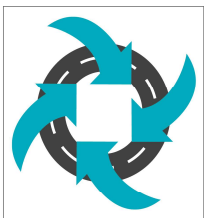




# North Eastern Maintenance Alliance (NEMA)

## Victorian 2022 Flood response North East Victoria



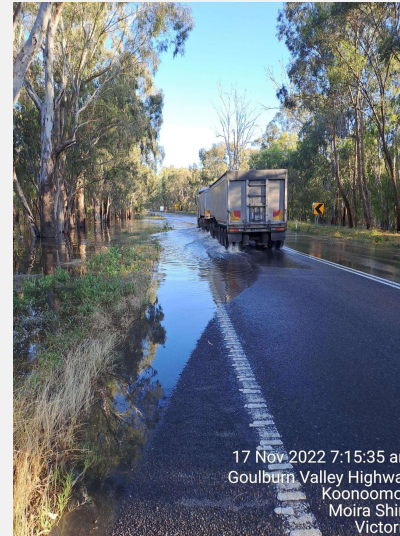
### Australian Pavement Recycling and Stabilisation Conference

*Sustainable Pavements for Future Generations*  
Pullman Albert Park, Melbourne • 22nd August 2023

# Agenda

## Agenda

- Introduction
- NEMA
- 2022 Victoria regional floods
- Sustainable Pavements for Future Generations



Flooding Victoria October 2022

# Introduction



Charlie Webster – Alliance Manager  
North Eastern Maintenance Alliance



Q&A session with Steve Bowmaker  
DTP Regional Director - Hume Region

## Acknowledgement of Country





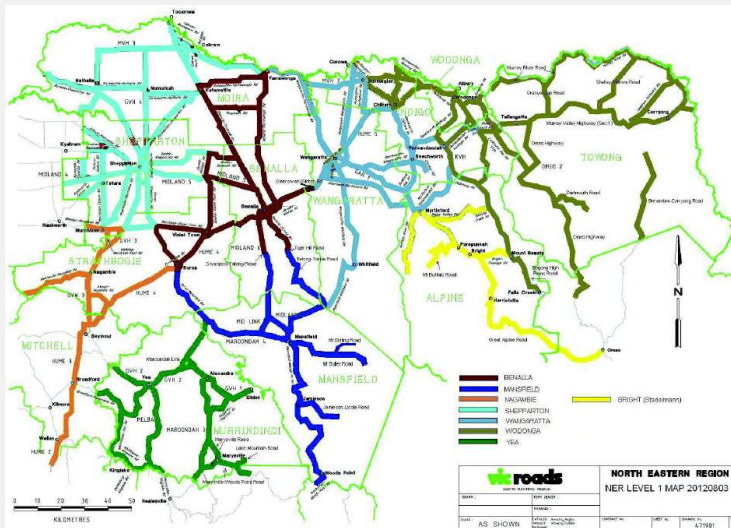
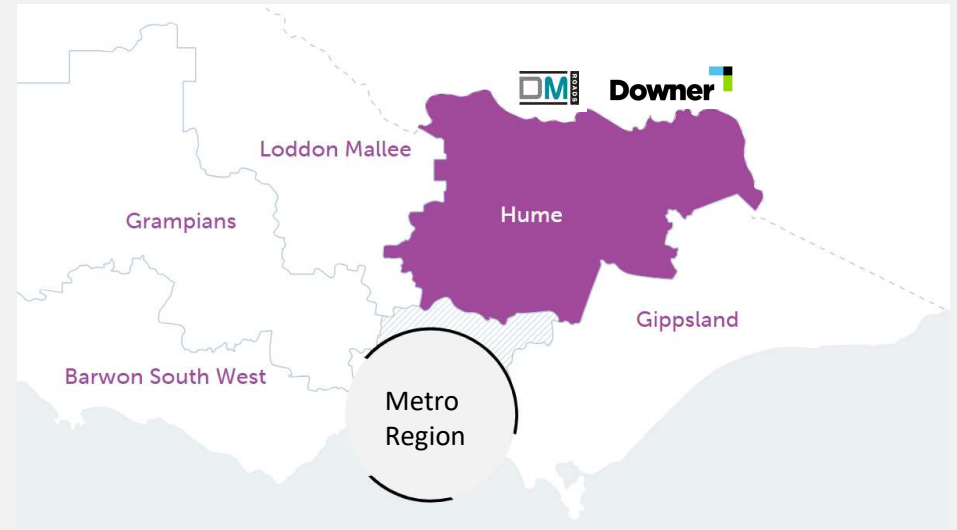
# Regional Roads Victoria (RRV)

- 2018 RRV brand was formed for more dedicated regional focus
- RRV is split into 5 regions with 19,000km
  - 3 regions under alliance contract
  - 2 regions government self delivered
- 2019 RRV and VicRoads joined the Department of Transport (DoT)
- 2023 DoT merged with Planning department to become Department of Transport and Planning (DTP).
- New contract model Victorian Road Maintenance Contract (VRMC)



# North Eastern Maintenance Alliance (NEMA)

- Hume Region operates in diverse climates
- 5 Depots within the region
- 4,000km road network to manage
- 12 Local Government Agencies
- Asset, Maintenance, Projects and Business Services
- AMIS Asset management software



Yarrowonga rehab



Bogong High Plains Rd



Great Alpine Road



Hazard response



# 18 months flooding nationally

- There is no doubt the past 18 months has seen significant storm events across Australia.
- Topic of resilient pavements is a hot topic now in the media but will the conversation last?
- Federal enquiry “Implications of Severe Weather Events on the National Regional, Rural, and Remote Road Network”



SA – Olympic Dam Hwy  
January 2022



QLD – Isis Highway  
March 2022



NSW – Pacific Hwy  
June 2022



NSW – N. England Hwy  
July 2022



Tasmania – Carrick  
October 2022



WA - Fitzroy River Bridge  
December 2022



QLD – Bruce Highway  
January 2022



NT - Alice Springs  
February 2022



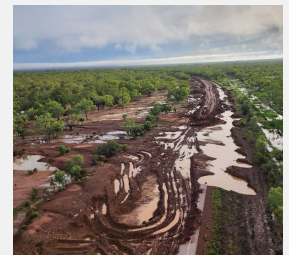
NSW – Northern Sydney  
February 2022



QLD – Woodford  
May 2022



SA – West of Adelaide  
December 2022



WA – Great Northern Hwy  
January 2023

Jan 2022

June 2023



# Victorian Flooding 2022 – Pavement failures

- Types of pavement failures experienced



Delamination



Seal bulging



Subgrade failures



Extensive Potholing



Air entrapment

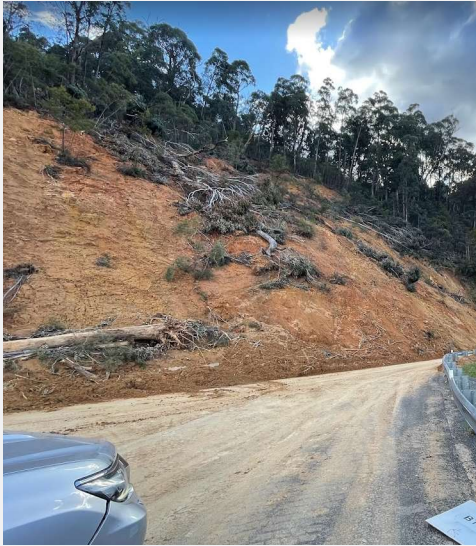


Sink holes





# Victorian Flooding 2022 – Other failures



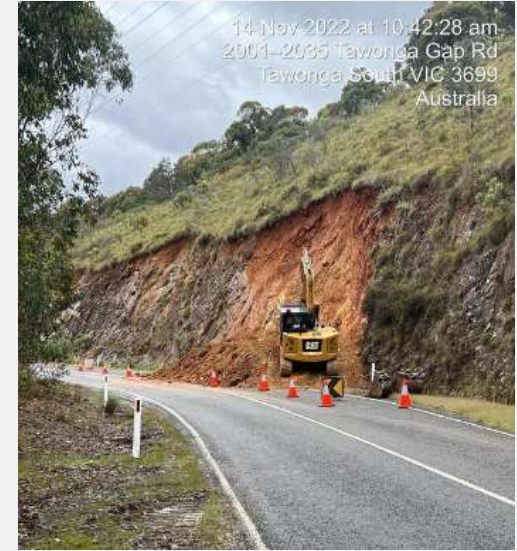
Falls Creek landslip



Culvert failures



Shoulder scouring



Landslips



Bridge scouring



Structures impact



Trees fallen on road



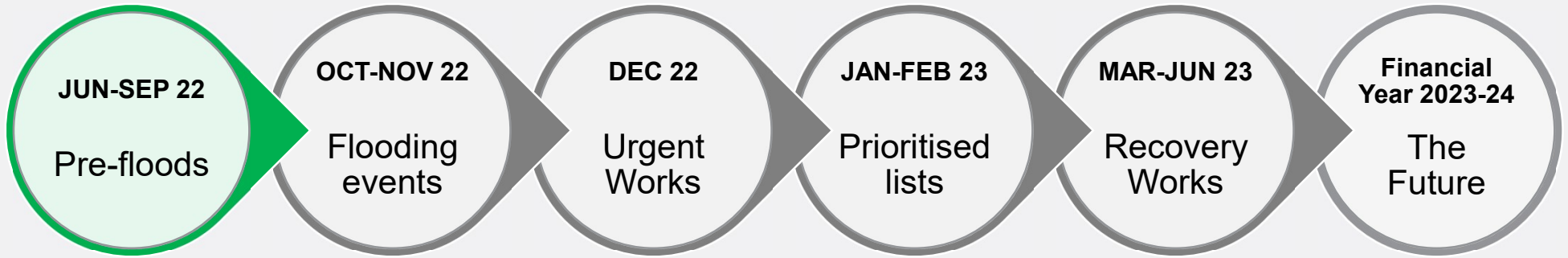
Table drain scouring



# DTP Hume Regional Director – Steve Bowmaker

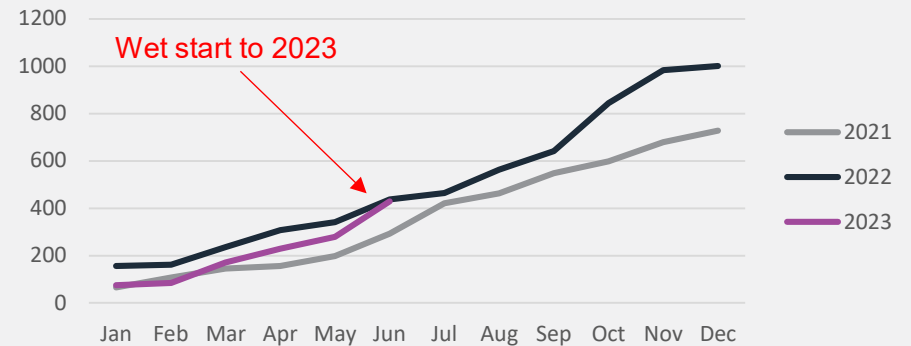


# Victorian Flooding 2022 – Timeline

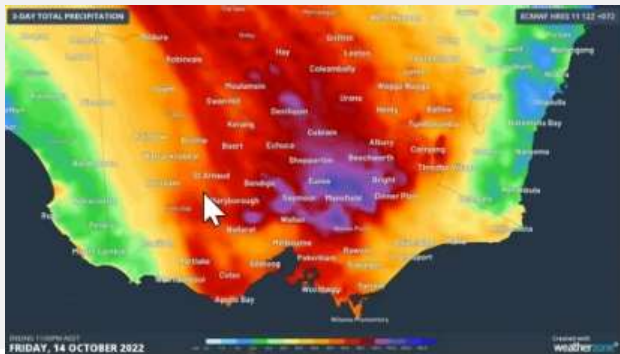
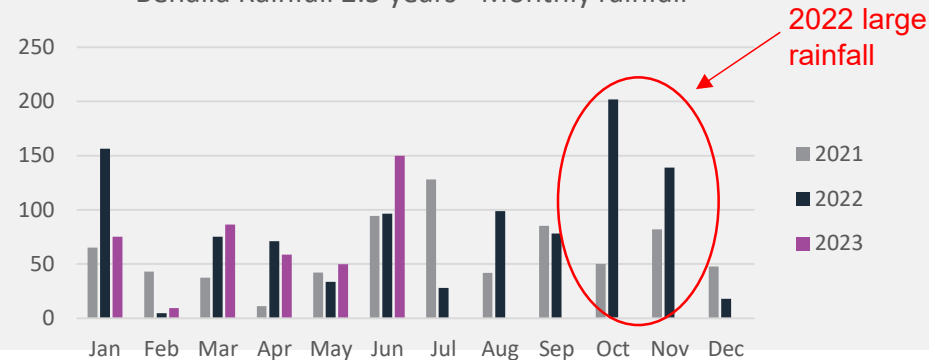


- QLD/NSW had 2-3 major floods by this time
- Annual rainfall achieved by mid-October. Roads were already saturated.
- NEMA was commencing its annual resurfacing program as the floods hit.
- 2023 is currently on track for another wet year

Benalla Rainfall 2.5 years - Cumulative total

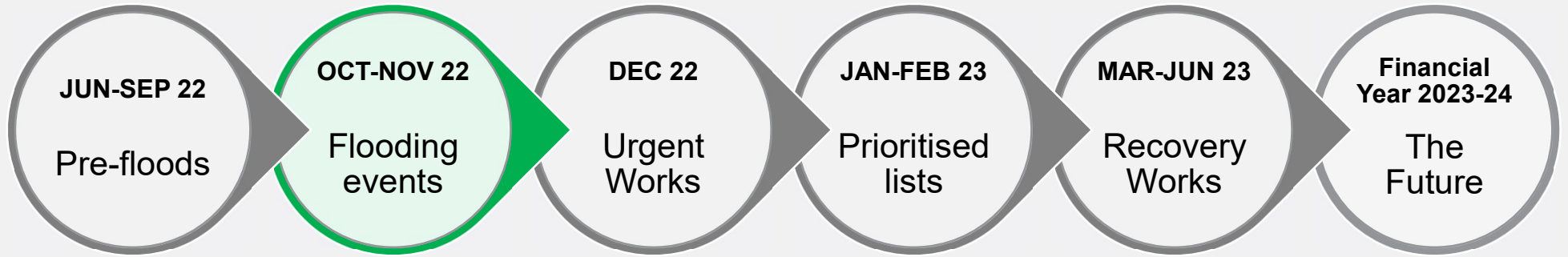


Benalla Rainfall 2.5 years - Monthly rainfall



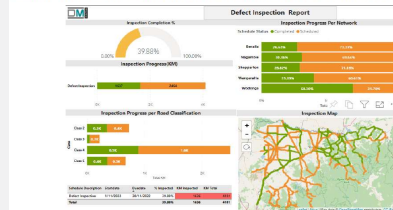


# Victorian Flooding 2022 – Timeline

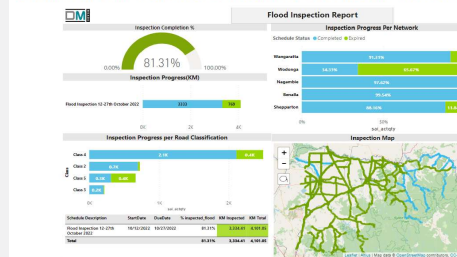


- There were 3 storm events that caused significant flooding Oct & Nov 2022
- Initial Response activities including
  - Road Closures (24/7 operation)
  - Asset inspections
  - Installing Hazard warning signs
- DTP is self insured. Events have a 7 day defect capture period
- State Government announced \$165m road repair package

COMPLETED HAZARD INSPECTION MAP AS OF 16th NOVEMBER



COMPLETED FLOOD INSPECTION REPORT AS OF 16th NOVEMBER



Daily team briefing

## Initial \$165 million government road repair bill likely to go higher

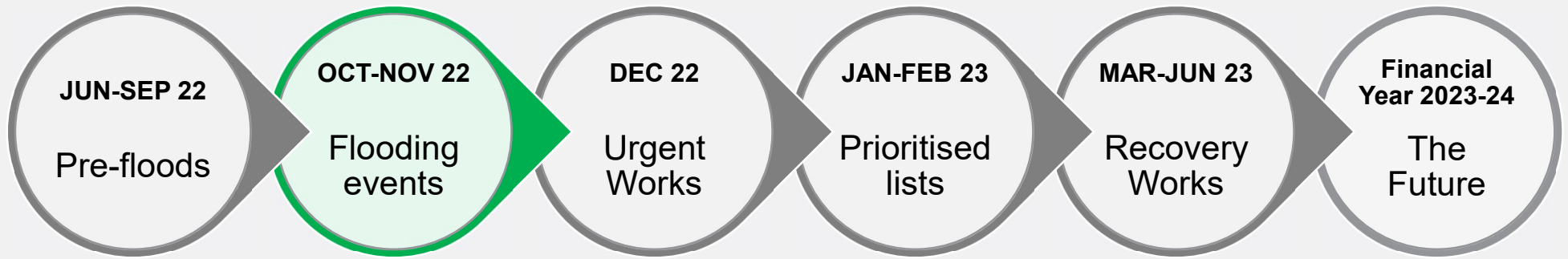
By Andrew Miller  
Updated October 19 2022 - 1:48pm, first published October 18 2022 - 6:00am



Roads Minister Ben Carroll (right) examines damage to the McIvor Highway, Axedale. Picture supplied by the Department of Transport.

Victorian Premier Daniel Andrews has warned the \$165 million to be spent on emergency road funding will only be the start, with further

# Victorian Flooding 2022 – Timeline



- Emily Street, Seymour experienced flash flooding and major delamination issues
- Re-deployed crews from annual works program on Hume Freeway



Saturday 15<sup>th</sup> Oct 22

Monday 17<sup>th</sup> Oct 22

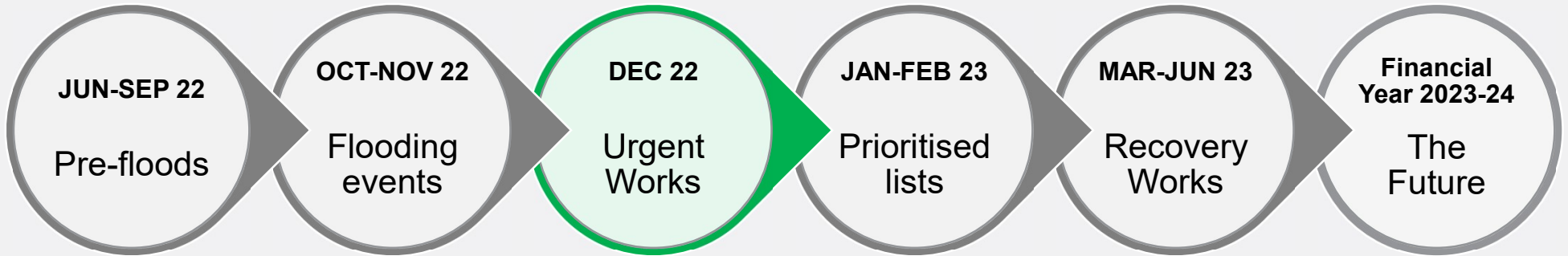
Tuesday 18<sup>th</sup> Oct 22

Wednesday 19<sup>th</sup> Oct 22

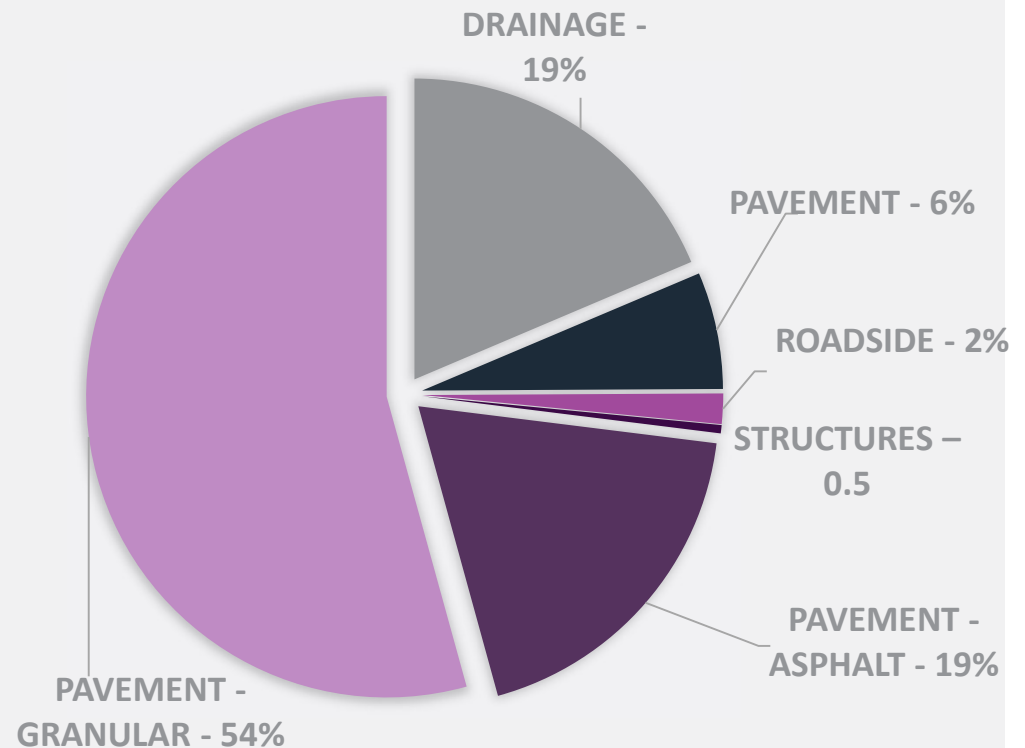
Thursday 20<sup>th</sup> Oct 22



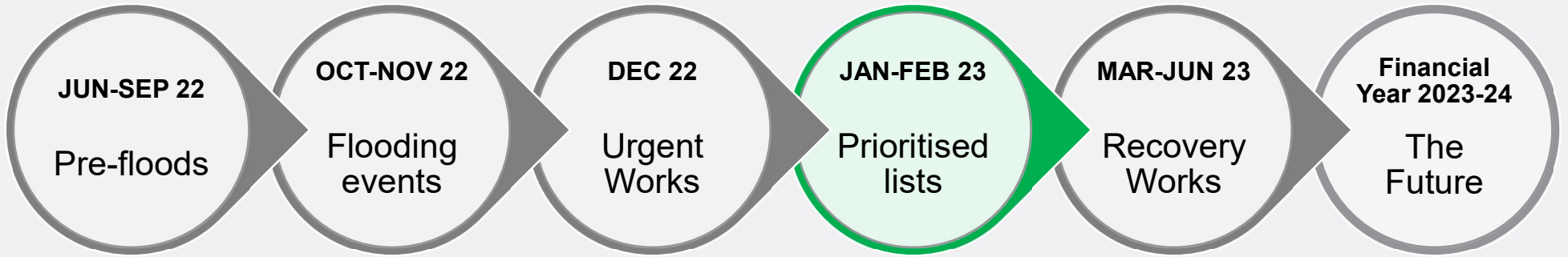
# Victorian Flooding 2022 – Timeline



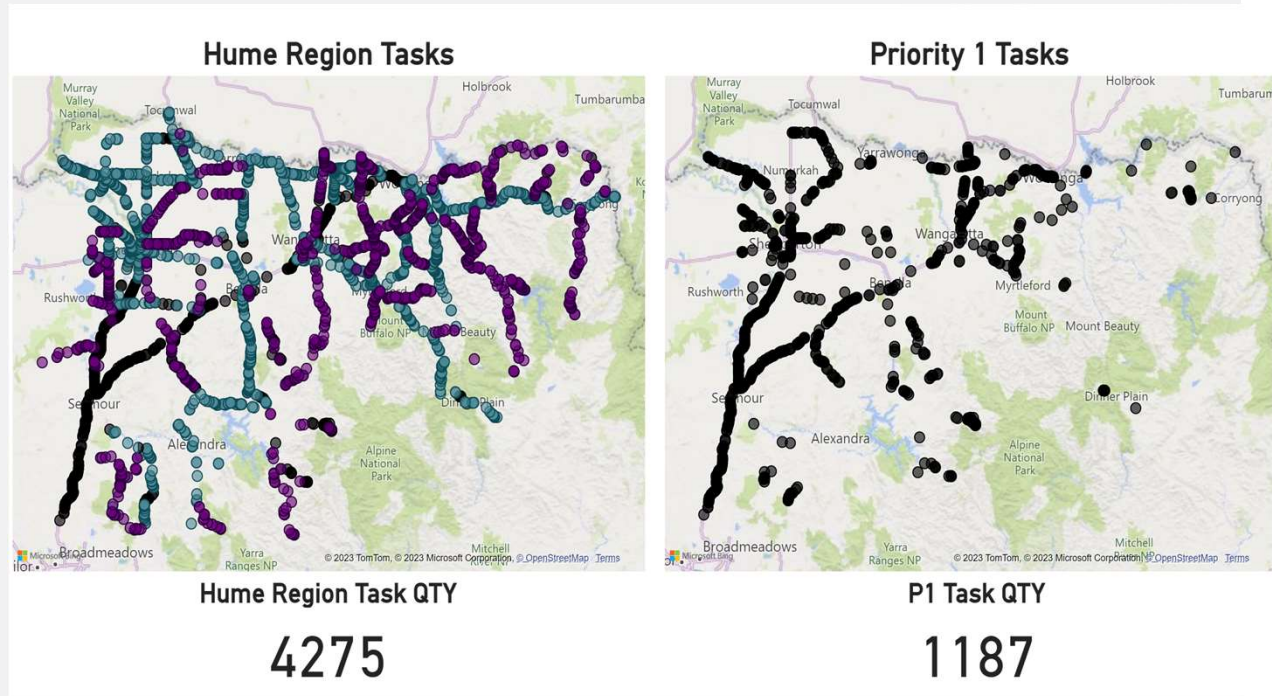
- Each event 4,000km network was inspected.
- Pavement defects – 75% of all defects
  - 254,000m<sup>2</sup> Granular stab digouts
  - 88,000m<sup>2</sup> Asphalt digouts
- End of year priorities
- Manage worker and contractor fatigue



# Victorian Flooding 2022 – Timeline

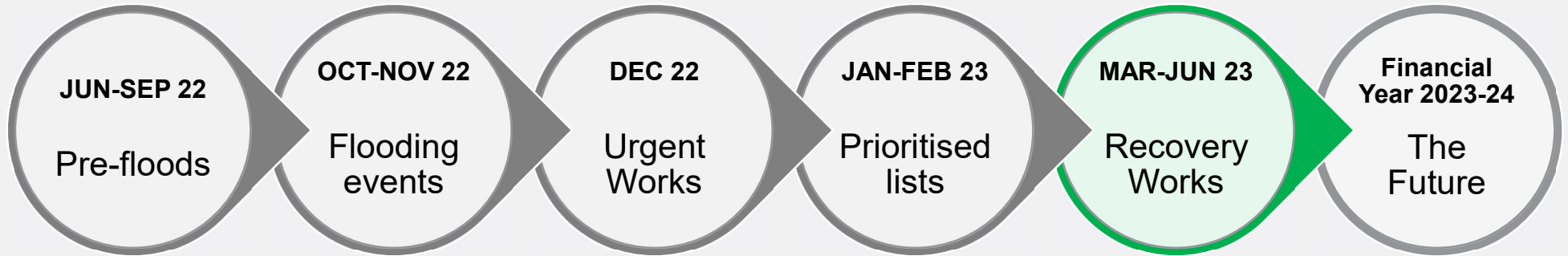


- Re-prioritisation of defects
- Category 2 roads were prioritised
  - Heavy vehicles
  - High Volume
  - Economically important
- Category 3 Partial roads
  - Key detour routes
- Category 4 & 5 roads
  - Put into FY24 business case





# Victorian Flooding 2022 – Timeline



- Low flat areas in the region experienced saturated table drains for months after storm.
- Stabilised digout was 2% cement insitu stabilised to 200mm depth. Foam bitumen was also used across the state.
- We need to be pragmatic and tactical to ensure value for money.
  - Free draining areas = focus on drain maintenance
  - Known flood areas = resilient stabilised pavements

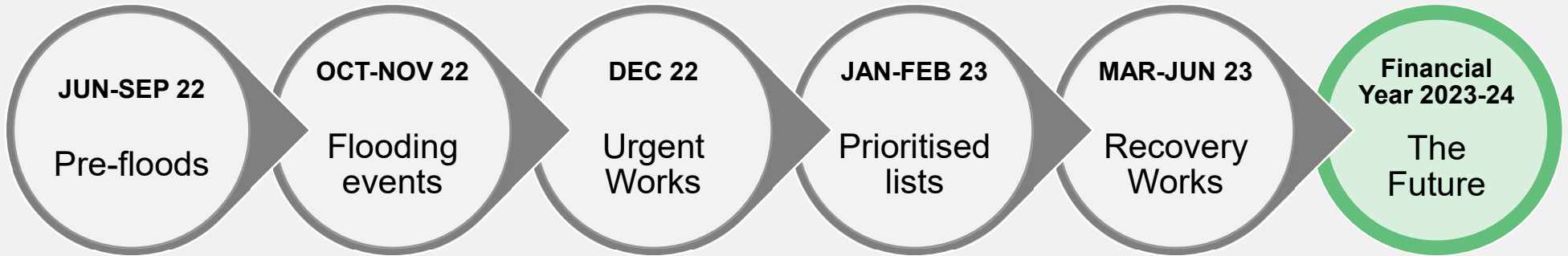
Jan 2023 – stabilised digout



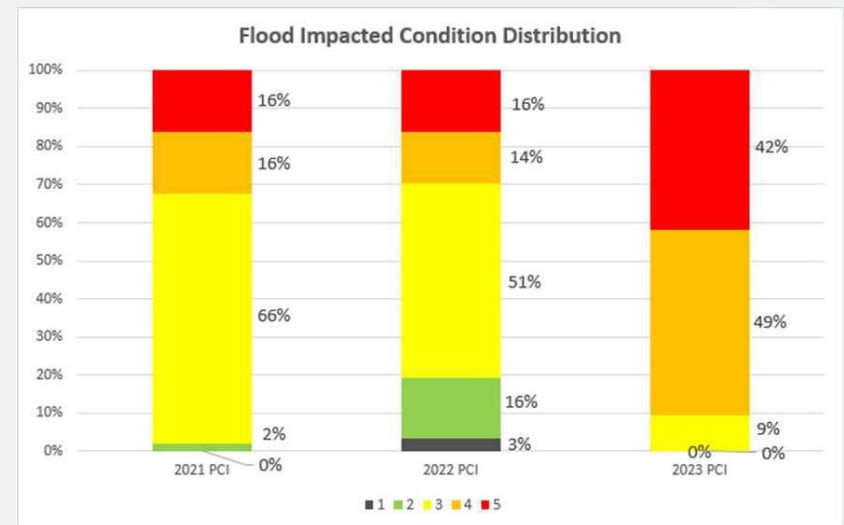
July 2023 - 6 months on



# Victorian Flooding 2022 – Timeline



- Priority 2 & 3 defects were re-scoped in July for FY24 business case
- Statewide flood recovery budget for next 2 years \$450m
- DTP / NTRO complete periodic network condition using iPave every 1-2 years
  - 8,500km of flood affected roads re-surveyed





# Recent NSW “Heavy Patch Program” projects

## Moss Vale Rd, Kangaroo Valley, NSW (May 2023)

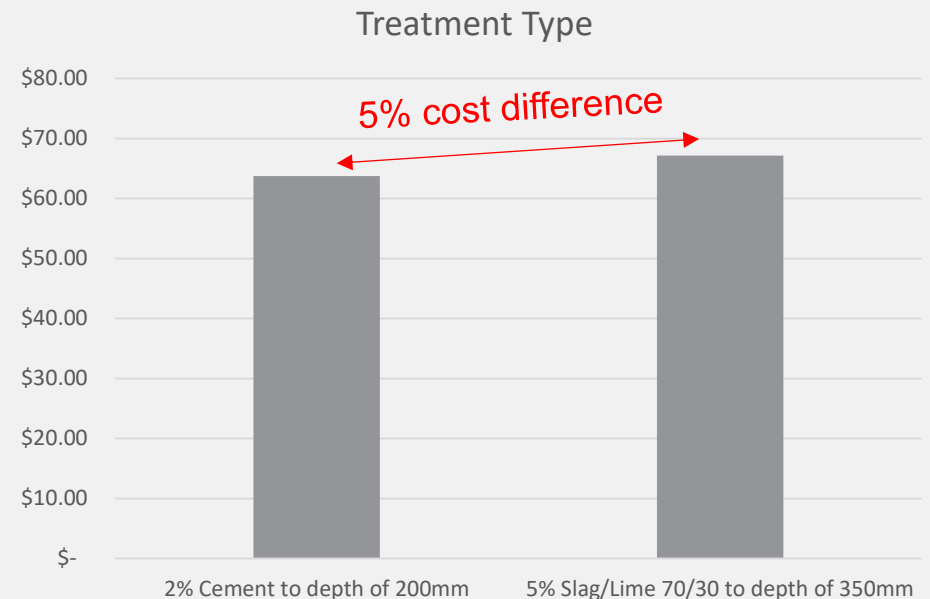
- Binder – SL 60/40
- Treatment – 5% at 360mm
- Avg Spread Rate – 36.5 kg/m<sup>2</sup>
- Process – Double Mix

## Princess Hwy, Central Tilba, NSW (June 2023)

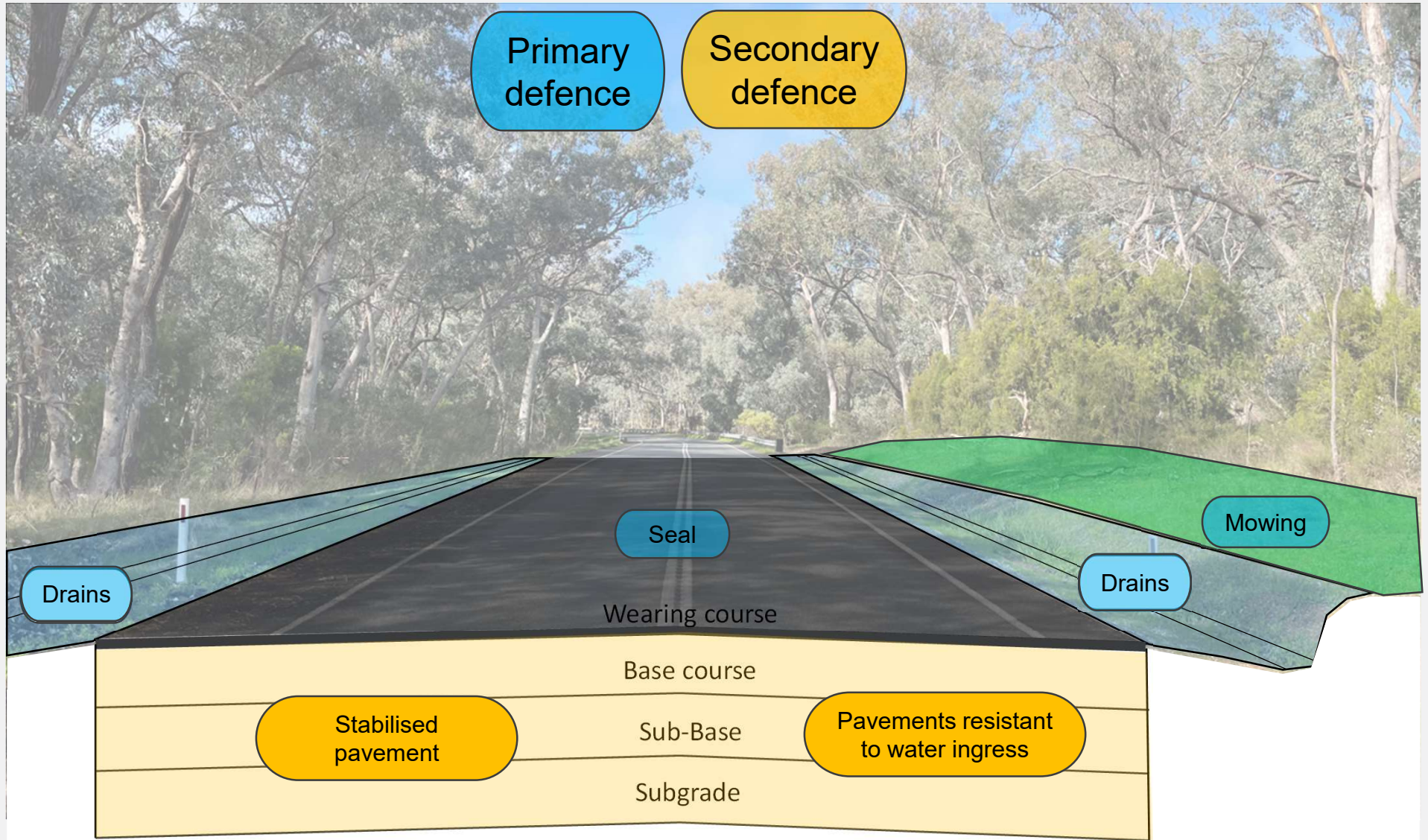
- Binder – SL 70/30
- Treatment - 5% at 350mm
- Spread Rate – 30.8 kg/m<sup>2</sup>
- Process – Double Mix

## Key project outcomes

- Less maintenance until seal
- Economy of scale in sealing costs
- Allowance for cracking sealing
- Ability to work in cooler periods
- 5% increase in pavement cost



# Resilient Pavements – Getting the basics right





# Sustainable Pavements for Future Generations

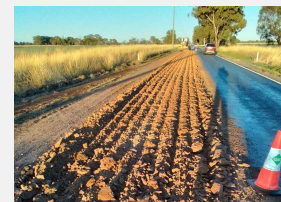
1. Keep the conversation going



2. Collaboration between parties



3. Getting basics right



Thank You

Any Questions?