VAGO

Victorian Auditor-General's Office



Follow-up: Reducing Bushfire Risks

June 2026

Independent assurance report to Parliament
2025–26:24

This report is printed on Monza Recycled paper. Monza Recycled is certified Carbon Neutral by The Carbon Reduction Institute (CRI) in accordance with the global Greenhouse Gas Protocol and ISO 14040 framework. The Lifecycle Analysis for Monza Recycled is cradle to grave including Scopes 1, 2 and 3. It has FSC Mix Certification combined with 99% recycled content.

ISBN 978-1-921650-34-5

VAGO
Victorian Auditor-General's Office

Follow-up: Reducing Bushfire Risks

Independent assurance report to Parliament
Published by order, or under the authority,
of the Parliament of Victoria
June 2026

VAGO
Victorian Auditor-General's Office

The Hon Shaun Leane MLC
President
Legislative Council
Parliament House
Melbourne

The Hon Maree Edwards MP
Speaker
Legislative Assembly
Parliament House
Melbourne

Dear Presiding Officers

Under the provisions of the *Audit Act 1994*, I transmit my report *Follow-up: Reducing Bushfire Risks*.

Yours faithfully



Andrew Greaves
Auditor-General
10 June 2026

The Victorian Auditor-General's Office (VAGO) acknowledges the Traditional Custodians of the lands and waters throughout Victoria. We pay our respects to Aboriginal and Torres Strait Islander communities, their continuing culture, and to Elders past and present.

Contents

Review snapshot 1

1. Our key findings 2

2. Our recommendations 10

3. Status of our 2020 recommendations 11

4. Improvements and ongoing issues 14

5. Reducing risk around Grampians National Park 21

6. Appendices 28

Review snapshot

Did the Department of Energy, Environment and Climate Action and the Country Fire Authority complete their actions in response to our 2020 report, and did they adequately reduce bushfire risk near Grampians National Park leading up to the 2024 bushfires?

Why we did this review

Hotter, drier and longer fire seasons driven by climate change are increasing bushfire risk in Victoria.

In our 2020 audit *Reducing Bushfire Risks* we looked at whether the then Department of Environment, Land, Water and Planning (now the Department of Energy, Environment and Climate Action, or the department) and the Country Fire Authority (CFA) were effectively working together to reduce Victoria's bushfire risk. We made recommendations about how they measure, plan and deliver actions to reduce bushfire fuel.

We did this review to follow up on their progress. We also examined whether the department and CFA met their obligations to reduce bushfire risk in and around Grampians National Park before the 2024 Grampians bushfires.

Key background information

70%

statewide risk target





Fuel management activities include:

- planned burns
- non-burn (or mechanical) treatments
- Traditional Owner burns

We looked at

10 recommendations for the department

7 recommendations for the Country Fire Authority



Source: VAGO.

What we concluded

The department completed 21 of its 29 actions, partially completed 7 and did not complete one. CFA completed 13 of its 16 actions and partially completed 3.

Both agencies have made improvements since our 2020 audit. They improved their risk-modelling tools, datasets and statewide bushfire management planning. They also work more closely with Traditional Owners. These steps have helped keep statewide bushfire risk below the 70 per cent target.

But the department and CFA still need to improve how they measure the effectiveness of different fuel reduction methods, manage bushfire risk on private land and assess fuel hazards. They do not fully know how effectively their planning and actions protect people and property.

Before the 2024 Grampians bushfires, the department and CFA kept the Wimmera district's risk level below the target through effective planning and reducing fuel loads. But the department could not show us how it prioritised strategic fuel breaks. While this did not limit firefighters' access during the 2024 bushfires, it could affect fires at other locations in the future

1.
Our key findings

What we examined

Our review followed 2 lines of inquiry:

1. Did the department and CFA's actions respond to the issues our 2020 audit recommendations sought to address?
2. Did the department and CFA deliver fuel management activities as much as possible in the vicinity of Grampians National Park prior to the 2024 bushfires?

We discuss the department and CFA's actions throughout this report. You can find their actions status in full in Appendix D.

Department of Energy, Environment and Climate Action (the department)

In this report we refer to 'the department' for simplicity when discussing the recommendations and actions.

In January 2023, the department replaced part of the Department of Environment, Land, Water and Planning (DELWP). This transferred responsibility for managing bushfire risk on public land to the department. It also transferred responsibility for implementing any outstanding actions DELWP committed to in response to our 2020 audit.

Identifying what is working well

In our engagements we look for what is working well – not only areas for improvement.

Sharing positive outcomes allows other public agencies to learn from and adopt good practices. This is an important part of our commitment to better public services for Victorians.

Background information

Our 2020 audit

Our 2020 audit *Reducing Bushfire Risks* assessed if the department, CFA and local councils were effectively working together to reduce bushfire risk.

In 2020 we found that ...	which was ...
the department and CFA were effectively collaborating to reduce the risks that bushfires pose to life and property	ensuring a strong commitment to keeping statewide residual bushfire risk below the 70 per cent target.
Phoenix RapidFire had limitations incorporating non-burn, small scale and private land-based risk reduction activities into modelling	limiting the ability to make informed investment and planning decisions around the best and most efficient mix of fuel treatments.
CFA and councils did not have the tools or capacity to assess and address bushfire risk on private land	limiting risk reduction across the state.

We made 17 recommendations to the department and CFA. They accepted all of them.

For our report *Responses to Performance Engagement Recommendations: Annual Status Update 2025*, the department and CFA told us that by June 2025 they had implemented 14 of the 17 recommendations.

Victoria's Bushfire Management Strategy

Victoria's Bushfire Management Strategy is the government's 10-year plan to reduce bushfire risk and improve resilience across the state in the face of increasing threats from climate change and shifts in population. The strategy outlines how Victorians can work together to plan, mitigate, prepare for, respond to and recover from bushfires across all land tenures, whether public or private.

Under *Victoria's Bushfire Management Strategy*, the government has a target to maintain statewide residual bushfire risk at or below 70 per cent of the state's potential maximum risk level.

The *Code of Practice for Bushfire Management on Public Land* specifies the legislative obligations, standards and procedures relevant to managing fire on public land in Victoria. The code aligns with and supports a range of policy and operational frameworks including *Victoria's Bushfire Management Strategy*.

Residual bushfire risk

Residual bushfire risk is a metric calculated by computer models. It shows what percentage of risk to human life and property remains after actions like planned burning, slashing, mulching or bushfires have lowered the amount of available fuel, when compared to the maximum possible risk level.

Forest Fire Danger Index (FFDI)

This is a numerical scale used to measure the potential danger of a bushfire on any given day. It considers temperature, relative humidity, wind speed and drought.

The index typically ranges from zero to 100, with 100 based on the conditions of the 1939 Black Friday bushfires. But the index can go above 100 for catastrophic conditions like the 1983 Ash Wednesday (FFDI 120) or 2009 Black Saturday (FFDI 180) bushfires.

Phoenix RapidFire

This is computer software that predicts where a bushfire will go and how many houses it will destroy. It works by starting thousands of bushfires virtually across the state to see what could happen considering:

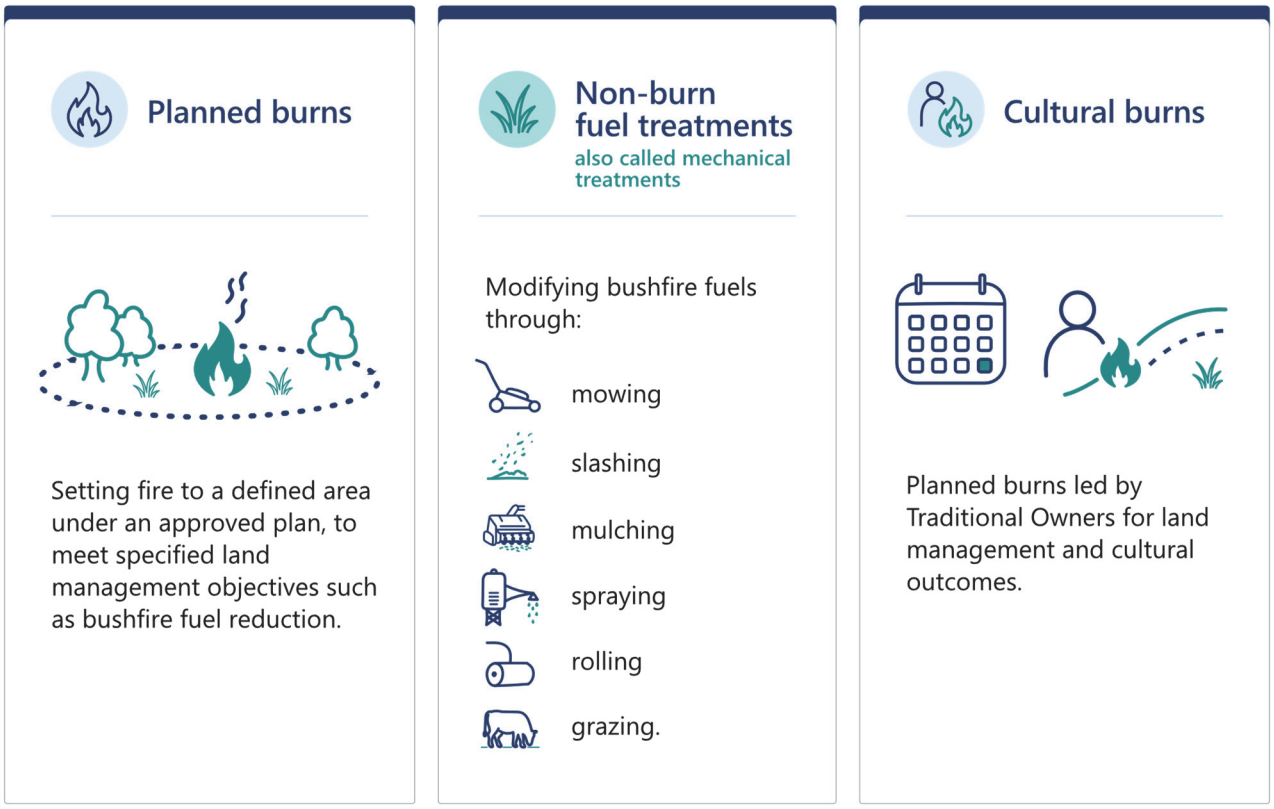
- the landscape
- wind speed, temperature and humidity
- how thick and dry vegetation is in specific areas.

The joint fuel management program

The joint fuel management program is a 3-year rolling, statewide program of fuel management activities on public and private land. It aims to reduce the risk and severity of bushfires.

The joint fuel management program prioritises locations where bushfires are likely to start or spread based on Phoenix RapidFire modelling. Each 3-year program outlines a proposed number of different fuel treatments (see Figure 1) the department and CFA will deliver and the number of hectares they will treat.

Figure 1: Fuel treatments in the joint fuel management program



Source: VAGO, based on the joint fuel management programs 2021–22 to 2024–25.

The department and CFA update the joint fuel management program annually to add or remove fuel treatments planned in previous years, with the focus on delivering Year 1 of the program.

Strategic fuel breaks

Strategic fuel breaks are areas where vegetation is reduced to help protect communities and critical infrastructure. They aim to:

- give firefighters safer and faster access to conduct backburning to suppress fires, and complete planned burns
- reduce the intensity and spread of fires by reducing fuel loads.

There are 2 kinds of strategic fuel breaks:

- **landscape protection breaks**
  - divide forest areas into smaller units that help to reduce a bushfire's size
  - provide a platform for planned burns and fighting fires in the forest.
- **asset protection breaks**
  - protect townships and assets from direct fire impact.

As part of its response to the Inspector-General for Emergency Management's inquiry into the 2019–20 fire season and our 2020 audit, the government established the Strategic Bushfire Risk Program. It aimed to construct 1,447 kilometres of strategic fuel breaks across Victoria by July 2023.

The program exceeded its target by establishing 1,489 kilometres of breaks by July 2023.

What we found

This section focuses on our key findings, which fall into 3 areas:

1. The department and CFA have strengthened how they reduce bushfire risk but have not completed all the actions they committed to.
2. The department still has work to do to ensure its simulations and fuel hazard assessments are accurate.
3. The department kept bushfire risk below the target but did not deliver all strategic fuel breaks in and around Grampians National Park.

The full list of our recommendations, including agency responses, is at the end of this section.

Consultation with agencies

When reaching our conclusions, we consulted with the reviewed agencies and considered their views.

You can read their full responses in Appendix A.

Key finding 1: The department and CFA have improved how they reduce bushfire risk but have not completed all the actions they committed to

Completed actions

The department completed 21 of its 29 actions we looked at, partially completed 7, and did not complete one. CFA completed 13 of its 16 actions we looked at and partially completed 3 (see Figure 2).

Figure 2: Status of agency actions by the recommendations examined

		Were the actions completed?		Status reported to VAGO in 2025	
Rec.	Theme	CFA	The department	CFA	The department
1	Performance metrics	Partially	Partially	N/A	In progress
2	Bushfire risk modelling	Yes	Yes	N/A	Complete
3	Bushfire management planning	N/A	Partially	N/A	Complete
4	Regional planning approaches	N/A	Partially	N/A	Complete
6	Collaboration with Traditional Owners	N/A	Yes	N/A	In progress
7	Planning on private land	Yes	N/A	Complete	N/A
9	Cancelling planned burns	Partially	Yes	Complete	Complete
10	Financial monitoring and forecasting	Yes	Yes	Complete	Complete
11	Fuel hazard assessment target	N/A	Partially	N/A	Complete
13	Effectiveness of fuel management treatments	Yes	Yes	Complete	Complete
14	Reducing risk on private land resourcing	Yes	Yes	Complete	Complete

Note: 'N/A' means the recommendation was not directed at the agency. Status as reported in our report *Responses to Performance Engagement Recommendations: Annual Status Update 2025*.
Source: VAGO.

Key issue: The department and CFA did not report completed actions accurately

The department and CFA reported in our annual *Responses to Performance Engagement Recommendations: Annual Status Update 2025* that they had completed some recommendations from our 2020 engagement that were not complete.

The department reported it had completed 8 of the recommendations we examined, and CFA reported 5. But based on the evidence the department gave us it only completed 6 recommendations.

Although CFA reported completing 5 recommendations, it did not report against all the actions it committed to. It has only completed 4 of the 5 recommendations it reported completing.

Assessing risk and planning fuel management activities

The department has improved bushfire fuel management planning by broadening fuel treatment options and adopting regional innovations into statewide frameworks and procedures. It also incorporated cultural burns into its fuel treatment program.

CFA sought funding for fuel treatment activities and employed staff to boost regional planning capability. But it still has work to do to implement fuel treatment planning consistently across the state.

Bushfire fuel

Bushfire fuel is any dead or alive vegetation that can catch fire and burn. Fuel treatments such as planned burns, Traditional Owner burns, mulching or slashing reduce the amount of bushfire fuel.

Completing planned burns and expanding the mix of approaches

Since our 2020 audit, the department is completing more planned burns but has cancelled or deferred 35 per cent, mostly due to unsuitable weather.

The department has not increased how many mechanical fuel treatments it undertakes since our audit.

Our 2020 audit found the department did not systematically assess the effectiveness of non-burn treatments. Phoenix RapidFire's limitations also mean the department cannot incorporate small scale treatments into risk modelling.

While Phoenix RapidFire can now incorporate mechanical fuel treatments, the department has not developed the metrics to assess their impact on bushfire risk.

As a result, the department's risk modelling may underestimate the potential impact of all fuel treatments on bushfire risk and limit its ability to plan a cost-effective fuel treatment program.

Addressing this finding

To address this finding, we made one recommendation to the department and CFA about:

- strengthening assurance processes for completing actions in response to our recommendations.

We also made one recommendation to the department about:

- developing performance metrics and methods to assess the impacts of different fuel treatments.

Key finding 2: The department still has work to do to ensure its simulations and fuel hazard assessments are accurate

Updating and improving fuel accumulation curves

Fuel accumulation curves are a key input to Phoenix RapidFire's simulations. They must be accurate to assess bushfire risk and plan fuel treatment.

Our 2020 audit found that the department had not confirmed most fuel accumulation curves and that some did not match historical fuel hazard data the department had collected. We recommended the department check and update fuel accumulation curves to improve fire simulations' accuracy.

Since our audit, the department has updated and validated fuel accumulation curves for some vegetation types. But there are 180 fuel accumulation curves across 60 different vegetation types. The department has only verified curves for 4 vegetation types since 2020, although it did establish a working group to help prioritise which curves to verify.

Key issue: Bushfire risk estimates could be inaccurate

The reported fuel-driven bushfire risk level has consistently been at or close to the target in several districts. This includes some affected by recent fires.

But because the department has only validated fuel accumulation curves for 4 vegetation types, it cannot assure the accuracy of Phoenix RapidFire's simulations. This means that it also cannot assure that its reporting of district-level bushfire risk and the impact of fuel management activities are accurate.

Improving fuel hazard assessments

Fuel hazard assessments help determine the structure of different vegetation types and how they change after treatment. This helps the department prioritise locations for fuel treatments and to assess their effectiveness.

Our 2020 audit found that the department's target to conduct fuel hazard assessments for 20 per cent of planned burns may not be enough to extrapolate the impact of its statewide planned burn program. We also found that the way the department conducted fuel hazard assessments was not accurate enough for verifying fuel accumulation curves.

In this review, we found that the department has still not verified or updated its monitoring target and that its assessors still rely on subjective visual assessments, without a consistent approach across regions.

This means the limitations we identified in 2020 still exist, preventing the department from using fuel hazard assessments to help validate fuel accumulation curves. This is a missed opportunity given the large number of fuel accumulation curves that still need verifying and the large volume of fuel hazard data collected.

The department is developing more objective visual and remote sensing-based techniques to improve fuel assessments accuracy and consistency.

Addressing this finding

To address this finding, we made one recommendation to the department about improving fuel hazard assessments and exploring how assessments can help verify fuel accumulation curves.

Key finding 3: The department kept bushfire risk below the target but did not deliver all strategic fuel breaks in and around Grampians National Park

Prioritising and planning fuel management

The department and CFA have risk-based frameworks for planning and prioritising fuel management. But only the department, and not CFA, could show how it applied its process in and around Grampians National Park before the 2024 bushfires.

The department modelled fuel hazard levels, identified high bushfire risk areas, and selected treatment sites according to regional bushfire management strategies and treatability, access and available resources. It used Phoenix RapidFire to test the impact and prioritise each planned burn by their potential to reduce the residual bushfire risk level.

Delivering fuel treatments

The department had 100 per cent of planned burns near the fire-impacted localities ready for delivery in 2021–22 and 2022–23 and had 92 per cent ready in 2023–24. But it only completed 74 per cent of burns that were ready.

The department completed 90 per cent of its planned mechanical treatments across 2020–21 to 2023–24 but only treated between 68 and 79 per cent of the target area annually.

CFA could not show the extent it delivered planned fuel treatments near all localities impacted by the fires, although it did not always meet regional targets in the preceding years.

Working well: Residual risk in the Wimmera district was well below target before the 2024 Grampians bushfires

Despite not completing all planned fuel treatments, the department's prioritisation kept the residual bushfire risk in the Wimmera district at about 40 per cent between 2020–21 and 2023–24. This was well below the 70 per cent target.

Limitations in Phoenix RapidFire meant that risk modelling and analysis did not include mechanical, small scale and linear treatments, which are mostly CFA's fuel treatment activities. This means the department's modelling may have underestimated the potential impact of all fuel treatments on bushfire risk.

Strategic fuel breaks

The department nominated and prioritised fuel breaks for inclusion in the strategic fuel break program based on the likelihood of direct impact on fires, operational benefit and the feasibility of construction.

Staff in the Wimmera district nominated 16 fuel breaks for construction or renewal as part of the program.

The department selected 5 for inclusion but only 2 were from the nominations by Wimmera district staff. The department could not show how it applied its prioritisation process across the nominations and whether all 5 selected had the highest potential benefit.

Key issue: The department did not deliver all planned strategic fuel breaks in and around Grampians National Park

The department planned to have all 5 breaks completed by August 2022. But it only constructed 2, while another was already in place and in use. The department did not establish the remaining 2 strategic fuel breaks.

Although the 2 uncompleted strategic fuel breaks are outside the 2024 Grampians bushfires' boundaries, more properties could be at risk in future bushfires if they are not established.

Addressing this finding

To address this finding, we made one recommendation to the department about reassessing and establishing strategic fuel breaks with high operational value across the state.

2.
Our recommendations

We made 4 recommendations to address our findings. The relevant agencies have accepted the recommendations in full or in part.

			Agency responses	
Finding: The department and CFA have strengthened how they reduce bushfire risk but have not completed all the actions they committed to				
Department of Energy, Environment and Climate Action Country Fire Authority	1	Strengthen assurance processes for completing actions in response to our recommendations from all engagements to ensure progress attestations are reliable. This includes strengthening their Risk and Audit Committee's role in monitoring delivery. (See Section 3 and Appendix D.)	Accepted	
Department of Energy, Environment and Climate Action	2	In collaboration with the Country Fire Authority, develop performance metrics and methodologies to quantify mechanical, small scale and linear fuel treatments' impacts (see Section 4).	Accepted	
Finding: The department still has work to do to ensure its simulations and fuel hazard assessments are accurate				
Department of Energy, Environment and Climate Action	3	• Improve data collection techniques to ensure fuel hazard assessments' accuracy and consistency. • Explore how fuel hazard assessments can help verify fuel accumulation curves (see Section 4).	Accepted in part	
Finding: The department kept bushfire risk below the target but did not deliver all strategic fuel breaks in and around Grampians National Park				
Department of Energy, Environment and Climate Action	4	• Reassess previously nominated strategic fuel breaks' operational value. • Ensure those with high operational value are established statewide where practical (see Section 5).	Accepted in part	

3.

Status of our 2020 recommendations

The department has completed 21 of 29 actions we examined, partially completed 7 and did not complete one. This means it has only completed 6 recommendations in full, despite reporting it completed 8 in our report *Responses to Performance Engagement Recommendations: Annual Status Update 2025*.

CFA has completed 13 of 16 actions examined and partially completed 3. This means it has only completed 4 recommendations in full, despite telling us it completed 5.

The department's and CFA's actions have addressed some but not all the issues we raised in our 2020 audit.

Covered in this section:

- The department and CFA have made some progress on actions from our 2020 audit

The department and CFA have made some progress on actions from our 2020 audit

Department's actions status

The department completed 21 of the 29 actions we looked at and partially completed 7. It completed 14 actions on time.

This means the department has only completed 6 of the 10 recommendations we looked at despite reporting that it had completed 8 in our *Responses to Performance Engagement Recommendations: Annual Status Update 2025*.

The department has expanded the strategic planning frameworks for bushfire management to incorporate a mix of risk treatments. It also enhanced its bushfire risk modelling capability and collaborated with Traditional Owners to embed cultural burning practices in strategic frameworks and operational planning processes.

But the department has more work to do developing performance metrics and targets to measure fuel management and further enhance bushfire modelling capability impacts for the sector.

See Appendix D for more detail about the department's progress implementing each of its actions.

CFA's actions status

CFA completed 13 of the 16 actions we looked at in full and partially completed 3. It completed 6 actions by the agreed deadline.

This means CFA has completed 5 of the 7 recommendations we looked at.

Although CFA reported that it has completed 5 recommendations in our *Responses to Performance Engagement Recommendations: Annual Status Update 2025*, it did not report on 2 recommendations. Of the 5 recommendations it reported completing, CFA has only completed 4.

CFA has worked collaboratively with the department across a range of areas, including performance metrics, data reporting, bushfire modelling tools and strategic planning framework development.

It is still improving planning on private land to ensure consistent risk assessment and planning across all public and private land.

See Appendix D for more detail about CFA's progress implementing each of its actions.

2020 issues' status

The department's and CFA's actions only fully addressed the issues for 2 of the 11 recommendations we examined. For 6 recommendations, their actions acquitted some areas of concern, but their actions did not always target the underlying cause or issue of concern (see Figure 3).

This means that gaps in bushfire fuel risk assessment, modelling and measurement, and fuel treatment planning and delivery still exist.

Figure 3: Status of the issues that led to our 2020 recommendations

Recommendation	Issue	Status and comments
1	Performance measures	**Partially addressed** The department is yet to finalise new performance metrics or incorporate the impact of mechanical fuel treatments on risk reduction. The department has also not communicated its fuel management program's cost-effectiveness.
2	Modelling inputs	**Partially addressed** The department has not yet deployed remote sensing data statewide to address regional inconsistencies in fire history data. It developed a process to update fuel data to make sure modelling inputs are accurate.
3	Practical limitations of planned burning	**Partially addressed** The department is still developing metrics to assess the impact of mechanical and small-scale fuel treatments. But it does not have enough evidence to adopt a broader mix of fuel treatments into strategic planning frameworks.
4	Adopting regional innovations	**Addressed** The department identified 33 regional innovations in fuel management planning and delivery and adopted 15 to strengthen statewide planning.
6	Collaboration with Traditional Owners	**Addressed** The department updated policies and processes to embed Traditional Owner land management practices. They increased the number of Traditional Owner-led burns from 2022–23.
7	Planning on private land	**Not addressed** CFA is still improving its planning processes but is yet to finalise bushfire risk calculation and modelling tools fit for their operational scale.
9	Cancelling planned burns	**Partially addressed** The department began recording factors that influence planned burn delivery. But a substantial proportion of planned burns still do not go ahead.

Recommendation	Issue	Status and comments
10	Financial monitoring and forecasting	**Not addressed** The department has not demonstrated an increase in efficiency or cost-effectiveness after embedding fuel treatment costing in its fuel management planning.
11	Fuel hazard assessments	**Not addressed** The department has not applied a consistent or reliable fuel hazard data collection method to improve data quality.
13	Measuring effectiveness	**Partially addressed** The department has developed a process to assess the effectiveness of planned burns. To support effective program planning it should also consider non-burn treatments.
14	Reducing fuel on private land	**Partially addressed** The department and CFA developed an options paper on legislative frameworks to improve coordinated cross-tenure bushfire risk management. The department has not demonstrated how approved funding assisted in improving planning and risk assessment on private land.

Source: VAGO, based on our analysis of departmental and CFA information.

4.

Improvements and ongoing issues

The department and CFA have improved aspects of the way they plan and deliver bushfire fuel treatments. But they still have work to do to understand and manage bushfire risk on private land.

The department also still needs to strengthen metrics to track how different fuel treatments protect communities and environmental values and ensure the datasets underpinning bushfire risk modelling are accurate.

These outstanding issues limit how effectively and efficiently the department and CFA can plan fuel treatment programs and create uncertainty around the extent they are reducing bushfire risk.

Covered in this section:

- The department can improve how it measures fuel management activities' impact
- The department and CFA have strengthened fuel management planning but not on private land
- Not every district consistently achieves bushfire risk reduction targets

The department can improve how it measures fuel management activities' impact

Measuring different fuel treatments' impact

Understanding which fuel-reduction activities are most effective is important for making informed decisions about how to allocate resources to reduce bushfire risk.

In our 2020 audit, we found that the department and CFA did not have enough information to understand the effectiveness of all fuel treatment activities. Based on the information we assessed during this review, this issue persists.

While the department measures the impact of planned burns, it has not fully developed its capability to measure how non-burn and small-scale fuel treatments contribute to reducing bushfire risk.

Technical limitations in the department's risk modelling prevent residual risk calculations from including many of CFA's planned burns and mechanical treatments, which are often small scale or linear along roadsides and rail corridors.

Because of these limitations, the department and CFA still cannot measure the impact of all fuel treatment activities. This could mean that statewide and regional bushfire risk modelling and reporting may not accurately estimate the true reduction in bushfire risk from fuel management

activities. It also limits their ability to plan a fuel treatment program that maximises risk reduction and environmental values, while minimising delivery costs.

Fuel accumulation curves

Fuel accumulation curves are a key input into Phoenix RapidFire modelling. They estimate how dangerous fuels are likely to be based on vegetation type and years since the last fire.

This contributes to modelling bushfire spread and planned burn benefit. Unreliable curves undermine the accuracy of fuel-driven bushfire risk assessments.

In our 2020 audit, we found that the department had not verified most fuel accumulation curves and as a result, did not know how accurate they were. We also cited research commissioned by the department that found historical fuel hazard data did not match the modelled fuel accumulation curves in Phoenix RapidFire.

Since then, the department has verified or updated accumulation curves for 4 fuel types to reflect observed fire behaviour as part of overall bushfire risk modelling improvements (see Figure 4).

Figure 4: Data that has been checked and updated since 2020

Year	Data
2021	Updated maximum fuel hazard levels and assessment data for forest with shrub fuel type curves.
2021	Developed new accumulation curves for the box ironbark fuel type based on data already collected and a range of reports.
2023	Verified fuel accumulation curves for the alpine forest with shrub fuel type.
2023	Updated fuel attributes, including maximum surface hazard and near surface fuel hazard, for the woodland heath fuel type.
2024	Updated the wind reduction factor for the woodland heath fuel type.

Source: VAGO, based on department information.

But the department uses fuel accumulation curves for 60 fuel types. Each fuel type has 3 accumulation curves (surface, elevated and bark strata).

This means that the department still has fuel accumulation curves for up to 56 fuel types to check and potentially update.

In 2024 the department and CFA established a working group to:

- maintain and update datasets used in fuel modelling and mapping
- develop and improve fuel mapping and modelling processes to ensure timely updates
- log fuel attributes that need reviewing.

This includes prioritising which fuel accumulation curves to verify over the coming year.

All fuel accumulation curves require verification over time to ensure they provide accurate input into bushfire risk modelling. While the department is progressing this, the slow pace due to the considerable work involved means uncertainty around bushfire risk modelling remains.

Fuel hazard assessments

Fuel hazard assessments help determine the structure of different vegetation types and how it changes after treatment. The department uses these to prioritise locations for fuel treatments and to understand whether individual treatments are effective.

Assessors visually assess fuel hazards, relying on each assessor's judgement and expertise. This approach can cause inconsistency across assessors and different regions. It does not reliably assess

the amount of fuel present. We looked at research in our 2020 audit that found this approach is unreliable for validating fuel accumulation curves.

Our audit also found that the department's target to assess pre- and post-burn fuel hazards for 20 per cent of planned burns to estimate the statewide impacts of the planned burn program was not scientifically determined. We also found that regional staff interpreted and applied the target differently.

Together these limitations make fuel hazard assessments unreliable for both operational planning and assessing the effectiveness of both individual fuel treatments and the overall fuel treatment program. The limitations also mean that the department cannot use fuel hazard assessments to improve the underlying datasets its uses for Phoenix RapidFire modelling.

The department has undertaken projects to improve the accuracy and consistency of fuel hazard assessments.

The department ...	**This will ...**
is piloting terrestrial laser scanning to objectively analyse fuel levels and the interaction between fuel treatments and bushfires.	enhance fuel treatment planning by providing a visual map of fuel conditions to assist with prioritising treatments.
has secured funding through the Australian Government's Disaster Ready Fund for its Fuelling the Fire Behaviour Models of the Future project. The project is due for completion in 2028.	integrate findings on the use of terrestrial laser scanning to develop new visual and remote sensing-based techniques for fuel hazard assessment and deliver fuel assessment guides, with outputs that can also be used to support the verification of fuel accumulation curves.
has commissioned research to develop a method to map fire severity using satellite data. The project is due for completion in June 2026.	generate data to help interpret fuel hazard assessments and understand the effectiveness of fuel treatment.

The successful delivery of these projects should help the department better plan and assess the effectiveness of its fuel treatment program. Importantly, the adoption of objective fuel assessment methods, such as terrestrial laser scanning, could help the department verify a greater number of fuel accumulation curves. This would improve the accuracy of bushfire risk assessments.

The department and CFA have strengthened fuel treatment planning but not on private land

Delivering planned burns

Our 2020 audit identified that the department cancelled a significant number of planned burns each season but there was a lack of reporting about the reasons.

The department created the Burn Opportunity Reporting Tool for staff to record the reasons for rescheduling or delaying fuel treatments. The main reasons between 2020–21 and 2023–24 relate to unsuitable weather or fuel conditions (see Figure 5).

The proportion of planned burns influenced by unsuitable fuel conditions has declined, although this could reflect staff selecting a different weather-related reason instead now that they have more options to choose from.

Figure 5: Factors influencing planned burns delivery, 2020–21 to 2023–24

Factors influencing delivery	2020–21	2021–22	2022–23	2023–24
Unsuitable weather	44%	52.7%	64.0%	57.5%
Unsuitable fuel conditions	40.6%	18.8%	6.0%	8.0%
Burn planning or preparation not completed on time	N/A	26.2%	N/A	N/A
Weather prescription window occurred prior to completion of burn planning or preparation	N/A	N/A	24.0%	14.3%
Resource availability and financial consideration	11.1%	1%	0.2%	0.2%
Possible missed opportunity	N/A	N/A	5.4%	8.5%
Operation risk too high	N/A	N/A	0.3%	2.7%
Environment, community or stakeholder related	1.9%	0.6%	N/A	N/A
Reprioritised	1.4%	N/A	N/A	N/A
Bushfires and other emergencies	N/A	N/A	–	0.8%

Note: For 2020–21 factors listed that delayed planned burns were collected before using the Burn Opportunity Reporting Tool. Categories that staff can select as factors affecting delivery have changed between reporting years. N/A refers to categories that could not be selected during that period.
Source: *Managing Victoria's Bushfire Risk: Fuel management report 2020–21*, *Victoria's Bushfire Risk Management Report 2023–24*.

Although weather-related reasons continue to be the main reason to cancel planned burns, the department has completed a higher percentage since our 2020 audit. This suggests improved planning given the number planned has been comparable each year. But despite this improvement, a significant percentage still do not go ahead (see Figure 6).

Figure 6: Planned burns delivered by the department and CFA, 2019–20 to 2024–25

Year	2019–20	2020–21	2021–22	2022–23	2023–24	2024–25
Burns planned	466	561	505	381	445	468
Burns completed	158	470	207	234	345	270
Completion rate	34%	84%	41%	61%	78%	58%

Source: VAGO, based on department information.

The department advised that it plans more burns than it expects to deliver each year to account for weather or operational constraints. But it has not advised how it determines the threshold number that need to go ahead to maintain statewide residual bushfire risk below the 70 per cent target.

Mechanical fuel treatments

While the department and CFA are completing more planned burns, unsuitable weather's influence reinforces the need to consider mechanical treatments when planning fuel management programs.

The department has incorporated a variety of fuel treatment approaches in strategic planning documents and procedures. Despite this, it has not increased mechanical treatments since our 2020 audit (see Figure 7).

Figure 7: Statewide non-burn fuel management activity, 2017–18 to 2024–25

	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	2023–24	2024–25
Area treated by non-burn fuel treatments	9,790	12,034	17,635	18,888	15,667	16,757	16,163	17,465
Number of non-burn fuel treatments	Not reported	Not reported	1,519	1,963	1,785	1,602	1,610	951

Note: *Victoria's Bushfire Risk Management Report 2024–25* snapshot does not have the same amount of publicly available information as previous years.
Source: VAGO, based on analysis of department data.

Costs and cost effectiveness

Our 2020 audit found the department and CFA did not monitor or estimate future costs when making operational planning decisions, nor did they evaluate the cost effectiveness of their fuel management activities.

The department and CFA invest significant resources in fuel management. To optimise this investment, they need a clear understanding of the cost effectiveness of each treatment.

While the department and CFA have developed tools to monitor the costs of fuel treatments, only the department uses these tools to estimate and forecast future treatment costs and prioritise burns.

Despite the department now monitoring fuel treatment costs, there is no evidence that this has led to a more efficient or cost-effective fuel treatment program. Total investment in statewide fuel management has been consistent since 2020. But the number of planned burns and mechanical treatments has not increased, and statewide fuel-driven bushfire risk has not decreased (see Figure 8).

Figure 8: The department's fuel management costs and outcomes

	$ million invested (2024–25 adjusted)	Planned burns completed	Mechanical treatments completed	Statewide fuel-driven bushfire risk
2019–20	132.4	257	1,519	64%
2020–21	185.9	470	1,963	63%
2021–22	172.5	277	1,785	62%
2022–23	150.6	234	1,602	65%
2023–24	163.4	345	1,610	64%
2024–25	159.8	270	951	66%

Note: *Victoria's Bushfire Risk Management Report 2023–24* snapshot did not provide planned burns' contribution to risk reduction.
Source: VAGO, based on department data.

Until the department develops performance metrics and approaches to measure the effectiveness of different fuel treatments, it will not be able to compare their cost effectiveness, which will continue to limit fuel treatment planning.

Private land

Although most bushfire risk exists on public land, private land makes up 60 per cent of the state. Reducing risk effectively also means managing fuel on private land.

CFA has taken steps to improve how it assesses bushfire risk and plans fuel treatments on private land.

CFA ...	This will improve fuel treatment planning by ...
is developing a fit-for-purpose product to replace the Victorian Fire Risk Register and current fire prediction models.	focusing on small, linear and asset-focused treatments that make up much of CFA's activities and better reflect its operational environment.
has hired new vegetation management planning staff.	improving understanding of private land vegetation data and factors that affect how fires behave.
has developed a draft quality assurance framework for planned burning.	embedding structured review, oversight and continuous improvement to the planned burning program and improving the justification of planning decisions.

These steps indicate progress, but CFA still has work to do to implement a consistent statewide fuel treatment planning process, particularly on private land.

Not every district consistently achieves bushfire risk reduction targets

Residual bushfire risk

Despite the department and CFA improving aspects of the way they plan and deliver fuel management activities, they have not consistently meet risk reduction targets in several districts (see Figure 9).

This confirms that the department and CFA still have work to do around measuring and modelling the effectiveness of different treatments and then planning and delivering a fuel management program that meets targets in every district.

Figure 9: Residual bushfire risk in each district against respective targets

District	Target	2019–20	2020–21	2021–22	2022–23	2023–24
Barwon South West region						
Far South West	55%	53%	51%	49%	50%	49%
Otway	60%	**68%**	**63%**	59%	**61%**	58%
Gippsland region						
Latrobe	80%	**82%**	**85%**	**82%**	**84%**	**86%**
Macalister	65%	47%	50%	57%	58%	61%
Snowy	65%	3%	4%	5%	8%	14%
Tambo	65%	25%	25%	28%	33%	35%
Grampians region						
Midlands	70%	**75%**	**78%**	**77%**	**79%**	**77%**
Wimmera	70%	41%	43%	48%	40%	38%

District	Target	2019–20	2020–21	2021–22	2022–23	2023–24
Hume region						
Goulburn	75%	74%	**76%**	68%	72%	68%
Murrindindi	80%	80%	**81%**	76%	80%	75%
Ovens	55%	55%	53%	**59%**	**66%**	**66%**
Upper Murray District	60%	42%	40%	44%	42%	50%
Loddon Mallee region						
Mallee	90%	79%	79%	82%	82%	79%
Murray Goldfields	75%	72%	72%	68%	74%	74%
Port Phillip region						
Metropolitan	85%	**91%**	85%	**90%**	**95%**	**92%**
Yarra	85%	84%	84%	83%	**88%**	**86%**
Statewide	**70%**	64%	63%	62%	65%	64%

Note: Figures in bold show regional targets were not met for that district. The department has not released residual bushfire risk data at a district level for 2024–25. The provisional statewide figure for 2024–25 is 66 per cent.
Source: The department, *Victoria's Bushfire Risk Management Report 2023–24*.

The above figures also show that the reported fuel-driven bushfire risk has consistently been at or close to the target in several districts. This includes some affected by recent fires such as the Murrindindi, Murray Goldfields and Otway districts.

Given the known limitations of modelling fuel-driven bushfire risk, actual risk may be higher or lower than reported in some districts. This increases the risk of over- or under-prioritising fuel treatments. This could lead to insufficient risk reduction, excessive ecological impacts and inefficient use of fuel management resources.

The department acknowledges that there is uncertainty in the inputs and models used for calculating fuel-driven bushfire risk, including outputs from Phoenix RapidFire. But it does not report margins of error for its bushfire risk modelling, nor does it disclose how it accounts for this uncertainty in the joint fuel management program.

5.

Reducing risk around Grampians National Park

Before the 2024 Grampians bushfires, the department applied a risk-based framework to plan and prioritise fuel management in and around Grampians National Park. CFA had a process in place but could not show how it applied it.

Although the department and CFA did not complete all planned burns due to weather and operational constraints, the Wimmera district's residual bushfire risk remained well below the 70 per cent target.

However, the department only established 3 of the 5 planned strategic fuel breaks in and around the national park and cannot show that it prioritised them based on operational value. Although the 2 unestablished fuel breaks are outside the area affected by both fires, more property could be at risk in future fires if they are not established.

Covered in this section:

- The department and CFA delivered most priority fuel treatments in and around Grampians National Park
- The residual bushfire risk was well below the target for the Wimmera district
- The department did not establish all the strategic fuel breaks it planned

The department and CFA delivered most priority fuel treatments in and around Grampians National Park

The 2024 Grampians bushfires

Bushfires across 2 consecutive fire seasons affected the Grampians region. In February 2024, bushfires happened around Grampians National Park, at Pomonal and Dadswells Bridge. These fires spread across 6,386 hectares and destroyed 47 properties.

In December 2024, dry lightning started a bushfire in Grampians National Park. It spread over 76,000 hectares and destroyed 4 properties. It burnt across farmland and pasture, with more than 700 livestock lost.

Planning fuel treatments

The department prioritises fuel treatments (such as planned burns, mulching, slashing or spraying) based on a range of variables, including modelled fuel hazard levels and operational factors such as treatability, site access and resourcing.

Regional fuel management teams nominate treatments for inclusion in the joint fuel management program based on available risk data and regional bushfire management strategies. The

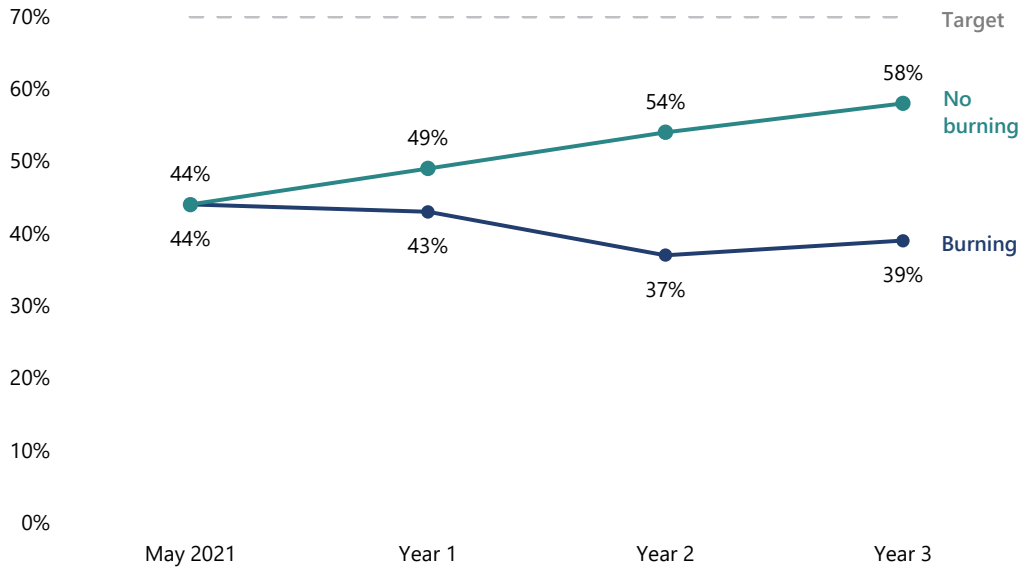
department then uses Phoenix RapidFire to prioritise proposed burns by their potential to reduce the residual bushfire risk.

Grampians National Park sits within the department's Wimmera district.

The department's modelling estimated that the 2021–22 to 2023–24 joint fuel management program would keep residual bushfire risk at approximately 40 per cent in the Wimmera district. Although there is uncertainty around the department's risk estimates because it does not know how accurate its fuel accumulation curves are, this is well below the 70 per cent district target.

The modelling showed that without these burns, the risk would steadily rise to 58 per cent (see Figure 10). While still below the target, it highlights the importance of an annual fuel treatment program to prevent risk increasing.

Figure 10: Modelled impact of the 2021–22 to 2023–24 joint fuel management program on the Wimmera district's residual bushfire risk



Source: VAGO, based on the department's risk analysis of the Grampians region joint fuel management program.

Phoenix RapidFire cannot accurately model most of the CFA's fuel treatments. Therefore, CFA collaborates with stakeholders and land managers to nominate its fuel management treatments for the joint fuel management program.

It assesses nominations using a prioritisation matrix that considers direct risk reduction, ecological value, community impact and cultural heritage. The process also draws on the Victorian Fire Risk Register to identify community assets most at risk from a bushfire.

CFA then enters the proposed burns into the department's fuel management system to obtain a regional criticality ranking before finalising its planned fuel treatments.

But CFA could not show that it applied this process in the districts impacted by the 2024 Grampians bushfires in the preceding years. This means that it cannot show the extent its planning protected the fire-impacted communities.

The department's fuel treatment delivery

The department's performance targets for the joint fuel management program are:

- 100 per cent of Year 1 equivalent hectares of ecological and fuel reduction burns are at a 'ready' status by 28 February
- 100 per cent of Year 1 equivalent hectares of non-burn fuel treatments completed by 30 June.

The department does not set a performance target for completing planned burns.

Between 2020–21 and 2022–23, the department had 100 per cent of Year 1 equivalent hectares of ecological and fuel reduction burns around Grampians National Park ready for when an ignition window became available. In 2023–24 it had 92 per cent ready on time.

Despite the department having most of its planned burns in the years before the 2024 Grampians bushfires ready to go ahead, it only completed 74 per cent (see Figure 11).

Figure 11: The department's Year 1 planned burns near Grampians National Park, July 2020 to June 2024

Burn preparation status	2020–21	2021–22	2022–23	2023–24
Planned	**23**	**15**	**25**	**22**
Ready	23	15	25	18
Completed	**18**	**9**	**22**	**11**
Percentage of target area with burn treatments at a 'ready' status	**100%**	**100%**	**100%**	**92%**

Note: We did not include planned burns that were no longer needed or overrun by bushfires in our analysis. The percentage figure is based on the total area to be treated by year.
Source: VAGO, based on the department's documents.

The department completed 90 per cent of its planned mechanical fuel treatments near Grampians National Park in the years leading up to the bushfires, although it treated a smaller area than planned (see Figure 12).

Figure 12: The department's Year 1 mechanical treatments near Grampians National Park, July 2020 to June 2024

Mechanical treatment status	2020–21	2021–22	2022–23	2023–24
Completed	41	50	24	22
Not completed	4	4	5	3
Total	**45**	**54**	**29**	**25**
Percentage of target area treatment was complete	**72%**	**78%**	**68%**	**79%**

Note: Non-burn treatments that were not in the joint fuel management program were excluded. The department advised the treatments list was limited to the geographic area in and around Grampians National Park.
Source: VAGO, based on analysis of the department's information.

Together this shows that the department did not fully deliver its fuel management commitments in the Wimmera district leading up to the 2024 Grampians bushfires.

CFA's fuel treatment delivery

CFA aims to deliver all planned burns in Year 1 of the joint fuel management program. It focuses on protecting individual buildings and structures.

The areas affected by the 2024 Grampians bushfires are in CFA's West and South West regions.

In its West region, CFA only delivered 41 per cent of its planned fuel treatments in 2021–22 and 2022–23. But in 2023–24, it delivered more treatments than it planned (see Figure 13). These included treatments deferred from previous years. However, it could not show the extent it completed planned fuel treatments in West region localities impacted by the fires.

Figure 13: CFA Year 1 joint fuel management program treatments in the West region, 2021–22 to 2023–24

Treatment type	2021–22	2022–23	2023–24
Burns planned	164	97	56
Burns completed	Not available	24	63
Mechanical treatments planned	12	3	14
Mechanical treatments completed	Not available	17	25
Total fuel treatments planned	**176**	**100**	**70**
Total fuel treatments delivered	**73**	**41**	**88**
	(41.5%)	**(41.0%)**	**(125.7%)**

Note: In *Victoria's Bushfire Risk Management Report 2021–22*, CFA did not specify the number of fuel treatments completed by treatment type across each region. This data encompasses the entire West region (i.e. districts 15–17) and is not limited to around Grampians National Park.
Source: VAGO, based on analysis of *Grampians Joint Fuel Management Program 2025–26* and Victoria's bushfire risk management reports.

CFA could narrow down planned burn reporting for its South West region to fire-impacted localities. It could also provide reporting for 2024–25. But it could not provide data about mechanical fuel treatments, even at a district level.

CFA planned few burns near these South West region localities in some years, especially 2022–23 and 2023–24, but delivered 24 of 30 planned burns in 2024–25 (see Figure 14). But it could not provide the date of each burn. This means it cannot show how many burns it completed in the months preceding the December 2024 fires.

Figure 14: CFA Year 1 planned burns in the joint fuel management program in the South West region near Grampians National Park

Year	2020–21	2021–22	2022–23	2023–24	2024–25
Proposed	11	8	1	0	6
Completed	12	5	3	1	24
Total	**23**	**13**	**4**	**1**	**30**

Note: CFA limited South West data to planned and complete burns in and around Grampians National Park.
Source: VAGO, based on our analysis of CFA dataset on South West region planned burns.

Limitations in CFA's West and South West regions recordkeeping mean it cannot show how much it protected impacted communities leading up to the 2024 Grampians bushfires.

The residual bushfire risk was well below the target for the Wimmera district

The Wimmera district's residual bushfire risk

Despite not completing all planned fuel treatments between 2020–21 and 2023–24, fuel-driven bushfire risk in the Wimmera district remained below 50 per cent (see Figure 15).

Figure 15: Fuel-driven bushfire risk in the Wimmera district 2020–21 to 2023–24

Year	2020–21	2021–22	2022–23	2023–24
Wimmera district (target 70%)	43%	48%	40%	38%

Source: *Victoria's Bushfire Risk Management Report 2023–24*.

This shows that the department's prioritisation of planned burns kept the residual risk in line with what it planned and well below the district target of 70 per cent.

As CFA's activities do not contribute to residual risk calculations, actual risk levels were likely lower than reported.

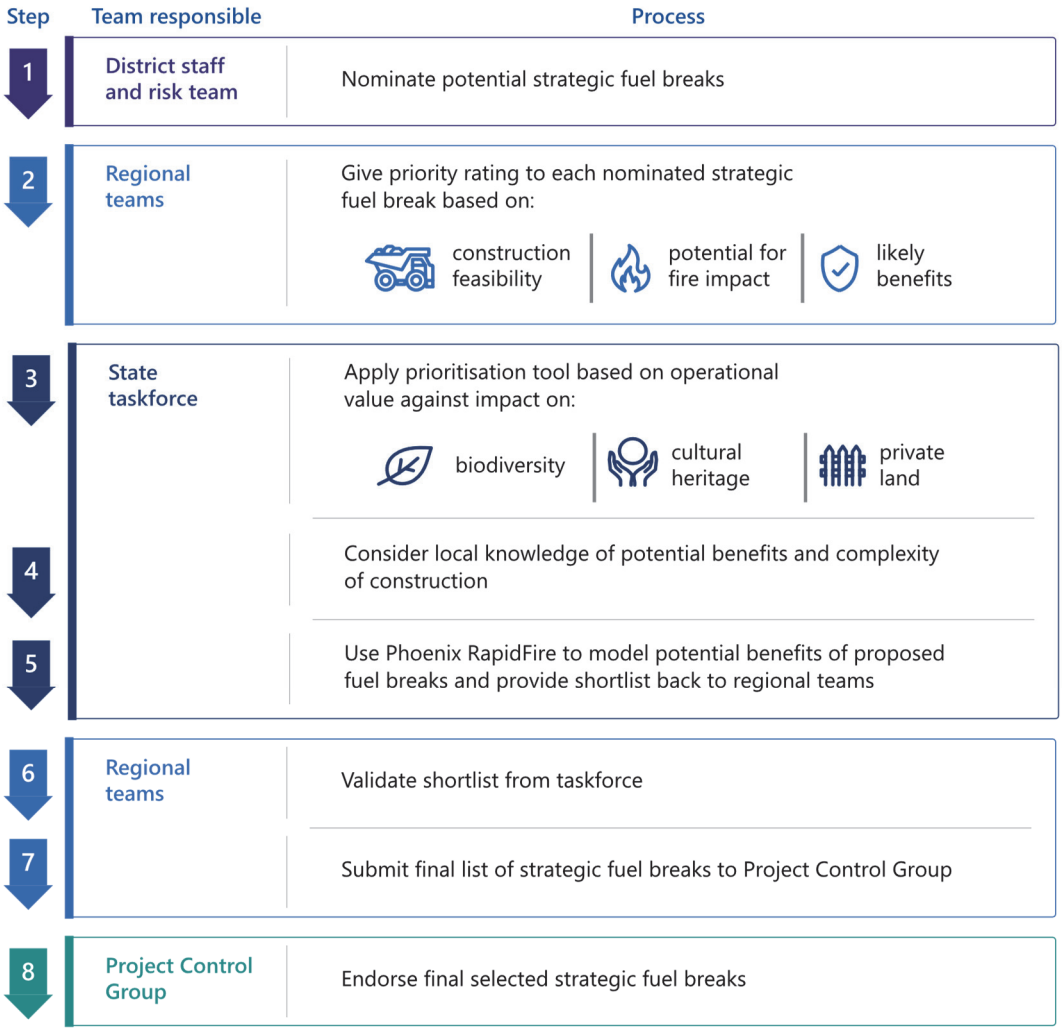
The department did not establish all the strategic fuel breaks it planned

Prioritising strategic fuel breaks

Strategic fuel breaks play a vital role in bushfire management by enabling firefighters to backburn to contain the spread of fires and by dividing the landscape to help reduce a fire's size.

The department had a prioritisation process for selecting strategic fuel breaks for the strategic fuel breaks program (see Figure 16).

Figure 16: Strategic fuel breaks program prioritisation process



Source: VAGO, based on the department's documents.

Wimmera district staff nominated 16 strategic fuel breaks for construction or renewal near Grampians National Park.

After the prioritisation process, the department selected 5 to proceed (see Figure 17). But the department did not consistently apply its prioritisation process. Wimmera district staff only nominated 2 of the 5 selected fuel breaks. The state taskforce nominated the other 3.

The department had also partially or previously constructed 3 of the 5. It advised that the 3-year timeframe of the program and landholder considerations made it challenging to establish new fire breaks within required timeframes. As a result, the department prioritised fuel breaks already in use or only requiring renewal.

Figure 17: Strategic fuel breaks in the Wimmera district included in the Grampians master plan 2021–22

	Strategic fuel break	Type of break	Nominated by
1	Ararat – Main Divide Road	Asset protection	Wimmera district
2	Grampians National Park – Smiths Road (Stage 1)	Asset protection	Wimmera district
3	Grampians National Park – Smiths Road (Stage 2)	Asset protection	State taskforce
4	Grampians Pomonal Firebreak	Asset protection	State taskforce
5	Grampians National Park – Harrops Track	Landscape protection	State taskforce

Source: VAGO, based on the department's documents.

During prioritisation, the department assigned proposed strategic fuel breaks a prioritisation score based on operational benefit and impacts on biodiversity, cultural heritage and land tenure. Scores range between minus one and one. Breaks with scores closer to one have higher operational benefit with less planning complexity.

The department provided priority scores for 4 of the 5 selected strategic fuel breaks and 7 of the 14 Wimmera district nominations not selected.

Of the strategic fuel breaks with available priority scores, only 3 of the 5 selected ranked in the top 5 based on their scores (see Figure 18).

Figure 18: Scores assigned to strategic fuel breaks nominated by Wimmera district staff

Strategic fuel break	Priority score	Nominated by	Selected	Ranking
Ararat – Main Divide Road	**0.613**	**Wimmera district**	**Yes**	**1**
Bellfield – Grampians Road	0.016	Wimmera district	No	2
Grampians National Park – Smiths Road (Stage 1)	**−0.061**	**Wimmera district**	**Yes**	**3**
Grampians National Park – Smiths Road (Stage 2)	**−0.061**	**State taskforce**	**Yes**	**3**
Cherrypool – Blackrange Road	−0.220	Wimmera district	No	5
Wirrantwa – Glenelg River Road (South)	−0.277	Wimmera district	No	6
Grampians National Park – Harrops Track	**−0.288**	**State taskforce**	**Yes**	**7**
Cherrypool – Muirfoot Track	−0.292	Wimmera district	No	8
Halls Gap – Mount Zero Road	−0.334	Wimmera district	No	9
Cherrypool – Lodge Road	−0.338	Wimmera district	No	10
Moyston – Redman Road	−0.357	Wimmera district	No	11
Grampians Pomonal Firebreak	**Not provided**	**State taskforce**	**Yes**	–

Note: Bold indicates a selected fuel break.
Source: VAGO, based on the department's documents.

The department not following its prioritisation process and its ranking scores means that it cannot confirm that the 5 selected strategic fuel breaks maximised risk reduction for Wimmera communities.

Wimmera district strategic fuel breaks

The department only completed 3 of its 5 planned strategic fuel breaks in the Wimmera district. These were:

- Grampians Pomonal
- Grampians National Park – Smiths Road (Stage 1)
- Harrops Track.

The department had already partially constructed the Pomonal and Smiths Road (Stage 1) fuel breaks before the strategic fuel break program started. It had also already upgraded the Harrops Track fuel break in 2020–21 and was already using it.

The department did not establish the Ararat – Main Divide Road fuel break or complete the Smiths Road (Stage 2) fuel break. The department still has not established these breaks, meaning that it has not delivered on its plans to establish all fuel breaks selected under the strategic fuel break program.

Neither the planned Ararat – Main Divide Road nor the Smiths Road (Stage 2) fuel breaks are in the boundary of the 2024 Grampians bushfires. However, if the department does not deliver and maintain strategic fuel breaks with high operational value, communities could be at greater risk during bushfires.

6.
Appendices

There are 4 appendices covering responses from reviewed agencies, information about how we perform our work, and the status of the actions the reviewed agencies committed to in our 2020 audit.

Appendix A: Submissions and comments

Appendix B: Abbreviations, acronyms and glossary

Appendix C: Review scope and method

Appendix D: Status of agency actions

Appendix A:
Submissions and comments

We have consulted with the department and CFA, and we considered their views when reaching our review conclusions. As required by the *Audit Act 1994*, we gave a draft copy of this report, or relevant extracts, to those agencies and asked for their submissions and comments.

Responsibility for the accuracy, fairness and balance of those comments rests solely with the relevant agency head.

Responses received

Agency	Page
Department of Energy, Environment and Climate Action	A–2
Country Fire Authority	A–5

Response provided by the Secretary, Department of Energy, Environment and Climate Action

Department of Energy, Environment and Climate Action

PO Box 500, East Melbourne,
Victoria 8002 Australia

SEC-260400379

Andrew Greaves
Auditor-General
Level 31, 35 Collins Street
MELBOURNE VIC 3000
[redacted]

Dear Auditor-General

Proposed report – Follow up – Reducing Bushfire Risk

Thank you for the opportunity to comment on the Victorian Auditor-General's Office's (VAGO) proposed report – *Follow up – Reducing Bushfire Risk*, received on 30 April 2026.

The Department of Energy, Environment and Climate Action (DEECA) recognises the need for accurately acquitting completion of actions in response to audit recommendations and is continually improving the quality of the acquittal assessments.

DEECA is strongly committed to reducing bushfire risk in Victoria, and I thank you and your team for the work they have done to identify opportunities to improve. Attached is a management action plan for the department, which sets out the work DEECA will take to strengthen the state's approach to bushfire risk management.

DEECA accepts or accepts in part the 4 recommendations detailed in the report and commits to the actions outlined in the enclosed action plan.

I thank your staff for their work and look forward to a continued productive relationship with your office.

Yours sincerely

Kate Houghton PSM
Secretary

14/05/2026

VICTORIA State Government

Official - Sensitive

DEECA Action Plan

Action plan to address recommendations from VAGO's report: *Follow up: Reducing Bushfire Risks*

No.	VAGO recommendation	Acceptance	Agreed management actions	Target completion date
1	DEECA strengthen assurance processes for completing actions in response to our recommendations from all engagements to ensure progress attestations are reliable. This includes strengthening their Risk and Audit Committee's role in monitoring delivery.	☒ Yes ☐ No ☐ In part ☐ In principle	DEECA will formalise its strengthened assurance processes which document the basis of action verification assessments and provide the Risk and Audit Committee transparency on whether the risk identified in an audit has been addressed.	31 January 2027
2	In collaboration with the Country Fire Authority, develop performance metrics and methodologies to quantify mechanical, small scale and linear fuel treatments' impacts	☒ Yes ☐ No ☐ In part ☐ In principle	DEECA will work with the broader bushfire management sector to develop and provide options for performance metrics and methodologies to quantify the impacts of mechanical, small scale and linear fuel treatments. This will be done by progressing relevant elements of the *Roadmap for Future Bushfire Risk Management Targets*, including developing options for metrics suitable for roadsides and across land tenures beyond DEECA-managed public land.	31 July 2029
3	Improve data collection techniques to ensure fuel hazard assessments' accuracy and consistency	☐ Yes ☐ No ☒ In part ☐ In principle	DEECA will improve the accuracy and consistency of fuel hazard assessments by reviewing current approaches and updating the fuel hazard assessment manual to strengthen data collection techniques. Australian fire agencies are currently developing and trialling alternative bushfire simulators to inform bushfire management decisions. DEECA will consider priorities for improvement of simulator inputs, including fuel hazard	30 May 2029

No.	VAGO recommendation	Acceptance	Agreed management actions	Target completion date
	Explore how fuel hazard assessments can help verify fuel accumulation curves		assessments and their use in verifying fuel accumulation curves, in this context.	
4	Reassess previously nominated strategic fuel breaks' operational value. Ensure those with high operational value are established statewide where practical	☐ Yes ☐ No ☒ In part ☐ In principle	DEECA will develop a statewide strategic plan for fuel breaks, using a strategic planning process to determine existing nominated and new fuel breaks for inclusion. Through this plan, fuel breaks with high operational value will be considered for inclusion, though fuel break establishment is subject to funding.	30 May 2027

Response provided by the Chief Executive Officer, Country Fire Authority

cfa.vic.gov.au

Patron: Her Excellency Professor the Honourable Margaret Gardner AC, Governor of Victoria

OFFICIAL

Office of the Chief Executive Officer | Headquarters
8 Lakeside Drive Burwood East Vic 3151
Tel 03 9262 8444

Mr Andrew Greaves
Auditor-General
Victorian Auditor-General's Office

By email: [redacted]

14 May 2026

Ref: PC26-035

Dear Mr Greaves,

RE: Proposed report – Follow-up of Reducing Bushfire Risks

Thank you for the opportunity to review and comment on the proposed report, *Follow-up of Reducing Bushfire Risks*.

I have considered the report's findings and recommendations as they relate to Country Fire Authority (CFA), and appreciate the clarity provided in your correspondence of 30 April, including the acquittal of our earlier feedback.

We acknowledge the progress made since the 2020 audit and recognise the opportunities identified to strengthen assurance over progress reporting and to improve the way the impacts of different treatment types are measured and communicated.

CFA is committed to addressing the matters identified within the scope of its responsibilities and will continue to work collaboratively with relevant agency partners, including the Department of Energy, Environment and Climate Action, to support ongoing improvement.

In accordance with your request, CFA's agreed management actions and timeframes are set out in the attached action plan.

Should you require any further information, please contact CFA Chief Risk Officer, Rebecca Holding, via [redacted].

I trust the above is helpful and thank you again for the opportunity to provide feedback on the proposed report.

Yours sincerely,

Greg Leach AFSM
Chief Executive Officer

[redacted] OFFICIAL

OUR COMMUNITY • OUR CFA

Country Fire Authority action plan to address recommendations from *Follow-up of Reducing Bushfire Risks*

No.	VAGO recommendation	Acceptance	Agreed management actions	Target completion date
1	Strengthen assurance processes for completing actions in response to our recommendations from all engagements to ensure progress attestations are reliable. This includes strengthening their Risk and Audit Committee's role in monitoring delivery	☒ Yes ☐ No ☐ In part ☐ In principle	CFA agrees with this management action. A number of improvements to VAGO audit oversight have already been implemented: • from FY25, all VAGO audit actions are tracked in Protecht and require formal executive sign-off to close; • from FY26, VAGO performance reporting is a standing agenda item at the Audit and Finance Committee. To further strengthen accountability, CFA will include dedicated reporting against VAGO performance audits on an ongoing basis.	Complete and ongoing

Appendix B:
Abbreviations, acronyms and glossary

Abbreviations

We use the following abbreviations in this report:

Abbreviation	Full spelling
the department	Department of Energy, Environment and Climate Action

Acronyms

We use the following acronyms in this report:

Acronym	Full spelling
CFA	Country Fire Authority
DELWP	(former) Department of Environment, Land, Water and Planning
FFDI	Forest Fire Danger Index
VAGO	Victorian Auditor-General's Office

Glossary

The following terms are included in or relevant to this report

Term	Explanation
Level of assurance	This is a measure of the confidence we have in our conclusions. The quality and quantity of evidence we obtain affects our level of assurance. We design our work programs with the information needs of our report users in mind. We consider if we need to provide them with reasonable assurance or if a lower level of assurance may be appropriate.
Limited assurance	We obtain less assurance when we rely primarily on an agency's representations and other evidence generated by that agency. However, we aim to have enough confidence in our conclusion for it to be meaningful. We call these types of engagements **assurance reviews** and typically express our opinions in negative terms. For example, 'nothing has come to our attention to indicate there is a problem'. See our assurance services fact sheet for more information.
Reasonable assurance	We achieve reasonable assurance by obtaining and verifying direct evidence from a variety of internal and external sources about an agency's performance. This enables us to draw a conclusion against an objective with a high level of assurance. We call these **performance audits**. See our assurance services fact sheet for more information.

Appendix C:
Review scope and method

Scope of this review

Who we examined

We examined the following agencies:

Agency	Relevant responsibilities
Department of Energy, Environment and Climate Action	Delivering an integrated approach to reduce risk and protect people, property and the environment, including co-delivering the joint fuel management program.
Country Fire Authority	Responding to structure fires and bushfires and building community preparedness for fires. CFA co-delivers the joint fuel management program.

Our review objective

Did the Department of Energy, Environment and Climate Action and Country Fire Authority:

- implement their action plans in response to the recommendations of our 2020 report *Reducing Bushfire Risks*?
- meet their obligations to reduce bushfire risk around Grampians National Park leading up to the 2024 Grampians bushfires?

What we examined

In our 2020 audit *Reducing Bushfire Risks* we looked at whether the then Department of Environment, Land, Water and Planning and CFA were effectively working together to reduce Victoria's bushfire risk.

We found areas where they could strengthen their approaches and made 17 recommendations. They accepted all recommendations and provided action plans on how they would address them.

In this review we examined whether they have delivered these actions for 11 recommendations and if they have addressed the issues we identified in our audit. The 11 recommendations focused on planning and delivering fuel management activities and measuring the impacts.

We also examined whether the department and CFA met their fuel management obligations around Grampians National Park leading up to the 2024 Grampians bushfires.

Why we conducted this review

Climate change is increasing the risk of bushfires, with hotter, drier and longer fire seasons. This also reduces available windows for planned burns to manage bushfire fuel. This makes it essential that the department and CFA strengthen fuel management since our last audit.

Aspects of performance examined

Our mandate for performance audits and reviews includes the assessment of economy, effectiveness, efficiency and compliance (often referred to as the '3Es + C').

In this review we focused on the following aspects:

Economy	Effectiveness	Efficiency	Compliance
○	●	○	○

Key:

● Primary focus

● Secondary focus

○ Not assessed

Conducting this review

Assessing performance

To form a conclusion against our objective we used the following lines of inquiry and associated evaluation criteria.

Line of inquiry		Criteria	
1.	Did the department and CFA's actions respond to the issues our 2020 audit recommendations sought to address?	1.1	The department and CFA have completed the relevant actions they committed to by the due date or are on track to do so.
		1.2	The relevant actions the department and CFA committed to and have implemented respond to the issues our 2020 audit recommendations sought to address.
2.	Did the department and CFA deliver fuel management activities as much as possible in the vicinity of Grampians National Park prior to the 2024 bushfires?	2.1	The department and CFA used an evidence-based framework to make decisions about fuel management activities in the vicinity of Grampians National Park leading up to the 2024 bushfires.
		2.2	The department delivered and maintained all planned strategic fuel breaks in the vicinity of Grampians National Park leading up to the 2024 bushfires.

Our methods

As part of the review we:

- reviewed documents
- interviewed representatives from the department and CFA responsible for management of bushfire risk.

Level of assurance

In an assurance review, we primarily rely on the agency's representations and internally generated information to form our conclusions. By contrast, in a performance audit, we typically gather evidence from an array of internal and external sources, which we analyse and substantiate using various methods. Therefore, an assurance review obtains a lower level of assurance than a performance audit (meaning we have slightly less confidence in the accuracy of our conclusion).

Compliance

We conducted our review in accordance with the *Audit Act 1994* and ASAE 3500 *Performance Engagements* to obtain limited assurance to provide a basis for our conclusion.

We complied with the independence and other relevant ethical requirements related to assurance engagements.

We also provided a copy of the report to the Department of Premier and Cabinet and the Department of Treasury and Finance.

Cost and time

The full cost of the review and preparation of this report was $473,000.

The duration of the review was 8 months from initiation to tabling.

Appendix D:
Status of agency actions

Figure D1: Status of agency actions

Action	Agency	Has agency completed the action?	Was the action completed on time?
Recommendation 1 – Performance metrics			
1.1	The department	Partially	Partially
1a	CFA	Yes	N/A
1.2	The department	Yes	Yes
1.3	The department	Yes	Partially
1b	CFA	Partially	N/A
1c	CFA	Partially	N/A
1.4	The department	Yes	Yes
Recommendation 2 – Bushfire risk modelling			
2.1	The department	Partially	Partially
2a	CFA	Yes	N/A
2.2	The department	No	No
2.3	The department	Yes	N/A
2.4	The department	Yes	Partially
2b	CFA	Yes	N/A
Recommendation 3 – Bushfire risk management planning			
3.1	The department	Partially	No
3.2	The department	Partially	Partially
3.3	The department	Yes	Yes
3.4	The department	Partially	Partially
Recommendation 4 – Regional planning			
4.1	The department	Yes	Yes
4.2	The department	Partially	Partially
Recommendation 6 – Collaborating with Traditional Owners			
6.1	The department	Yes	N/A
6.2	The department	Yes	Yes
6.3	The department	Yes	No
6.4	The department	Yes	Yes

Action	Agency	Has agency completed the action?	Was the action completed on time?
6.5	The department	Yes	Yes
6.6	The department	Yes	Yes
6.7	The department	Yes	Yes
Recommendation 7 – Planning on private land			
7a	CFA	Yes	Yes
7b	CFA	Yes	N/A
7c	CFA	Yes	Partially
7d	CFA	Yes	Yes
Recommendation 9 – Cancelling planned burns			
9.1	The department	Yes	Yes
9.2	The department	Yes	Yes
9a	CFA	Partially	No
Recommendation 10 – Financial monitoring and forecasting			
10.1	The department	Yes	Yes
10a	CFA	Yes	Yes
Recommendation 11 – Fuel hazard assessments			
11.1	The department	Yes	Yes
11.2	The department	Partially	No
Recommendation 13 – Measuring fuel treatment effectiveness			
13.1	The department	Yes	Yes
13a	CFA	Yes	Yes
13b	CFA	Yes	Yes
Recommendation 14 – Reducing risk on private land			
14.1	The department	Yes	No
14.2	The department	Yes	No
14a	CFA	Yes	Yes
14b	CFA	Yes	No
14c	CFA	Yes	No

Source: VAGO, based on analysis of department and CFA information.

Auditor-General's reports tabled in 2025–26

Report title	Tabled
Delivering Savings Under the COVID Debt Repayment Plan (2025–26: 1)	July 2025
Planned Surgery in Victoria (2025–26: 2)	August 2025
Financial Management of Local Councils (2025–26: 3)	August 2025
Responses to Performance Engagement Recommendations: Annual Status Update 2025 (2025–26: 4)	September 2025
Relief and Recovery Funding for the 2022 Floods (2025–26: 5)	October 2025
Cybersecurity of IT Servers (2025–26: 6)	October 2025
Accessibility of Tram Services: Follow-up (2025–26: 7)	November 2025
Auditor-General's Report on the Annual Financial Report of the State of Victoria: 2024–25 (2025–26: 8)	November 2025
Service Delivery Performance 2025 (2025–26: 9)	December 2025
Managing the Transition to Renewable Energy (2025–26: 10)	December 2025
Ravenhall Correctional Centre: Rehabilitating and Reintegrating Prisoners – Part 2 (2025–26: 11)	February 2026
Major Projects Performance Reporting 2025 (2025–26: 12)	March 2026
Modernising myki (2025–26: 13)	March 2026
Timely Payments Performance (2025–26: 14)	March 2026
Results of 2024–25 Audits: Local Government (2025–26: 15)	March 2026
Supporting the Transition from Native Timber Harvesting (2025–26: 16)	April 2026
Enhanced Maternal and Child Health Program Performance (2025–26: 17)	April 2026
Free TAFE (2025–26: 18)	May 2026
Responses to Performance Engagement Recommendations: Annual Status Update 2026 (2025–26: 19)	May 2026
Sustainability Reporting by Water Corporations (2025–26: 20)	May 2026
Out-of-home Care Services (2025–26: 21)	June 2026
Results of 2025 Audits: TAFES and Universities (2025–26: 22)	June 2026
Reducing the Harm Caused by Distracted Drivers (2025–26: 23)	June 2026
Follow-up: Reducing Bushfire Risks (2025–26: 24)	June 2026

All reports are available for download in PDF and HTML format on our website at www.audit.vic.gov.au.

Our role and contact details

The Auditor-General's role

For information about the Auditor-General's role and VAGO's work, please see our online fact sheet About VAGO.

Our assurance services

Our online fact sheet Our assurance services details the nature and levels of assurance that we provide to Parliament and public sector agencies through our work program.

Contact details

Victorian Auditor-General's Office
Level 31, 35 Collins Street
Melbourne Vic 3000
AUSTRALIA

Phone +61 3 8601 7000
Email enquiries@audit.vic.gov.au