Council becomes consent authority for all future development in Precinct
    - must be assessed using Growth Centres SEPP, Precinct Plan and DCP

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**South West Growth Centre**

- 15 Precincts across 3 Local Govt.
- Precinct Plan completed and land rezoned:
  - Austral
  - Leppington Nth
  - Edmondson Pk
  - East Leppington
  - Oran Park
  - Turner Road
- Precinct Plan in preparation:
  - Leppington
  - Catherine Field

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**Flood Risk in NSW**

- Most costly natural disaster in Australia:
  - $200–$250 m flood damage on average every year in NSW
  - 100,000 buildings at risk from flooding in NSW
- Most manageable of all natural disasters:
  - we can work out where
  - we just don’t know when.
What’s problem with floods?

- Communities often aware that “it floods”:
  - Often as far as understanding goes
- Communities often have short memories and are in denial:
  - “We had a big flood here in 1955 … but it was a freak … it hasn’t flooded since … it doesn’t flood here anymore”
  - “If Council cleaned out the drains … that would fix the flood problem”

Maitland, 1955
1-in-200 year flood
$700 million damage in today’s terms

What’s problem with floods?

- Communities often heard of ‘1-in-100 year flood’:
  - Confused what it means
  - Has lead to false sense of security:
    - “We had 100 year flood 20 years ago … there won’t be another for 80 years”
    - “I don’t care about the 100 year flood … I’m not going to be here in 100 years”
    - “If we have 100 year flood, we’ll all be dead anyway … I’m not even going to think about flood bigger than 100 year flood”

Coffs Harbour CBD 1996
Nearly twice 100 year rainfall
Coffs Harbour March 2009
And another two big floods in 2009

How Likely is that Flood?

- The facts are:
  - 1% chance EVERY year that 100 year flood or larger will happen that year
  - Floods larger than a 100 year flood CAN and HAVE occurred.

Nyngan, 1990
Flows 4½ times previous 100 years of record
Leaves overtopped
Most of town evacuated
What about Biggest Flood?

- largest flood can possibly occur:
  - probable maximum flood (PMF)
  - typ. 1m–3m above 1%AEP
  - >10m above 1%AEP in Hawkesbury–Nepean
  - flood used for emergency management purposes.

Great Mackerel Beach 1987. House washed off foundations. House had to be demolished.

But neither flood was even close to being a probable maximum flood.

What can we do about floods?

  - management of flood prone land is primarily responsibility of local councils
  - primary objectives:
    - reduce impact of flooding on owners and occupiers of flood prone land
    - reduce existing and future private and public losses resulting from floods.

What can we do about floods?

- Floodplain Development Manual — Management of Flood Liable Land:
  - practical guidance to assist local Councils fulfill obligations of Flood Prone Land Policy
  - first released in 1986
  - current gazetted NSW Govt in 2005
  - outlines risk management process to be followed:
    - floodplain risk management process.
What can we do about floods?

- Office of Environment and Heritage (OEH):
  - administers Flood Prone Land Policy
  - technical assistance to Councils
  - financial support to Councils through grant funding
  - through all stages of floodplain risk management process.

Floodplain Risk Management Committee
established by Local Council with range of stakeholders ensures local community informed and engaged throughout

Data Collection
often involves community survey compiles all available information about historical floods

Flood Study
defines nature and extent of flood problem: extents and depths of inundation, speed of flood waters, flood hazard, floodways, etc put on public exhibition and adopted by Council

Floodplain Risk Management Process

Floodplain Risk Management Study determines, analyses and recommends range of options to reduce flood risk to local community

Floodplain Risk Management Plan recommended list of works — priorities, costs and staging put on public exhibition and adopted by Council

Plan Implementation application of grant funding undertaking of works and measures
What can we do about floods?

- Section 733 of NSW Local Government Act, 1993:
  - “provides Councils, statutory authorities and their staff with indemnity for decisions made and information provided in good faith from the outcome of the floodplain management process (as outlined in Floodplain Development Manual)”.

Types of Flooding

- Floodplain Development Manual covers wide range of flooding:
  - natural and man-made:
    - watercourses, streams, rivers
    - lakes and dams
  - tidal and wave inundation of estuaries and coastal areas:
    - including sea level rise
  - overland flow:
    - often old natural watercourse covered over with small pipe underneath and houses built over top
    - may be nowhere near visible creek.

What is Flood-prone Land?

- In accordance with Floodplain Development Manual:

  - flood-prone land
    - floodplain
    - flood-liable land
    - flood-affected land

  includes all land flooded in probable maximum flood.
Floodplain Management Program

- Grant funding program to provide financial assistance to undertake all steps in floodplain risk management process:
  - Local councils
  - County councils
  - Others with FRM responsibilities
- Funding ratio of 2:1 for most projects:
  - $2 State Govt : $1 Council
- Admin. NSW Office of Env. & Heritage
- 2012–2013:
  - $17 million in grants
  - more than 200 projects
  - more than 100 local government areas across NSW
  - Combined State (FMP) & Federal (Natural Disaster Resilience Program).

How do Grants Work?

- 2012–2013:
  - moved from annual allocation to project based framework
  - able to apply to fund entire stage:
    - each stage limited to 3 years
    - greater certainty entire stage will be funded
    - less paperwork
- timetable for 2013–2014:
  - applications opened early Feb
  - applications closed late March
  - announced Sept to November.

How can OEH assist Councils?

- technical brief (standard template)
  - review of brief
- independent evaluation of tenders
- technical issues as they arise through project
- review of working papers and draft reports
- community engagement activities:
  - early and during project
  - public exhibition phase
- flood-related development controls in DCP/LEP.
Progress at Camden

• Upper South Creek Flood Study:
  - completed in November 2011
  - adopted by Council in Nov 2011
  - updated old Flood Study 1990
  - flood behaviour:
    - flood extents and depths
    - low and high hazard
    - floodways and flood storage
  - includes South Creek and tributaries in Camden LGA

Flood depths for 100 year flood in Upper South Creek

Progress at Camden

• Upper South Creek Flood Study:
  - Community Consultation:
    - 5 Flood Information Evenings in July 2012
    - nearly 1,200 invitation letters to property owners / occupiers on floodplain (up to PMF)
    - 400 people attended
    - one-on-one discussions with Council staff and Flood Study consultants WMAwater
    - 30 follow-up meetings after Information Evenings.

Source: Camden Council Flood Risk Management Policy, 2006

Corner of Oxley and Mitchell Street, Camden — June 1964
Corner of Argyle and Murray Streets, Camden (entrance to Camden Showgrounds) — June 1964

Progress at Camden

• Camden Council Flood Risk Management Policy:
  - in force since April 2006
  - flood-related development controls for all LGA:
    - floor level controls
    - flood information
    - flood aware building considerations
    - structural soundness
    - community safety
    - evacuation and access.

Corner Dairy and Mitchell Street, Camden — June 1994
Corner of Argyle and Murray Streets, Camden (entrance to Camden Showgrounds) — June 1994
Current Projects at Camden

- Three projects currently funded by Floodplain Program
- Projects cover all Camden LGA:
  - Upper South Creek Floodplain Risk Management Study and Plan
  - Nepean River Flood Study and Climate Change Impact Analysis
  - Narellan Creek Flood Study and Climate Change Impact Analysis

Thank you

Let's try to avoid these heartbreaking impacts.