Albion Park Rail bypass

Flood Focus Group meeting #4

28 September 2015
APRb – Flood Focus Group 4

Agenda

1. Welcome
2. Recap of key points from last meeting
3. Review of feedback reviewed from Councils and OEH on Flood Assessment Report
4. Discussion about EIS exhibition and process
5. Flood Focus group wrap up
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Key points from last meeting

• Break out session: catchment results discussion
  – Duck Creek catchment
  – Macquarie Rivulet catchment
  – Horsley Creek catchment

• Feedback on break out sessions
1. Project objectives
   - A 20 year annual recurrence interval (ARI) objective is considered too low for this project
   - 100 year ARI plus is more appropriate
   - Level of flood immunity is unclear in the executive summary
   - Could some access for emergency services be maintained during flood events over what is designed?
   - Objectives should be developed through assessment of impacts on:
     • People
     • Property
     • Infrastructure
2. Flood impact objectives on Agricultural Lands
   - 400mm for Agricultural lands is considered unacceptable.

3. Access to Albion Park in a 100 year ARI event
   - Access will not be achieved
   - Addressed by raising access road next to Green Meadows Basin.

4. Potential Dam Safety Committee Prescribed Dams including Green Meadows Basin
   - Expect a separate Dam Break Analysis for any proposed basin.
   - Need to be included in correspondence with the Dam Safety Committee.
5. Reserve downstream of Green Meadows Basin
   - There are at least 10 proposed discharge points into this reserve
   - Who will be responsible for the ongoing maintenance of the basin?

6. Basin upstream of Oak Flats interchange
   - Has a basin upstream of the Oak Flats interchange been included in the flood plan?
   - This could provide benefits for the Princes Highway

7. Croome Road Basin
   - Will discharge from the new proposed basin be directed to Frazers Creek?
   - Who will be responsible for the ongoing maintenance of the basin?
8. Water Quality treatment and management
   - How would water quality impacts be managed?
   - What devices are proposed and where would they be?
   - How / who would manage maintenance?

9. Cross Drainage and Flood Mitigation Structures
   - Who would maintain council structures proposed for extension / expansion?

10. Taylor Road
    - Modelling indicates negative impacts in most flood events particularly more frequent events
    - What has been considered to manage flood levels and duration?
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Shellharbour City Council comments

11. 2013 Bureau of Meteorology rainfall data
   – Macquarie Rivulet flood study has identified significant issues with the 2013 Bureau of Meteorology rainfall data
   – RMS should avoid use of this data until further advice is received

12. Flood impacts
   – Two properties in Macquarie Rivulet are reported as having over floor flooding
   – Unclear what impacts are expected on houses and garages
   – Identifying these impacts is important.
13. Reporting on critical locations
   - Critical locations adjacent to proposed project extents be summarised for pre and post development

14. Mapping and figures
   - Obstacle Limitation Surface (OLS) need to be shown
   - Resolution, wording and colour presentation should be improved

15. Noise barriers, jersey kerbs, landscaping
   - Are they included in modelling?
   - Would they affect flooding?
16. Table 3-3 Flooding and Drainage Design Criteria
   - Detention basin information not included

17. Secretary’s Environmental Assessment Requirements (SEARs)
   - Consideration of climate and land use change for the range of flood events, based on the outcome of the climate change sensitivity analysis using the 200 and 500 year ARIs as proxies.

18. Bridge modelling
   - How have the bridges been modelled in TUFLOW?
   - Have bridge piers, deck etc been included?
19. Assessment of construction impacts
   – Potential environmental impacts due to flooding during construction
   – Location of temporary waterway crossings, ancillary sites etc

20. Waterway impacts
   – Geomorphic assessment should be completed at the same time as flood modelling particularly where creek alignment / function would change
   – This should consider flow behaviour including:
     • Depth
     • Velocity and direction
     • Resistance of material to scour
1. General comments - flood immunity

- Current flood immunity standard does not consider uncertainty in modelling or factors such as wind and wave action
- Should incorporate a freeboard to provide a safety factor
- Without freeboard design standard could be reduced from 100 year ARI to 20-50 year ARI
- Duck Creek from 50 year ARI to 10-20 year ARI without freeboard
- Under climate and land use changes immunity could be further reduced
- Suggest report needs to incorporate freeboard when referring to a flood design standard to avoid creating unrealistic expectations of flood immunity
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Office of Environment and Heritage comments

1. General comments – Methodology
   - Methodology used to work out flood immunity to a given ARI may have resulted in a higher level of flood immunity
   - This is because data was calculated from the edge line of the carriageway rather than the relevant bridge levels
   - This is particularly critical for planning by emergency services as the level of immunity may be lower than claimed
1. General comments – climate change

- Suggest carrying out 100 year, 200 year & 500 year ARI models that include sea level rise to better assess of climate change implications
- This would help assess impacts to the motorway and as a result of the motorway
1. General comments – Roads during flooding

- Functioning of major roads during flood events is critical for the safety of road users including emergency services.
- Where design level of motorway is restricted, flood markers and variable message boards should be considered.
- NSW State Emergency Services, Bureau of Meteorology and WaterNSW could assist with identification of key locations and real-time flood warning information.
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1. General comments – construction
   – Need to manage:
     • Temporary fill placement for stockpiling
     • Preloading of soft soils and
     • Erosion and sedimentation
   – Management and staging of construction impacts should be clearly referenced in motorway design
   – Stockpiles should be placed as far out of the floodplain as possible
2. Macquarie Rivulet Catchment

- Two properties are reported as having over floor flooding in the 100 year ARI.
- Issues should be resolved before final design and independent of the flood model being developed for Shellharbour City Council.
- Model indicates and increased flood damage at existing residential/commercial areas in the 500 year ARI, particularly in the Macquarie Rivulet / Frazers Creek / Albion Creek catchments
- Increasing the waterway area of the proposed bridge over Frazers Creek may assist in alleviating these impacts
- Additional modelling should be undertaken when the Macquarie Rivulet flood model is closer to adoption
3. Duck Creek Catchment

- Models for anything greater than 50 year ARI show significant increase in flood level upstream of bypass
- Increase mostly away from existing residential dwellings – however there is significant increase in inundation within private property
- Potentially critical for reducing isolation rural properties and future development
- Consider measures to reduce the potential for blockage
- The Wollongong City Council Duck Creek flood study was not carried out through the Office of Environment and Heritage the Floodplain Management Program
- Further analysis should be considered
4. Horsley Creek Catchment

- Modelling has assumed:
  - Reconstruction of the Green Meadows detention basin
  - Construction of a detention basin immediately to the east of Croome Road

- Proposed redesign of the Green Meadows basin is based on 10 year ARI event to the 100 year ARI event. Where possible the redesign of the basin should:
  - Consider optimising performance to reduce existing flood impacts downstream.
  - Include the elimination of the predicted increase in flood levels within the reserve downstream of the basin in the 100 year ARI event
4. Horsley Creek Catchment

- Must provide an improvement on the current basin design identified by the NSW Dam Safety Committee which should lead to improved safety of residents
- Consultation with NSW Dam Safety Committee and Shellharbour City Council be maintained
- These comments are also applicable to the proposed new detention basin adjacent Croome Road to ensure no adverse impacts downstream and that the potential for improving flooding downstream is also explored and incorporated in the design process.
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Discussion about EIS exhibition and process

• Draft EIS has been sent to Department of Planning and Environment

• EIS will be on display late October / early November

• Targeting Project Approval 2016

• NSW Government has committed funding through Rebuilding NSW to allow construction to start by early 2019
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Flood focus group wrap up