


# Workshop with editors on application of Australian Rainfall and Runoff (ARR2016) in Urban Areas Examples

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With Mikayla Ward & Sophia Buchanan



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## Greenfield example

Collaboration with Sophia Buchanan

- Design of a new development near Ballarat
- Include conveyance and basin infrastructure
- Do not increase peak flows in downstream natural waterway
- Only stage 1 included in basin catchment



ARR Urban Book: Coombes, Roso, Babister

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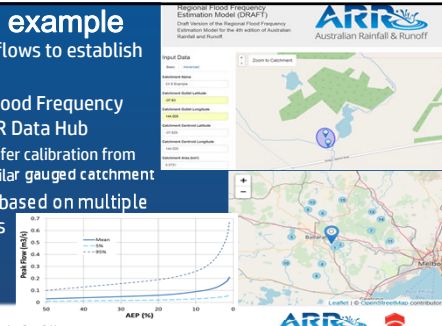
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## Greenfield example

- Estimate rural flows to establish design targets
- Use Regional Flood Frequency Model from ARR Data Hub
  - Could transfer calibration from nearby similar gauged catchment
- Provides flows based on multiple regional gauges



ARR Urban Book: Coombes, Roso, Babister 7/01/2019

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### Greenfield example

- Test designs using climate change impacts
  - See Ch. 6 of Book 1; Section 7.7 of Book 8
- Select design life and consequence level
  - 100 years for the basin and medium consequence for impacts on waterway and surrounding rural properties
- Extract data from Data Hub
  - Used RCP 8.5 value for 2090
  - 16.1% increase in rainfall
- Test climate change impacts using ensembles

ARR Urban Book: Coombes, Ross, Babister 7/01/2019

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### Greenfield example

- Test designs using climate change
  - Basin depth
  - Road depth
- See emerging research
  - Wasko & Sharma
  - Increased rainfall intensities in urban areas

ARR Urban Book: Coombes, Ross, Babister 7/01/2019

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