



Flood Emergency Plan

template for caravan parks

This template is for owners and/or operators of caravan parks in NSW. Your final Caravan Park Flood Emergency Plan will be *your* plan – it needs to work for you, and you will need to maintain it. It is recommended your plan is reviewed every two years.

Caravan park name:

Review date:

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The NSW State Emergency Service (**NSW SES**) Caravan Park Flood Emergency Plan Workbook and Template has been prepared using available flood level information and is intended to assist you to prepare for a flood at your caravan park. However, the Workbook and Template is not intended as an assessment of the actual flood risk.

The information provided in the Workbook and Template is based on knowledge and understanding at the time of publication. However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date.

The NSW SES takes no responsibility for the accuracy, currency, reliability and correctness of any information in the publication (including, without limitation, any of the information provided by third parties) nor for the accuracy, currency, reliability and correctness of links or references to information sources with regard to the historical flood information.

While all reasonable care has been taken in preparing the Workbook and Template, to the extent permitted by law, NSW State Emergency Service and the State of New South Wales and its employees and agents exclude all liability for the accuracy or completeness of the information, or for any injury, loss, or damage whatsoever (including without limitation liability for negligence and consequential losses) suffered by any person acting, or purporting to act in reliance upon anything contained herein.

INTRODUCTION: WHY DO CARAVAN PARKS NEED TO PLAN FOR FLOODS?

There is a long history of floods in NSW. While many years can pass without floods, recent flood events remind us that flood risk is ever present.

Floods can be deep, fast flowing and fast rising. Evacuation routes may be cut early. We all need to be prepared in advance for future floods.

Caravan parks in NSW are often located on low-lying land next to rivers. These idyllic settings are also exposed to flooding. Planning and preparing for floods can reduce the flood impacts at your park and can also help you to rebuild and recover more quickly after a flood.

Having a plan may also help you meet your local Council's requirements for an Approval to Operate and Workplace, Health and Safety regulations.

KEY ROLES FOR CARAVAN PARK OWNERS AND/OR MANAGERS INCLUDE:

- ✓ **Ensuring people respond safely ahead of flooding, e.g. through timely evacuation**
- ✓ **Protecting your and other people's property ahead of flooding** – typical structures in caravan parks will not cope well with deep flooding.
- ✓ **Reducing the risk to the beautiful river environment** – its health is at risk if caravans, other structures or hazardous materials are washed into the river during a flood.
- ✓ **Educating and supporting your staff and occupants** – even people experienced with the river may not understand how the valley floods or know what to do in a flood emergency.



Flooding in the Hawkesbury Nepean Valley March 2021. Source: Infrastructure NSW. Image: Adam Hollingworth.

This resource was developed through a partnership with NSW State Emergency Service, Infrastructure NSW, Hawkesbury City Council, The Hills Shire Council and Penrith City Council, in collaboration with caravan parks in the region. This project was developed as part of the Hawkesbury-Nepean Valley Flood Risk Management Strategy.

Please note this workbook and template has been updated from the original document to suit caravan park locations across NSW.

HOW TO USE THIS PLAN

This Flood Emergency Plan workbook and template is designed to help you work out the flood risk at your caravan park, and to develop an effective plan to manage this risk. It steps through five sections to create your plan:

SECTION 1: WORK OUT YOUR FLOOD RISK (PAGE 9)

Step 1: How has our park flooded in the past, and what could future floods look like?

Step 2: What could be affected by flooding at our park?

Step 3: What are the evacuation routes and safe storage areas for our park?

SECTION 2: PLAN FOR FLOODS (PAGE 18)

Step 4: How can we know a flood is coming?

Step 5: What actions will we take before, during and after flood emergencies?

Step 6: How much time will we need with the resources at hand to complete the required actions in a flood?

Step 7: What do we need to do and when?

SECTION 3: FLOOD EMERGENCY PLAN (PAGE 26)

Step 8: Complete your plan

SECTION 4: PRACTISING AND REVIEWING THE PLAN (PAGE 30)

Step 9: How will our staff and occupants know about our plan?

Step 10: How will we practise our plan?

Step 11: How will we review our plan so it stays current?

TIP: Please note that information on local flood risks needs to be incorporated into this plan. Appendix A outlines where to find this information across NSW.

CARAVAN PARK DETAILS

Name of park:

Address:

Phone number/s:

Plan prepared by:

Person responsible for plan:

Role:

Date plan prepared:

Date plan due for review:

Insert a site map here

TIP: Insert a site plan here into this document

TIP: Print this contacts list separately where it is clearly visible for staff

IMPORTANT CONTACTS

Police/Fire/Ambulance	Life threatening emergency	000 (Triple Zero)
NSW State Emergency Service	Flood/storm emergency assistance	132 500
Bureau of Meteorology	NSW weather warning service	1300 659 218 www.bom.gov.au/nsw/warnings/ http://www.bom.gov.au/nsw/flood/index.shtml (rainfall and river conditions)
Transport for NSW	Road closures and traffic information	13 22 13 (to report unsafe road sites) www.livetraffic.com/
Local Councils	For area specific information	Council Contacts
		-

IMPORTANT WEBSITES AND APPS

NSW SES	www.ses.nsw.gov.au
Bureau of Meteorology	www.bom.gov.au
Hazards Near Me	Download from your App Store and set your Watch Zone

LOCAL CONTACTS

Organisation/service	Name	Phone number
Caravan park		
Flood/storm		
Fire		
Police		
Council		
Vehicular ferry operator		
Electricity		
Water and sewerage		
Telecommunications		
Other		

WORK OUT YOUR FLOOD RISK

SECTION 1

The risk of flooding at your caravan park is determined by how likely a flood is to happen and the consequences of that flood.

The steps below help you identify the consequences of past floods and potential future floods, and take you through what could be impacted at your park.

What additional information you will need to fill out this section:

- ➔ **Community map for your park** – your park's risk is influenced by its layout. Use your map to mark-up key issues identified in the steps below.
- ➔ **Ground level contours and flood maps for your park supplied by your local NSW SES unit.**
- ➔ **Information from your local Council such as flood certificates**

STEP 1 - HOW HAS OUR PARK FLOODED IN THE PAST, AND WHAT COULD FUTURE FLOODS LOOK LIKE?

THE IMPACT OF PAST FLOODS

Knowing how past floods have impacted your park can help you plan for future floods.

Fill out the table below with information about how past floods have impacted your caravan park. Describe the height (level) of the flood at your park, and how much of the park was impacted.

If you don't know the history, talk with long term residents or previous managers of your park.

Other ways to find out historic flood levels at your park include:

1. Compare the flood extent or the flood depth at a specific point in your park to the ground level contour map supplied by your local NSW SES unit. For example, if the flood reached a depth of 1m over the floor of an amenities block, and the ground level contour map shows the amenities block is at about 6m, then the flood level is 7m.
2. Past media articles or historical society records.
3. Your Local Council

TABLE A – FLOOD HISTORY AT PARK

[illegible]

TYPES OF FLOODING:

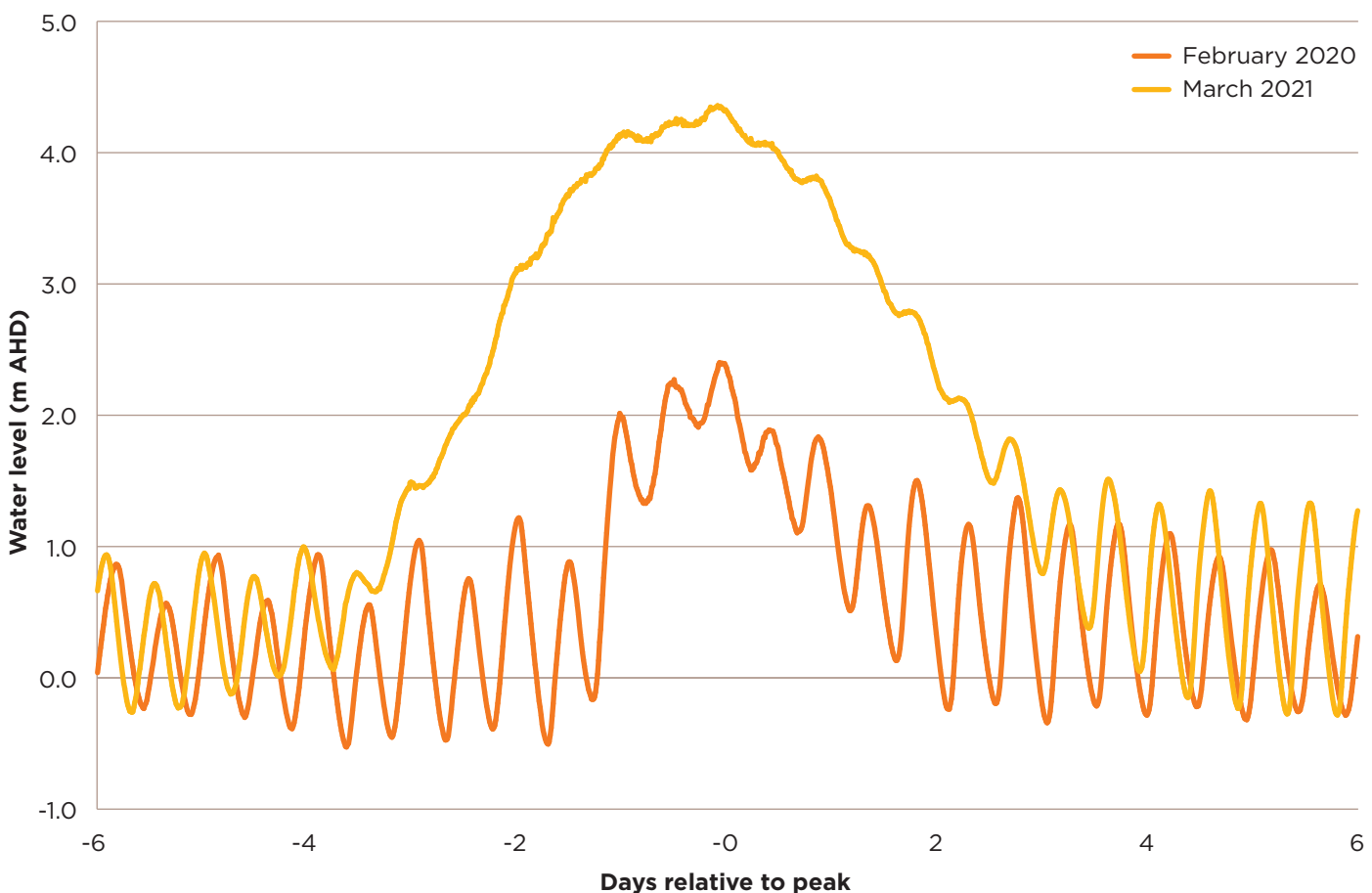
Riverine flooding

The focus of this plan is on riverine flooding. This describes flooding that happens when floodwater overflows the banks of the rivers. Several days of rain are usually required to generate serious riverine floods.

The unique geography of where your park is located, affects the extent and depth of flooding. Most river valleys tend to widen as they approach the sea. The opposite is the case in the Hawkesbury-Nepean. Narrow and winding downstream sandstone gorges between Sackville and Brooklyn create natural choke points that cause a 'bathtub' effect.

Floodwater acts differently according to the geography where the river is located. It is important to know how your river acts in floods.

The below image shows the possible impacts from tidal influences across a range of flood situations at the same location. Tidal variations are suppressed by larger floods in this example.



Hawkesbury River at Webbs Creek (Wisemans Ferry) gauge, flood hydrographs, February 2020 and March 2021
Data source: Department of Planning, Industry and Environment

Flash flooding

Flash flooding occurs quickly (within 6 hours) after rain, causing overland flooding and rapid stream rises. It can occur anywhere and at any time when the intensity of the rainfall overwhelms natural or artificial drainage systems.

Flash floods can have dangerously high flow speeds and carry large amounts of debris.

These kinds of floods can impact on evacuation routes before the main river flood arrives.

Tides and storm surge

Floods can be impacted by tidal conditions and storm surges where winds from storms can push sea water onto the land. This can be particularly dangerous for coastal caravan parks.

Flooding of low-lying areas can also be impacted by storm surges.

THE IMPACT OF FUTURE FLOODS AT OUR PARK

The table below helps describe the potential impacts of different sized floods at your park. You will need the following information to fill out this table:

- Flood level contours, depths and extents for your park – flood maps may be supplied by your local NSW SES unit
- Flood levels at river gauges
- Flood levels at caravan parks

TABLE B - TABLE OF IMPACTS AND CONSEQUENCE

CHANCE PER YEAR	FLOOD LEVEL AND DEPTHS AT PARK	FLOOD EXTENT: % OF SITES IMPACTED	
1 in 2*		all more than half half	less than half none
1 in 5		all more than half half	less than half none
1 in 10		all more than half half	less than half none
1 in 20		all more than half half	less than half none

* Note that impacts may occur in very frequent floods such as 1 in 2 chance per year flood or 50% chance in a year.

TABLE B - TABLE OF IMPACTS AND CONSEQUENCE CONTINUED

CHANCE PER YEAR	FLOOD LEVEL AND DEPTHS AT PARK	FLOOD EXTENT: % OF SITES IMPACTED	
		all more than half half	less than half none
1 in 50			
1 in 100		all more than half half	less than half none
1 in 200		all more than half half	less than half none
Probable maximum flood**		all more than half half	less than half none

** Probable maximum flood or PMF is an extremely rare flood that defines the limit of the floodplain.

HOW FAST MIGHT FLOODS RISE AT OUR PARK?

How fast floods rise affects what you are able to do during a flood emergency. Floodwaters can rise quickly. Find out the possible rates of rise in your location and record here the fastest rate of rise at a location near your caravan park.

Note that faster rates of rises are possible.

HOW LONG MIGHT FLOODS LAST AT OUR PARK AND ON ROADS?

How long floods last impacts the duration of isolation for anyone who hasn't evacuated, and the speed with which clean up can commence.

STEP 2 - WHAT COULD BE AFFECTED BY FLOODING AT OUR PARK?

Identify your park's key elements so you can then work out how they may be impacted by flooding. Fill out the tables below and mark up on your community map as required.

TABLE C - SITES, STRUCTURES, PEOPLE AND VEHICLES

SITE TYPE	NUMBER OF SITES	THE NUMBER OF VANS EXPECTED TO EVACUATE*	APPROX. NUMBER (Low Season)		APPROX. NUMBER (High Season)	
			PEOPLE	VEHICLES	PEOPLE	VEHICLES
Privately owned vans/ cabins on leased sites (including long-term/ permanent residents)						
Onsite vans/cabins for hire (park owned)						
Other sites (including powered/unpowered/ camping sites)						
Manager/staff						
Day-trippers	n/a	n/a				
Special event attendees (e.g. festivals)						
TOTAL						

* This should be the number of vans that can easily be relocated in a few hours. Structures attached to a rigid annex or sewer, with flat tyres and/or without a draw bar will not be moveable with the warning time you are likely to have in a flood emergency.

OTHER STRUCTURES, BOATS AND EQUIPMENT

List other buildings, structures, boats and other equipment at your park (e.g. office, shop, BBQs, kitchen, amenity block, septic tank, storage). Mark this up on your existing community map if not there already.

HAZARDOUS AND OTHER MATERIALS

List hazardous materials and other materials stored at your park that may need to be moved in a flood (e.g. fuel, LPG). Mark this up on your existing community map if not there already.

PEOPLE WHO MAY NEED HELP IN A FLOOD EMERGENCY

Provide information about occupants or staff likely to require assistance to safely evacuate. For example, someone who has a health issue or someone with no vehicle to evacuate.

STEP 3 - WHAT ARE THE EVACUATION ROUTES AND SAFE STORAGE AREAS FOR OUR PARK?

A key issue in understanding the consequences of flooding for your park is knowing at what height of flooding your evacuation route/s are affected. Having this knowledge helps you to allow enough time in your plan for everyone at your park to leave safely before access roads are cut.

You also need to understand how and where you will transport any moveable structures, boats, other equipment or hazardous materials to store them safely.

- Use the flood maps supplied by your local NSW SES unit to look at the evacuation routes for your park and consider the height of flooding that impacts these routes.

MAIN AND BACKUP EVACUATION ROUTES

Provide information about the main evacuation route for park occupants below.

Provide information about the backup evacuation route/s for park occupants, if there are any.

TRANSPORT AND STORAGE LOCATION OF STRUCTURES, BOATS, OTHER EQUIPMENT AND HAZARDOUS MATERIALS

Provide details about the evacuation route/s and suitable storage area/s for any moveable structures, boats and equipment that will need to be relocated.

Safe storage location	Evacuation routes
-----------------------	-------------------

Provide details about any hazardous materials on my site (e.g. fuel, pesticides), and how they will be stored safely onsite (e.g. moved to a higher building) or relocated offsite.

Hazardous material	Transport required and safe storage location
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PLAN FOR FLOODS

SECTION 2

Now that you better understand what impacts floods could have at your caravan park, it's time to plan how you can reduce those risks to life and property.

This section steps through what actions you will take before, during and after flood emergencies. It shows you how you can detect flood threats, and stage your actions so you have sufficient time to complete them before a rising flood stops them.

What additional information you need to fill out this section:

- ➔ **Flood level contour, depth and extent maps for your park supplied by your local NSW SES unit.**

STEP 4 - HOW CAN WE KNOW A FLOOD IS COMING?

There are several ways to detect the threat of flooding, including:

- follow Bureau of Meteorology weather forecasts and warnings
- follow NSW State Emergency Service website
- Download the Hazards Near Me App to set a Watch Zone to receive Advice, Watch & Act or Emergency Warnings
- listen to trusted media
- monitor rain and river height gauges, and tides
- keep an eye on your environment
- talk to your networks and neighbours

A range of sources of flood information, and indicators of a flood threat, are listed below. Some indicators (e.g. Flood Watch) happen earlier than others. To develop an effective flood emergency plan, you will likely need to use multiple indicators.

BUREAU OF METEOROLOGY

Website: www.bom.gov.au/nsw/warnings

App: BOM Weather

- Check rainfall forecasts using MetEye
- Severe Weather Warning for torrential rain
- Flood Watch for the Hawkesbury, Nepean, Colo or Macdonald rivers (with minor, moderate and major flood classifications provided except for the Macdonald)
- Flood Warning for a height of Xm to be reached by a particular time at a forecast location

NSW STATE EMERGENCY SERVICE

Website: <https://www.ses.nsw.gov.au/>

NSW SES Facebook page - <https://www.facebook.com/NSW.SES>

- Flood Bulletin
- Evacuation Warning
- Evacuation Order

MEDIA

ABC for latest news and information about floods.

Website: www.abc.net.au/emergency

Radio: ABC 702

App: ABC 702

YOUR OWN MONITORING OF RAIN AND RIVER HEIGHT GAUGES

(<http://www.bom.gov.au/nsw/flood/>)

- Look up the rainfall
- Look up the river height at a gauge near or upstream of your park

YOUR OWN MONITORING OF TIDES

- Look up the predicted tides using a reliable source
- If you see a tide higher than what was predicted, this may indicate a rising flood
- High tides may increase the height of the flood

YOUR OWN MONITORING OF RIVER HEIGHTS AT YOUR PARK

- Pick a local marker
- But don't rely solely on this - you need to consider a rising flood upstream

YOUR OWN NETWORKS AND NEIGHBOURS

- Draw on your own social networks to share information

STAYING CONNECTED

Be ready in advance by bookmarking websites, downloading apps and having a battery-operated radio ready to use.

Be aware that during a flood you may lose power and telecommunications. Plan in advance for how you will stay connected to the latest information. It may be handy to ensure your vehicle has a full tank of fuel so you can listen to the radio in the car.

Indicate below which telecommunication options you will use at your park:

Telecommunication options for our park:

Internet smart phone BOM app landline satellite phone

UNDERSTANDING OFFICIAL WARNINGS

NSW SES has implemented the national Australian Warning System (AWS), with clearer, more action-oriented flood information and warnings for communities. It is a three three-tiered warning level system reflecting the severity of the event based on consequence to the community, with:

- **Advice** – there is a heightened level of threat. Stay up to date as the situation changes.
- **Watch and Act** – conditions are changing and you need to start taking action now to protect you and your loved ones.
- **Emergency Warning** – the highest level of warning. You may be in danger and need to take action immediately.

For each warning level there are a range of call to action statements to guide protective action by the community. These statements evolve as the warning levels increase in severity. As the situation changes and the threat is reduced, the level of warning will decrease accordingly.

Find out more about these warnings: <https://www.ses.nsw.gov.au/warnings>

Leading up to, during and after a flood, NSW SES may issue a series of flood warnings:

- **Advice – Stay Informed AND/OR Watch and Act – Do not enter floodwater:** translates predicted flood heights at gauges to consequences, describing what actions need to be taken if there is no immediate isolation or evacuation consequences. These warnings may escalate if isolation or evacuation impacts develop.

ISOLATION-SPECIFIC

- **Watch and Act – Prepare to Isolate:** issued when floodwaters are expected to isolate property. If the situation escalates people may be told to urgently seek shelter, evacuate (if still possible) or move to higher ground.
- **Emergency Warning – Shelter Now:** – may be issued if it is too late to leave safely as evacuation routes are likely to be cut off, with instructions to seek shelter in a sturdy raised structure that can be safely accessed.
- **Watch and Act – Do not enter floodwater AND/OR Advice – Monitor Conditions:** As floodwater falls but there may still be water around changes will be reflected in warning messages and community advice

EVACUATION-SPECIFIC

- **Watch and Act – Prepare to Evacuate:** warns when evacuation routes are likely to be cut or when floodwaters are expected to inundate property, preparing people to evacuate and respond quickly if the situation escalates, and evacuation becomes necessary. If you require more time or assistance to evacuate you should consider leaving when you receive this warning.
- **Emergency Warning – Evacuate before/now:** advises people what to do in an evacuation and where to go. You might receive this warning via radio stations, or by automated telephone and/or SMS, NSW SES social media, or door knocks. **It is vital that you leave if you receive an Emergency Warning – Evacuate before/now, this is the same as having formerly received an Evacuation Order.**
- **Emergency Warning – Move to Higher Ground:** may be issued if there is dangerous localised heavy rain and/or flooding making it unsafe to evacuate the area. People should immediately move to higher ground (e.g. inside a tall sturdy building or a hill). **It is vital to move as high above ground as possible.**

- **Advice – Avoid the Area:** issued as floodwater falls and there is no longer a need to evacuate, however it is still not safe to return due to hazards. This will be followed by an Advice – Returned Threat: Return with Caution when it is safe to return to the area.
- **Watch and Act – Do not enter floodwater:** As floodwater falls but there may still be water around changes will be reflected in warning messages and community advice.
- **Advice – Reduced Threat:** Return with Caution: when floodwater falls to a safe level and engineer checks are completed for key levees, roads and bridges, communities who received an Evacuate before/now message, will receive this Advice informing them they can return to homes and businesses taking care and caution as there may still be hazards.

HAZARDS NEAR ME APP

XXXX

MONITORING RIVER HEIGHTS

You most likely already keep an eye on the river height and tides. During periods of heavy rain, it's also wise to monitor the river height, both at your park and at river gauges.

Select some river height gauges you will monitor when floods threaten. It's a good idea to select a gauge near your park as well as a flood warning gauge upstream.

Note: Sometimes river gauges may not work as expected, and during floods they can be damaged and not work or not report correct heights. For example, riverbank erosion damaged the Sackville gauge in the February 2020 flood. It's good to have identified back up gauges to also look up.

List below the river height / flood forecasting gauges you will monitor:

INTERPRETING RIVER HEIGHTS

If the Bureau of Meteorology issues a Flood Watch for, say, 'moderate' flooding, or issues a Flood Warning with a predicted height, it's important to work out what that means for your caravan park.

One way to do this is to consider the recent flood history or historical records if there hasn't been a flood recently, remembering that every flood is different. Knowing how floods have impacted (or didn't impact) your park provides some indication of the effect of different flood classifications on your park.

Similarly, you could look up the heights of historic floods to make sense of a predicted height during a live flood.

For those with a mathematical bent, there is value in estimating the relationships between flood heights at your park and flood heights at your chosen forecast gauge. This can help you to estimate at what height on the forecast gauge key consequences happen at your park including:

- the evacuation route from the park is cut (the road low-point could be on an internal driveway or on a public road)
- the lowest site is flooded
- the entire park is flooded, where applicable.

There is a high degree of variability in floods. For example, one flood might have higher inflows from one tributary than another. This means the relationship between flood heights at a forecast gauge and flood heights at your park is likely to change somewhat from flood to flood.

You may need to include a range of flood levels because the ground level at your park may fall between two flood levels.

TABLE D - FLOOD FORECASTS AND CONSEQUENCES

LOCATION	CONSEQUENCE	GROUND LEVEL (m)	CORRESPONDING LEVEL RANGE AT FORECAST GAUGE	FLOOD CLASSIFICATION RANGE AT FORECAST GAUGE
Evacuation route(s)				
Low-point on internal access road*	People isolated and exposed to flooding if not evacuated			
Low-point on external evacuation route*				
Low-point on back up evacuation route*				
Low-point on evacuation route for relocated structures or boats*	Property exposed to flooding			
Property				
Lowest site in park	Park begins to flood			
Highest site in park	Park entirely flooded			
Environment				
Septic tank	Health and/or environmental hazard if flooded			
Hazardous goods storage	Health and/or environmental hazard if flooded			

* It is possible that local flooding could cut evacuation routes before the main river flood arrives

TIP: No two floods are the same - monitor your local conditions and remain alert

STEP 5 - WHAT ACTIONS WILL WE TAKE BEFORE, DURING AND AFTER FLOOD EMERGENCIES?

Emergency management plans generally consider three stages of planning: prepare, respond and recover.

Preparing describes things that you can incorporate into your park's routine practices. These could include:

- actively monitoring weather forecasts, river levels and tides
- displaying flood evacuation procedures in communal areas
- maintaining database of occupants with up-to-date contact details
- preparing warning messages to issue to occupants
- ensuring vans intended to be relocated before a flood are maintained in a moveable condition
- identifying extra staff/resources to assist in the event of a flood emergency.

Responding describes things that you will do when a flood threatens. These could include:

- contacting all upcoming bookings to defer travel to your park
- 'doorknocking' all park occupants to advise them of the flood threat / direct them to evacuate
- relocating hazardous chemicals to higher area
- relocating moveable vans to higher ground
- securing objects that can float away
- isolating power to low-lying areas.

Recovering describes things that you will do after a flood subsides. These could include:

- communicating with authorities about safety of entering park
- undertaking risk assessments with qualified specialists
- contacting all owners to request assistance in cleaning their dwellings.

Use the checklists in Section 3 to tick off actions for the prepare and recover phases.

Record in **Table E** the actions you will take when a flood threatens.

STEP 6 - HOW MUCH TIME WILL WE NEED WITH THE RESOURCES AT HAND TO COMPLETE THE REQUIRED ACTIONS IN A FLOOD?

Part of understanding and managing the flood risk is working out how long the required actions will take. You can use the worksheet below to estimate how long each action might take. It is important to also consider what additional resources you can access in a flood.

TABLE E - ACTION WORKSHEET

TABLE E - ACTION WORKSHEET CONTINUED

STEP 7 - WHEN WILL WE NEED TO DO EACH ACTION?

It's important to plan how you will respond when a Flood Watch or Flood Warning is issued, or from your own monitoring of rain and river gauges and the river height at your park.

An effective flood emergency response plan ensures that the time available for an action is greater than the time required for that action. You estimated the time required for key actions in Step 5. Here, you need to align those actions to triggers that will allow sufficient time to safely complete them, remembering that floods can rise quickly. In short, the triggers need to be *realistic*.

An effective plan also accounts for the unique characteristics of your park. Think about key consequences from Table D – when might the evacuation route be cut?; when might the sites be flooded? – and select your triggers accordingly. In short, the triggers need to be *meaningful*.

Here are some tips for choosing triggers:

- A **Flood Watch** is likely to be the first trigger for most caravan parks. Many parks are quite low-lying and close to rivers and are impacted even by minor flooding. This means that you will need to start your response earlier than when a Flood Warning is issued to ensure the required actions can be done in time.
- The NSW SES will issue location specific Advice, Watch and Act or Emergency Warnings for floods.
- **Factor in the possibility of a fast rising river**
- Factor in the possibility of **local flooding**, e.g. runoff from a local creek or hillside that could impact the evacuation route before the main river flood arrives.
- For these reasons, **allow extra time**, i.e. choose a conservative, early trigger
- In choosing triggers, **use a combination of official warnings and your own monitoring** of river heights and tides (see Step 4)
- **List two triggers for the one set of actions**. Whichever trigger happens sooner will initiate the actions.
- **Factor in a 'Plan B'** for imperfect scenarios – not everything goes to plan during floods.

You can record the triggers, linked to actions, directly in your park's flood emergency response plan in Section 3. You may choose to use the pre-populated triggers in **Table F**, or you can use a Word document to list your own triggers.

TIP: A **Flood Watch** will most likely trigger some sort of response at most parks.

COMPLETE YOUR FLOOD EMERGENCY PLAN

SECTION 3

It's now time to bring all the information together and populate your caravan park's flood emergency plan.

What you have done so far includes identifying:

- How has our park flooded before and what could future floods look like? (Step 1)
- What could be affected by flooding at our park? (Step 2)
- What are the evacuation routes and safe storage areas for our park? (Step 3)
- How can we know a flood is coming? (Step 4)
- What actions can we take before, during and after flood emergencies? (Step 5).
- How much time will we need with the resources at hand to complete the required actions in a flood? (Step 6)
- What do we need to do and when? (Step 7)

STEP 8 - PREPARING FOR, RESPONDING TO, & RECOVERING FROM FLOODS

PREPARING FOR FLOODS: A CHECKLIST

Flood monitoring (everyones responsibility):

- We have downloaded the Bureau of Meteorology app: 'BOM Weather' – <http://www.bom.gov.au/app/>
- We regularly check the Bureau of Meteorology website page for weather warnings – <http://www.bom.gov.au/nsw/warnings/>
- We follow the NSW State Emergency Service (NSW SES) on social media:
 - Facebook – <https://www.facebook.com/NSW.SES>
 - Twitter – <https://twitter.com/NSWSES>
 - Instagram – <https://www.instagram.com/nswses>
 - also follow your local units which have their own pages
- We have access to the ABC for latest news:
 - Website – <https://www.abc.net.au/emergency/>
 - Radio: ABC 702
 - Download the ABC Listen app – <https://www.abc.net.au/radio/listen/> where you can access local news
- We follow tides and monitor river heights

Occupant communication (owners and operators responsibility):

- We provide all occupants with current NSW SES information on what to do if there is a Flood Watch/Warning, including how to contact park managers. We also provide all occupants with a copy of the park's flood evacuation procedure. We have this information visible and accessible and is a key component of our induction process with new occupants.
- We inform our occupants of how to monitor weather updates and access weather warnings, via the Bureau of Meteorology, NSW SES, and ABC.
- We have a process in place for contacting occupants in the event of a flood emergency – including who will do this, how it will be done and have prepared messages ready to go. We keep track of which occupants will need assistance in the event of an evacuation.

Evacuation (owners and operators responsibility):

- We understand our main and back up evacuation routes and have included this in our communications for occupants.
- We have evacuation maps clearly visible for occupants and staff in key locations.

TIP: Download the Hazards Near Me App and set your Watch Zone for floods.

Site management (owners and operators responsibility):

- We have identified resources we would need in the event of a flood warning – including additional staff, equipment and storage. We have a list of local suppliers identified.
- We have identified hazardous material, how we will move it and where we will store it.
- We have identified where we will move/store any moveable boats and vans.
- We keep our park clear of clutter and ask our occupants to store personal items in their van
- We have supplied tie down points for each van site
- We have checked that vans intended to be relocated before a flood are maintained in a moveable condition

Emergency “Get Ready to Go” kit (everyones responsibility):

- We have prepared an emergency kit which includes items such as a battery powered radio, spare batteries, a torch, first aid kit and a copy of our emergency plan.

Insurance (owners/operators and personal Responsibilities):

- We have considered flood insurance for our park
- ☐ I have insured my van and/or contents

Park owners and operators have a range of responsibilities in preparing parks for floods.

Occupiers and visitors also have responsibilities to ensure safety and property protection.

Sharing the responsibility to prepare for floods ensures that everyone knows what to do and actions are done in a timely manner. Protecting lives is a priority. To do this, park owners and operators as well as park occupants and visitors need to share the responsibility to prepare, respond and recover together.

FLOOD RESPONSE PLAN

TIP: Avoid driving, riding, walking, boating or playing in floodwaters – these are the main causes of death during flood

TABLE F

Triggers	What actions will you take and who is responsible?		How long will this take?
Flood Watch/ Severe Weather Warning/ Flood Advice/ Emergency Warning issued (whichever comes first)	Communicating with site occupants and visitors	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	
	Managing the site	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	
	Communicating with authorities	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	
Flood Warning/ Advice/Watch & Act/ Emergency Warning or relevant flood gauge reaches certain level (whichever comes first)	Communicating with site occupants and visitors	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	
	Managing the site	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	
	Communicating with authorities	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	

TABLE F CONTINUED

Triggers	What actions will you take and who is responsible?		How long will this take?
Vehicular evacuation route flooded and flood rising	Communicating with occupants	<ul style="list-style-type: none">••••••••	
Sites begin to flood	Managing the site	<ul style="list-style-type: none">••••••••	
	Communicating with authorities	<ul style="list-style-type: none">••••••••	
	Communicating with site occupants and visitors	<ul style="list-style-type: none">••••••••	
	Managing the site	<ul style="list-style-type: none">••••••••	
	Communicating with authorities	<ul style="list-style-type: none">••••••••	

RECOVERING FROM FLOODS - A POST-FLOOD CHECKLIST

The NSW SES will issue an ‘All Clear’ when it is safe for caravan park owners to return to site.

It is important that occupants do not come back to the park prior to it being deemed safe, including submitting required documents to your local Council. Before allowing your occupants to return to site after a flood event, the following should be completed:

Communicating with site occupants:	
	<ul style="list-style-type: none">We have advised occupants that we will inform them when they are able to return to the park, explaining the necessary safety checks that must be done first.
	<ul style="list-style-type: none">We have advised occupants who wish to return to the premises to collect items or to engage in site clean-up should only attend if approved by the Park Manager. We have informed occupants of dates when works are being undertaken as access may be restricted.
	<ul style="list-style-type: none">We have informed occupants that the site has been deemed safe to re-occupy.
Site management:	
	<ul style="list-style-type: none">Drinking water supply has been assessed and any necessary repairs have been undertaken. Water sample has been sent for microbiological analysis, and verification of results provided to my local Council.
	<ul style="list-style-type: none">On-site wastewater system(s) for the premises and individual connections from each site have been assessed by a qualified plumber, any necessary repairs/replacement has occurred.
	<ul style="list-style-type: none">All electrical infrastructure on the premises, including connections to individual sites, has been assessed by a suitably qualified electrician. Confirm requirements with your electricity provider.
	<ul style="list-style-type: none">All community structures (amenities buildings, kitchens, boat sheds) affected by flood have been assessed by a suitably qualified practising structural engineer. A list of recommended remedial works has been provided to my local Council for approval.
	<ul style="list-style-type: none">An Occupational Hygienist has been engaged to assess where flood inundation of amenities and moveable dwellings has occurred. A report has been obtained confirming the suitability of all structures on the premises for human habitation and provided to my local Council.
	<ul style="list-style-type: none">Check with local Council for approved locations accepting flood waste and for queries in the handling or disposal of any hazardous materials (eg asbestos, chemical containers). All flood waste must be disposed of at a licensed waste facility.
	<ul style="list-style-type: none">Riverbanks have been assessed by a geotechnical engineer for damage by inundation, scouring and erosion and a report has been provided to my local Council.
	<ul style="list-style-type: none">A qualified arborist has assessed trees on the property for damage and a report has been provided to my local Council.
Communicating with authorities:	
	<ul style="list-style-type: none">Provide all reports and required documentation to local Council, confirm their receipt.
	<ul style="list-style-type: none">Check requirements for approval from Council for replacement or rebuilding of structures and installations within the park.
	<ul style="list-style-type: none">Confirm that no other correspondence is required prior to re-opening to occupants.
Access support for you or your occupants:	
	<ul style="list-style-type: none">View any support offered by the NSW Government or local organisations. Visit Resilience NSW https://www.nsw.gov.au/resilience-nsw for more information.
	<ul style="list-style-type: none">Disaster Recovery Centres may be established following some disasters. Recovery centres may provide a range of welfare services including financial assistance, personal support, organising temporary accommodation and providing information and referrals. You can contact Disaster Welfare Services on 1800 018 444.

PRACTISING AND REVIEWING YOUR PLAN

SECTION 4

Your final Caravan Park Flood Emergency Plan is your plan – it is a living document and it needs to work for you. Making sure it works involves sharing information about your plan, practising it and reviewing it regularly so it stays current.

STEP 9 - HOW WILL OUR STAFF AND OCCUPANTS KNOW ABOUT OUR PLAN?

Making sure your Flood Emergency Plan works, involves sharing information about *your* plan, testing it to make sure it works, and regular reviews so it stays current.

Fill out the following table about the activities you will do to develop and maintain awareness of the park's flood risk and what to do with your staff and occupants.

TABLE G - FLOOD AWARENESS AND PREPAREDNESS ACTIVITIES FOR STAFF AND OCCUPANTS

Activity	Audience	Date	Timing
Flood information signage on site	Staff and occupants		Ongoing
Flood information in new occupant packs	Occupants		Annual and with new occupants
Flood Emergency Plan on display in office	Staff		Ongoing

TABLE G - FLOOD AWARENESS AND PREPAREDNESS ACTIVITIES FOR STAFF AND OCCUPANTS CONTINUED

STEP 10 - HOW WILL WE PRACTISE OUR PLAN?

In a flood emergency, it will be much easier to remember what to do and to know it works if you have run through it before. This involves testing and practising key elements of your plan.

Fill out the table below to keep a record of your training and testing of this plan.

TABLE H - FLOOD EMERGENCY PLAN TESTING

STEP 11 - HOW WILL WE REVIEW OUR PLAN SO IT STAYS CURRENT?

You will also need to maintain your plan over time. It is recommended your plan is reviewed every two years to keep it up to date.

Provide details below about when and who has reviewed the plan.

TABLE I - REVIEWING YOUR FLOOD EMERGENCY PLAN

EXAMPLE

SECTION 5

EXAMPLE - HAPPY HOLIDAYS SKI PARK

Happy Holidays Ski Park located along the Lower Hawkesbury River in Utopia LGA is a hypothetical caravan park that we've invented to help explain some tricky issues.

FLOOD SLOPES

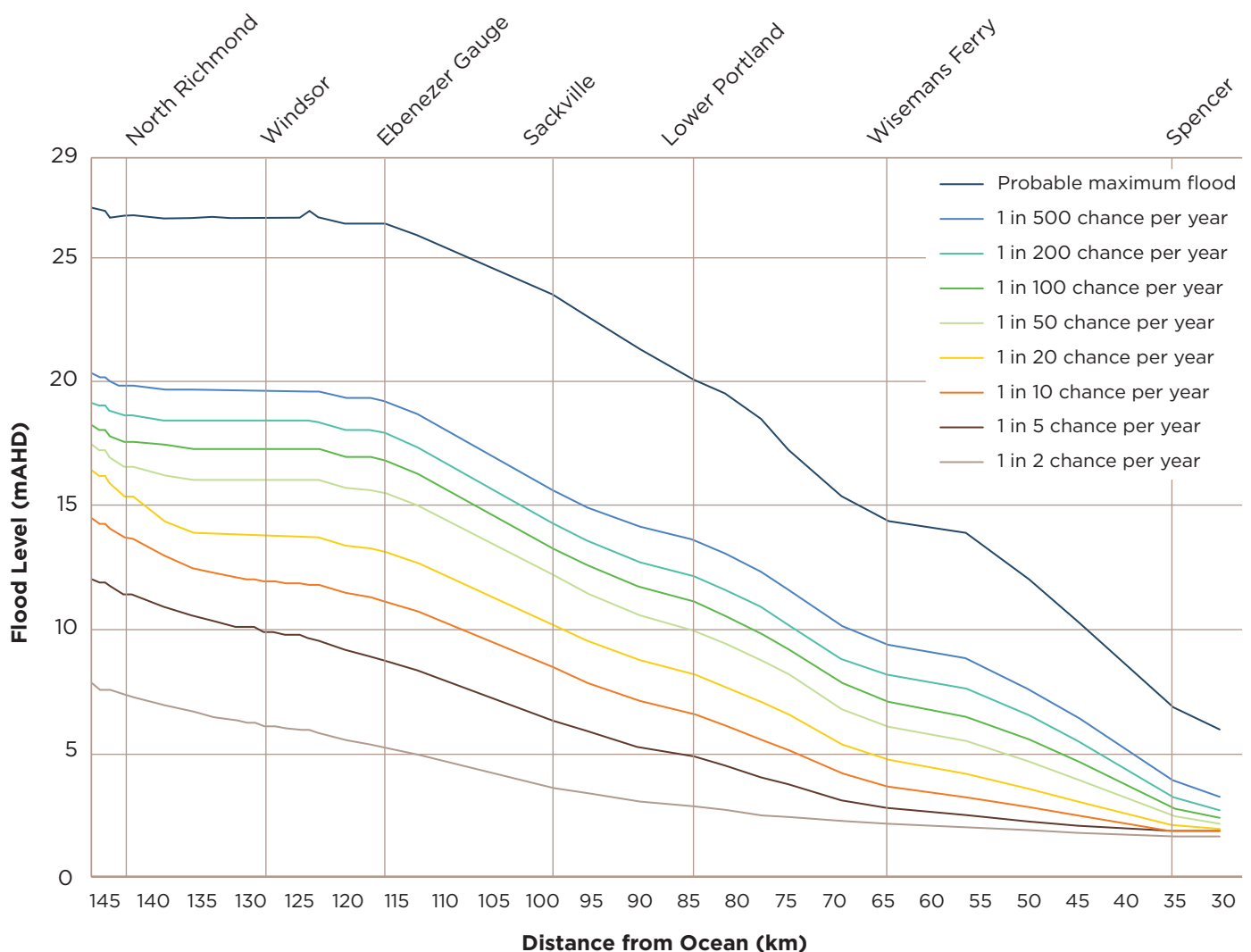
One issue is how a flood height (observed or predicted) at a river height gauge relates to a caravan park located some distance from the gauge, and vice versa. This is tricky because of flood slopes.

The diagram below shows potential flood heights along the length of the Hawkesbury River from Yarramundi to Brooklyn. Each line represents a potential flood. If you follow the 1 in 20 chance per year (yellow) flood line, you'll see that the peak flood level falls from about 14m above sea level at Windsor, to about 10m at Sackville, about 8m at Lower Portland, and about 5m at Wisemans Ferry. Happy Holidays Ski Park is located between Sackville and Lower Portland, so the flood height there will be in-between the heights at Sackville and Lower Portland.

Remember that flood slopes vary from flood to flood depending on the size of inflows from different tributaries.

Figure: Flood profiles along Hawkesbury River

Source: Hawkesbury-Nepean Valley Regional Flood Study (2019) Figure 40 and supplementary information. Flood profiles are subject to revision with further studies.



Scenario 1 – what does a Flood Watch for minor flooding mean for Happy Holidays Ski Park?

The Bureau of Meteorology issues a Flood Watch for minor flooding in the Hawkesbury River downstream of Windsor.

Using **Appendix E**, this means that if the anticipated rain falls, flooding higher than 4.6m at the Sackville river gauge could happen. Using **Appendix C**, we can see that based on current flood models, 4.6m at Sackville falls between a 1 in 2 and 1 in 5 chance per year flood size, though closer to 1 in 2.

This means that flooding at least as high as a level between 3.3m (1 in 2) and 5.7m (1 in 5 chance per year) is likely at the hypothetical park, Happy Holidays Ski Park (using **Appendix C**).

Scenario 2 – what does a Flood Warning mean for Happy Holidays Ski Park?

The Bureau of Meteorology issues a Flood Warning for the Hawkesbury River to peak near 7.0m at Sackville river gauge around 6pm on Tuesday. Based on current flood models, 7.0m at Sackville falls between a 1 in 5 and 1 in 10 chance per year flood size, though closer to 1 in 5 (using **Appendix C** to work this out).

This means that a peak flood level between 5.7m (1 in 5) and 7.7m (1 in 10 chance per year) is expected at Happy Holidays Ski Park (using **Appendix C**).

Scenario 3 – at what river gauge height is Happy Holidays' evacuation route cut?

Maps showing ground levels indicate that the evacuation route from Happy Holidays Ski Park is cut at about 4.1m. Based on current flood models, this ground level falls between a 1 in 2 and 1 in 5 chance per year flood level, though closer to 1 in 2 (using **Appendix C** to work this out).

This corresponds to a level of 3.7m (1 in 2) to 6.4m (1 in 5 chance per year) at the Sackville river gauge upstream (using **Appendix C**).

So if the Bureau of Meteorology issues a Flood Watch for minor flooding of the Hawkesbury River downstream of Windsor (i.e. higher than 4.6m at Sackville from **Appendix E**), we know that the evacuation route from the park is likely to be cut.

Scenario 4 – at what river gauge height are structures at Happy Holidays flooded?

Maps showing ground levels indicate that fixed structures at Happy Holidays Ski Park are located at about 6.0m. Using **Appendix C** to work this out we can see that based on current flood models, this ground level falls between a 1 in 5 and 1 in 10 chance per year flood level, though closer to 1 in 5.

This corresponds to a level of 6.4m (1 in 5) to 8.6m (1 in 10 chance per year) at the Sackville river gauge upstream (using **Appendix C**). So if the Bureau of Meteorology issues a Flood Warning for the river to peak near 7.0m at Sackville river gauge, we know that flooding of these structures is likely.

SETTING TRIGGERS

Imagine that Happy Holidays Ski Park has two staff available to doorknock its 20 sites to direct patrons to evacuate. This is estimated to take about 30 minutes. It is estimated it will then take 60 minutes for people to prepare themselves and pack their vehicles to leave.

It was identified that the evacuation route is cut at a flood level of about 4.1m, so staff will need to start doorknocking at least 1.5 hours before that level is reached. Using the highest rate of rise for Sackville in **Appendix D** (0.7m/hr), the latest trigger to commence doorknocking is approximately 3m.

This level at Happy Holidays corresponds to a flood level of 3.4m at Sackville (using **Appendix C** to estimate this).

The park manager/s will need to monitor the Sackville gauge closely and also be ready to evacuate themselves within the limited time available.

An alternative trigger would be to start the evacuation process as soon as a Flood Watch for minor flooding is issued. This size of flooding is likely to cut the evacuation route to Happy Holidays Ski Park.

COMPLETING THE FLOOD EMERGENCY RESPONSE PLAN

This is the key deliverable of this workbook.

Note that the example for Happy Holidays Ski Park is not prescriptive. There are some features of (the hypothetical) Happy Holidays Ski Park, and the way floods impact this park, that may not fit your park.

It is just an example of how to draw on all the information to plan for a response to flooding that addresses the key objectives set out in the introduction:

- To ensure people's safety
- To protect property
- To reduce the risk to the environment.

There's a few things to notice:

- It's staged. Lots of things need to happen at the Flood Watch / Severe Weather Warning stage.
- It allows for a 'Plan B' in case not everyone evacuates before the road access is lost, as well as a 'Plan C'

HAPPY HOLIDAYS SKI PARK FLOOD EMERGENCY RESPONSE PLAN - HYPOTHETICAL EXAMPLE

Avoid driving, riding, walking, boating or playing in floodwaters – these are the main causes of death during floods

TRIGGERS	CONSEQUENCE	ACTIONS	
Bureau of Meteorology Flood Watch for minor flooding of Hawkesbury River issued OR Bureau of Meteorology Severe Weather Warning for heavy rain issued OR Emergency Warning – Evacuate before/now issued (whichever happens first)	Flooding probable in coming days, likely to cut vehicular evacuation route	Communicating with site occupants and visitors	<ul style="list-style-type: none"> • Contact all upcoming bookings and owners of moveable dwellings to direct them to defer travel to park • Doorknock all site occupants and visitors and direct them to prepare to evacuate • Direct site occupants and visitors planning to use road ferry services, or with identified vulnerabilities, to evacuate promptly
		Site management	<ul style="list-style-type: none"> • Call on casual staff to assist with flood emergency • Relocate any hazardous chemicals (e.g. boat/mower fuel) to offsite storage area • Prepare park office and residence for evacuation • Raise items in cabins/annexes to higher levels (if permission previously given)
		Communicating with authorities / sourcing information	<ul style="list-style-type: none"> • Contact road ferry operators and Council re status of evacuation routes • Inform NSW SES unit re status at park • Monitor BoM, SES, river heights, tides
Bureau of Meteorology Flood Warning of 4.6m or higher at Sackville gauge OR Sackville gauge reaches 3.7m and rising OR Emergency Warning – Evacuate before/now issued (whichever happens first)	Vehicular evacuation route expected to be cut OR Vehicular evacuation route expected to be cut within ~90 minutes	Communicating with site occupants and visitors	<ul style="list-style-type: none"> • Doorknock all park occupants and direct them to evacuate immediately (and indicate best route, reminding them to never drive through floodwater)
		Site management	<ul style="list-style-type: none"> • Render assistance to any persons requiring help • Check to see sites are vacated • Secure loose objects (e.g. bins, gas cylinder) • Block floor wastes and toilets • Turn off power to sites, and gas appliances • Relocate office/residence essentials off-site
		Communicating with authorities / sourcing information	<ul style="list-style-type: none"> • Contact road ferry operators and Council re status of evacuation routes • Inform NSW SES unit re status at park • Monitor BoM, SES, river heights, tides
Vehicular evacuation route flooded (4.1m locally, 4.6m Sackville), and flood rising	Caravan park isolated by road	Communicating with site occupants and visitors	<ul style="list-style-type: none"> • Direct any remaining persons to evacuate on foot up designated overland escape route
		Site management	<ul style="list-style-type: none"> • Render assistance to any persons requiring help • Check to see sites are vacated • Evacuate yourself and all staff • Secure park
		Communicating with authorities	<ul style="list-style-type: none"> • Inform NSW SES unit re status at park
Overland escape route flooded (4.9m locally, 5.5m Sackville)	Caravan park isolated by foot	Site management	<ul style="list-style-type: none"> • If evacuation has failed, and no local boats available, move to highest ground or building
		Communicating with authorities	<ul style="list-style-type: none"> • Call 000 for rescue
Sites begin to flood (6.0m locally, 6.7m Sackville)	Caravan park flooding	Communicating with authorities	<ul style="list-style-type: none"> • Call 000 for rescue