

ACT AUDITOR–GENERAL'S **PERFORMANCE AUDIT REPORT**

Road maintenance

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PA 24/04

The Speaker
ACT Legislative Assembly
Civic Square, London Circuit
CANBERRA ACT 2601

Dear Speaker

I am pleased to forward to you a Performance Audit Report titled 'Road maintenance' for tabling in the Legislative Assembly pursuant to Subsection 17(5) of the *Auditor-General Act 1996*.

The audit has been conducted in accordance with the requirements of the *Auditor-General Act 1996* and relevant professional standards including *ASAE 3500 – Performance Engagements*.

Yours sincerely



Ajay Sharma PSM
Auditor-General
9 October 2026

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Summary

Road maintenance involves a broad range of activities including:

- the maintenance of a road's surface;
- the maintenance of road signs, barriers and lights; and
- the maintenance of road markings.

The maintenance of the road surface, also referred to as the road's 'wearing course', is a very visible activity. Road maintenance activities such as pothole-filling, patching and resurfacing are undertaken to support a road to achieve its intended design life.

The objective of the audit was to assess whether the ACT public road network is being effectively maintained. The audit focused on the Territory's activities to maintain the road surface. The audit considered the activities of the City and Environment Directorate (formerly the Transport Canberra and City Services Directorate) to plan for, and implement, programs for the maintenance of the ACT public road network surface.



Conclusions

Strategic and operational planning

Between 2021 and 2022 the ACT Government contemplated a new strategic approach to road maintenance (the *Strategic Road Maintenance and Renewal Program*). The new resurfacing strategy was publicly announced in February 2023. The new resurfacing strategy sought to address the issue that the 'ACT's road surfaces and pavement structure is deteriorating at a faster rate than is offset by current maintenance and rehabilitation levels'. The new resurfacing strategy involves *inter alia* a 52 per cent increase in expenditure on road maintenance and overall growth of total resurfacing meterage from 1 million to 1.26 million sqm.

Central to the resurfacing strategy is the Pavement Condition Index. The Pavement Condition Index is a key feature of annual Pavement Management System reports which:

- specify road condition settings and provide a rationale for those settings;
- model hypotheses, e.g. by examining the effect of different assumptions based on either specified budgets or a predicted Pavement Condition Index range; and
- produce provisional line-by-line works programs for the next ten years, once a preferred hypothesis had been resolved.

The Pavement Condition Index produces a single score that reflects the condition of Territorial roads and some major Municipal collector roads (approximately 30 per cent of the total road

network) for the most recent year and a predicted score for future years based on different scenarios. The Pavement Condition Index is sensitive to Pavement Management System setting adjustments, including changes to weightings for the five condition parameters that comprise the score. It is possible to create a change in the Pavement Condition Index score by changing system settings rather than changes in the data that are reflective of physical changes to the road surface condition.

Because the Pavement Condition Index is a function of both changes in the condition of the road network and changes to system settings it is imperative that Roads ACT be publicly transparent and explicit with respect to:

- levels of service and experience that road users can expect; and
- any changes to system settings (including changes to weightings for the five condition parameters that comprise the score) that may affect the calculation of the Pavement Condition Index.

Road maintenance operations

The identification of Territorial and Municipal roads for resurfacing is based on automated collection of road condition data via a specialised road vehicle. One third of all Territorial and Municipal roads are surveyed each year. This results in the identification of roads that are prioritised for some form of treatment, which are then subject to a validation process by Roads ACT officials. Many of the roads initially prioritised for treatment are de-selected, while roads that were subject to treatment were not initially prioritised.

The development and delivery of the resurfacing program is hampered by a lack of documented policies or procedures for the specification of levels of service and how level of service changes are proposed and approved. The lack of procedural documentation means there is a high reliance on individual experience and professional judgement.

Much of Roads ACT's road maintenance activity is delivered through the contracting of road resurfacing suppliers. The current *Road and path maintenance panel* was established in November 2021. Under the new panel there are three suppliers, two of which have received contracts worth \$46.86 million and \$44.94 million, while a third has received contracts worth \$10.82 million. Panel suppliers are engaged through request for quotation (RFQ) processes for specific packages of work.

The new panel has created greater breadth in the local supplier base and all other things being equal the new panel has created more competitive tension between suppliers. This can be expected to provide the Territory with keener pricing and more resilience should one supplier be unable to respond to an RFQ. It is also apparent that Roads ACT officials effectively consider, and account for, value for money during the RFQ process.

Performance reporting

The former Transport Canberra and City Services Directorate has reported on the performance of roads (and road resurfacing specifically) through a range of Strategic and Accountability Indicators presented in statements of performance and annual reports. Publicly reported performance information about the condition of the road network in the period 2017 to 2022 provided an incomplete picture. While the Strategic Indicator target and actual percentage of ‘good or better’ Territorial roads (based on a road’s roughness) was reported as 87 or 90 per cent, a wider range of condition indicators that was only available to Roads ACT supported a different perspective; that of a ‘fair’ but gradually deteriorating network condition. While resurfacing program underperformance may have been a factor, internal reporting indicates this deterioration was primarily attributed to resurfacing budgets being insufficient to create a sustainable (i.e. stable) road condition.

From 2021-22 the quality and condition of the ACT road network was reported with reference to the *Pavement Condition Index score of Territorial roads* Strategic Indicator. A Pavement Condition Index score was not available for 2024-25. The Pavement Condition Index score was removed as a Strategic Indicator as part of the 2026-27 ACT Budget process. This means that there is no Strategic Indicator or Accountability Indicator relevant to the condition and quality of roads in the ACT.

The lack of a Pavement Condition Index score limits Roads ACT’s ability to provide assurance that its resurfacing strategy is delivering ‘a sustainable level of road maintenance and corrective works ... where the overall condition of the network remains static over the longer term’ and hampers public accountability.

The new resurfacing strategy seeks to increase the amount of asphalt resurfacing relative to bituminous reseal. Asphalt resurfacing is a more expensive treatment, but has greater longevity. The new resurfacing strategy also seeks to adjust the balance of asphalt relative to bituminous reseal at the sub-network level (i.e. between the Territorial and Municipal sub-networks). However, it is apparent that:

- the overall area of asphalt (relative to that of bituminous reseal) has not increased substantially in the first two full years of the new resurfacing strategy; and
- the ratio of asphalt to reseal has not improved towards the sub-network ratios identified in the November 2022 business case.

In the first two years of the new resurfacing strategy (2023-24 and 2024-25) there has been mixed success in the achievement of the strategy’s performance goals. There has been an overall increase in resurfacing and Territorial and Municipal sub-network resurfacing targets have been met. However, this has been achieved through bituminous reseal as opposed to asphalt. The continuing use of bituminous reseal may not have an immediate consequence for the Pavement Condition Index, but it is likely to have a longer-term consequence for the Pavement Condition Index and road network generally (and Municipal sub-network specifically).

Key findings



Strategic and operational planning

Paragraph

Strategic planning

The *Roads ACT Strategic Asset Management Plan* (2018) was developed to provide strategies for maintaining, rehabilitating, renewing and growing relevant assets and their components. The Plan was identified as a three-year plan (2018 to 2021) but has not been updated since it was first developed. Governance arrangements for the management of the Plan (and other strategic asset management plans) in the former Transport Canberra and City Services Directorate were ineffective. Annual reviews of the Plan did not occur and a biennial review of the *Strategic Asset Management Framework* in November 2022 by the former TCCS Executive Board was cursory. It was concerned with the existence of strategic asset management plans for major asset classes across the directorate, but not their effectiveness.

3.15

Between 2021 and 2022 the ACT Government contemplated and resolved a new strategic approach to road maintenance; the *Strategic Road Maintenance and Renewal Program*. The new resurfacing strategy sought to address the issue that the 'ACT's road surfaces and pavement structure is deteriorating at a faster rate than is offset by current maintenance and rehabilitation levels'. The new resurfacing strategy was supported by increased funding through the 2022-23 mid-year budget review of \$39.5 million over the three years to June 2026 followed by ongoing annual funding.

3.27

Strategic Road Maintenance and Renewal Program

The Minister for Transport and City Services provided a statement to the Assembly on the new resurfacing strategy on 8 February 2023 and through media releases on 7 December 2022 and 20 September 2023. Key elements of the new resurfacing strategy include *inter alia*:

3.33

- a 52 per cent increase in expenditure on road maintenance;
- a continued primary focus on preventative bituminous resealing and a '150 per cent increase in asphaltting'; and
- overall growth of total resurfacing meterage, from 1 million to 1.26 million sqm.

The key elements of the *Strategic Road Maintenance and Renewal Program* were outlined in the Cabinet submissions relevant to road resurfacing between 2021 and 2022. These were consolidated into a 68-page strategy document that was finalised on 27 September 2024, the purpose of which was to assist future Roads ACT staff in understanding the rationale and evidence developed for the *Strategic Road Maintenance and Renewal Program*. Unlike other jurisdictions, the documented Program is not publicly available. Furthermore, there is not yet any progress within Roads ACT on a strategy or program to succeed the current *Strategic Road Maintenance and Renewal Program*.

3.34

The Pavement Condition Index has been central to annual Pavement Management System reports produced by ARRB on behalf of Roads ACT since at least 2013. Annual ARRB Pavement Management System reports:

- specify road condition settings and provide a rationale for those settings;
- model hypotheses, e.g. by examining the effect of different assumptions based on either specified budgets or a predicted Pavement Condition Index range; and
- produce provisional line-by-line works programs for the next ten years, once a preferred hypothesis had been resolved.

In December 2020 Pavement Condition Index modelling was undertaken for 2020 to 2029 with reference to six different funding scenarios (budgets of \$7 million to \$40 million per annum). The December 2020 report identified that the Pavement Condition Index would deteriorate through to 2024, but that in all six scenarios the Pavement Condition Index would improve from 2024 (with greater improvements seen in the higher budget scenarios, specifically the \$12 million, \$20 million and \$40 million budget scenarios). Further analysis was conducted in September 2021 with reference to four different funding scenarios (a budget of \$10 million per annum through to an unlimited budget). In contrast to the 2020 report, condition deterioration was no longer 'locked in' over the next four years and a stable condition of 'fair' was modelled over ten years, with only an 'unlimited budget' yielding discernible improvement towards the 'good' band by 2028.

A review of the Pavement Condition Index methodology, as described in each year's ARRB report between 2018 and 2024, shows there were changes to the Pavement Management System settings over this period. It is likely that changes in the first half of 2021 that led to a re-basing of the Pavement Condition Index in the September and December 2021 ARRB reports were the result of technical and tactical decisions by engineers at ARRB and Roads ACT, which officials referred to as exercising 'engineering judgement'.

Roads ACT's changes to Pavement Management System settings introduced a higher level of service for the management of roads. Road condition parameters which were previously categorised as 'fair' were categorised as 'poor'. In addition, treatments would be earlier, with the treatment trigger being when the roughness indicator falls into the 'fair' band rather than waiting and falling into the 'poor' band. The change in settings amounts to an intention to achieve a higher level of service.

A review of the Pavement Management System settings in ARRB annual reports from 2018 to 2024 shows that: weightings (for the cracking and roughness indices) were changed between the 2018 and 2020 reports; and weightings (for cracking, skid, and roughness) were changed again in the 2021 report. Weightings have remained the same since the 2021 report and condition parameters and the trigger points for specific treatment interventions have remained the same since the January 2023 report. As a result, reported Pavement Condition Index results since February 2023 (2.34 being 'fair' in August 2023 and 2.43 being 'fair' in May 2024) are more likely to

reflect road surface conditions and less likely to be the result of Pavement Management System changes.

Prior to 2022-23, when the *Percentage of Territorial roads in good condition* Strategic and Accountability Indicator was measured with reference to roughness, Roads ACT was publicly explicit about what roughness meant: a 'good' road having a roughness score of less than 4.2 IRI. However, since 2022 there has been no public statement by Roads ACT as to: what 'fair' means for the five condition parameters comprising the Pavement Condition Index; and what the trigger points are for treatments. Victoria makes such level of service information public as it assists in enabling 'customers to assess the suitability, affordability and equity of the services offered'.

3.81

Increasing use of asphalt

The new resurfacing strategy proposes an increase from 1 million to 1.268 million sqm of resurfacing a year. The strategy also seeks to:

3.92

- achieve more reseal treatment (by sqm) for the Municipal sub-network and more asphalt (by sqm) for the Territorial sub-network compared to the previous approach; and
- increase the use of asphalt by 2.4 times (i.e. an increase of 140 per cent) while increasing the level of reseal (by 7 per cent) across the whole network, compared to the old approach.

In response to the draft proposed report Roads ACT advised that they are average figures over the ten-year period between 2022 and 2031 and that the level of increased focus on asphalt is based on a forecast ten-year average.

3.93

Under the new resurfacing strategy Roads ACT continues to have the following two Accountability Indicators: *annual percentage of Territorial roads resurfaced (by sqm)*; and *annual percentage of Municipal roads resurfaced (by sqm)*. Agreed targets for the two Accountability Indicators are: Territorial sub-network (from six to seven per cent of the sub-network per year, i.e. a new frequency of once every 14.2 years on average); and Municipal sub-network (from three to four per cent of the sub-network per year, i.e. a frequency of once every 25 years on average). The new resurfacing Accountability Indicator targets are not explicit about the use of bituminous reseal versus asphalt, although in practice nearly all the area of resurfacing achieved historically relates to bituminous reseal and not asphalt. There is a risk that the Accountability Indicator targets may work against the goal of achieving more asphalt resurfacing.

3.102

Roads ACT is now capitalising 39 per cent of its resurfacing activity and expensing the balance. As part of this approach Roads ACT:

3.113

- has not satisfactorily documented the rationale for accounting for some of its resurfacing activity as capital expenditure and the balance through recurrent expenditure; and
- has not completed all the work originally envisaged as being necessary to efficiently and effectively capitalise the road *surface* asset, such as

the componentisation of the asset in Assetic. Componentisation would enable the differential useful life of the road surface and road base to be recognised. This remains 'work-in-progress'.

Operational planning

Roads ACT developed a *Roads ACT 2023-24 Business Plan* and a *Roads ACT 2024-25 Business Plan*. *Strategic Road Maintenance and Renewal Program* activities were reflected in both years' plans. Roads ACT officers advised that the business plan is not used to actively plan for, or monitor, the business unit's activities and it is a guiding document to revisit and reset competing priorities and to maintain visibility over longer term intentions and goals. A Roads ACT manager advised that the business plan might be looked at biannually, but that this was an 'informal' review without any form of rigor or record. Notwithstanding the limitations of the business plans Roads ACT officers effectively described, and provided suitable artefacts to demonstrate, how weekly, monthly and seasonal works programs are developed and delivered.

3.125

Road maintenance operations

Roads ACT administrative arrangements

In recent years Roads ACT's resurfacing activities have been impacted by a series of external and internal challenges. External challenges have included three successive La Niña weather cycles and industry skills and experience shortages. Internal challenges have arisen from a protracted workforce planning process, which has resulted in organisational changes. The *Roads ACT Workforce Project* examined Roads ACT's current operating model and identified potential future operating models to be achieved through business transformation processes. The project evolved into a substantial redesign of teams, structures, functions and ways of working. A business-unit restructure commenced in 2022, which then went through a further iteration in 2023. According to Roads ACT it remained a 'work in progress' at the end of 2024.

4.10

The Asphalt team in the Works Branch undertakes preparatory patching and asphalt resurfacing. These are all activities that may be, and have been in the past, undertaken by outsourced contractors. The Asphalt team is in the early stages of rebuilding its capacity and capability. Its business planning is embryonic and its scheduling is for the short-term only. It does not yet have an established track record of work across the full year. In 2024-25 it completed 4.3 per cent in value of the total resurfacing program.

4.18

The relatively small Routine Maintenance team in the Works Branch undertakes cold mix pothole filling. During periods of peak activity the team's resources have been supplemented from other Works teams. A large number of potholes in ACT's roads were reported and fixed between October 2020 and May 2023, which spanned three successive La Niña years. Following Assembly attention to the matter in October 2022 Roads ACT responded with a pothole 'blitz'. By May 2023 the backlog had been addressed and a normal volume of potholes was being reported and responded to.

4.29

The development and delivery of the resurfacing program is the responsibility of the Road and Path Network Branch. The branch does not have documented policies or procedures for the specification of levels of service and how level of service changes are proposed and approved. The lack of procedural documentation means there is a high reliance on individual experience and professional judgement. Such 'professional judgement' undermines quality control over the process and works against building interoperability within teams and individual members of the team.

4.40

Data systems and standards

The Road and Path Network Branch and the in-house Works teams use a combination of proprietary systems and generic tools (e.g. spreadsheets) to manage their activities. Within the teams there is widespread use of spreadsheets for program management purposes. Spreadsheet tools require a lot of manual data entry, validating, cleaning and analysis to mitigate the risk of data loss and other errors. The teams are not yet fully exploiting the benefits of the asset management system Assetic, which was implemented in 2021.

4.50

Development and delivery of the resurfacing program

The identification of Territorial sub-network roads for resurfacing is based on the output from the ARRB-administered dTIMS® Pavement Management System. In 2023-24 95 roads in the Territorial sub-network were prioritised for some form of treatment. A significant number of these roads (70) were not packaged and contracted. Nearly all of these roads were de-selected by the Road and Path Network Branch. Conversely, seven of the 31 roads whose treatment was completed were not prioritised via the Pavement Management System. While the Pavement Management System prioritisation process is a reasonable starting point, significant subsequent program development activities are undertaken and these produce a different program.

4.62

The identification of Municipal sub-network roads for resurfacing follows a similar process to the Territorial sub-network, except that it is predicated on a manual analysis of available data (instead of data from the dTIMS® Pavement Management System). In 2023-24 initial prioritisation was the result of analysis of a third of the sub-network (an estimated 2,044 roads) that resulted in 214 roads being targeted for further investigation. A significant number of these roads (142) were not shortlisted for packaging and contracting following further validation activities. An additional 80 roads not identified through the manual data analysis process were also packaged, contracted and completed. While the data analysis process is a reasonable starting point, significant subsequent program development activities are undertaken and these produce a different program.

4.71

Recording reasons for programming changes assists program evaluation and future programming. For 2023-24, the Road Resurfacing Program master spreadsheet, which was relevant to both Territorial and Municipal roads, identified that for 421 roads that were initially identified as a priority for resurfacing: 200 were completed; and 221 were 'deferred'. This means they were initially selected but not completed

4.84

and possibly not packaged or contracted. For 95 of the 221 roads that were 'deferred' (43 per cent) there was no recorded reason for their deselection. For roads that were added to the program after the initial prioritisation process, and for which there was no commentary in the spreadsheet of the reason for their addition, Roads ACT Officials were able to identify reasons for the additional of Municipal roads, being:

- a carryover from the previous year;
- nearby roads that had not been resurfaced for a long time; and
- on bus routes that were showing distress, following a bus route inspection process.

Procurement of resurfacing suppliers

The current *Road and path maintenance panel* (Contract No. 31012-NCT-001) was established in November 2021. Under the new panel there are three suppliers, two of which have received contracts worth \$46.86 million and \$44.94 million, while a third has received contracts worth \$10.82 million. This contrasts with the former panel arrangement, under which one supplier received contracts worth \$53.84 million, while the only other supplier received contracts worth \$8.4 million. The new panel has created greater breadth in the local supplier base and all other things being equal (e.g. discounting price escalation or changes in demand) the new panel has created more competitive tension between suppliers. This can be expected to provide the Territory with keener pricing and more resilience should one supplier be unable to respond to an RFQ.

4.92

Deeds associated with the current *Road and path maintenance panel* (Contract No. 31012-NCT-001) were first executed in November 2021 and the two-year contracts with the three suppliers were extended in November 2023. The decision to extend the panel arrangement in November 2023 was time-constrained. Roads ACT assessed the performance of each of the three resurfacing contractors and discussed performance with the contractors after each year's resurfacing program.

4.100

Roads ACT officials effectively consider, and account for, VFM during the RFQ process. However, there are opportunities to improve with respect to approaching the market earlier to avoid time pressure to secure the delegate's approval and issue Work Orders.

4.108

Quality assurance

The Road and Path Network Branch is building team capability for surveillance and inspection of resurfacing work. Currently, there is no specific, documented standard operating procedure for quality assurance. In the absence of such a procedure there are a set of controls and 'hold points', from the resurfacing design through to construction and post-construction inspection. A review of documentary evidence of eight audit checks relevant to reseal resurfacing and five checks relevant to asphalt resurfacing for 16 selected roads showed that timely surveillance work had been undertaken at the various points between design submission and post

4.119

completion inspections. There is appropriate evidence of quality controls being applied, of these detecting errors and of errors being rectified.

Performance reporting

Reporting (2017 to 2022)

Through to 2021-22, the former Transport Canberra and City Services Directorate reported on the performance of roads (and road resurfacing specifically) through a range of Strategic and Accountability Indicators presented in statements of performance and annual reports. The reporting provides information on annual targets and results and, in certain circumstances, narrative to assist public interpretation of targets and results. Annual reports have also included commentary on *Annual resurfacing coverage across the sealed road network* (in sqm). 5.11

Roads ACT has internally reported on the performance of roads (and road resurfacing specifically) through various documents such as: the *Roads ACT Strategic Asset Management Plan* (2018); annual ARRB reports (2018 to 2024) on the operation of the Pavement Management System; and the *Strategic Road Maintenance and Renewal Program* strategy document (2024). While the *percentage of Territorial roads in good condition* Strategic and Accountability Indicator (based on a road's roughness) was reported as 87 or 90 per cent, a wider range of condition parameters suggested a different perspective; that of a 'fair' but gradually deteriorating network condition. While resurfacing program underperformance may have been a factor, internal reporting indicates this deterioration was primarily attributed to resurfacing budgets being insufficient to create a sustainable (i.e. stable) road condition. 5.32

Reporting (2022 to 2025)

The Transport Canberra and City Services Directorate's annual reporting against the Strategic and Accountability Indicators since 2022 provides a generally positive picture of performance since the introduction of the new resurfacing strategy in February 2023, although there are some exceptions. The *Pavement Condition Index score of Territorial roads* Strategic Indicator has remained better than the mid-point of 'fair' (2.5). 5.42

A Pavement Condition Index score is not available for 2024-25. Roads ACT has not obtained a report from ARRB with the Pavement Condition Index score for 2024-25, nor is there a contract in place (with ARRB or any other provider) for the provision of Pavement Management System reports (as at August 2025). The lack of a Pavement Condition Index score limits Roads ACT's ability to provide assurance that its resurfacing strategy is delivering 'a sustainable level of road maintenance and corrective works [...] where the overall condition of the network remains static over the longer term' and hampers public accountability. 5.43

The *Pavement Condition Index score of Territorial roads* has since been removed as a Strategic Indicator as part of the 2026-27 ACT Budget process. This means that 5.44

there is no Strategic Indicator (or Accountability Indicator) related to the condition of roads or the road network in the ACT.

The new resurfacing strategy seeks to increase the amount of asphalt resurfacing relative to bituminous reseal. The new resurfacing strategy also seeks to adjust the balance of asphalt relative to bituminous reseal at the sub-network level (i.e. between the Territorial and Municipal sub-networks). A review of the ratio of asphalt to bituminous reseal by area between 2020-21 and 2024-25 shows that the overall area of asphalt (relative to that of reseal) has not increased substantially in the first two full years of the new resurfacing strategy. The ratio of asphalt to reseal (by area) was 14:86 in 2023-24 and 17:83 in 2024-25 compared to 17:83, 22:78 and 7:93 in the preceding three years (an average 15:85).

5.51

In response to the draft proposed report Roads ACT advised that the figures are an average over the ten-year period between 2022 and 2031 and that the level of increased focus on asphalt is based on a forecast ten-year average.

5.52

Based on 2023-24 and 2024-25 data it is evident that the ratio of asphalt to reseal has not yet improved towards the sub-network ratios identified in the November 2022 business case. Territorial sub-network bituminous reseal resurfacing is still accounting for more of the total network area of resurfacing than expected.

5.57

A review of expenditure associated with asphalt and reseal treatments in 2023-24 and 2024-25 shows expenditure on reseal treatment has been significantly higher (+34.9 per cent and +67.6 per cent respectively) than was intended based on business case assumptions associated with budget, unit cost and treatment ratios. Conversely expenditure on asphalt treatment has been significantly lower (-26.6 per cent and -43.5 per cent respectively). In response to the draft proposed report Roads ACT advised that the initial focus of the program has been on reseal treatment.

5.66

In the first two years of the new resurfacing strategy (2023-24 and 2024-25) there has been mixed success in the achievement of the strategy's performance goals. There has been an overall increase in resurfacing and Territorial and Municipal sub-network resurfacing targets have been met. There has not yet been an overall increase in the use of asphalt, nor have expected reseal versus asphalt ratios been achieved yet for either the Territory or Municipal sub-network.

5.69



Recommendations

Recommendation 1

Strategic Asset Management Plan (SAMP)

The City and Environment Directorate should develop and implement a Strategic Asset Management Plan that encompasses road surface asset maintenance. The Directorate should ensure the Plan is reviewed and updated in accordance with the requirements of the Strategic Asset Management Framework.

Recommendation 2 Road resurfacing strategy

The City and Environment Directorate should:

- a) review and update the road resurfacing strategy on a timely basis, in accordance with a current and agreed Strategic Asset Management Plan; and
- b) make the road resurfacing strategy publicly available.

Recommendation 3 Pavement Management System level of service

The City and Environment Directorate should:

- a) document its intended level of service for the road pavement and its consequence for the management of road resurfacing; and
- b) make the details of the level of service publicly available to the ACT community and interested stakeholders.

Recommendation 4 Territorial and Municipal road Accountability Indicators

The City and Environment Directorate should review the purpose and document the rationale for the continued use of the two indicators relating to the frequency of resurfacing of Municipal and Territorial roads.

Recommendation 5 Capitalisation or expensing of road resurfacing activity

The City and Environment Directorate should document the rationale for capitalising or expensing its road resurfacing activity and in doing so document how the road surface asset's useful life is calculated.

Recommendation 6 Roads ACT annual business plan

The City and Environment Directorate should implement annual business planning processes that include:

- a) development of annual business plans for business units in a timely manner; and
- b) ongoing and documented review of activities identified in business plans during the year.

Recommendation 7 Asphalt team

The City and Environment Directorate should prepare and document an annual *operating plan* for the Asphalt team in the Works Branch.

Recommendation 8 Business system and data quality plans

The City and Environment Directorate should develop and implement business system and data quality improvement plans for the systems used to manage its resurfacing activities.

Recommendation 9 Documentation of policy and practice

The City and Environment Directorate should review all aspects of its resurfacing strategy and its implementation for opportunities to improve the documentation of policy, procedure and practice. Prioritisation of areas for improvement should include:

- a) Municipal sub-network road selection;
- b) program validation activities prior to program finalisation; and
- c) reasons for the addition and removal of roads (or road sections) before and after program finalisation.

Recommendation 10 Panel planning

The City and Environment Directorate should review its *Road and Path Maintenance Panel* by:

- a) planning ahead for its panel procurement activities (i.e. more than 12 months ahead) of the shortest possible (contracted) panel duration; and
- b) considering and documenting the overall achievement of VFM with the panel.

Recommendation 11 Quality assurance procedures and practice

The City and Environment Directorate should document its procedures and learnings from its practices with respect to quality assurance over its road resurfacing activities.

Recommendation 12 Public reporting on the quality and condition of ACT roads

The City and Environment Directorate should publicly report on the condition of the road network in the ACT through relevant Strategic Indicators(s) and Accountability Indicator(s). Public reporting should be meaningful and informative to the ACT community and address both Territorial and Municipal roads.

Agency response

In accordance with subsection 18(2) of the *Auditor-General Act 1996*, the City and Environment Directorate was provided with a draft proposed report for comment. All comments in response to the draft proposed report were considered and changes were reflected in a final proposed report.

The City and Environment Directorate was provided with the final proposed report for comment. All comments in response to the final proposed report were considered and changes reflected in a final report.

As part of the final proposed report process, the City and Environment Directorate was invited to provide comments for inclusion in the Summary chapter of the final report. No comments were provided for inclusion in this Summary chapter.

1 Introduction

Road maintenance

- 1.1 Road maintenance involves a broad range of activities including:
- the maintenance of the road surface;
 - the maintenance of road signs, barriers and lights; and
 - the maintenance of road markings.
- 1.2 It also includes other routine activities that keep the road surface performing as intended. This includes the sweeping and clearing of debris, weeding and management of overhanging trees.

Road surface maintenance

- 1.3 The maintenance of the road surface, also referred to as the road's 'wearing course', is a very visible activity. Road maintenance activities such as pothole-filling, patching and resurfacing are undertaken to support a road to achieve its intended design life. Currently the Territory spends about \$35 million a year on road surface maintenance.
- 1.4 The Territory's activities to maintain the road surface was the primary focus of the audit.

Service life and functionality

- 1.5 The purpose of road maintenance is to maintain a road's serviceability and condition, sustain the road surface's intended functionality and reduce the risk of premature deterioration. A road surface's functionality provides road users with *comfort* and *safety* supports the broader concept of *economy*:
- vehicle occupants' *comfort* is supported by ensuring the road surface is sufficiently smooth and quiet; and
 - vehicle *safety* is supported by maintaining a road surface with adequate skid resistance, texture and evenness and by minimising rutting and other defects that may impair vehicle control, particularly during braking and cornering.
- 1.6 *Economy* is supported by minimising the cost to the public of maintaining roads. Economy may also include minimising the costs borne by vehicle owners of the wear and tear to their vehicles resulting from road use.

Road deterioration

1.7 Roads deteriorate because of loading factors and environmental conditions.

Loading factors

1.8 Since the major expansion of Canberra's districts and suburbs in the 1960s there has been an increase in:

- road vehicle volumes (as measured by Annual Average Daily Traffic (AADT) counts); and
- road vehicle weights (as measured by Equivalent Standard Axle (ESA) weights). Road vehicle Equivalent Standard Axle (ESA) weights have increased over time. While this is the case with private passenger vehicles, it is even more so for freight and public passenger transport vehicles.¹

1.9 Changes to road vehicle volumes and road vehicle weights are due in part to population growth, ownership patterns, travel footprint and road user habits. The key impact is from the increasing prevalence of heavy vehicles for the movement of goods and provision of services.

Environmental conditions

1.10 Environmental conditions in this century are different to those predicted when some ACT roads were engineered up to 65 years ago. The incidence of three successive La Niña weather events in 2020, 2021 and 2022, which was unusual in itself, was associated with record-breaking rainfall and flooding across eastern Australia.

Figure 1-1 La Niña weather events (2020 to 2022)



Source: Bureau of Meteorology (January 2025).

¹ The relationship between axle weight and pavement damage is exponential, meaning that the amount of damage is proportional to the weight of the axle raised to a power. EAN 23 advises Yutong buses are up to 15 per cent heavier than the buses they replace.

Road condition parameters

1.11 Road condition is primarily influenced by traffic loading and environmental factors, including moisture, temperature and weathering. These factors contribute to a range of pavement issues, including:

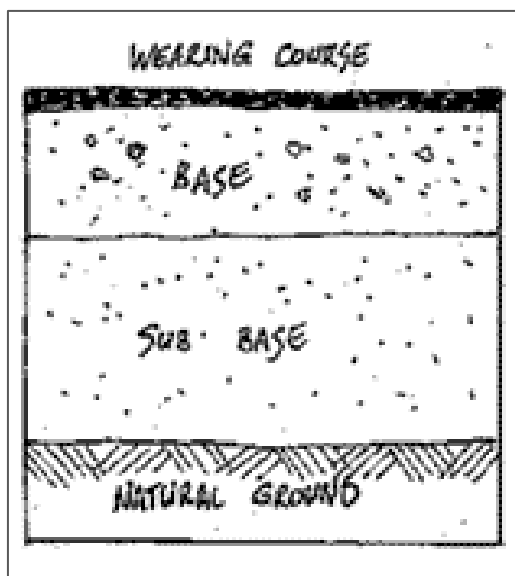
- *cracking and rutting*, which can impair pavement performance, reduce ride quality, increase maintenance requirements and adversely affect road safety;
- *roughness*, which is a key indicator of pavement condition and serviceability, affecting ride quality, occupant comfort, vehicle operating costs and road safety; and
- *reduced skid resistance*, which can adversely affect vehicle braking, cornering and wet-weather traction, making it a key indicator of road safety performance.

1.12 In addition to these road surface condition parameters, surface age (the time since the most recent resurfacing) may be used as a broad proxy for pavement surface deterioration. Although not a direct measure of condition, older surfaces are generally more susceptible to the cumulative effects of traffic loading and environmental exposure, including oxidation, reduced waterproofing capability and surface cracking.

Road maintenance and road rehabilitation

1.13 Figure 1-2 depicts a typical cross-section of a road pavement.

Figure 1-2 Visual representation of a typical cross-section of a road pavement



Source: Transport Canberra and City Services Directorate.

1.14 Figure 1-2 identifies that the wearing course typically overlays a base layer and sub-base layer over the 'natural ground'. Defects in the protective features of the wearing course can lead to structural problems in the road base and sub-base. The converse can also happen. Problems with the structural integrity of the base and sub-base, for example water ingress

from roadside drainage, can lead to defects in the wearing course. Potholes may arise from the structural failure of the road base or sub-base or wearing course.

Road maintenance

- 1.15 In this context, *road maintenance* refers to the planned preventative maintenance and unplanned (reactive) maintenance of the road surface layer (i.e. the wearing course) that occurs during the life of a road.

Road rehabilitation

- 1.16 Roads may exhibit structural failure or partial failure to the road base and sub-base. The renewal of a road surface and the road base and sub-base when it reaches or nears its end-of-life is known as *road rehabilitation*. *Road rehabilitation* becomes necessary when *road maintenance* options have been explored and exhausted. Planned *road maintenance* is invariably lower cost (e.g. per square metre) than *road rehabilitation*.

ACT road network

Extent of the ACT road network

- 1.17 There are 3,134 kilometres (km) of sealed roads in the ACT, many of which were laid down more than 50 years ago as new suburbs were established. The road network is the second largest (depreciated) infrastructure asset in value owned and maintained by the City and Environment Directorate (after stormwater infrastructure assets).

Measures of road surface

- 1.18 The 3,134 km of sealed public road network in the ACT amounts to 7,150 km in lane kilometres. The measurement of lane kilometres is helpful since it accurately reflects the extent of two-way and multi-lane roads. The extent of the sealed road network can also be described in square metres. The extent of the ACT sealed road network in December 2024 was 24,705,223 square metres. This is useful for understanding the area and relative proportion of the network being resurfaced each year.
- 1.19 The ACT's road surface is predominantly comprised of flexible granular pavements consisting of asphalt or sprayed-seal surfacing over granular base and sub-base layers. There is a negligible amount of (inflexible) concrete road pavement (described as 'rigid pavement') in the ACT public road network. The distinction between *asphalt* and *chipseal reseal* is significant in terms of cost, technical capability and the resulting surface's performance.

Road network descriptors

- 1.20 For planning, delivery and reporting purposes, the ACT's sealed road network can be subdivided into two sub-networks - Territorial and Municipal.
- 1.21 By area (in square metres), approximately 30 per cent of the ACT's sealed roads are Territorial roads and 70 per cent are Municipal roads. By lane length, approximately 29 per cent of the ACT's sealed roads are Territorial roads and 71 per cent are Municipal roads.
- 1.22 Territorial roads are strategically significant roads that cater for generally higher vehicle volumes, speed and payload (e.g. freight) travelling over large distances, e.g. the Monaro and Barton Highways and Majura Parkway. Municipal roads comprise all ACT roads that are not Territorial and which provide connectivity within neighbourhoods and to Territorial roads.

Network management

- 1.23 Road maintenance is the responsibility of Roads ACT as the Road Transport Authority. Roads ACT is a business unit within the City and Environment Directorate (formerly the Transport Canberra and City Services Directorate).
- 1.24 As the ACT's Road Transport Authority, Roads ACT maintains all public roads in the Territory; sealed and unsealed. Road maintenance is undertaken by a combination of in-house and externally contracted works teams.
- 1.25 During audit fieldwork, prior to the merger of the Transport Canberra and City Services Directorate and Environment, Planning and Sustainable Development Directorate into the City and Environment Directorate, Roads ACT comprised four branches:
- Road and Path Network;
 - Environment and Utilities;
 - Works; and
 - Business Support.
- 1.26 Roads ACT also shared resources within the Infrastructure Planning team.

Road maintenance

Planned maintenance

- 1.27 Roads ACT generally refers to its planned road maintenance activities as 'resurfacing program(s)'. Planned road maintenance comprises preparatory work ('prep patching') to remove defects in the road that the proposed resurfacing treatment cannot address

followed (at a suitable interval) by resurfacing treatments, commonly through the addition of a reseat (7mm and/or 14mm aggregate and a bitumen binder) over the existing road surface. A smaller area of the overall road network is resurfaced using hot asphalt, either by laying down a new course over the pre-existing surface (asphalt overlay) or by cutting back the pre-existing surface and then laying down a new course (a process known as 'mill and fill').

- 1.28 The vast majority of planned maintenance work is currently undertaken by external contractors. The Works Branch Asphalt team undertakes some preparatory patching work ahead of more extensive resurfacing as well as some hot mix asphaltting. The Road and Path Network Branch is the principal contract manager for planned maintenance activities, whether delivered by the Works Branch Asphalt team or by external contractors.

Reactive maintenance

- 1.29 Reactive maintenance is primarily undertaken by the Works Branch's in-house Routine Maintenance team. Reactive maintenance typically involves:

- filling potholes (using a temporary cold mix asphalt); and
- hot-mix asphalt patching to address certain other road defects that present a road user hazard such as excessive rutting, cracking and other surface deformations.

- 1.30 Reactive repairs are considered to be localised repairs. Work tasks or 'jobs' are primarily raised through Fix My Street, and to a lesser extent through interactions with the community and other stakeholders, as well as through Roads ACT routine surveillance activities.

Road rehabilitation

- 1.31 Resurfacing treatments are intended to address surface condition deficiencies and cannot rectify underlying structural defects in the pavement base or sub-base. Where such deficiencies exist, resurfacing is likely to fail prematurely and road pavement rehabilitation may be required to restore the structural integrity of the road. At this point major road rehabilitation work is needed. Road rehabilitation costs more (per square metre) than resurfacing treatments. Road rehabilitation requires substantial bespoke engineering input including geotechnical engineering surveys and design and is subject to a separate budgetary process on a case-by-case basis.

- 1.32 While the extent of the need for road rehabilitation can be directly related to how well the road surface has been maintained, the issue of whether road rehabilitation is classified as a road maintenance activity is not straightforward. This is discussed further in Chapter 3.

- 1.33 Table 1-1 shows post-July 2025 City and Environment Directorate responsibilities for road maintenance and road rehabilitation.

Table 1-1 Responsibilities for road maintenance and road rehabilitation

Activity	Responsibility	
Planned maintenance	Road and Path Network team (Roads ACT)	Work is primarily performed by external contractors, with some work undertaken by the Works Branch Asphalt team.
Reactive maintenance	Works Routine Maintenance team (Roads ACT)	Work is primarily performed by Works Branch teams.
Rehabilitation	Road and Path Network team Infrastructure Planning team Infrastructure Delivery unit	Identifies suitable sites for rehabilitation. Undertakes further investigation, including progressing a Preliminary Sketch Plan to inform a business case. Undertakes detailed design and construction.

Source: ACT Audit Office based on September 2024 Roads ACT organisation chart.

Audit objective and scope

Audit objective

- 1.34 The objective of the audit was to assess whether the ACT public road network is being effectively maintained.

Audit scope

- 1.35 The audit considered the activities of the City and Environment Directorate (formerly the Transport Canberra and City Services Directorate) to plan for, and implement, programs for the maintenance of the ACT public road network surface. The audit considered whether road surface maintenance programs are soundly based and adequately resourced and managed to achieve the intended outcomes for the community.

Business units

- 1.36 The activities of Roads ACT were the primary focus of the audit. Roads ACT is the business unit within the City Services Division of the City and Environment Directorate with responsibility for road maintenance. Roads ACT manages public roads and related assets in the ACT as the Road Transport Authority.

1.37 The activities of other units within the City and Environment Directorate were considered for the purpose of the audit including:

- the Infrastructure Planning team within the City Services Division, which provides support to Roads ACT in its strategic asset management planning for road maintenance and rehabilitation; and
- the Infrastructure Delivery team, which supports Roads ACT for capital works delivery with respect to road rehabilitation and other road renewal projects.

Activities

1.38 The focus of the audit was on planned maintenance and the unplanned maintenance and reactive repair of the road surface. The audit also considered those activities that support the planning and delivery of resurfacing programs. These include:

- road pavement condition surveying;
- program development including research and analysis; and
- work packaging, contract management and contractor task superintendency.

1.39 To a limited extent the audit also considered road rehabilitation activities that become necessary at or near the end of a road pavement's life.

Timeframe

1.40 The audit focused on road maintenance activities between 2020-21 and 2024-25. The years 2020-21 and 2021-22 were a period of policy review and reform, which culminated in a February 2023 Legislative Assembly Ministerial statement relating to a 'new strategic maintenance program to repair and preserve Canberra's roads for a generation'.

1.41 Auditor-General Report No.5/2017 *Maintenance of selected road infrastructure assets* noted 'aging road assets and budget limitations have resulted in a backlog of road pavement repairs. Addressing the backlog will likely take years and is best guided by a long-term strategy which needs to be developed'. The 2025 audit also considered activities from 2017-18 onwards in order to examine the context in which the new strategy was developed.

Out of scope

1.42 Road maintenance is an asset management activity. Roads ACT intends for the asset management of road and related infrastructure in the ACT be generally in accordance with the *Austroads Guide to Asset Management 3rd edition* (2018) and *Austroads Guide to Pavement Technology* (AGPT), which establishes a hierarchy of inter-related strategies:

- a road system management strategy underpinned by;
 - a road investment strategy;

- an infrastructure preservation strategy; and
 - a road user management strategy.
- 1.43 The audit focuses on the Roads ACT equivalent of *a road infrastructure preservation strategy*. The audit does not consider any overarching *road system management strategy*, *road investment strategy* or *road user management strategy*.
- 1.44 The maintenance of transport network-related infrastructure such as stormwater assets, bridges, street lighting, traffic lighting and signage or dedicated pedestrian and cycle pathways was not considered as part of the audit.
- 1.45 Road works traffic management, kerbings and line and road markings reinstatement are also undertaken for the purpose of road maintenance. These activities, which are ancillary to the principal task of road resurfacing, were not considered as part of the audit.
- 1.46 The audit did not consider the maintenance of:
- concrete road surfaces;
 - unsealed roads; or
 - roads beyond those maintained by Roads ACT.
- 1.47 The audit did not consider the construction of new roads (e.g. Majura Parkway), the duplication of existing roads (e.g. Athllon Drive or William Hovell Drive) or the major upgrading and re-engineering of roads (e.g. Monaro Highway).

Audit criteria, approach and method

Audit criteria

- 1.48 To form a conclusion against the objective, the following criteria were used.

Criterion One: Does Roads ACT effectively plan for the maintenance of the ACT public road network?

- *Strategic planning* - Maintenance-related road network strategies contribute to City and Environment directorate public infrastructure strategic asset management and the Government's short and long term objectives.
- *Operational planning* - Roads ACT has operational plans, policies and procedures to ensure maintenance-related road network strategies can be implemented.
- *Governance arrangements* - Roles, responsibilities, structures and accountabilities are clear and supported by a sound governance framework.

- *Budgeting and funding* - Strategies and plans identify what is funded and unfunded over defined timeframes. Records demonstrate how reprioritisation occurs where intended activities need to change.

Criterion Two: Does Roads ACT effectively maintain the ACT public road network?

- *Evidence drivers* - Data systems informing strategies, programming and scheduling are effectively implemented. Systems are soundly managed and continuously improved.
- *Evidence application* - Programming and scheduling is evidence-based and in accordance with policies and procedures.
- *Performance review* - Roads ACT monitors, reports and reviews performance with respect to its original and revised plans.
- *Optimisation* - Roads ACT seeks to optimise its road maintenance activities with reference to available funding.

Audit approach and method

- 1.49 The audit was performed in accordance with *ASAE 3500 – Performance Engagements*. The audit adopted the policy and practice statements outlined in the Audit Office’s *Performance Audit Methods and Practices (PAMPr)* which is designed to comply with the requirements of the *Auditor-General Act 1996* and *ASAE 3500 – Performance Engagements*.
- 1.50 In the conduct of this performance audit the Audit Office complied with the independence and other relevant ethical requirements related to assurance engagements.
- 1.51 The audit approach and method consisted of:
- reviewing relevant literature, and work undertaken on this subject by other jurisdictions to identify better practices;
 - identifying and reviewing relevant information and documentation including the governance and accountability framework and related policy and procedures, research documents, and relevant reports;
 - identifying and documenting internal controls, procedures and performance measures used to give effect to the policies and guidelines and to ensure compliance, and evaluating the effectiveness of these controls; and
 - interviews and discussions with key officials at the City and Environment Directorate and its predecessor TCCS, and particularly Roads ACT.

1.52 Site visits (i.e. on-the-ground fieldwork) were also undertaken in December 2024 and January 2025. These were for the purpose of understanding the operating environment within which Roads ACT's resurfacing activities take place, including:

- Roads ACT's contract management and superintendency of external contractors undertaking resurfacing work; and
- Roads ACT's direct delivery of resurfacing work via its inhouse asphalt team.

Better practice and standards

1.53 There is no publicly reported universal standard for the quality of a road surface in Australia.² Each jurisdiction sets its own standard, and that standard will likely be different for different roads in one jurisdiction. For example, high speed roads usually have higher standards. There is no universal concept of a 'good' road or what is meant by 'good' when it is used by a jurisdiction to describe its intentions or outcomes. Accordingly, it is a decision of each jurisdiction as to how it specifies its standard (i.e. the expected performance of the road surface) and how much information it makes public on the matter. The setting of standards is, however, guided by better practice.

1.54 Better practice for road-related asset management is informed by:

- Austroads, the apex organisation comprised of and funded by road transport and traffic agencies in Australia and New Zealand. It publishes guidelines, codes of practice and research reports that promote best practice for road management organisations in Australasia. The City and Environment Directorate is a member; and
- Institute of Public Works Engineering Australasia (IPWEA), the peak association for local government engineering and increasingly for all tiers of government as well as the private sector.

1.55 National Transport Research Organisation (NTRO), formerly the Australian Road Research Board (ARRB), has been assisting Roads ACT for more than ten years. NTRO provides, under contract, research capability to Roads ACT. For example, each year NTRO provides a research report to Roads ACT which outlines the condition of part of the road network and possible candidate roads or road sections for resurfacing.

1.56 Roads ACT City Services webpages publish Municipal road and Trunk road construction and maintenance standards. Many of the standards applied in the ACT are drawn from standards prepared and published by either Transport for New South Wales (TfNSW) and its forerunner, Roads and Maritime Services (RMS), or Austroads.

² For, example, it is not a government service within the scope of the Productivity Commission's annual *Report on Government Services*.

2 Road maintenance principles and practices

- 2.1 This chapter discusses key principles and practices relevant to the planning and delivery of road maintenance. Also discussed are programs, resourcing and performance reporting relevant to Roads ACT's road resurfacing activities.

Strategic asset management

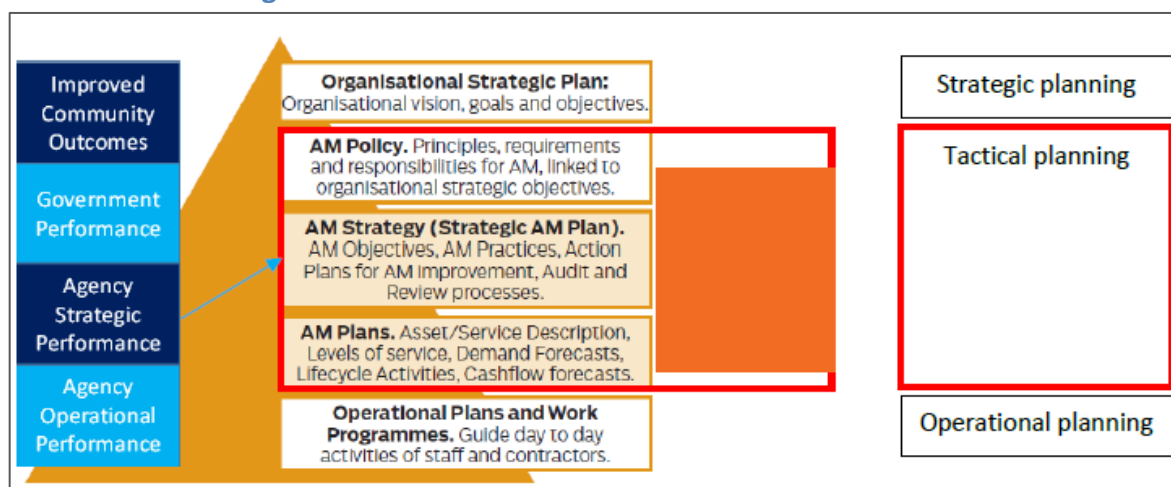
- 2.2 Road maintenance is an asset management activity. The maintenance of assets is resource-constrained and requires choices. The road surface is one component of one asset class of many road infrastructure-related asset classes. A Strategic Asset Management Plan, potentially within a broader Strategic Asset Management Framework, can assist with providing the rationale for making choices between asset classes competing for finite resources.

Strategic asset management planning

Strategic Asset Management Framework

- 2.3 The City and Environment Directorate is responsible for a major infrastructure asset portfolio valued at \$9.5 billion (as at June 2024). The City and Environment Directorate (and its predecessor the Transport Canberra and City Services Directorate) has maintained an overarching asset management framework, the Strategic Asset Management Framework (SAMF), since 2012.
- 2.4 The Strategic Asset Management Framework aims to harmonise asset management practices across the directorate. The Framework was first developed in 2012 and updated in 2016 and 2022. The 2022 version of the Framework outlines the Directorate's intended plans and functional hierarchy (refer to Figure 2-1).

Figure 2-1 Overarching asset management hierarchy of the Strategic Asset Management Framework



Source: *Strategic Asset Management Framework* (2022).

Strategic Asset Management Plan

2.5 The Strategic Asset Management Framework refers to the concept of a Strategic Asset Management Plan.

2.6 The Chief Minister, Treasury and Economic Development Directorate emphasises the importance of a directorate's Strategic Asset Management Plan in supporting budget submissions. In support of this the 2016 version of the Strategic Asset Management Framework noted:

ACT Treasury has developed a draft Asset Management Framework to provide guidance to directorates in the management of assets and the delivery of services that are asset dependent. In particular the ACT Treasury Framework establishes the relationship between asset management and Territory budget processes. While SAMPs do not constitute requests for funding, they will be required by the ACT Government to support future claims for funding.

2.7 The 2022 version of the Strategic Asset Management Framework reiterated the importance of a directorate's Strategic Asset Management Plan to the preparation of business cases for funding:

The SAMP review process should be aligned with the ACT Budget cycle. This will ensure that business cases for asset acquisition and maintenance are timely and have been adequately developed in consideration of the overall strategic impacts, and that there is a SAMP in place to support each business case for strategic assets.

2.8 Roads ACT finalised the *Roads ACT Strategic Asset Management Plan* in June 2018. The scope of the Plan includes ten 'life-cycle' chapters with separate chapters for each asset class, such as dams, paths, roads and bridges.

Asset life

- 2.9 Road assets have a *design life* and a *service life*. A road's *design life* is informed by, and built to, the specifications and standards in place when the road was constructed. The service life of a road reflects the period over which the road continues to be used. A road's wearing course or surface has a more limited service life than the road base and sub-base. However, the service life of the road surface can be effectively and efficiently extended by resurfacing. According to a November 2021 Cabinet submission, which sought to 'identify and recommend a course of action to improve outcomes associated with the management of road pavement in the ACT':

Sealed roads comprise a wearing surface, an underlying base and sub-base with a service life of 50 to 150 years and 150 to 300 years respectively provided they are appropriately protected by the surface seal. The sealed surface has a shorter life and is typically renewed on a 20 to 25 year cycle in the ACT.

- 2.10 A road is an asset that comprises different sub-classes or components. The road surface asset has a shorter service life and the underlying base and sub-base asset has a longer service life. The road surface asset is of primary interest in road maintenance planning and delivery, while from an accounting perspective, the road base and sub-base asset and its depreciable life may be viewed differently.

Level of service

- 2.11 Defining, budgeting for and communicating an appropriate level of service is central to strategic asset management. Level of service refers to the desired quality and condition of an asset with reference to agreed expectations of performance.
- 2.12 Level of service may be differentiated for two separate audiences; the community (customer levels of service) and technical specialists (technical levels of service). Technical levels of service are established to assist in achieving customer levels of service.
- 2.13 The *Roads ACT Strategic Asset Management Plan* (2018) acknowledges the importance of defining levels of service:

Well defined levels of service can be used to:

- inform customers of the current level of service provided and any proposed changes to level of service and the associated costs;
- measure performance against these defined levels of service;
- develop [asset management] strategies to deliver the required level of service;
- identify the costs and benefits of the services; and
- enable customers to assess suitability, affordability and equity of the services offered.

Road surface condition parameters

2.14 Road engineers make choices about which road surface condition parameters are significant for the purpose of meeting the agreed level of service and developing a program of road maintenance. The choice is informed by considering which condition parameters:

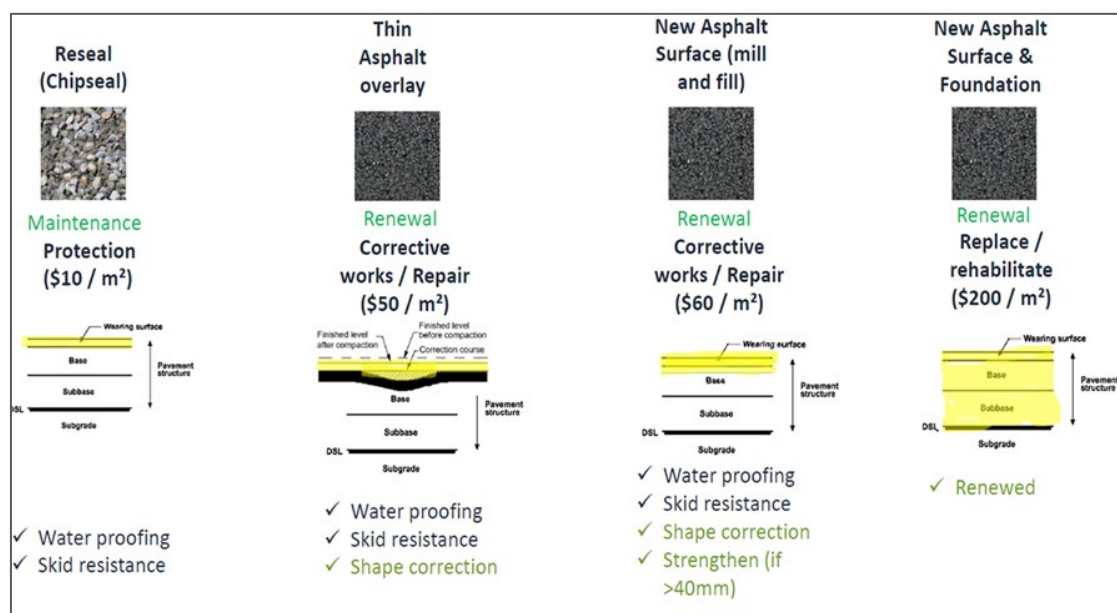
- can be detected reliably and efficiently; and
- are useful for informing judgements about the road from a road user's perspective and from an engineering perspective (e.g. the underlying structure of the road).

Protective and corrective action

2.15 Planned maintenance and rehabilitation activities may be distinguished as either *protective* or *corrective*.

2.16 Resurfacing for a protective purpose can change surface texture and create an impermeable 'seal' but it will not resolve substantial irregularities in the profile of the road. Such irregularities need corrective action. Figure 2-2 shows protective and corrective treatments and an indication of their cost.

Figure 2-2 Protective and corrective treatments and their indicative costs



Source: Roads ACT Strategic Road Maintenance and Renewal Program September 2024.

2.17 Figure 2-2 shows that the costs per square metre of protective treatments and corrective treatments vary. A maintenance regime focused solely on a protective treatment on the grounds of excessive minor cracking would not address rutting.

Road hierarchy

- 2.18 There are national and ACT-specific, historic and current typologies for the public road hierarchy in the ACT. The principal distinction used in Roads ACT resurfacing program management and performance reporting is between the Territorial sub-network and the Municipal sub-network.
- 2.19 In the ACT, the land use planning typology is based on functional and geometric characteristics. From low to high Annual Average Daily Traffic (AADT) volumes and according to *Street Planning and Design Municipal Infrastructure Standards 01* this is:
- **Access Streets** - where the residential environment is dominant, traffic is subservient, speed and volumes are low and pedestrian and cycle movements are facilitated;
 - **Minor Collectors** - roads that distribute traffic from Access Streets to Major Collectors or Arterials;
 - **Major Collectors** - part of urban neighbourhoods. These roads collect and distribute traffic between the primary (arterial and sub-arterial) road network and user destinations; and
 - **Arterials** - strategically significant roads that cater for high vehicle volumes travelling over large distances. They do not interact with the places that the road passes through. They include rural and urban highways and rural roads. Sub-arterial roads are main roads between strategic centres that provide safe, reliable and efficient movement.
- 2.20 The Government's accepted definition is:
- Territorial roads are all Arterials (including rural and urban highways and rural roads); and
 - Municipal roads are the rest.
- 2.21 This report refers to Territorial roads and Municipal roads as two distinct sub-networks which together represent the whole ACT public road network. This is because two distinct road maintenance approaches have coexisted for the two sub-networks for at least fifteen years.
- 2.22 Some Major Collectors, as determined by their higher AADT volumes, are added to the Territorial sub-network for the purpose of analysis for resurfacing program development and for the calculation of Territorial sub-network condition performance. Major Collectors comprise the majority of the 138 roads contemplated for Territorial sub-network resurfacing each year.
- 2.23 The maintenance of the Territorial sub-network receives the majority of Roads ACT management effort.

Road maintenance programs

Works programs

2.24 The maintenance of the road surface in the ACT broadly falls into the following programs:

- reactive pothole filling - a Routine Maintenance team in the Works Branch undertakes pothole filling. This is a continuous activity and on rare occasions (e.g. in 2022-23) it has been undertaken by contractors;
- reactive patching - an Asphalt team in the Works Branch undertakes patching. This is a periodic activity which is also occasionally undertaken by contractors;
- planned preparatory patching. This work is undertaken by the Asphalt team or by contractors and precedes reseal resurfacing;
- planned asphalt resurfacing (either an overlay or 'mill and fill') is undertaken by the Asphalt team or by contractors;
- planned reseal resurfacing is undertaken by contractors; and
- rehabilitation works. These have a much longer cycle and are subject to a separate business case process.

Pothole filling

2.25 Pothole filling is a temporary, expedient measure driven by immediate safety concerns.

2.26 Weekly pothole filling is undertaken by the Routine Maintenance team in the Works Branch on the basis of safety risk. This is a minor part of road maintenance activity considered in this audit. A pothole filled with cold mix does not address the underlying structural failure of the road at that point (often water ingress from above or the side of the road). Cold mix needs removing and replacing with hot mix as part of preparatory patching for a more permanent solution.

Patching

2.27 Patching is a periodic activity, undertaken when time permits, when preparatory patching and asphalt resurfacing work are no longer time critical.

2.28 The Asphalt team in the Works Branch undertakes hot asphaltting for patching that is not urgent. This is generally in the period April to June and is primarily based on a review of Fix My Street notified works, which have been reviewed and specified by the Road and Path Network Branch. Asphalt team managers review and prioritise those jobs to create weekly work schedules.

Resurfacing (asphalt and reseal)

- 2.29 The resurfacing program is developed on an annual cyclical basis and is mostly undertaken by external contractors. A panel of three preselected contractors is invited via a Request for Quote (RFQ) process to submit a quote and state their capacity to achieve outputs set out in statements of requirements. The required volume of work is released to the panellists in 'packages' between July and December of each year, to minimise the effect of seasonal weather constraints.
- 2.30 There are between 16 and 24 packages each year, each with up to 100 roads (generally, whole Municipal roads and sections of Territorial roads) identified for a resurfacing treatment. A small proportion of this work in 2024-25 was allocated to the Asphalt team in the Works Branch for the purpose of preparatory patching and asphaltting. The resealing (i.e. bitumen and gravel) of roads is only undertaken by external contractors.
- 2.31 The process of prioritising what roads or sections of roads are to be resurfaced is different for the two sub-networks.

Territorial sub-network

- 2.32 For the Territorial sub-network, a consultancy (NTRO) under contract with Roads ACT has operated a Pavement Management System (dTIMS® software platform).³ The data in the Pavement Management System has been collected from a third of the Territorial sub-network each year through vehicle-mounted cameras.
- 2.33 The Pavement Management System produces a preliminary list of priority sections of roads and treatments. This selection is drawn from across the entire Territorial sub-network (not just from the most recently surveyed year's roads). Officials from the Road and Path Network Branch then site-survey each section of the preliminary list (for the first year of the program only) and validate the necessity of the work in a process referred to as 'ground truthing' before adding it to a final program.

Municipal sub-network

- 2.34 For the Municipal sub-network, where the treatment is more likely to be a chipseal reseal, programming is informed by a spreadsheet maintained by Roads ACT officials. Prior to 2022-23 the condition data in the spreadsheet was collected via a visual 'drive-over' inspection of a third of Municipal roads each year. Since 2022-23 the condition data has been collected through vehicle-mounted cameras in a similar process to that used for the Territorial sub-network.

³ National Transport Research Organisation (NTRO), formerly the Australian Road Research Board (ARRB).

- 2.35 A shortlist of Municipal roads for resurfacing is developed and the Road and Path Network Branch then physically site-surveys (i.e. ground truths) each road selected and validates the necessary work before adding it to a final program.
- 2.36 Once a final program of Municipal and Territorial roads has been canvassed with stakeholders (e.g. ICON, Evoenergy and Infrastructure Canberra) and adjusted as necessary, work is packaged up into what are considered viable packages (typically of between \$200,000 and \$4 million per package) for issuing to the Asphalt team in the Works Branch and three external contractors as an RFQ.
- 2.37 The procurement process results in a spread of packages between the Asphalt team in the Works Branch and the three external contractors. Procurement decisions are not solely price based. Capacity, capability and supplier risk are also considered.

Rehabilitation works

- 2.38 The Road and Path Network Branch maintains a running list of known roads requiring rehabilitation. After a suitable site for road rehabilitation is identified the Infrastructure Planning team undertakes further investigation and, as necessary, progress activity to the development of a Preliminary Sketch Plan to inform a business case. The Infrastructure Delivery team is then responsible for detailed design and construction. Investigative work in this area has increased in the last three years in recognition of the need to bring greater certainty to the scale of this challenge.

Resourcing road maintenance

- 2.39 If undertaken effectively the five programs of work can be expected to improve the service life and functionality of road assets. However, the resources actually made available for road maintenance can be expected to influence:

- the overall quantum of resurfacing undertaken each year; and
- the choice between *protective* and *corrective* treatments.

- 2.40 Table 2-1 shows spending on road maintenance between 2017-18 and 2022-23.

Table 2-1 Historic expenditure on road maintenance (2017-18 to 2022-23)

	Reactive maintenance expenditure	Planned maintenance expenditure	Reactive and planned total	Rehabilitation (Roads to Recovery funded)	Rehabilitation (ACT funded)
2017-18	\$2,791,979	\$19,122,686	\$21,914,665	\$2,856,064	0
2018-19	\$2,566,635	\$17,766,451	\$20,333,086	\$7,546,538	\$400,000
2019-20	\$2,139,409	\$18,357,880	\$20,497,289	\$3,253,839	0

	Reactive maintenance expenditure	Planned maintenance expenditure	Reactive and planned total	Rehabilitation (Roads to Recovery funded)	Rehabilitation (ACT funded)
2020-21	\$1,893,918	\$19,699,530	\$21,593,448	\$10,605,062	\$10,000,000
2021-22	\$1,426,522	\$19,016,805	\$20,443,327	\$8,287,767	0
2022-23	\$1,451,486	\$18,095,803	\$19,547,289	\$8,287,767	0
Average	\$2,044,992	\$18,676,526	\$20,721,517	\$6,806,173	

Source: Roads ACT *Strategic Road Maintenance and Renewal Program* 25 September 2024.

2.41 Between 2017-18 and 2022-23 there has been significant variability in spending on rehabilitation (between \$2.3 million and \$20.6 million each year) but relatively little variation in spending on reactive and planned maintenance (between \$19.5 million and \$21.9 million). Table 2-1 shows:

- reactive maintenance as a percentage of the total reactive and planned road maintenance expenditure was between 7.5 and 15.0 per cent between 2017-18 and 2022-23; and
- an average of \$6.8 million per annum for the rehabilitation of roads has been provided from the Commonwealth's *Roads to Recovery* initiative between 2017-18 and 2022-23.

Strategic Road Maintenance and Renewal Program

2.42 Resources allocated to the maintenance of the road surface increased following a 2022-23 mid-year budget review, as announced by the Minister for Roads in the Legislative Assembly on 8 February 2023. The June 2023 Budget Statement identified additional funding. Table 2-2 shows the impact of the enhanced funding on the planned (i.e. budgeted) funding levels for road maintenance through to 2026.

Table 2-2 Enhanced funding following 2022-23 mid-year budget review

	Reactive repairs	(Planned maintenance baseline)	Planned maintenance enhanced	Reactive and planned enhanced total
2023-24	Est. \$1.5 million	(\$19.9 million)	\$32.8 million	\$34.3 million
2024-25	Est. \$1.5 million	(\$20.3 million)	\$33.5 million	\$35.0 million
2025-26	Est. \$1.5 million	(\$20.7 million)	\$34.2 million	\$35.7 million
Three-year average		(\$20.3 million)	\$33.5 million	\$35.0 million

Source: ACT Audit Office, based on Cabinet submission and Decision 28 November 2022.

2.43 The 2022-23 mid-year budget review has resulted in increased resources for Roads ACT's planned road maintenance activities. Planned road maintenance resources increased by 65

per cent from an average forward baseline of \$20.3 million per year to an average of \$33.5 million per year.

2.44 It is evident from the 2022-23 mid-year budget review that the average increase of \$13.2 million per annum for road resurfacing will enable:

- an increase in Territorial sub-network resurfacing of 66 per cent including escalation (estimated \$9.8 million); and
- an increase in Municipal sub-network resurfacing of 33 per cent including escalation (estimated \$3.4 million).

Rehabilitation backlog

2.45 While the 2022-23 mid-year budget review provided for a substantial increase in resources for 'strategic road maintenance' the decision identified that a separate business case was to be prepared for 'strategic road rehabilitation'.

2.46 In November 2023 a *Strategic road rehabilitation* business case was prepared for the purpose of outlining options to address road rehabilitation works. The business case estimated the cost of 'strategic road rehabilitation' to be the equivalent of \$13.9 million per annum for the next ten years to address the known rehabilitation backlog. The *Strategic road rehabilitation* business case was noted by Cabinet, including that 'the estimated cost to address ACT's known sites for rehabilitation far exceeds the 10-year notional [Roads to Recovery] funding allocation' and that projects will be prioritised 'from within existing resources'.

2.47 A rehabilitation-focused business case was prepared for the purpose of the 2024-25 Budget. \$54.06 million in funding was agreed for the four years to 2027-28. The 2024-25 Budget Outlook stated:

The Government will continue to deliver a road rehabilitation program over the next five years to ensure a safe, smooth road surface and prevent the occurrence of potholes. This program will be funded through the Commonwealth Government's Roads to Recovery program.

Capital and recurrent funding sources

2.48 Relevant to the increase in overall funding arising from the 2022-23 mid-year budget review is:

- the source of the new funding and whether it is capital, recurrent or both; and
- the accounting treatment of road maintenance activity resulting from Roads ACT's use of existing and new resources, i.e. whether the activity can satisfy necessary tests for the expenditure to be capitalised or expensed.

- 2.49 The 2022-23 mid-year budget review resulted in a 65 per cent increase in overall funding for road resurfacing activity.
- 2.50 Up to 2022-23, an average of \$20.7 million per annum was spent on resurfacing as a planned maintenance activity, which was funded by recurrent funding. The recurrent funding included Controlled Recurrent Payments, some ACT Government Initiative funding and some Australian Government stimulus funding.
- 2.51 From 2023-24 to 2025-26 an average of \$33.5 million per annum is to be spent on resurfacing as a planned maintenance activity. This is to be funded principally through Controlled Recurrent Payments (\$20.7 million) and a further \$12.8 million per annum from a combination of capital source (a Capital Injection, use of the City and Environment Directorate's Better Infrastructure Fund and the Commonwealth's Local Roads and Community Infrastructure Program).

Capitalisation

- 2.52 The business case that informed the 30 January 2023 Cabinet decision to provide additional capital funding as part of the 2022-23 mid-year budget review explicitly recognised that additional funding was sought 'with the expectation that the majority of these works will be capitalised'. The business case identified the rationale for this as being:
- potential cost savings through taking a whole-of-life capitalisation approach;
 - other jurisdictions' practice of capitalising 'resurfacing works'; and
 - the broader implications of capitalising rather than expensing 'including the possible impact on the Headline Net Operating Balance'.
- 2.53 The business case also observed that 98 per cent of Commonwealth funded Roads to Recovery works, principally used for road rehabilitation in the ACT, was capitalised in the three years to 2021-22 and would continue to be so.

Performance reporting

- 2.54 Table 2-3 shows Roads ACT Strategic Indicators and Accountability Indicators relevant to road resurfacing along with an explanation for how the indicator has been measured.

Table 2-3 Roads ACT performance indicators relevant to road resurfacing

Type of performance indicator	Description	Commentary
Strategic and Accountability Indicator	Percentage of Territorial roads in good condition	Applied between 2008-09 and 2021-22. Used one condition parameter (roughness) as a proxy for overall condition. The range of targets and results between 2017-18 and 2021-22 was between 85% to 90% 'good or better'.
Strategic Indicator	Pavement Condition Index (PCI) score of Territorial roads [< 2.5]	Applied from 2021-22 to 2025-26. An index derived from a basket of weighted road surface condition indices. 2.5 equates to the middle of the 'fair' category.
Accountability Indicator	Annual percentage of Territorial roads resurfaced (by sqm)	Applied since 2007-08. The target for this indicator has varied from 5 percent (2020-21 and 2021-22) through to 7 per cent (since 2023-24).
Accountability Indicator	Annual percentage of Municipal roads resurfaced (by sqm)	Applied since 2007-08. The target for this indicator has been 4 percent since 2020-21, except for 2022-23 when it was 3 per cent.
Accountability Indicator	Annual resurfacing coverage across the sealed road network (in sqm)	Applied since 2022-23. A target of >1,000,000 sqm was identified for 2022-23. An outcome figure has been reported narratively in annual reports since 2017-18. A target of >1,260,000 sqm was identified in 2023-24 as part of the new resurfacing strategy announced in December 2022.
Accountability Indicator	Percentage of customers satisfied with the public road network	Applied since 2010-11. A target of >75 per cent has been identified since 2017-18. This is a broader measure than just the road surface, i.e. it reflects community opinion about the condition of the road and ease of use.

Source: Transport Canberra and City Services Directorate Annual Report Statements of Performance 2007-08 to 2023-24.

2.55 A review of the Strategic Indicators and Accountability Indicators shows that the Territorial sub-network receives more attention than the Municipal sub-network in reporting. The City and Environment Directorate advised:

The Strategic Indicator selected (i.e. Territorial Road PCI) is intended to provide a measure of an agency's achievement in meeting the strategic objective. This includes providing a safe and efficient road network which allows us to move reliably across the city. Territorial roads are more relevant to the Strategic Objective when compared to Municipal roads.

Road pavement condition reporting

- 2.56 In 2021-22 Roads ACT replaced the Strategic Indicator *Percentage of Territorial roads in good condition* with *Pavement Condition Index (PCI) score of Territorial roads [< 2.5]*.

Pavement Condition Index

- 2.57 The Pavement Condition Index captures multiple physical condition parameters of the road surface (i.e. cracking, roughness, rutting, skid and age). It attributes a value to each of the parameters, from which a composite score can be derived. The resulting single score provides a picture of the overall condition of ACT roads. In principle the Pavement Condition Index score enables the community to objectively gauge the 'state of the roads' in the ACT and whether the road surface is improving or deteriorating over time.

- 2.58 The Pavement Condition Index, based on multiple condition parameters, has several advantages and disadvantages over a score based on one parameter only. The Pavement Condition Index:

- being broader than a single index based on one condition enables a wider range of road user-experienced characteristics to be contemplated such as safety, comfort, economy and the environment;
- selected road user characteristics can be prioritised by using a weighting applied to each condition; and
- the concept of the weighted maximum in the Pavement Condition Index calculation formula ensures that a level of defect in one condition that is deemed unacceptable to road users dominates the overall index, as opposed to averaging which can mask an otherwise unacceptable condition.⁴

- 2.59 The *Roads ACT Strategic Asset Management Plan (2018)* noted:

This [Pavement Condition Index] method is closer to the real-life practice in which essentially different parameters are interpreted separately and decisions are based on the worst ones. This method has already gained wider support and acceptance by several major road authorities in Australia.

- 2.60 Roads ACT notes the original intended purpose of the Pavement Condition Index and the relative weightings has been to drive an 'optimisation process' through the dTIMS, through which treatments are selected to optimise the PCI results.

⁴ 'In extreme cases, the very worst and best properties neutralise each other, creating the false impression that the asset is in a reasonable condition' - Good practice in Reseal Programming Austroads Technical Report AP-T273-14 (2014), page 51.

Use of the Pavement Condition Index

2.61 The Pavement Condition Index was selected for the first time as a Strategic Indicator in the 2022-23 Budget Statement. However, its utility to Roads ACT had become well-established by that point. The concept of the Pavement Condition Index had informed:

- the Territorial and Municipal sub-networks' requirements for survey data;
- the Territorial sub-network annual resurfacing program since 2018;
- Roads ACT's strategic approach to road maintenance since April 2021; and
- 2021 and 2022 business cases relating to road resurfacing and rehabilitation activities.

Pavement Condition Index calculation

2.62 The Pavement Condition Index score requires identifying:

- an appropriate set of pavement condition parameters;
- level of service descriptors for each condition parameter (e.g. 'very good', 'good', 'fair', 'poor' and 'very poor');
- a methodology for grouping segmented data;
- data boundaries for each level of service band for each condition parameter, e.g. a numeric value for the upper and lower bounds for what constitutes 'poor' with respect to cracking or roughness; and
- a weighting for each condition parameter.

2.63 The resulting single Pavement Condition Index score used by Roads ACT is on a scale of zero to five. Table 2-4 shows the Pavement Condition Index scores and descriptors.

Table 2-4 Pavement Condition Index scores and descriptors

PCI score bands	Descriptor
0 to 1	Very Good
1 to 2	Good
2 to 3	Fair
3 to 4	Poor
4 to 5	Very Poor

Source: ACT Audit Office, based on ARRB annual reports for Roads ACT.

2.64 The current Pavement Condition Index score for the road sub-network can be calculated by following the agreed methodology. However, to model different budget scenarios and to develop future years' Territorial sub-network resurfacing programs, further Pavement Management System inputs are needed including for example:

- specification of possible resurfacing treatments (e.g. 'mill and fill' asphalt, reseal or road rehabilitation);
- treatment trigger points; and
- estimated treatment unit costs.

Pavement Condition Index and level of service

2.65 The Pavement Condition Index score and the use of the Pavement Management System (PMS) is a technical process overseen by road engineers. The engineering considerations and the resulting decision-making process directly affect the level of service road users will experience. Road engineers refer to level of service being the result of:

... translat[ing] measurable technical conditions into levels of acceptance that are usually stated as 'very good', 'good', 'fair', 'poor' or 'very poor'. 'One challenge is how to articulate well-defined levels of service and how to inform and ideally engage with users and the wider community over agreed levels of service or changes to levels of service.'⁵

2.66 An agreed level of service is part of a service's performance management and aids internal and public accountability.

2.67 Once the Government committed to a Pavement Condition Index of < 2.5 in August 2022, it practically committed to a headline level of service for the Territorial sub-network, namely that the sub-network would on average perform at a 'fair' level or better (i.e. a Pavement Condition Index of less than 2.5).

Removal of the Pavement Condition Index as a Strategic Indicator

2.68 The Pavement Condition Index score was removed as a Strategic Indicator as part of the 2026-27 ACT Budget process. This means that there is no Strategic Indicator or Accountability Indicator related to the condition of roads or the road network in the ACT.

⁵ ARRB Pavement management system and works program development for Roads ACT Year 1, 8 December 2021 page 15.

3 Strategic and operational planning

- 3.1 This chapter considers strategic planning for road maintenance and the development and implementation of the *Strategic Road Maintenance and Renewal Program*. The chapter then considers business unit planning processes.

Summary



Conclusions

Between 2021 and 2022 the ACT Government contemplated a new strategic approach to road maintenance (the *Strategic Road Maintenance and Renewal Program*). The new resurfacing strategy was publicly announced in February 2023. The new resurfacing strategy sought to address the issue that the 'ACT's road surfaces and pavement structure is deteriorating at a faster rate than is offset by current maintenance and rehabilitation levels'. The new resurfacing strategy involves *inter alia* a 52 per cent increase in expenditure on road maintenance and overall growth of total resurfacing meterage from 1 million to 1.26 million sqm.

Central to the resurfacing strategy is the Pavement Condition Index. The Pavement Condition Index is a key feature of annual Pavement Management System reports which:

- specify road condition settings and provide a rationale for those settings;
- model hypotheses, e.g. by examining the effect of different assumptions based on either specified budgets or a predicted Pavement Condition Index range; and
- produce provisional line-by-line works programs for the next ten years, once a preferred hypothesis had been resolved.

The Pavement Condition Index produces a single score that reflects the condition of Territorial roads and some major Municipal collector roads (approximately 30 per cent of the total road network) for the most recent year and a predicted score for future years based on different scenarios. The Pavement Condition Index is sensitive to Pavement Management System setting adjustments, including changes to weightings for the five condition parameters that comprise the score. It is possible to create a change in the Pavement Condition Index score by changing system settings rather than changes in the data that are reflective of physical changes to the road surface condition.

Because the Pavement Condition Index is a function of both changes in the condition of the road network and changes to system settings it is imperative that Roads ACT be publicly transparent and explicit with respect to:

- levels of service and experience that road users can expect; and

- any changes to system settings (including changes to weightings for the five condition parameters that comprise the score) that may affect the calculation of the Pavement Condition Index.



Key findings

Strategic planning

Paragraph

The *Roads ACT Strategic Asset Management Plan* (2018) was developed to provide strategies for maintaining, rehabilitating, renewing and growing relevant assets and their components. The Plan was identified as a three-year plan (2018 to 2021) but has not been updated since it was first developed. Governance arrangements for the management of the Plan (and other strategic asset management plans) in the former Transport Canberra and City Services Directorate were ineffective. Annual reviews of the Plan did not occur and a biennial review of the *Strategic Asset Management Framework* in November 2022 by the former TCCS Executive Board was cursory. It was concerned with the existence of strategic asset management plans for major asset classes across the directorate, but not their effectiveness.

3.15

Between 2021 and 2022 the ACT Government contemplated and resolved a new strategic approach to road maintenance; the *Strategic Road Maintenance and Renewal Program*. The new resurfacing strategy sought to address the issue that the 'ACT's road surfaces and pavement structure is deteriorating at a faster rate than is offset by current maintenance and rehabilitation levels'. The new resurfacing strategy was supported by increased funding through the 2022-23 mid-year budget review of \$39.5 million over the three years to June 2026 followed by ongoing annual funding.

3.27

Strategic Road Maintenance and Renewal Program

The Minister for Transport and City Services provided a statement to the Assembly on the new resurfacing strategy on 8 February 2023 and through media releases on 7 December 2022 and 20 September 2023. Key elements of the new resurfacing strategy include *inter alia*:

3.33

- a 52 per cent increase in expenditure on road maintenance;
- a continued primary focus on preventative bituminous resealing and a '150 per cent increase in asphaltting'; and
- overall growth of total resurfacing meterage, from 1 million to 1.26 million sqm.

The key elements of the *Strategic Road Maintenance and Renewal Program* were outlined in the Cabinet submissions relevant to road resurfacing between 2021 and 2022. These were consolidated into a 68-page strategy document that was finalised on 27 September 2024, the purpose of which was to assist future Roads ACT staff in understanding the rationale and evidence developed for the *Strategic Road Maintenance and Renewal Program*. Unlike other jurisdictions, the documented Program is not publicly available. Furthermore, there is not yet any progress within

3.34

Roads ACT on a strategy or program to succeed the current *Strategic Road Maintenance and Renewal Program*.

The Pavement Condition Index has been central to annual Pavement Management System reports produced by ARRB on behalf of Roads ACT since at least 2013. Annual ARRB Pavement Management System reports: 3.58

- specify road condition settings and provide a rationale for those settings;
- model hypotheses, e.g. by examining the effect of different assumptions based on either specified budgets or a predicted Pavement Condition Index range; and
- produce provisional line-by-line works programs for the next ten years, once a preferred hypothesis had been resolved.

In December 2020 Pavement Condition Index modelling was undertaken for 2020 to 2029 with reference to six different funding scenarios (budgets of \$7 million to \$40 million per annum). The December 2020 report identified that the Pavement Condition Index would deteriorate through to 2024, but that in all six scenarios the Pavement Condition Index would improve from 2024 (with greater improvements seen in the higher budget scenarios, specifically the \$12 million, \$20 million and \$40 million budget scenarios). Further analysis was conducted in September 2021 with reference to four different funding scenarios (a budget of \$10 million per annum through to an unlimited budget). In contrast to the 2020 report, condition deterioration was no longer 'locked in' over the next four years and a stable condition of 'fair' was modelled over ten years, with only an 'unlimited budget' yielding discernible improvement towards the 'good' band by 2028. 3.59

A review of the Pavement Condition Index methodology, as described in each year's ARRB report between 2018 and 2024, shows there were changes to the Pavement Management System settings over this period. It is likely that changes in the first half of 2021 that led to a re-basing of the Pavement Condition Index in the September and December 2021 ARRB reports were the result of technical and tactical decisions by engineers at ARRB and Roads ACT, which officials referred to as exercising 'engineering judgement'. 3.60

Roads ACT's changes to Pavement Management System settings introduced a higher level of service for the management of roads. Road condition parameters which were previously categorised as 'fair' were categorised as 'poor'. In addition, treatments would be earlier, with the treatment trigger being when the roughness indicator falls into the 'fair' band rather than waiting and falling into the 'poor' band. The change in settings amounts to an intention to achieve a higher level of service. 3.67

A review of the Pavement Management System settings in ARRB annual reports from 2018 to 2024 shows that: weightings (for the cracking and roughness indices) were changed between the 2018 and 2020 reports; and weightings (for cracking, skid, and roughness) were changed again in the 2021 report. Weightings have remained the same since the 2021 report and condition parameters and the trigger points for specific treatment interventions have remained the same since the January 2023 3.73

report. As a result, reported Pavement Condition Index results since February 2023 (2.34 being 'fair' in August 2023 and 2.43 being 'fair' in May 2024) are more likely to reflect road surface conditions and less likely to be the result of Pavement Management System changes.

Prior to 2022-23, when the *Percentage of Territorial roads in good condition* Strategic and Accountability Indicator was measured with reference to roughness, Roads ACT was publicly explicit about what roughness meant: a 'good' road having a roughness score of less than 4.2 IRI. However, since 2022 there has been no public statement by Roads ACT as to: what 'fair' means for the five condition parameters comprising the Pavement Condition Index; and what the trigger points are for treatments. Victoria makes such level of service information public as it assists in enabling 'customers to assess the suitability, affordability and equity of the services offered'.

3.81

Increasing use of asphalt

The new resurfacing strategy proposes an increase from 1 million to 1.268 million sqm of resurfacing a year. The strategy also seeks to:

3.92

- achieve more reseal treatment (by sqm) for the Municipal sub-network and more asphalt (by sqm) for the Territorial sub-network compared to the previous approach; and
- increase the use of asphalt by 2.4 times (i.e. an increase of 140 per cent) while increasing the level of reseal (by 7 per cent) across the whole network, compared to the old approach.

In response to the draft proposed report Roads ACT advised that they are average figures over the ten-year period between 2022 and 2031 and that the level of increased focus on asphalt is based on a forecast ten-year average.

3.93

Under the new resurfacing strategy Roads ACT continues to have the following two Accountability Indicators: *annual percentage of Territorial roads resurfaced (by sqm)*; and *annual percentage of Municipal roads resurfaced (by sqm)*. Agreed targets for the two Accountability Indicators are: Territorial sub-network (from six to seven per cent of the sub-network per year, i.e. a new frequency of once every 14.2 years on average); and Municipal sub-network (from three to four per cent of the sub-network per year, i.e. a frequency of once every 25 years on average). The new resurfacing Accountability Indicator targets are not explicit about the use of bituminous reseal versus asphalt, although in practice nearly all the area of resurfacing achieved historically relates to bituminous reseal and not asphalt. There is a risk that the Accountability Indicator targets may work against the goal of achieving more asphalt resurfacing.

3.102

Roads ACT is now capitalising 39 per cent of its resurfacing activity and expensing the balance. As part of this approach Roads ACT:

3.113

- has not satisfactorily documented the rationale for accounting for some of its resurfacing activity as capital expenditure and the balance through recurrent expenditure; and

- has not completed all the work originally envisaged as being necessary to efficiently and effectively capitalise the road *surface* asset, such as the componentisation of the asset in Assetic. Componentisation would enable the differential useful life of the road surface and road base to be recognised. This remains ‘work-in-progress’.

Operational planning

Roads ACT developed a *Roads ACT 2023-24 Business Plan* and a *Roads ACT 2024-25 Business Plan*. *Strategic Road Maintenance and Renewal Program* activities were reflected in both years’ plans. Roads ACT officers advised that the business plan is not used to actively plan for, or monitor, the business unit’s activities and it is a guiding document to revisit and reset competing priorities and to maintain visibility over longer term intentions and goals. A Roads ACT manager advised that the business plan might be looked at biannually, but that this was an ‘informal’ review without any form of rigor or record. Notwithstanding the limitations of the business plans Roads ACT officers effectively described, and provided suitable artefacts to demonstrate, how weekly, monthly and seasonal works programs are developed and delivered.

3.125

Strategic planning

- 3.2 Road-related asset classes comprise approximately \$2.85 billion or 30 per cent of all City and Environment Directorate infrastructure assets. Once built and in use, assets such as roads deteriorate. The role of road maintenance is to control the rate of deterioration of the road surface and road base over the road’s life in a financially sustainable manner. It is incumbent on asset managers to determine strategies from which operational plans can be developed to control the rate of deterioration. They do so with reference to a Strategic Asset Management Plan (SAMP) and, in the case of the City and Environment Directorate, a broader Strategic Asset Management Framework (SAMF).

Strategic Asset Management Framework

- 3.3 A Strategic Asset Management Framework (SAMF) establishes governance principles and controls for the use of strategic asset management plans. The former Transport Canberra and City Services Directorate first established a Strategic Asset Management Framework in 2012 and has since updated it in 2016 and 2022.
- 3.4 The Strategic Asset Management Framework identifies its purpose as providing:
- ... a sound basis for asset decisions that are made across the Transport Canberra City Services Directorate (TCCSD) Directorate. These decisions are informed by TCCSD’s Strategic Asset Management Plans (SAMP) which address the investment in, and the creation, management and disposal of, significant government assets.

- 3.5 The Strategic Asset Management Framework provides a basic checklist of expected actions and timing and creates a corporate discipline overarching those with responsibility for specific assets or asset classes.

Roads ACT strategies and plans

- 3.6 Below the level of the Strategic Asset Management Framework, Roads ACT maintains supporting asset management strategies and plans. Of direct relevance to road maintenance since 2017 are:

- *Roads ACT Strategic Asset Management Plan (2018)*; and
- *Strategic Road Maintenance and Renewal Program*.

Roads ACT Strategic Asset Management Plan (2018)

- 3.7 The purpose of the *Roads ACT Strategic Asset Management Plan (2018)* is to provide strategies for maintaining, rehabilitating, renewing and growing the asset and its components. The Plan 'covers a 3-year time-frame with renewals and capital investments covering a 10-year strategic planning time-frame'. The asset classes covered by the Plan include *inter alia* bridges, community paths, streetlights and roads.

- 3.8 The *Roads ACT Strategic Asset Management Plan (2018)* states:

Recently the ACT Government has reaffirmed its commitment to improving and optimising service delivery outcomes through efficient and effective use of the asset base. In particular greater transparency is sought for future expenditure requirements to inform the Government during financial decision making.

- 3.9 The ACT Treasury *Draft Asset Management Framework (2016)* provided guidance to directorates for the management of assets and the delivery of services that are asset dependent. The Draft Framework establishes the relationship between asset management and Territory Budget processes. Strategic asset management plans are expected to provide the necessary supporting data, such as asset condition, and identify capital improvement projects to support Budget bids.

- 3.10 The following issues have been identified with respect to the *Roads ACT Strategic Asset Management Plan (2018)*:

- the Plan was identified as a three-year plan (2018 to 2021). At the time of the 2022-23 mid-year budget review, through which additional funding was provided, the Plan had not been updated for a number of years;
- of the nine headline plans that provide the strategic context for the Plan, seven were more than five years old at the time the Plan was developed (i.e. their approval date was prior to 2013). For example, the Plan refers to *The Canberra Plan* of 2004 and 2008; and

- annual reviews of the Plan, identified as being part of strategic asset management governance, had not occurred.

Governance arrangements for strategic asset management plans

3.11 A review of the former Transport Canberra and City Services Directorate's use of the Strategic Asset Management Framework, and strategic asset management plans specifically, shows there was poor governance associated with the development and use of the plans:

- the biennial review of the *Strategic Asset Management Framework* in November 2022 by the former TCCS Executive Board was cursory. It was concerned with the existence of strategic asset management plans for major asset classes across the directorate, but not their effectiveness; and
- the TCCS Executive Board review was provided with evidence that for the eleven major asset-managing business units;
 - five had no strategic asset management plan in place; and
 - only three conformed with the Strategic Asset Management Framework's expectation of a five-year maximum life of a strategic asset management plan, one of which was nominally Roads ACT. However, an introductory read of the *Roads ACT Strategic Asset Management Plan* (2018) would have identified it was no longer current in 2022.

3.12 Table 3-1 shows which business units had a strategic asset management plan in place in 2022 and when it was last updated.

Table 3-1 Strategic asset management plans (November 2022)

Business Unit	SAMP in place	Last updated
City Presentation	Yes	2018
Sport and Recreation	No	-
Roads ACT	Yes	2018
NoWaste	No	-
Domestic Animal Service	No	-
Yarralumla Nursery	Yes	2013
Birrigai	Yes	2015
Capital Linen Service	Yes	2020
Transport Canberra buses	Yes	2014
Cemeteries	In progress	(October 2022)

Source: ACT Audit Office, based on TCCS Executive Board meeting papers 3 November 2022.

3.13 City and Environment Directorate staff advised that it has been a challenge to develop organisational capacity and capability for strategic asset management. Nevertheless, recent improvements to strategic asset management planning include:

- a requirement for the relevant Deputy Director-General to authorise the strategic asset management plan; and
- an intention to develop a more digestible and agile strategic asset management plan, which is supported by separate asset management plans. In contrast the *Roads ACT Strategic Asset Management Plan* (2018) is 391 pages long and functions as both a strategic asset management plan and an asset management plan for each asset class.

3.14 In December 2024 Roads ACT identified that a 'roadmap' for finalising the next strategic asset management plan had been developed and 'we are in the process of refining our methodology to update the SAMP taking into account the lessons learnt since 2018 SAMP'.



3.15 The *Roads ACT Strategic Asset Management Plan* (2018) was developed to provide strategies for maintaining, rehabilitating, renewing and growing relevant assets and their components. The Plan was identified as a three-year plan (2018 to 2021) but has not been updated since it was first developed. Governance arrangements for the management of the Plan (and other strategic asset management plans) in the former Transport Canberra and City Services Directorate were ineffective. Annual reviews of the Plan did not occur and a biennial review of the *Strategic Asset Management Framework* in November 2022 by the former TCCS Executive Board was cursory. It was concerned with the existence of strategic asset management plans for major asset classes across the directorate, but not their effectiveness.

Strategic Road Maintenance and Renewal Program

3.16 The *Strategic Road Maintenance and Renewal Program* derived from a series of Cabinet submissions relevant to road resurfacing between 2021 and 2022. The *Strategic Road Maintenance and Renewal Program* seeks to address the following problem statement:

Transport Canberra and City Services (TCCS) is concerned that ACT's road surfaces and pavement structure is deteriorating at a faster rate than is offset by current maintenance and rehabilitation levels. Lack of strategic investment will result in continued escalation of:

- safety concerns;
- costs to sustain the current condition level;
- costs attributed to road users; and
- community dissatisfaction.

- 3.17 The *Strategic Road Maintenance and Renewal Program* filled a strategic gap, since by 2022 the *Roads ACT Strategic Asset Management Plan* (2018) was notionally out-of-date. The resurfacing strategy identified in the *Strategic Road Maintenance and Renewal Program* is significantly different to the approach in the *Roads ACT Strategic Asset Management Plan* (2018).

Cabinet Submissions

- 3.18 The *Strategic Road Maintenance and Renewal Program* derived key Cabinet submissions relevant to road resurfacing:

- *Strategic Roads Maintenance*, 8 November 2021 (No. 21/601); and
- *Strategic Road Maintenance and Renewal - Business Case*, 28 November 2022 (No. 22/662).

- 3.19 The Cabinet submissions resulted in decisions of Cabinet to:

- *note* the case made in the submission and to call forward a business case that provides options for addressing the issues outlined in the problem statement (1 November 2021). Roads ACT advised that this Cabinet submission sought to articulate the ‘problem statement’; and
- *agree* in principle to additional capital funding to sustain the condition of Canberra’s Territorial roads (28 November 2022). Roads ACT advised that this Cabinet submission substantially formed the basis of the *Strategic Road Maintenance and Renewal Program*.

- 3.20 Other Cabinet submissions relevant to road resurfacing included:

- *Response to Resolution of 12 October 2022 – Roads Maintenance*, 30 January 2023 (No. 22/772); and
- *Strategic Road Rehabilitation*, 27 November and 8 December 2023 (No. 23/308).

- 3.21 These Cabinet submissions resulted in decisions of Cabinet to:

- *agree* a Ministerial Statement in response to an Assembly Resolution of 12 October 2022 which called for the Minister to investigate what changes must be made to the road maintenance approach to improve the state of ACT roads and *note* a new strategic road maintenance program that will increase the rate of Territorial road resurfacing (30 January 2023); and
- *note* the increase in the number of roads needing rehabilitation and the shortfall in funding between existing sources of funding and need (8 December 2023).

- 3.22 The Cabinet decisions of November 2022 and January 2023 led to increased funding as part of the 2022-23 mid-year budget review:

The Government will increase investment [by \$39.5 million over three years] in road maintenance to improve road safety and the quality of travel through an evidence-based Strategic Road Maintenance and Renewal Program.

Approach prior to 2021

- 3.23 The November 2021 Cabinet submission did not reference any pre-existing documented strategy for 'controlling road pavement deterioration' other than:

The sealed surface ... is typically renewed on a 20 to 25 year cycle in the ACT.

...

The resurfacing program aims to apply preventative treatments at an optimised point in time using available recurrent funding. The rate of resurfacing is guided by available budget and the associated accountability indicator targets. Capital funding is sought separately through the budget process for rehabilitation works.

...

TCCS is primarily focused on providing targeted early intervention to prevent roads from needing more costly and extensive works into the future. This approach places an increasing focus on providing treatments at an optimum intervention level when considering the benefits of investment.

- 3.24 This suggests that the practice *prior to 2021* was to focus on:

- prevention, i.e. protective treatments; and
- a long-established approach that aimed to achieve resurfacing with a frequency of once in 20 years for Territorial roads (5 per cent coverage of the sub-network per year) and once in 25 years for Municipal roads (4 per cent coverage of the sub-network).⁶

- 3.25 The business cases supporting the Cabinet submissions are extensive and provide detailed research, options and analysis of potential strategic approaches to road maintenance. In the later submissions the *Strategic Road Maintenance and Renewal Program* is directly referred to.

- 3.26 It is evident from the Cabinet submissions, and from the accompanying annual Pavement Management System reports from ARRB that model a range of different budgetary and performance scenarios, that Roads ACT was contemplating a change in resurfacing strategy in April 2021. By November 2021 this was the subject of a Cabinet submission that

⁶ After 2021 there were some changes to Accountability Indicators relevant to the resurfacing of Municipal roads and Territory roads (refer to Table 2-3).

highlighted the ‘lack of strategic investment’ in the past and a gradually ‘deteriorating pavement structure’.



- 3.27 Between 2021 and 2022 the ACT Government contemplated and resolved a new strategic approach to road maintenance; the *Strategic Road Maintenance and Renewal Program*. The new resurfacing strategy sought to address the issue that the ‘ACT’s road surfaces and pavement structure is deteriorating at a faster rate than is offset by current maintenance and rehabilitation levels’. The new resurfacing strategy was supported by increased funding through the 2022-23 mid-year budget review of \$39.5 million over the three years to June 2026 followed by ongoing annual funding.



Recommendation 1

Strategic Asset Management Plan (SAMP)

The City and Environment Directorate should develop and implement a Strategic Asset Management Plan that encompasses road surface asset maintenance. The Directorate should ensure the Plan is reviewed and updated in accordance with the requirements of the Strategic Asset Management Framework.

Strategic Road Maintenance and Renewal Program

- 3.28 On 7 December 2022 the Minister for Transport and City Services announced a ‘record funding increase for better, safer ACT roads’ for a new resurfacing strategy:

The ACT Government will significantly increase road maintenance funding to \$153 million over the next four years in a new strategic maintenance program to repair and preserve Canberra’s roads for a generation.

- 3.29 The key elements made public in announcements on 7 December 2022 and then on 8 February 2023 were outlined in supporting documents to the 2021 and 2022 Cabinet submissions (refer to paragraph 3.18). Key elements of the new resurfacing strategy include:

- an aim to achieve ‘better, safer smoother and quieter ACT roads [that] reduce associated costs of road users’;
- a 52 per cent increase in expenditure on road maintenance;
- a continued primary focus on preventative bituminous resealing and a ‘150 per cent increase in asphalting’;
- implementation of earlier intervention and more proactive maintenance;
- higher levels of service;
- overall growth of total resurfacing meterage, from 1 million to 1.26 million sqm; and

- achievement of a stable overall network condition that is sustainable into the medium term, through the use of a network level Pavement Condition Index.

Documentation of the resurfacing strategy

- 3.30 The key elements of the *Strategic Road Maintenance and Renewal Program* were outlined in the Cabinet submissions relevant to road resurfacing between 2021 and 2022. These were consolidated into a document that was finalised on 27 September 2024. The *Strategic Road Maintenance and Renewal Program* 68-page strategy document reprised much of the content of the Cabinet-reviewed business case of 28 November 2022. In response to the draft proposed report the City and Environment Directorate advised that the purpose of preparing the strategy document was to assist future Roads ACT staff in understanding the rationale and evidence developed for the *Strategic Road Maintenance and Renewal Program*.
- 3.31 Other jurisdictions, such as Victoria, assist the public in understanding their strategic approach to road maintenance by preparing and publishing shortened strategies.⁷

Beyond 2026

- 3.32 At the time of audit fieldwork the former Transport Canberra and City Services Directorate was not working on a successor strategy to the *Strategic Road Maintenance and Renewal Program*. The Program took two years to develop and refers to five-year works planning, ten-year scenarios and 20-year Pavement Condition Index modelling.



- 3.33 The Minister for Transport and City Services provided a statement to the Assembly on the new resurfacing strategy on 8 February 2023 and through media releases on 7 December 2022 and 20 September 2023. Key elements of the new resurfacing strategy include *inter alia*:

- a 52 per cent increase in expenditure on road maintenance;
- a continued primary focus on preventative bituminous resealing and a '150 per cent increase in asphaltting'; and
- overall growth of total resurfacing meterage, from 1 million to 1.26 million sqm.



- 3.34 The key elements of the *Strategic Road Maintenance and Renewal Program* were outlined in the Cabinet submissions relevant to road resurfacing between 2021 and 2022. These were consolidated into a 68-page strategy document that was finalised on 27 September 2024, the purpose of which was to assist future Roads ACT staff in understanding the rationale and evidence developed for the *Strategic Road Maintenance and Renewal Program*. Unlike other jurisdictions, the documented Program is not publicly

⁷ VicRoads: Pavement Management Strategic Plan Transport Assets – Asset Management August 2021.

available. Furthermore, there is not yet any progress within Roads ACT on a strategy or program to succeed the current *Strategic Road Maintenance and Renewal Program*.



Recommendation 2

Road resurfacing strategy

The City and Environment Directorate should:

- a) review and update the road resurfacing strategy on a timely basis, in accordance with a current and agreed Strategic Asset Management Plan; and
- b) make the road resurfacing strategy publicly available.

Use of Pavement Management System reports

3.35 The work that led to the new resurfacing strategy culminated in the Ministerial Statement to the Assembly on 8 February 2023. In the lead-up to that statement, the focus of officials' work was on the Territorial sub-network. Central to that work was modelling by ARRB for Roads ACT using the dTIMS® Pavement Management System and a Pavement Condition Index.⁸

3.36 The Pavement Condition Index has been central to annual Pavement Management System reports produced by ARRB on behalf of Roads ACT since at least 2013. Annual ARRB Pavement Management System reports:

- model hypotheses, e.g. examining the effect of different budget scenarios and their impact on predicted Pavement Condition Index scores; and
- produce provisional line-by-line works programs for the next ten years, once a preferred hypothesis had been resolved.

3.37 However, the ARRB Pavement Management System reports are only the starting point for resurfacing activity:

- the Pavement Management System only analyses data relating to the Territorial sub-network plus some Major Collectors. It does not analyse data relating to all 7,150 lane kilometres of ACT's public sealed road network. The reports inform the annual resurfacing program for about 30 per cent of the ACT's sealed public road network;
- the reports result in a resurfacing works program (i.e. a list of roads and treatments) for the Territorial sub-network each year but this program is only a starting point. It is a provisional works program and requires substantial further testing, evaluation and reprioritisation. The provisional works program is not the program that is

⁸ Australian Roads Research Board (ARRB) became NTRO National Transport Research Organisation on 1 December 2022.

implemented. The difference between the ARRB provisional program and the program that is delivered is discussed in Chapter 4; and

- the Pavement Condition Index, an essential input to operating the Pavement Management System, is sensitive to system setting adjustments. It is possible to create a change in the Pavement Condition Index score through changing system settings rather than changes in the data reflecting physical changes to the road surface condition.

3.38 The last two points are conveyed in ARRB's annual Pavement Management System reports. For example, the *Road condition analysis and works program development for Roads ACT* of 4 December 2020 states:

It is recommended for Roads ACT to:

- Conduct field validation to confirm the results and provide feedback to assist the later work
- Revisit the analysis parameters, in particular, treatment triggers, [level of service] definitions and CI weightings to better align the modelling outcomes with current practice of Roads ACT.

Use of the Pavement Condition Index

3.39 The Pavement Condition Index:

- produces a single score that reflects the sub-network condition for the most recent year; and
- facilitates predicted scores for future years based on different budget scenarios, with a view to developing an 'optimised' works program.

3.40 The single score that reflects the sub-network condition was reported internally within Roads ACT until 2021 and had been reported publicly from 2021-22. From 2021-22 the Pavement Condition Index was reported as a Strategic Indicator, replacing the long-standing Strategic Indicator *Percentage of Territorial roads in good condition*. However, the Pavement Condition Index score was removed as a Strategic Indicator as part of the *2026-27 ACT Budget* process.

3.41 Table 3-2 shows Pavement Condition Index scores, as calculated and reported to Roads ACT by ARRB, between 2018 and 2023. Scores for the years 2021, 2022 and 2023 were publicly reported as a Transport Canberra and City Services Directorate Strategic Indicator. Scores for 2018 and 2019 were not publicly reported. A score for 2020 was not produced because of the timing of the ARRB reports in 2020 and 2021.

Table 3-2 Pavement Condition Index results (2018 to 2023)

Report date	11 March 2018	4 December 2020	8 December 2021	1 August 2023	24 May 2024
Year	2018	2019	2021	2022	2023
PCI	2.85 (fair)	3.1 (poor)	2.4 (fair)	2.34 (fair)	2.43 (fair)

Source: ACT Audit Office, based on ARRB annual Pavement Management System reports for Roads ACT.

3.42 Table 3-2 shows:

- in four out of the five years for which a Pavement Condition Index score was produced by ARRB (for 2018, 2021, 2022 and 2023) the condition of the roads was reported as 'fair';
- for 2018 and 2019 the Pavement Condition Index score was close to the border between 'fair' and 'poor'; and
- there was a significant change in the Pavement Condition Index score from 2019 to 2021. The change in score from 3.1 to 2.4 equates to a movement from just in the 'poor' band in 2019 to midway in the 'fair' band in 2021. Such a large change appears unlikely based on changes in surface condition alone.

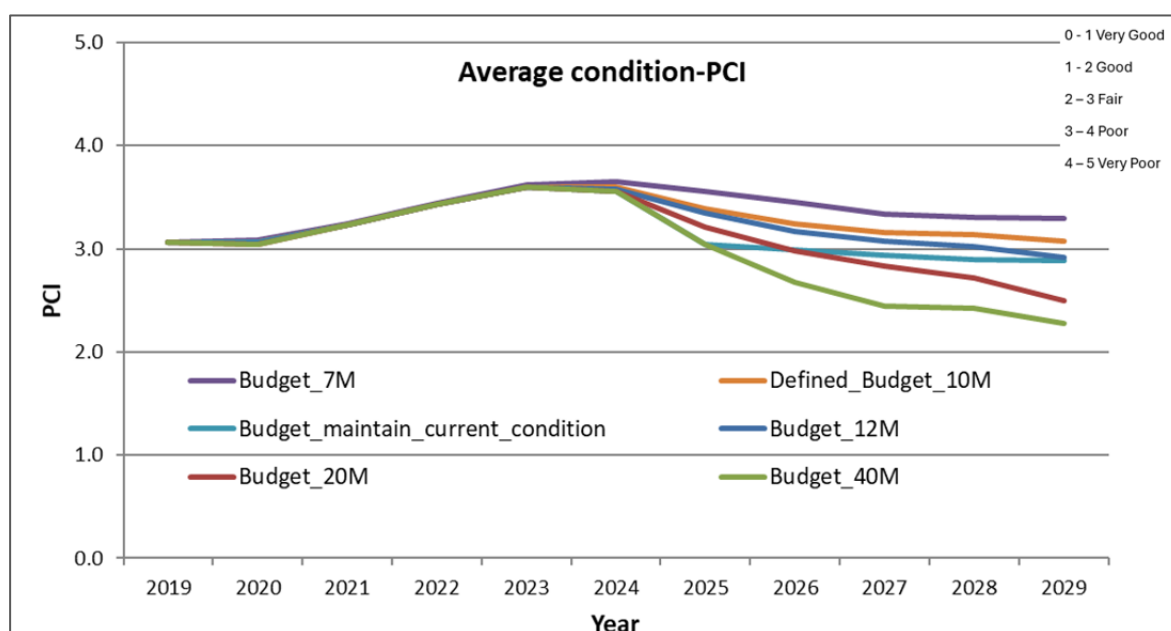
3.43 Up to 2021, Roads ACT was planning a resurfacing regime each year on the basis that the condition of the Territorial sub-network was on the border of 'fair' and 'poor' based on the five condition parameters. This contrasts with what was being publicly reported by Roads ACT as an Accountability Indicator, which was that the percentage of Territorial roads in good condition, based on one condition parameter of roughness, was 89 per cent. The planning of Territorial sub-network resurfacing works programs was using a multi-condition methodology (i.e. based on five condition parameters) while the Accountability Indicator emphasised the importance of one condition parameter (i.e. road roughness).

3.44 Roads ACT advised that since 2021-22, and the introduction of the Pavement Condition Index score as a Strategic Indicator, the condition parameters have been confirmed and remain unchanged. Accordingly, works program planning and public reporting have emphasised the same set of condition parameters which means resurfacing operations and strategy have been aligned.

Predicted Pavement Condition Index scores

December 2020 analysis

3.45 Figure 3-1 shows the actual Pavement Condition Index score for 2019 (3.1) and the predicted Pavement Condition Index scores for 2020 to 2029, with reference to six different funding scenarios (budgets of \$7 million to \$40 million per annum).

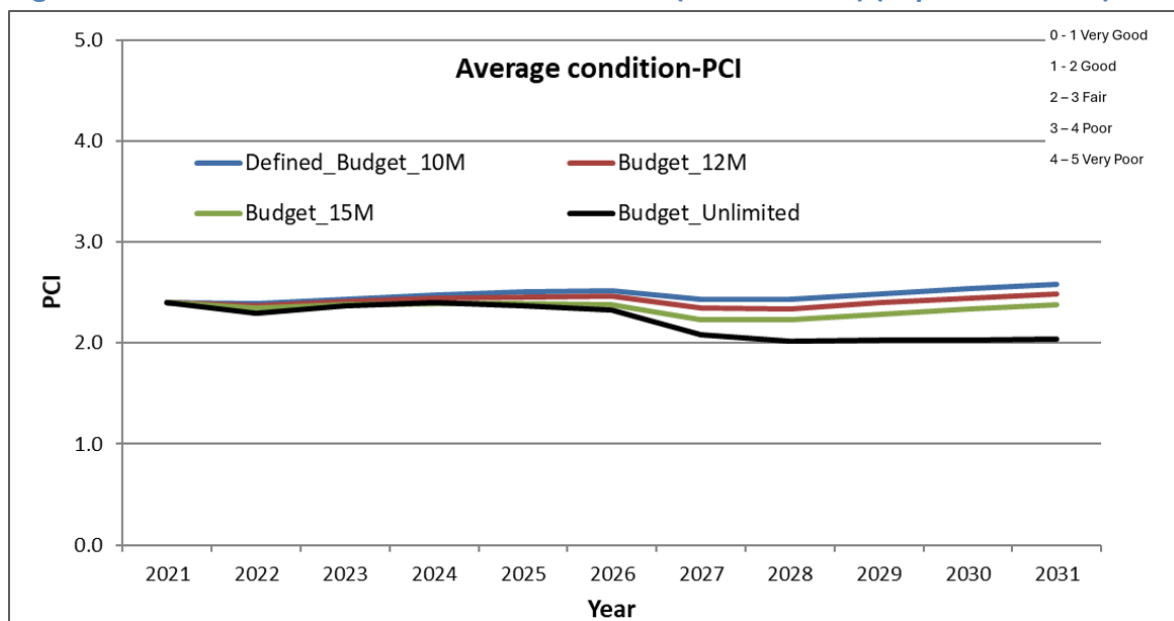
Figure 3-1 Predicted Pavement Condition Index score (2020 to 2029) (December 2020)

Source: Road condition analysis and works program development for Roads ACT ARRB (4 December 2020).

- 3.46 The 4 December 2020 report identified that the Territorial sub-network would deteriorate through to 2024 *regardless* of funding levels. In each of the six scenarios modelled by ARRB the predicted Pavement Condition Index score, a proxy for the condition of the Territorial sub-network, deteriorates for the first four years, before improving thereafter. This suggests that condition deterioration was 'locked in' at that point for the next four years, regardless of the scale of the budget.
- 3.47 In all six scenarios the Pavement Condition Index improves from 2024. Greater improvements are seen in the higher budget scenarios, specifically the \$12 million, \$20 million and \$40 million budget scenarios.
- 3.48 The 4 December 2020 report was not referenced in the first business case to Cabinet on 8 November 2021. An interim version of the 8 December 2021 report (dated 6 September 2021) was used to support the November 2021 business case. It is apparent some technical work had been undertaken by Roads ACT officials and ARRB with respect to changing Pavement Management System settings. The Cabinet submission refers to the 2021 ARRB research. The 2021 ARRB research produced a different Pavement Condition Index profile for the next ten years.

September 2021 analysis

- 3.49 Figure 3-2 shows the actual Pavement Condition Index score for 2021 (2.4) and the predicted Pavement Condition Index scores for 2022 to 2031, with reference to four different funding scenarios (a budget of \$10 million per annum through to an unlimited budget).

Figure 3-2 Predicted Pavement Condition Index (2021 to 2031) (September 2021)

Source: *Pavement management system and works program development for Roads ACT-Year 1 ARRB* (6 September 2021).

3.50 The 2021 ARRB report has an actual Pavement Condition Index score for the current year of 2.4 and for each of the four scenarios predicts a Pavement Condition Index score in the top half of the 'fair' band (2.5 to 2.0) for the next ten years. In contrast to the 2020 report, the condition deterioration was no longer 'locked in'. A stable condition of 'fair' was modelled over the next ten years, with only an 'unlimited budget' yielding discernible improvement towards the 'good' band by 2028.

3.51 Closer examination of the methodology, as described in each year's ARRB report, shows there were changes to the Pavement Management System settings over this period. These include:

- the range of resurfacing treatment options in the 2020 and 2021 reports (e.g. reseal, asphalt overlay and asphalt 'mill and fill');
- relative weightings to the five condition indices comprising the Pavement Condition Index in the 2020 and 2021 reports; and
- the parameters of the condition indices in the 2021 report (e.g. the definitions for surface cracking, rutting and roughness).

3.52 This is not to suggest that the changes were unsound in pavement engineering terms. The purpose of identifying these changes is to highlight the importance of maintaining stable system settings for the use of the Pavement Condition Index as an indicator of performance (e.g. as a Strategic Indicator since 2021-22) and when developing a resurfacing strategy focused on achieving a stable long-term Pavement Condition Index. This requires confidence that year-on-year comparisons of reported or predicted Pavement Condition Index results arise from stable Pavement Management System settings and cannot be attributed to changes to settings.

- 3.53 While use of the Pavement Condition Index for strategy optimisation, works planning and road condition reporting has advantages over use of a single condition parameter index, it is important to have assurance over how the Pavement Management System settings are managed.

Changes to Pavement Condition Index parameters

- 3.54 Information was sought from former and current Roads ACT officials as to how the step change in the Pavement Condition Index between 2019 and 2021 occurred. Roads ACT advised that an email from the ARRB consultant to Roads ACT officials was the basis for the Pavement Condition Index score change. The 12 May 2021 email (prior to the Government's consideration of the *Strategic Road Maintenance and Renewal Program*) stated:

Please find the modified treatment definitions attached based on our discussion yesterday. Please see if you are happy with the triggers, interval years, etc. Please also review the [levels of service] ... please review that and confirm.

- 3.55 The 12 May 2021 email does not explain *why* the system changes were sought and Roads ACT officials could not recall.
- 3.56 The process of revising Pavement Management System settings in the May 2021 instance was iterative between the ARRB consultant and Roads ACT officials and was partially documented, based on initial discussions. The details of those discussions were not disclosed in the email or recalled by officials.
- 3.57 It is likely that the changes in the first half of 2021 that led to a re-basing of the Pavement Condition Index in the September and December 2021 ARRB reports were the result of technical and tactical decisions by engineers at ARRB and Roads ACT, which officials referred to exercising 'engineering judgement'.



- 3.58 The Pavement Condition Index has been central to annual Pavement Management System reports produced by ARRB on behalf of Roads ACT since at least 2013. Annual ARRB Pavement Management System reports:

- specify road condition settings and provide a rationale for those settings;
- model hypotheses, e.g. by examining the effect of different assumptions based on either specified budgets or a predicted Pavement Condition Index range; and
- produce provisional line-by-line works programs for the next ten years, once a preferred hypothesis had been resolved.



- 3.59 In December 2020 Pavement Condition Index modelling was undertaken for 2020 to 2029 with reference to six different funding scenarios (budgets of \$7 million to \$40 million per annum). The December 2020 report identified that the Pavement Condition Index would deteriorate through to 2024, but that in all six scenarios the Pavement Condition Index

would improve from 2024 (with greater improvements seen in the higher budget scenarios, specifically the \$12 million, \$20 million and \$40 million budget scenarios). Further analysis was conducted in September 2021 with reference to four different funding scenarios (a budget of \$10 million per annum through to an unlimited budget). In contrast to the 2020 report, condition deterioration was no longer 'locked in' over the next four years and a stable condition of 'fair' was modelled over ten years, with only an 'unlimited budget' yielding discernible improvement towards the 'good' band by 2028.



- 3.60 A review of the Pavement Condition Index methodology, as described in each year's ARRB report between 2018 and 2024, shows there were changes to the Pavement Management System settings over this period. It is likely that changes in the first half of 2021 that led to a re-basing of the Pavement Condition Index in the September and December 2021 ARRB reports were the result of technical and tactical decisions by engineers at ARRB and Roads ACT, which officials referred to as exercising 'engineering judgement'.

Levels of service

- 3.61 The *Roads ACT Strategic Asset Management Plan* (2018) identifies that asset management planning:

... enables balance to be determined between the cost of the service and the level of the service delivered (i.e. the price/quality relationship).

- 3.62 The *Roads ACT Strategic Asset Management Plan* (2018) notes that well-defined levels of service can assist with transparency and accountability of road management activities with the community. They can:

Inform customers of the current level of service provided and any proposed changes to level of service and the associated costs.

Measure performance against these defined levels of service.

...

Enable customers to assess the suitability, affordability and equity of the services offered.

- 3.63 The changes to the Pavement Management System settings amount to changes to the level of service. Any change to when a resurfacing treatment is triggered (i.e. sooner or later) in combination with what constitutes a 'fair' versus 'good' score (i.e. the condition parameters) will affect the performance of the road surface and relates to level of service.

- 3.64 The audit considered Roads ACT's changes to levels of service to identify:

- what changes to levels of service took place in the period of 2021 and 2022, i.e. the transition period between the old approach and the new resurfacing strategy;
- what changes to levels of service have taken place since then;

- how the level of service changes were formalised, i.e. with what transparency and accountability were changes made; and
- what activities Roads ACT has undertaken to enable customers to 'assess the suitability ... of the services offered'.

Changes preceding the strategy

3.65 Comparison of the level of service in the three relevant ARRB reports (dated 8 December 2020, 4 December 2021 and 12 January 2023) shows:

- condition parameters for cracking, roughness and rutting were adjusted, indicating a *rising* (i.e. more onerous from the service provider's perspective, and more beneficial from a road user's perspective) level of service meaning condition parameters previously classified as 'fair' would later be classified as 'poor'; and
- the point at which a resurfacing treatment was triggered by the revised parameters was changed for roughness (i.e. indicating earlier intervention), meaning resurfacing would be triggered when the roughness indicator falls into the 'fair' band rather than waiting and falling into the 'poor' band as had previously been the case.

3.66 The change in settings amounts to an intention to achieve a higher level of service by triggering treatments earlier without having to change the treatment triggers / intervention points.



3.67 Roads ACT's changes to Pavement Management System settings introduced a higher level of service for the management of roads. Road condition parameters which were previously categorised as 'fair' were categorised as 'poor'. In addition, treatments would be earlier, with the treatment trigger being when the roughness indicator falls into the 'fair' band rather than waiting and falling into the 'poor' band. The change in settings amounts to an intention to achieve a higher level of service.

Other changes to levels of service (2018 to 2020 and 2023 to 2024)

3.68 A review of the Pavement Management System settings in ARRB annual reports from 2018 to 2024 also shows that:

- weightings for the Pavement Condition Index (for the cracking and roughness indices) were changed between the 2018 and 2020 reports; and
- weightings for the Pavement Condition Index (for cracking, skid, and roughness) were changed again in the 2021 report.

3.69 Pavement Condition Index weightings have remained the same since the 2021 report and condition parameters have remained the same since the January 2023 report.

- 3.70 A Roads ACT official provided an explanation for the weighting change between the 2018 and 2020 reports:

... in those years we received additional funding with a target to achieve resurfacing KPIs (resurface 5% of Arterial Network and 4% of Municipal Network). Due to the available funding and target area for resurfacing, chip seal was the main treatment and more than 90% resurfacing was done using chip seal. Chip seal doesn't improve the roughness of the road. It is a good treatment for a cracked surface and it has good skid resistance properties if the construction is done correctly. This was the reason for increasing the weightings for 'Cracking' and decreasing the 'Roughness' weighting. It was to get a fit-for-purpose works program for the particular budget and target scenario. It was proposed by Roads ACT.

- 3.71 This indicates that changes to weightings were initiated by Roads ACT, according to a choice to prioritise a certain inexpensive treatment (i.e. bituminous reseal) to achieve the volume of coverage. This was despite the fact that this would not address the Strategic and Accountability Indicator of *Percentage of Territorial roads in good condition* which was measured with reference to roughness. This would have also affected the Pavement Condition Index, but at that point it was not a publicly reported measure of performance or a key part of the resurfacing strategy. This illustrates the importance of transparency over Pavement Management System settings if the Pavement Condition Index is to be relied on by the community and by decision makers.
- 3.72 Changes to the Pavement Condition Index scores since the announcement about the new resurfacing strategy in February 2023 are not attributable to changes to Pavement Management System settings. Accordingly, the community should have greater confidence that the two recently reported Pavement Condition Index scores (in August 2023 and May 2024) are the result of resurfacing activities and not changes to Pavement Management System settings.



- 3.73 A review of the Pavement Management System settings in ARRB annual reports from 2018 to 2024 shows that: weightings (for the cracking and roughness indices) were changed between the 2018 and 2020 reports; and weightings (for cracking, skid, and roughness) were changed again in the 2021 report. Weightings have remained the same since the 2021 report and condition parameters and the trigger points for specific treatment interventions have remained the same since the January 2023 report. As a result, reported Pavement Condition Index results since February 2023 (2.34 being 'fair' in August 2023 and 2.43 being 'fair' in May 2024) are more likely to reflect road surface conditions and less likely to be the result of Pavement Management System changes.

Approvals for changes to levels of service

- 3.74 Information was sought from Roads ACT as to:
- how changes to level of service, as reflected in the Pavement Management System settings, were recorded; and
 - how changes to Pavement Management System settings were authorised.

3.75 Changes to level of service have been decided by pavement engineering officers in direct contact with ARRB. Officials referred to a table in the *Strategic Road Maintenance and Renewal Program* (September 2024) as being ‘the full hierarchy of performance indicators for the road pavement’ and as ‘a mix of both community focused and technical indicators used to define ACT’s broader mix of levels of service’. Table 3-3 shows this table and highlights the Strategic and Accountability Indicators that are currently publicly reported.

Table 3-3 Hierarchy of current and potential future performance indicators associated with strategic road maintenance

Level of Service category	Indicator tier	Indicator type	Example/Description of indicator
Community	1 (Future)	Strategic indicator (Outcome)	Ride quality is proposed to be the headline outcome indicator as it is key for wellbeing
Community	1	Strategic indicator 2.3 & 2.4 (Outcome)	Annual number of road fatalities per 100,000 population, Promotion of Road Safety – reducing deaths on roads: target is to remain below the national average; and Promotion of Road Safety – reducing serious injuries on roads: target is to remain below the national average.
Community	1	Strategic indicator 2.2 (Output)	Overall condition (based on PCI)
Community	1	Accountability indicator (Outcome)	Community satisfaction
Technical	2	Accountability indicator (Output)	Resurfacing rate (total with a breakdown for territorial and municipal roads)
Technical	3	Roads ACT – strategic asset management (Input)	Preventative maintenance index (PMI), based on surface age
Technical	3	Roads ACT – strategic asset management (Output)	Backlog (length that has reached triggers for intervention)
Technical	3	Roads ACT – strategic asset management (Output)	Condition breakdown for key parameters (rutting, roughness, cracking, surface age, skid resistance, etc)
Technical	3	Roads ACT – strategic asset management (Input)	Annual budget (breakdown): allocation to routine maintenance, preventative maintenance and corrective works.
Technical	3	Roads ACT - strategic asset management (Input)	Total works for each treatment type (e.g. Asphalt m2, reseal m2, rehabilitation m2)

Level of Service category	Indicator tier	Indicator type	Example/Description of indicator
Technical	4	Pavement management system - condition classification (Input)	Based on ACT's definition for the 1-5 condition scale (i.e. Very Good, Good, Fair, Poor and Very Poor) for each pavement condition parameter (rutting, cracking, skid resistance, surface age, texture, roughness, etc)
Technical	4	Pavement management system - intervention trigger points (Input)	Intervention triggers are used to inform the selection of different treatment types

Source: *Strategic Road Maintenance and Renewal Program* page 64.

3.76 It is relevant that the outcome of the Community Tier 1 indicator 'Overall condition (based on PCI)' is dependent on stability in the Pavement Management System settings of Technical Tier 3 and Tier 4 indicators.

Community engagement for road resurfacing activities

3.77 Roads ACT advised that community engagement for road resurfacing activity is achieved through:

- *Fix My Street*, which provides a conduit for alerting Roads ACT to a wide range of reactive maintenance needs;
- the annual *Canberra Omnibus survey: Attitudes to Various TCCS Services* community survey, which monitors satisfaction levels and emerging issues; and
- the Better Suburbs Statement, from a deliberative democratic process in 2018, which provided a service-by-service community engagement about budgetary priorities.

3.78 There is otherwise no engagement with the community or any particular road user group, specifically with respect to planned maintenance strategies for the road surface.

3.79 Prior to 2022-23, when the *Percentage of Territorial roads in good condition* Strategic and Accountability Indicator was measured with reference to roughness, Roads ACT was publicly explicit about what roughness meant: a 'good' road having a roughness score of less than 4.2 IRI. However, since 2022 and the use of the PCI as a Strategic Indicator, there has been no public statement by Roads ACT as to:

- what 'fair' means for the five condition parameters comprising the Pavement Condition Index; and
- what the trigger points are for treatments.

3.80 Victoria makes such level of service information public. This assists in enabling 'customers to assess the suitability, affordability and equity of the services offered'.



- 3.81 Prior to 2022-23, when the *Percentage of Territorial roads in good condition* Strategic and Accountability Indicator was measured with reference to roughness, Roads ACT was publicly explicit about what roughness meant: a 'good' road having a roughness score of less than 4.2 IRI. However, since 2022 there has been no public statement by Roads ACT as to: what 'fair' means for the five condition parameters comprising the Pavement Condition Index; and what the trigger points are for treatments. Victoria makes such level of service information public as it assists in enabling 'customers to assess the suitability, affordability and equity of the services offered'.



Recommendation 3

Pavement Management System level of service

The City and Environment Directorate should:

- a) document its intended level of service for the road pavement and its consequence for the management of road resurfacing; and
- b) make the details of the level of service publicly available to the ACT community and interested stakeholders.

Increasing use of asphalt

- 3.82 The new resurfacing strategy seeks to achieve an increase from 1 million to 1.268 million sqm of resurfacing a year. The increased overall volume of resurfacing treatments includes plans for a major increase in the use of asphalt and a marginal increase in the use of bituminous reseal compared to the previous approach. There are also different proposals in the strategy for the two sub-networks: Territorial and Municipal. In response to the draft proposed report the City and Environment Directorate noted that this is one of many interlinked outputs and is annually reviewed.
- 3.83 The audit sought to compare the old resurfacing approach (prior to July 2023) to the new resurfacing strategy (from July 2023) in order to establish the extent of the proposed change in the two treatments (asphalt and reseal), and how it would impact the two sub-networks.

Old resurfacing approach (prior to July 2023)

- 3.84 In the three years prior to 2023-24, Statement of Performance Accountability Indicator working papers identify an output ratio of 85:15 in favour of reseal over asphalt by square metreage (sqm). However, the costs of reseal and asphalt treatments are different. The 2022-23 Budget business case for the *Strategic Road Maintenance and Renewal* Cabinet submission (28 November 2022) states:

Asphalt treatments are generally at least five times more expensive than reseal for an equivalent treatment area.

3.85 Table 3-4 shows the average figures between 2020-21 and 2022-23 for annual budgets and annual actual outputs for:

- the Territorial and Municipal sub-networks; and
- the two treatments (reseal and asphalt).

Table 3-4 Old resurfacing approach (prior to July 2023)

Old approach	\$ per sqm (audit estimate)	Ave area of resurfacing based on 1,000,000 sqm	Total target budget \$20,000,000	Municipal sub-network (actual avge)	Territorial sub-network (actual avge)
Reseal	\$12.50*	850,000 sqm	\$10,625,000*	425,019 sqm	436,195 sqm
Asphalt	\$62.50*	150,000 sqm	\$9,375,000*	71,576 sqm	80,413 sqm

Source: ACT Audit Office, based on TCCS Statement of Performance working papers 2020-21 to 2022-23 and mid-year 2022-23 review business case.

Note: * ACT Audit Office estimate based on information in the business case. Actual and modelled costs are commercially sensitive.

3.86 Table 3-4 shows that under the old resurfacing approach (prior to July 2023):

- most resurfacing of the ACT road network each year by area was achieved through reseal (85 per cent) rather than asphalt (15 per cent);
- there was a similar volume (by sqm) for Municipal and Territorial sub networks; and
- the budgets for reseal and asphalt treatments were similar.

New resurfacing approach (from July 2023)

3.87 The new resurfacing strategy outlined in the November 2022 Cabinet business case identifies asphalt and reseal 'service outputs' for the Territorial sub-network. Municipal sub-network 'service outputs' for asphalt and reseal are not explicit in the business case but can also be calculated.

3.88 Table 3-5 shows the average figures for annual budgets and intended outputs under the new strategy for:

- the Territorial and Municipal sub-networks; and
- the two treatments (reseal and asphalt).

Table 3-5 New resurfacing strategy (from July 2023)

New strategy	\$ per sqm (audit estimate)	Target area of resurfacing (1.268m sqm)	Total target budget \$33,500,000	Municipal sub- network Proposal	Territorial sub- network Proposal
Reseal	\$12.36*	907,469 sqm	\$11,216,317*	648,417 sqm	259,052 sqm
Asphalt	\$61.78*	360,691 sqm	\$22,283,490*	62,543 sqm	297,148 sqm

Source: ACT Audit Office, based on mid-year 2022-23 review business case and the selected Option 3 service outputs.

Note: * ACT Audit Office estimate based on information in the business case. Actual and modelled costs are commercially sensitive.

3.89 Table 3-5 shows that the new resurfacing strategy aims to:

- achieve more reseal treatment (by sqm) for the Municipal sub-network and more asphalt (by sqm) for the Territorial sub-network compared to the previous approach; and
- increase the use of asphalt by 2.4 times (i.e. an increase of 140 per cent) while increasing the level of reseal (by seven per cent) across the whole network, compared to the old approach.

3.90 In response to the draft proposed report Roads ACT advised that they are average figures over the ten-year period between 2022 and 2031 and that the level of increased focus on asphalt is based on a forecast ten-year average.

3.91 The new resurfacing strategy therefore proposes a redistribution of reseal, with more being undertaken on the Municipal sub-network and less on the Territorial sub-network. Most of the increase from 1 million to 1.268 million sqm in the overall resurfacing area is accounted for by the increase in asphalt resurfacing for the Territorial sub-network. ARRB publicly endorsed the new resurfacing strategy:

Based on our research, the ACT Government has chosen the highest cost and highest quality option which will deliver good road conditions in Canberra over the years ahead.



3.92 The new resurfacing strategy proposes an increase from 1 million to 1.268 million sqm of resurfacing a year. The strategy also seeks to:

- achieve more reseal treatment (by sqm) for the Municipal sub-network and more asphalt (by sqm) for the Territorial sub-network compared to the previous approach; and
- increase the use of asphalt by 2.4 times (i.e. an increase of 140 per cent) while increasing the level of reseal (by 7 per cent) across the whole network, compared to the old approach.



3.93 In response to the draft proposed report Roads ACT advised that they are average figures over the ten-year period between 2022 and 2031 and that the level of increased focus on asphalt is based on a forecast ten-year average.

Accountability Indicators for Territorial and Municipal roads

3.94 Under the new resurfacing strategy Roads ACT continues to have the following two Accountability Indicators:

- *Annual percentage of Territorial roads resurfaced (by sqm); and*
- *Annual percentage of Municipal roads resurfaced (by sqm).*

Previous targets

3.95 The Accountability Indicators were first used for road resurfacing reporting by Roads ACT in 2007-08, with targets for each sub-network to be resurfaced each year. For most of the intervening years since 2007-08, Roads ACT has set a target of:

- four per cent of the Municipal sub-network to be resurfaced each year (i.e. a once in every 25 years on average); and
- five per cent of the Territorial sub-network to be resurfaced each year (i.e. a once in every 20 years on average).

3.96 The Accountability Indicators do not specify whether the target amount of resurfacing is to be asphalt or bituminous reseal.

3.97 Roads ACT's submission to the Standing Committee on the Environment and Transport and City Services' Inquiry into road maintenance in the ACT in 2017 advised:

Whilst these [Accountability Indicator targets] are below the national recommended targets, Roads ACT considers the annual ACT targets are sustainable in the local conditions, given cooler weather and lower freight volumes in the ACT compared to other States.

3.98 In 2019 an ARRB study commissioned by Roads ACT examined the bituminous reseal frequencies of 14 other jurisdictions. This did not result in a documented or more detailed rationale for the targets.

New targets

3.99 As part of the new resurfacing strategy Roads ACT agreed revised targets for the two Accountability Indicators:

- the Territorial sub-network target was increased from six to seven per cent of the sub-network per year, i.e. a new frequency of once every 14.2 years, on average; and
- the Municipal sub-network target was increased from three to four per cent. The target had been temporarily reduced in 2022-23 to three per cent (i.e. a frequency of once every 33 years). The four per cent target was reinstated in 2023-24 (i.e. a frequency of once every 25 years, on average).

3.100 While the new resurfacing Accountability Indicator targets are not explicit about the use of bituminous reseal, in practice nearly all the area of resurfacing achieved historically relates to bituminous reseal and not asphalt. The *Roads ACT Strategic Asset Management Plan* (2018) refers to an aim of achieving a 'rule of thumb' 80:20 ratio according to area. Elsewhere it is stated that a 'rule of thumb' 50:50 ratio is sought according to cost. In either case, the cost difference between the two treatments and the ease of achieving large areas of resurfacing quickly provide an incentive to do more bituminous reseal and less asphalt when there are time or budget constraints, such as may occur towards the end of the season.

3.101 It would be appropriate to review the purpose and document the rationale for the continued use of the two area-based Accountability Indicators because of:

- the change in the quantum of overall resurfacing intended from 2023-24, with the aim of increasing asphalt relative to the amount of bituminous reseal; and
- changing road use patterns and environmental factors on the condition of the road surface over the 18 years since the Accountability Indicators' introduction.



3.102 Under the new resurfacing strategy Roads ACT continues to have the following two Accountability Indicators: *annual percentage of Territorial roads resurfaced (by sqm)*; and *annual percentage of Municipal roads resurfaced (by sqm)*. Agreed targets for the two Accountability Indicators are: Territorial sub-network (from six to seven per cent of the sub-network per year, i.e. a new frequency of once every 14.2 years on average); and Municipal sub-network (from three to four per cent of the sub-network per year, i.e. a frequency of once every 25 years on average). The new resurfacing Accountability Indicator targets are not explicit about the use of bituminous reseal versus asphalt, although in practice nearly all the area of resurfacing achieved historically relates to bituminous reseal and not asphalt. There is a risk that the Accountability Indicator targets may work against the goal of achieving more asphalt resurfacing.



Recommendation 4

Territorial and Municipal road Accountability Indicators

The City and Environment Directorate should review the purpose and document the rationale for the continued use of the two indicators relating to the frequency of resurfacing of Municipal and Territorial roads.

Source of funding

3.103 Also considered during the development of the new resurfacing strategy was:

- the source of any additional funding and whether it was to come from a capital or recurrent funding source, from the Commonwealth or Territory; and

- the subsequent accounting treatment of activities funded under the new resurfacing strategy, specifically whether the activities would be expensed or capitalised.

3.104 Paragraph 2.44 identifies that the additional \$13.2 million in funding for the new resurfacing strategy (agreed in the 2022-23 mid-year budget review) was to come from capital sources. The Audit Office has calculated that this would lead to a 61:39 mix of recurrent to capital funding for the \$33.5 million per year (average) cost of the resurfacing program from 2023-24.

3.105 It is also evident in March 2022, prior to Cabinet's consideration in November 2022, that it was Roads ACT's aim to fully fund *all* future planned road maintenance works relating to resurfacing from a capital source and then to capitalise it. This was already happening for *Roads to Recovery* funded road rehabilitation works.

3.106 Research undertaken by Roads ACT at the time showed other jurisdictions' asset management practices. The research showed that:

... road resurfacing and corrective works programs are identified as capital renewal programs ... Each of the jurisdictions treat the road wearing course (i.e. seal) as a separate asset component to the road pavement (e.g. including the base and sub-base layers).

Any change to road asset componentisation would need to be considered in line with requirements of accounting standards (AASB116 Property, Plant and Equipment and AASB 108 Accounting Policies, Changes in Accounting Estimates and Errors), the Audit Office and the Whole of Government accounting policy.

Accounting treatment in practice

3.107 Following the November 2022 Cabinet decision that resulted in the new resurfacing strategy, a hybrid funding arrangement has eventuated. The new strategy involves part funding resurfacing activities from capital (39 per cent), while continuing to fund the balance (61 per cent) from recurrent sources.

3.108 Roads ACT is tracking its resurfacing activities and attributing completed activities to capital or recurrent funding sources through a Resurfacing Contract Tracker spreadsheet. There is no apparent rationale for how or why resurfacing works packages are identified as being capital or recurrent funded. One Roads ACT official advised that the attribution of work package entries in the Resurfacing Contract Tracker spreadsheet to either capital or recurrent funding was based on whether the funding source can be 'rolled back' or not, rather than any rationale related to the road surface asset being maintained.⁹

3.109 Roads ACT internal processes ultimately do not determine the accounting treatment of the resurfacing expenditure. This is the responsibility of the directorate's Strategic Finance

⁹ The implication here is that 'use it or lose it' funding sources are applied before sources that can be rolled back to the next year.

team. With respect to the accounting treatment, City and Environment Directorate officials advised that resurfacing activity:

- that has been recurrent funded in the past has continued to be expensed under the new strategy from 2023-24 onwards (i.e. 61 per cent of the enhanced resurfacing program each year); and
- the balance of the resurfacing activity has been capitalised (i.e. the other 39 per cent of the program).

3.110 The Transport Canberra and City Services Directorate's *Asset Accounting Policy* (Revision 2.6, February 2023) on an asset's 'useful life' continues to be applied. The policy puts the 'useful life' on road assets for the purposes of depreciation charges at 75 and 90 years, depending on whether the road being resurfaced is Territorial or Municipal.¹⁰ This applies to all of the asset components of the road, including the base and sub-base layers.

3.111 It is noted, however, that under the new resurfacing strategy the capitalised wearing course asset being created has a considerably shorter life, of somewhere between 4.8 and 33 years.

3.112 *Asset componentisation* provides a basis to recognise the distinct useful life of the different road layers, e.g. the wearing course, the base and the sub-base. However, componentisation of each road asset in the Assetic asset management system has not been undertaken and would require considerable work, not just on the appropriate business system solution but also on collecting and developing the appropriate dataset.



3.113 Roads ACT is now capitalising 39 per cent of its resurfacing activity and expensing the balance. As part of this approach Roads ACT:

- has not satisfactorily documented the rationale for accounting for some of its resurfacing activity as capital expenditure and the balance through recurrent expenditure; and
- has not completed all the work originally envisaged as being necessary to efficiently and effectively capitalise the road *surface* asset, such as the componentisation of the asset in Assetic. Componentisation would enable the differential useful life of the road surface and road base to be recognised. This remains 'work-in-progress'.



Recommendation 5

Capitalisation or expensing of road resurfacing activity

The City and Environment Directorate should document the rationale for capitalising or expensing its road resurfacing activity and in doing so document how the road surface asset's useful life is calculated.

¹⁰ The TCCS *Asset Accounting Policy* uses NAASRA road classes for determining the useful life of the whole road depth, that is the road surface, and the road pavement base and sub-base.

Operational planning

3.114 The audit considered Roads ACT's business and operational planning, at a business-unit level and for specific branches and teams (the Asphalt team within the Works Branch and Road and Path Network Branch). Business and operational planning for the Infrastructure Planning team was also considered. Business and operational planning for 2023-24 and 2024-25 was considered for the purpose of the audit.

Business unit-level business planning

Content of plan

3.115 Roads ACT developed a *Roads ACT 2023-24 Business Plan* and a *Roads ACT 2024-25 Business Plan*. *Strategic Road Maintenance and Renewal Program* activities were reflected in both years' plans. Table 3-6 shows activities relevant to the *Strategic Road Maintenance and Renewal Program* reflected in the Roads ACT business plans.

Table 3-6 Roads ACT business plan activities relevant to the *Strategic Road Maintenance and Renewal Program* (2023-24 and 2024-25)

Team	2023-24 Business Plan	2024-25 Business Plan
Road and Path Network	Deliver 2023-24 increased resurfacing program	Deliver 2024-25 increased resurfacing program
Infrastructure Planning	Review update MIS and specs in key asset classes	Review and update MIS and MITS in key asset classes
Infrastructure Planning	Asset Management Plan (AMP) and Operational plans for key asset classes	Review and update Strategic Asset Management Plans (SAMP), Asset Management Plan (AMP) and Operational plans for key asset classes

Source: ACT Audit Office, based on Roads ACT records in Objective.

3.116 These activities are core business activities of the Roads ACT teams. There was no particular change of emphasis from one year to the next and the business plans simply restated the core business of the team.

Development of the business plans

3.117 Both years' business plans referred to a 'TCCS business planning checklist' and made the statement 'this Business Plan has been developed in accordance with the mandatory planning considerations defined in the TCCS business planning checklist'.

3.118 The checklist required a declaration by the relevant Executive Branch Manager that 16 specified requirements have been met. A copy was to be lodged with the Transport Canberra and City Services Directorate Governance team as an internal control.

3.119 In the case of the Roads ACT business plans this particular internal control was ineffective:

- the *2023-24 Business Plan* was not signed off by the Executive Branch Manager or Executive Group Manager, City Operations;
- the *2024-25 Business Plan* had not been signed off by the Executive Branch Manager or Executive Group Manager when reviewed on 23 December 2024; and
- the 'TCCS business planning checklist' was not signed off or lodged with the Transport Canberra and City Services Directorate Governance team until the matter was identified through the audit in December 2024.

3.120 Roads ACT officers advised that the business plan is not used to actively plan for, or monitor, the business unit's activities. Roads ACT advised the business plan is used to document the unit's activities that are above and beyond business-as-usual service delivery and is a guiding document to revisit and reset competing priorities and to maintain visibility over longer term intentions and goals. A Roads ACT manager advised that the business plan might be looked at biannually, but that this was an 'informal' review without any form of rigor or record.

Team-level operational planning

3.121 Neither the Road and Path Network Branch nor the Asphalt team in the Works Branch have a business or operational plan. Team managers referred to responsibilities, roles and tasks consistent with the team's core function, but not the existence of an 'operational plan'.

3.122 An identified action in the 2023-24 and 2024-25 Roads ACT business plans was to develop and review 'Asset Management Plans (AMP) and *Operational Plans* for key asset classes' including roads. This action has not been progressed. With respect to the Road and Path Network team operational plans, Roads ACT advised:

... the revision of the SAMP needed to be completed **before** [Audit Emphasis] the draft of the Roads [Operational Plan] could be reinitiated. Refer to document Asset Management Maturity Assessment ... [...] ... relating to the order in which we deliver our strategic and operational planning documents.

3.123 The Infrastructure Planning team has prepared an *Infrastructure Planning 2024-27 Business Plan*. The business plan contained old and outdated references:

- it referenced the old percentage 'good roads' Strategic Indicator rather than the newer Pavement Condition Index which replaced it two years earlier (in August 2022); and
- it referenced 'lines of sight' and 'goals' linked to the long-expired 2020 ACT Roads Business Plan.

3.124 Notwithstanding these limitations representatives of the three teams and branches effectively described, and provided suitable artefacts to demonstrate, how weekly, monthly and seasonal works programs are developed and delivered. These are described in further detail in Chapter 4.



3.125 Roads ACT developed a *Roads ACT 2023-24 Business Plan* and a *Roads ACT 2024-25 Business Plan*. *Strategic Road Maintenance and Renewal Program* activities were reflected in both years' plans. Roads ACT officers advised that the business plan is not used to actively plan for, or monitor, the business unit's activities and it is a guiding document to revisit and reset competing priorities and to maintain visibility over longer term intentions and goals. A Roads ACT manager advised that the business plan might be looked at biannually, but that this was an 'informal' review without any form of rigor or record. Notwithstanding the limitations of the business plans Roads ACT officers effectively described, and provided suitable artefacts to demonstrate, how weekly, monthly and seasonal works programs are developed and delivered.



Recommendation 6

Roads ACT annual business plan

The City and Environment Directorate should implement annual business planning processes that include:

- a) development of annual business plans for business units in a timely manner; and
- b) ongoing and documented review of activities identified in business plans during the year.

4 Road maintenance operations

- 4.1 This chapter considers Roads ACT operational arrangements relevant to road maintenance. The chapter also considers the development and implementation of road resurfacing programs as well as the procurement of external suppliers.

Summary



Conclusions

The identification of Territorial and Municipal roads for resurfacing is based on automated collection of road condition data via a specialised road vehicle. One third of all Territorial and Municipal roads are surveyed each year. This results in the identification of roads that are prioritised for some form of treatment, which are then subject to a validation process by Roads ACT officials. Many of the roads initially prioritised for treatment are de-selected, while roads that were subject to treatment were not initially prioritised.

The development and delivery of the resurfacing program is hampered by a lack of documented policies or procedures for the specification of levels of service and how level of service changes are proposed and approved. The lack of procedural documentation means there is a high reliance on individual experience and professional judgement.

Much of Roads ACT's road maintenance activity is delivered through the contracting of road resurfacing suppliers. The current *Road and path maintenance panel* was established in November 2021. Under the new panel there are three suppliers, two of which have received contracts worth \$46.86 million and \$44.94 million, while a third has received contracts worth \$10.82 million. Panel suppliers are engaged through request for quotation (RFQ) processes for specific packages of work.

The new panel has created greater breadth in the local supplier base and all other things being equal the new panel has created more competitive tension between suppliers. This can be expected to provide the Territory with keener pricing and more resilience should one supplier be unable to respond to an RFQ. It is also apparent that Roads ACT officials effectively consider, and account for, value for money during the RFQ process.



Key findings

Roads ACT administrative arrangements

Paragraph

In recent years Roads ACT's resurfacing activities have been impacted by a series of external and internal challenges. External challenges have included three successive La Niña weather cycles and industry skills and experience shortages. Internal

4.10

challenges have arisen from a protracted workforce planning process, which has resulted in organisational changes. The *Roads ACT Workforce Project* examined Roads ACT's current operating model and identified potential future operating models to be achieved through business transformation processes. The project evolved into a substantial redesign of teams, structures, functions and ways of working. A business-unit restructure commenced in 2022, which then went through a further iteration in 2023. According to Roads ACT it remained a 'work in progress' at the end of 2024.

The Asphalt team in the Works Branch undertakes preparatory patching and asphalt resurfacing. These are all activities that may be, and have been in the past, undertaken by outsourced contractors. The Asphalt team is in the early stages of rebuilding its capacity and capability. Its business planning is embryonic and its scheduling is for the short-term only. It does not yet have an established track record of work across the full year. In 2024-25 it completed 4.3 per cent in value of the total resurfacing program. 4.18

The relatively small Routine Maintenance team in the Works Branch undertakes cold mix pothole filling. During periods of peak activity the team's resources have been supplemented from other Works teams. A large number of potholes in ACT's roads were reported and fixed between October 2020 and May 2023, which spanned three successive La Niña years. Following Assembly attention to the matter in October 2022 Roads ACT responded with a pothole 'blitz'. By May 2023 the backlog had been addressed and a normal volume of potholes was being reported and responded to. 4.29

The development and delivery of the resurfacing program is the responsibility of the Road and Path Network Branch. The branch does not have documented policies or procedures for the specification of levels of service and how level of service changes are proposed and approved. The lack of procedural documentation means there is a high reliance on individual experience and professional judgement. Such 'professional judgement' undermines quality control over the process and works against building interoperability within teams and individual members of the team. 4.40

Data systems and standards

The Road and Path Network Branch and the in-house Works teams use a combination of proprietary systems and generic tools (e.g. spreadsheets) to manage their activities. Within the teams there is widespread use of spreadsheets for program management purposes. Spreadsheet tools require a lot of manual data entry, validating, cleaning and analysis to mitigate the risk of data loss and other errors. The teams are not yet fully exploiting the benefits of the asset management system Assetic, which was implemented in 2021. 4.50

Development and delivery of the resurfacing program

The identification of Territorial sub-network roads for resurfacing is based on the output from the ARRB-administered dTIMS® Pavement Management System. In 2023-24 95 roads in the Territorial sub-network were prioritised for some form of treatment. A significant number of these roads (70) were not packaged and 4.62

contracted. Nearly all of these roads were de-selected by the Road and Path Network Branch. Conversely, seven of the 31 roads whose treatment was completed were not prioritised via the Pavement Management System. While the Pavement Management System prioritisation process is a reasonable starting point, significant subsequent program development activities are undertaken and these produce a different program.

The identification of Municipal sub-network roads for resurfacing follows a similar process to the Territorial sub-network, except that it is predicated on a manual analysis of available data (instead of data from the dTIMS® Pavement Management System). In 2023-24 initial prioritisation was the result of analysis of a third of the sub-network (an estimated 2,044 roads) that resulted in 214 roads being targeted for further investigation. A significant number of these roads (142) were not shortlisted for packaging and contracting following further validation activities. An additional 80 roads not identified through the manual data analysis process were also packaged, contracted and completed. While the data analysis process is a reasonable starting point, significant subsequent program development activities are undertaken and these produce a different program.

4.71

Recording reasons for programming changes assists program evaluation and future programming. For 2023-24, the Road Resurfacing Program master spreadsheet, which was relevant to both Territorial and Municipal roads, identified that for 421 roads that were initially identified as a priority for resurfacing: 200 were completed; and 221 were 'deferred'. This means they were initially selected but not completed and possibly not packaged or contracted. For 95 of the 221 roads that were 'deferred' (43 per cent) there was no recorded reason for their deselection. For roads that were added to the program after the initial prioritisation process, and for which there was no commentary in the spreadsheet of the reason for their addition, Roads ACT Officials were able to identify reasons for the additional of Municipal roads, being:

4.84

- a carryover from the previous year;
- nearby roads that had not been resurfaced for a long time; and
- on bus routes that were showing distress, following a bus route inspection process.

Procurement of resurfacing suppliers

The current *Road and path maintenance panel* (Contract No. 31012-NCT-001) was established in November 2021. Under the new panel there are three suppliers, two of which have received contracts worth \$46.86 million and \$44.94 million, while a third has received contracts worth \$10.82 million. This contrasts with the former panel arrangement, under which one supplier received contracts worth \$53.84 million, while the only other supplier received contracts worth \$8.4 million. The new panel has created greater breadth in the local supplier base and all other things being equal (e.g. discounting price escalation or changes in demand) the new panel has created more competitive tension between suppliers. This can be expected to provide the Territory with keener pricing and more resilience should one supplier be unable to respond to an RFQ.

4.92

Deeds associated with the current *Road and path maintenance panel* (Contract No. 31012-NCT-001) were first executed in November 2021 and the two-year contracts with the three suppliers were extended in November 2023. The decision to extend the panel arrangement in November 2023 was time-constrained. Roads ACT assessed the performance of each of the three resurfacing contractors and discussed performance with the contractors after each year's resurfacing program.

4.100

Roads ACT officials effectively consider, and account for, VFM during the RFQ process. However, there are opportunities to improve with respect to approaching the market earlier to avoid time pressure to secure the delegate's approval and issue Work Orders.

4.108

Quality assurance

The Road and Path Network Branch is building team capability for surveillance and inspection of resurfacing work. Currently, there is no specific, documented standard operating procedure for quality assurance. In the absence of such a procedure there are a set of controls and 'hold points', from the resurfacing design through to construction and post-construction inspection. A review of documentary evidence of eight audit checks relevant to reseal resurfacing and five checks relevant to asphalt resurfacing for 16 selected roads showed that timely surveillance work had been undertaken at the various points between design submission and post completion inspections. There is appropriate evidence of quality controls being applied, of these detecting errors and of errors being rectified.

4.119

Roads ACT administrative arrangements

Operational challenges

- 4.2 In recent years Roads ACT's resurfacing activities have been impacted by a series of external and internal challenges.
- 4.3 Other than universal disruptors (e.g. the Covid-19 pandemic, remote working and cost escalation) external challenges have been:
- the three successive La Niña weather cycles, which have created extraordinary work imperatives to fix potholes, with three distinct peaks to backlogs in November 2020, January 2022 and February 2023; and
 - industry skills and experience shortages. Most in-house pavement engineering expertise is acquired from the public sector in other municipalities and states that are also experiencing skills shortages.

4.4 Internal challenges have included:

- a major reduction in workforce experience in certain areas due to the loss of experienced personnel, particularly from teams within the Works Branch;
- a protracted workforce planning process (refer to paragraphs 4.5 to 4.7). This has also led to:
 - reporting lines being changed as part of a reorganisation associated with the workforce planning process, with functions moving across teams and new team leadership;
 - an intent to develop new ‘centres of excellence’ as part of the reorganisation (e.g. inspection, quality and procurement hubs) rather than such functions being dispersed across multiple teams;
- an evolving in-sourcing and industrial relations agenda (refer to paragraphs 4.8 to 4.9); and
- the slow pace of the replacement of the IAMS asset management system with Assetic (refer to paragraphs 4.44 to 4.46).

Roads ACT Workforce Project

4.5 In 2019 a consultant was engaged for the purpose of the *Roads ACT Workforce Project*. The project examined Roads ACT’s current operating model and identified potential future operating models to be achieved through business transformation processes. The project evolved into a substantial redesign of teams, structures, functions and ways of working. A business-unit restructure commenced in 2022, which then went through a further iteration in 2023. According to Roads ACT the project has progressed as far as current resourcing allows and, as part of ongoing workforce planning responsibilities, will be reviewed and reconsidered as the environment changes.

4.6 For the purpose of this audit, the most significant change arising from the project was:

- the establishment of the Road and Path Network Branch, which undertakes both the development and delivery of the resurfacing programs; and
- the re-establishment of a team responsible for in-house delivery of asphaltting within the Works Branch.

4.7 It was a major endeavour for Roads ACT to undertake a business-unit wide workforce planning initiative, which was concurrent with (but not necessarily causing) major organisational upheaval for Roads ACT staff. The two teams responsible for resurfacing were particularly affected and continue to be so.

Insourcing

4.8 Since the *Roads ACT Workforce Project* restructure began in July 2022 the Government has established an *Insourcing Policy* 8/2023 (11 December 2023) and an *Insourcing Framework*.

4.9 Insourcing is the practice of using employees of the ACT Public Service instead of procuring services from suppliers. Increasing the level of insourcing had been contemplated by Roads ACT prior to 2022 and has since been adopted by Roads ACT for municipal maintenance tasks. This includes:

- insourcing of Temporary Traffic Management team within the Works Branch (since early 2024);
- rebuilding the Asphalt team within the Works Branch (since 2023) mainly for planned maintenance tasks); and
- scaling up of the Routine Maintenance team within the Works Branch undertaking pothole filling (since 2024), which is a reactive maintenance task.



4.10 In recent years Roads ACT's resurfacing activities have been impacted by a series of external and internal challenges. External challenges have included three successive La Niña weather cycles and industry skills and experience shortages. Internal challenges have arisen from a protracted workforce planning process, which has resulted in organisational changes. The *Roads ACT Workforce Project* examined Roads ACT's current operating model and identified potential future operating models to be achieved through business transformation processes. The project evolved into a substantial redesign of teams, structures, functions and ways of working. A business-unit restructure commenced in 2022, which then went through a further iteration in 2023. According to Roads ACT it remained a 'work in progress' at the end of 2024.

In-house road maintenance teams

4.11 The September 2024 Roads ACT organisation chart identifies two in-house branches as being responsible for road resurfacing: the Road and Path Network and the Works branches. Within the Works Branch is:

- a Routine Maintenance team that undertakes pothole filling; and
- an Asphalt team whose primary focus is to undertake heavy patching and support road resurfacing work where possible.

Asphalt team in the Works Branch (resurfacing)

4.12 The Asphalt team undertakes preparatory patching and asphalt resurfacing. These are all activities that may be, and have been in the past, undertaken by outsourced contractors. The Asphalt team does not have the facility to deliver bituminous reseal resurfacing.

4.13 Team leaders described the challenge of scaling the team according to the level of work it can secure and deliver across the 12 months of the year, since some work is seasonal. A related supervisory judgement is needed over what equipment (e.g. rollers, profilers and pavers) Roads ACT should lease or hire and whether this is with or without hired operators.

The team is at an early stage of rebuilding after a large-scale loss of experience in 2021-22 and delivery challenges in 2023-24.

4.14 Resurfacing Contract Tracker records show:

- no resurfacing packages were delivered by the Asphalt team in the Works Branch in 2022-23 and 2023-24; and
- expenditure of \$861,565 was incurred for 'prep patching' and \$414,044 was incurred for 'asphalt resurfacing' in 2024-25.

4.15 Officials described the process of allocating work to the Asphalt team in the Works Branch as a negotiation. It is a collaborative effort that seeks to meet the interests of both parties, where consideration is given to the urgency and complexity of the work locations and the capacity and capability of the Asphalt team to deliver the work. Once prepared by the Road and Path Network Branch, works packages are reviewed by the Asphalt team leader and project proposals are then developed by the Asphalt team and reviewed by the Road and Path Network Branch. A post project completion review is undertaken to identify learnings.

4.16 The combined value of asphalt resurfacing and prep patching opportunities allocated to the Asphalt team in 2024-25, according to the Resurfacing Contract Tracker, was \$2,757,805, which was nine per cent of the total resurfacing program by value in 2024-25. The percentage of all resurfacing works completed by the Asphalt team was 4.3 per cent.

4.17 The Asphalt team in the Works Branch is building its capacity and capability. Its business planning is embryonic and its scheduling is for the short-term only. There is a loose annual cycle of work:

- early in the (financial) year time critical prep-patching is undertaken to allow for timely resurfacing;
- asphalt resurfacing is then undertaken in tasks scaled to the teams' experience and capability; and
- later in the year heavy patching is undertaken through weekly schedules that are developed based on prespecified jobs lodged in the Assetic asset management system. Officials advised that in January 2025 there were 486 jobs in Assetic for asphalt heavy patching of which 200 were less than 20 sqm, and therefore 'quick', should reactive maintenance budgets and team availability coincide.



4.18 The Asphalt team in the Works Branch undertakes preparatory patching and asphalt resurfacing. These are all activities that may be, and have been in the past, undertaken by outsourced contractors. The Asphalt team is in the early stages of rebuilding its capacity and capability. Its business planning is embryonic and its scheduling is for the short-term only. It does not yet have an established track record of work across the full year. In 2024-25 it completed 4.3 per cent in value of the total resurfacing program.



Recommendation 7

Asphalt team

The City and Environment Directorate should prepare and document an annual *operating plan* for the Asphalt team in the Works Branch.

Routine Maintenance team in the Works Branch (pothole filling)

4.19 In October 2022 the Legislative Assembly debated potholes and associated damage claims and on 12 October 2022 called on the ACT Government to:

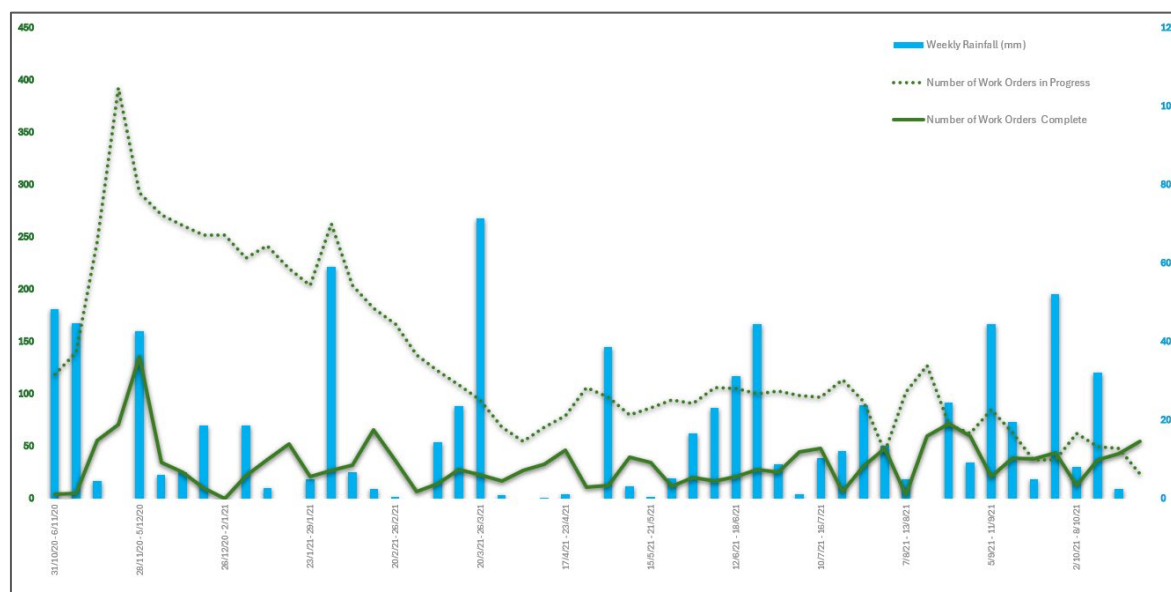
... investigate what changes must be made to the road maintenance approach to improve the state of ACT roads ...

4.20 The relatively small Routine Maintenance team (four to six FTE) undertakes cold mix pothole filling.

4.21 However, during periods of peak demand (e.g. October 2022) personnel from other Works Branch teams have been deployed to pothole filling, so that up to 30 FTE were active at the peak of a two to three-week blitz. This diverted management attention and normal operational capacity in the short term. While potholes are concerning to road users, and are potentially dangerous, they are normally a symptom of a pre-existing defective road surface and pothole filling only temporarily alleviates the problem.

4.22 Figures 4-1 to 4.4 show data for rainfall, outstanding pothole work orders and work orders completed for the four years between 2020-21 and 2023-24. Outstanding pothole work orders are referred to as 'work orders in progress' but in practice this represents work orders prepared but not yet actioned, i.e. the backlog.

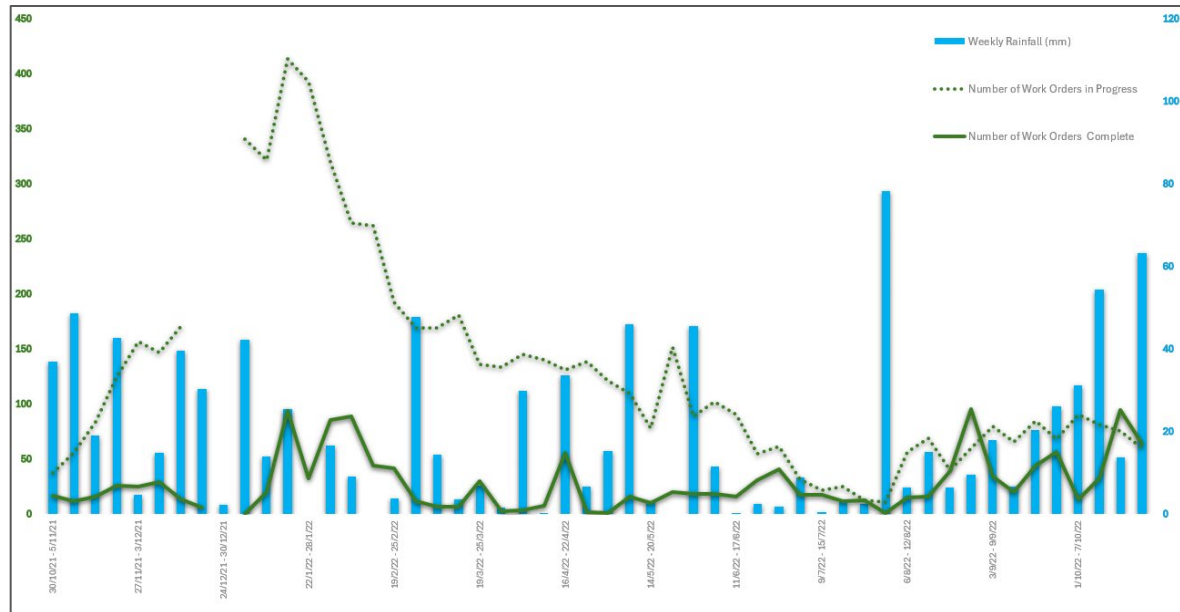
Figure 4-1 2020-21 pothole backlog (a La Niña year)



Source: Roads ACT compiled data January 2025.

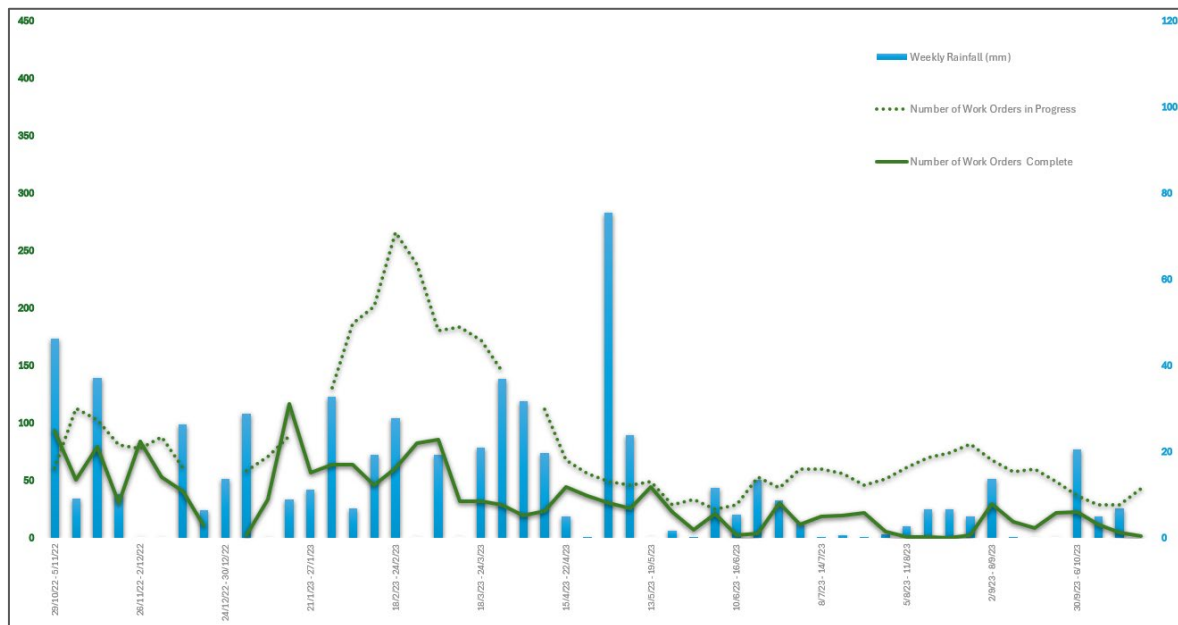
- 4.23 Figure 4-1 shows that in the twelve months to October 2021 (a La Niña year) the pothole backlog peaked in late November 2020 at 393 outstanding pothole work orders (in one week) while at the time Roads ACT was filling 136 a week.

Figure 4-2 2021-22 pothole backlog (a La Niña year)



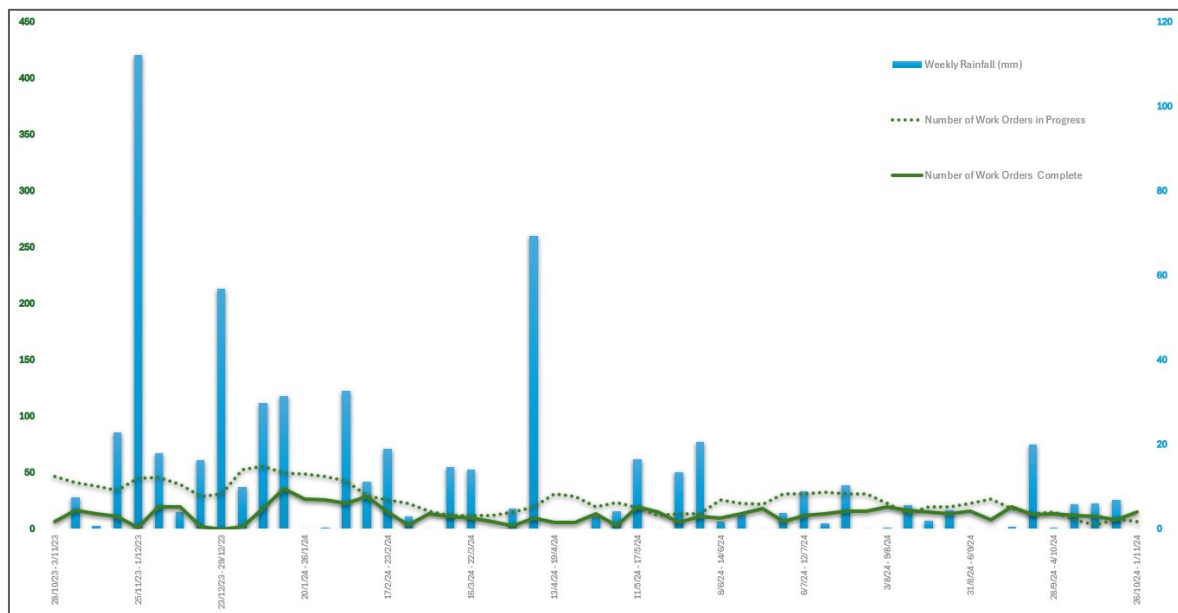
Source: Roads ACT compiled data January 2025.

- 4.24 Figure 4-2 shows that in the twelve months to October 2022 (another La Niña year) the pothole backlog peaked in January 2022 at 414 outstanding pothole work orders while 94 a week were being filled. By the time of the 12 October 2022 Assembly motion calling on the Government to respond to the road maintenance challenge the number in the backlog had reduced.

Figure 4-3 2022-23 pothole backlog (a La Niña year)

Source: Roads ACT compiled data January 2025.

- 4.25 Figure 4-3 shows that in the twelve months to October 2023 (another La Niña year), the pothole backlog had peaked in February 2023 at 266 outstanding pothole work orders while 86 a week were being filled.

Figure 4-4 2023-24 pothole backlog (not a La Niña year)

Source: Roads ACT compiled data January 2025.

- 4.26 Figure 4-4 shows that in the twelve months to October 2024 (not a La Niña year) it is evident that the number of potholes filled and the backlog of outstanding pothole work orders had

fallen and stabilised with both below 50 at any one time. The pothole backlog of 2021 to 2023 had been substantially reduced by March 2024.

4.27 Table 4-1 shows Roads ACT's indicative timeframes for repairs.

Table 4-1 Roads ACT indicative timeframe for repairs

Asset	Responsiveness
Potholes (urgent repair)	Complete in 5 to 10 working days (weather and priority dependant)
Potholes (non-urgent repair)	Assessed annually in accordance with the resurfacing program (weather and priority dependant)

Source: <https://www.cityservices.act.gov.au/about-us/complaints/response-timeframes>.

4.28 Figures 4-1 to 4-4 show increased volumes of work associated with pothole filling and backlogs that arose during La Niña years. Meeting published indicate timeframes for pothole repairs during these periods would have been challenging.



4.29 The relatively small Routine Maintenance team in the Works Branch undertakes cold mix pothole filling. During periods of peak activity the team's resources have been supplemented from other Works teams. A large number of potholes in ACT's roads were reported and fixed between October 2020 and May 2023, which spanned three successive La Niña years. Following Assembly attention to the matter in October 2022 Roads ACT responded with a pothole 'blitz'. By May 2023 the backlog had been addressed and a normal volume of potholes was being reported and responded to.

Road and Path Network Branch (resurfacing)

4.30 The Asphalt team in the Works Branch accounted for less than five per cent of resurfacing expenditure in 2024-25. The remainder of the \$33.5 million a year (on average) budgeted for resurfacing between 2023-24 and 2025-26 has related to the work of external contractors. These external contractors are managed by the Road and Path Network Branch.

Team structure

4.31 The restructure undertaken as part of the 2022 *Roads ACT Workforce Project* brought together functions for the development and delivery of the resurfacing program within the Road and Path Network Branch. The team undertaking this work comprises staff with a road pavement engineering background who are responsible for:

- managing procurement via a panel arrangement;
- managing road resurfacing supplier contracts with a value of around \$30 million a year (following the introduction of the *Strategic Road Maintenance and Renewal Program*);

- providing project quality assurance via field inspection and document review of suppliers; and
- undertaking visual road condition surveillance and specify and analyse automated road condition surveillance data.

4.32 The finalised *Roads ACT Workforce Plan* (2022-2024) identified operational factors affecting Roads ACT's road resurfacing teams including:

- the '25 per cent increase in road pavement that is over ten years old requiring maintenance' over the five years to 2021; and
- increases in the total value of procurement and contracting activity within Roads ACT.

4.33 The demands on the Road and Path Network Branch have intensified as there have been further increases in procurement and contracting activity following the introduction of the *Strategic Road Maintenance and Renewal Program* (and since the *Roads ACT Workforce Plan* (2022-2024) was finalised in September 2022).

Road and Path Network works programming policy and procedure

4.34 The audit considered key processes for the development and delivery of the resurfacing program.

4.35 Policies and procedures for the Road and Path Network Branch's road resurfacing *procurement processes* are well documented and reference ACT Government policy. Other policies and procedures that have been developed include:

- the *Pavement Assessment guideline: Criteria for preparatory works for road pavements* (undated, unauthorised); and
- the *Roads ACT Pavement Visual Inspection Manual* (2017).

Documenting the level of service specification

4.36 There is no policy or procedural documentation that details the specification of levels of service and how level of service changes are proposed and approved. Table 4-2 shows there are two areas where specification is needed.

Table 4-2 Technical indicators impacting the Pavement Management System

Level of Service (LoS) category	Indicator tier	Indicator type	Example/Description of indicator
Technical	4	Pavement management system - condition classification (Input)	Based on ACT's definition for the 1-5 condition scale (i.e. Very Good, Good, Fair, Poor and Very Poor) for each pavement condition parameter (rutting, cracking, skid resistance, surface age, texture, roughness, etc)
Technical	4	Pavement management system - intervention trigger points (Input)	Intervention triggers are used to inform the selection of different treatment types

Source: *Strategic Road Maintenance and Renewal Program* page 64.

4.37 Specification of these two indicators is necessary since it is the basis for:

- transparency in system settings that affect the way the Pavement Management System performs with respect to the Territorial sub-network;
- transparency in the parameters used in any data analysis approach with respect to the Municipal sub-network;
- consistency in internal professional discussions from year-to-year about resurfacing tactics and strategy; and
- public accountability and public engagement over acceptable levels of service.

4.38 The level of service relevant to the road surface is discussed in the *Roads ACT Strategic Asset Management Plan* (2018). However, the 2018 plan's specification is no longer valid having been superseded several times. More recently, the business case supporting the Cabinet decision of 28 November 2022 provides coverage of new treatment trigger points for the Territorial sub-network.

4.39 The *Strategic Road Maintenance and Renewal Program* covers the treatment triggers for two conditions (cracking and roughness) and not the parameters of each of the five Pavement Condition Index conditions. Furthermore, it only provides this information with respect to the Territorial sub-network and not the network as a whole.



4.40 The development and delivery of the resurfacing program is the responsibility of the Road and Path Network Branch. The branch does not have documented policies or procedures for the specification of levels of service and how level of service changes are proposed and approved. The lack of procedural documentation means there is a high reliance on individual experience and professional judgement. Such 'professional judgement' undermines quality control over the process and works against building interoperability within teams and individual members of the team.

Data systems and standards

4.41 The Road and Path Network and the Works branches use a combination of proprietary systems and generic tools (e.g. spreadsheets) to manage their activities. These include:

- the dTIMS Pavement Management System that has been operated by ARRB under a series of contracts for at least 15 years;
- the asset management system Assetic, which replaced IAMS in 2021;
- Objective (EDRMS), which is a record management platform used across many areas of Government; and
- Fix My Street and Salesforce, which is a customer relationship management platform relevant to the management of complaints and feedback relevant to municipal services.

4.42 The *development* phase of Roads ACT resurfacing programs is particularly data intensive. The *Roads ACT Strategic Asset Management Plan* (2018) refers to the implications of data quality for each asset class. Figure 4-5 shows an extract from the plan relevant to road network data confidence and reliability.

Figure 4-5 Road network data confidence and reliability

Asset	Data Completeness %	Data Accuracy		
		Quantity	Age	Condition
Arterial Roads (Territorial)	80 - 100	Highly Reliable	Reliable	Highly Reliable – Laser Profilometer Data
Local (Municipal)	80 – 100	Highly Reliable	Reliable	Reliable – Visually Inspected

Source: *Roads ACT Strategic Asset Management Plan* (2018), page 233.

4.43 Figure 4-5 shows that road data, including visual inspection-derived data, was characterised as either ‘reliable’ or ‘highly reliable’. Systems for the management of data have changed since 2018, including:

- the replacement of IAMS by Assetic; and
- changes from visual to automated data collection for the Municipal roads sub-network from 2022-23 onwards.

Assetic

4.44 Assetic replaced IAMS in 2021. Assetic was intended to be a part of an ‘asset management culture’ transformation that included integration with Access Canberra’s Salesforce and Fix

My Street systems and Transport Canberra and City Services Directorate's geographic information systems (GIS).

4.45 A May 2024 internal audit of Assetic (*Asset Management System Post Implementation Review*) identified Roads ACT as an intended core customer. However, as at May 2024, it was noted that 'none of the business units interviewed use the system completely to its intended functionality':

- Roads ACT – Bridges - **Partially**
- Roads ACT – Paths - **Partially**
- Roads ACT – Streetlights - **Partially**
- Roads ACT - Road Pavement – **Nil**
- Roads ACT – Road Maintenance - **Partially**
- Roads ACT – Signs - **Partially**
- Roads ACT – Stormwater – **Partially**
- Infrastructure Planning – **Partially**

4.46 The May 2024 internal audit found that there was no utilisation of Assetic by the Road and Path Network Branch for road pavement purposes and only partial use by the Works Branch (referred to in the report as 'Road Maintenance'). While the internal audit reflects favourably on the Road and Path Network Branch's maintenance cataloguing and its formatting of data ready for input into the new system (when this eventually happens) the report notes that there were no up-to-date plans for business system development work or for managing data quality and completeness at team level.

Spreadsheets

4.47 Within the Road and Path Network and Works branches there is widespread use of spreadsheets for program management purposes. The use of Assetic is not yet embedded to replace the use of spreadsheets.

4.48 Pavement engineers referred to the use of spreadsheets as routine and as having been standard practice over a long period of time. The Road and Path Network Branch's key business tools are all spreadsheet based, including:

- the Municipal sub-network survey analysis;
- the Pavement Management System-derived Territorial sub-network resurfacing works program provided by ARRB;
- the final road network resurfacing consolidated program;
- the annual Resurfacing Contract Tracker;
- the mid-year resurfacing Statement of Performance calculations (January); and
- the end-of-year resurfacing Statement of Performance calculations (July).

4.49 Spreadsheet tools require a lot of manual data entry, validating, cleaning and analysis to mitigate the risk of data loss and other errors. A business system such as Assetic could be expected to supplant the need for such extensive data handling, but this has not yet been achieved. In the meantime, officials use spreadsheets effectively, with good version control, exploiting advanced spreadsheet features.



4.50 The Road and Path Network Branch and the in-house Works teams use a combination of proprietary systems and generic tools (e.g. spreadsheets) to manage their activities. Within the teams there is widespread use of spreadsheets for program management purposes. Spreadsheet tools require a lot of manual data entry, validating, cleaning and analysis to mitigate the risk of data loss and other errors. The teams are not yet fully exploiting the benefits of the asset management system Assetic, which was implemented in 2021.



Recommendation 8

Business system and data quality plans

The City and Environment Directorate should develop and implement business system and data quality improvement plans for the systems used to manage its resurfacing activities.

Collection of road condition data

4.51 The automated collection of road condition data (via a specialised road vehicle) is in principle more reliable and more efficient than condition data collected through visual 'drive-over' inspection by Roads ACT inspectors. The collection of Territorial sub-network data has been automated for many years. Prior to August 2022 the collection of Municipal sub-network data had been by visual inspection from a moving vehicle, in ten-metre sections, on a triennial basis, guided by the *Pavement Visual Inspection Manual* (September 2017).

4.52 In August 2022 the first automated survey of the Municipal sub-network was undertaken. The classification of the data was informed by *ACT Municipal – Road Condition Survey: Distress specifications* (September 2022). This is a simpler specification, which is based on the specification used for the Territorial sub-network.

4.53 In 2024-25, the final third of the Municipal sub-network was surveyed via automated data collection. As at January 2025, for the first time, Roads ACT has automated (but not uniform) datasets collected on the full ACT road network. While this is a positive step, delays to the availability of datasets and contractor reports to Roads ACT has caused works program development problems for the Road and Path Network Branch in the last three years. For example, officials referred to timing issues over the availability of the Pavement Management System output for the Territorial sub-network and the automated survey dataset for the Municipal sub-network. It was apparent that:

- the newly collected (automated survey) Municipal dataset (August 2022) was not available in time to influence the 2022-23 program as it took considerable time to analyse the new data; and
- the Pavement Management System derived priority list for 2023-24 was produced on 1 August 2023. This was very late and of minimal influence over the resurfacing program for the Territorial sub-network.

Development and delivery of the resurfacing program

Overview of the development and delivery of the resurfacing program

- 4.54 There is no documented procedure for the development of the annual resurfacing program or a summary document that explains the method for developing the program. Nevertheless, it is apparent that there is a procedure along with ideal timeframes for particular processes. Documenting the procedure for the development of the annual resurfacing program along with key steps, timing and interdependencies would increase team interoperability and resilience.
- 4.55 The identification of roads for resurfacing is undertaken through two distinct processes (as described in paragraphs 2.32 to 2.37):
- the identification of Territorial sub-network roads is based on the output from the ARRB-administered dTIMS® Pavement Management System, referred to as an *optimiser*; and
 - the identification of Municipal sub-network roads is through manual analysis of available data to produce a separate priority short list.
- 4.56 All proposed roads and road sections then go through a validation process, including consultation with key stakeholders such as utility companies and other ACT Government directorates before forming a draft final program.
- 4.57 The delivery phase begins with draft final program roads and road sections being grouped into viable packages in preparation for an approach to market, according to:
- treatment types (asphalt, bituminous reseal, prep patching), sub-network (Territorial, Municipal) and timing;
 - geographic area (north and south); and
 - a Roads ACT assessment based on officials' understanding of supplier capacity.

Observations on the development and delivery of the resurfacing program

- 4.58 The audit sought to understand whether the roads and road sections proposed for resurfacing through the dTIMS® Pavement Management System optimiser (for the Territorial sub-network) or the manual analysis of available data (for the Municipal sub-network) are the roads or road sections that eventually get resurfaced.

Territorial sub-network

- 4.59 Using 2023-24 as an example, all 138 roads in the Territorial sub-network (including Major Collectors) were examined within the Pavement Management System. Of the 138 roads examined 95 (69 per cent) were prioritised by the Pavement Management System for some form of treatment (e.g. asphalt or reseal) for that year. Of these 95 roads:

- 24 were packaged, contracted and completed; and
- one was packaged and contracted but not completed during the year.

- 4.60 An additional seven roads that were not initially prioritised by the Pavement Management System were also packaged, contracted and completed.

- 4.61 In practice, while the Pavement Management System prioritisation process is a starting point, subsequent program development activities produce a different program. Accordingly, the significance of the Pavement Management System optimiser in programming the resurfacing of the Territorial sub-network should not be overstated. For example, *Roads ACT Strategic Asset Management Plan* (2018) commentary (on pages 236 and 237) about the role of the Pavement Management System overlooks the substantial additional effort that Roads ACT's pavement engineers put in to refining a long Pavement Management System-generated list into a short list of priority roads ready for packaging and contracting.



- 4.62 The identification of Territorial sub-network roads for resurfacing is based on the output from the ARRB-administered dTIMS® Pavement Management System. In 2023-24 95 roads in the Territorial sub-network were prioritised for some form of treatment. A significant number of these roads (70) were not packaged and contracted. Nearly all of these roads were de-selected by the Road and Path Network Branch. Conversely, seven of the 31 roads whose treatment was completed were not prioritised via the Pavement Management System. While the Pavement Management System prioritisation process is a reasonable starting point, significant subsequent program development activities are undertaken and these produce a different program.

2025-26 Territorial sub-network works planning

- 4.63 In August 2025 Roads ACT advised that an ARRB Pavement Management System optimiser report had not been prepared prior to the 2025-26 resurfacing season, in contrast with

previous years (for example, the 1 August 2023 ARRB report for the 2023-24 year and the 24 May 2024 ARRB report for the 2024-25 year). As a consequence, Roads ACT did not obtain a Pavement Condition Index score for 2024-25 or a provisional Territorial sub-network works program based on Pavement Management System optimiser output.

- 4.64 Roads ACT identified that a ‘workaround’ was implemented, which involved using the last year’s optimiser results which included future years. This is sub-optimal because the prior year’s Pavement Management System optimiser report of 24 May 2024 could not take account of data collected during 2024-25.
- 4.65 While there is no documented procedure that defines the necessity or desired timing of the Pavement Management System output, there is a Roads ACT-preferred way of developing a works program. Roads ACT needs up-to-date output based on up-to-date input data from a Pavement Management System optimiser, and it needs that information in time (by May) to inform program development. This was not accomplished for the 2025-26 year.
- 4.66 The reasons given by Roads ACT for not obtaining an ARRB Pavement Management System optimiser report during 2024-25 were that there was no Pavement Management System-optimiser contract in place during the year and that there had been unforeseen delays in the procurement process that would lead to a new contract.

Municipal sub-network

- 4.67 The development and delivery of the resurfacing of the Municipal sub-network follows a similar process, except the initial prioritisation is not undertaken within ARRB’s Pavement Management System and the analysis is on a different third of the sub-network each year.
- 4.68 Using 2023-24 as an example, initial prioritisation was the result of a manual analysis of a third of the roads of the sub-network (an estimated 2,044 roads). This resulted in 214 roads being targeted for further investigation. Of those 214 roads:
- 61 roads (28 per cent) were packaged, contracted and completed; and
 - a further 11 roads (5 per cent) were packaged and contracted but not completed.
- 4.69 This means of the 214 roads targeted for further investigation, 142 were not shortlisted for packaging and contracting following further validation activities.
- 4.70 An additional 80 roads not identified through the manual data analysis process were also packaged, contracted and completed.



- 4.71 The identification of Municipal sub-network roads for resurfacing follows a similar process to the Territorial sub-network, except that it is predicated on a manual analysis of available data (instead of data from the dTIMS® Pavement Management System). In 2023-24 initial

prioritisation was the result of analysis of a third of the sub-network (an estimated 2,044 roads) that resulted in 214 roads being targeted for further investigation. A significant number of these roads (142) were not shortlisted for packaging and contracting following further validation activities. An additional 80 roads not identified through the manual data analysis process were also packaged, contracted and completed. While the data analysis process is a reasonable starting point, significant subsequent program development activities are undertaken and these produce a different program.

Documentation of changes to the resurfacing program

- 4.72 The audit sought to establish whether there was appropriate documentation to explain the deselection and addition of roads to those that were initially identified as a priority for resurfacing.

Deselected roads

- 4.73 For 2023-24, the *Road Resurfacing Program* master spreadsheet, which was relevant to both Territorial and Municipal roads, identified that for 421 roads that were initially identified as a priority for resurfacing:

- 200 were completed; and
- 221 were 'deferred', which means they were initially selected but not completed and possibly not packaged or contracted.

- 4.74 For 126 of the 221 roads that were deferred, the reason for deferral was identified as follows:

- sensitive area;
- low priority;
- carried over but low priority;
- budget pressure;
- old pavement low traffic;
- ongoing construction;
- sulphur-affected;
- kerb needs fixing prior; and
- not suitable for reseal, needs rehabilitation.

- 4.75 For some roads there was also a change to the treatment. For 95 of the 221 (43 per cent) there was no recorded reason for a road being deselected. Officials advised that 'field observations notebooks' were a useful source of information on reasons, if not recorded in the spreadsheets.

- 4.76 In response to the draft proposed report, Roads ACT advised that it is important to recognise the differences between Territorial roads and Municipal roads, and that many of the roads that are deselected are Municipal roads.

Added roads

- 4.77 Information was sought from Roads ACT as to why other roads were added to the resurfacing program, notwithstanding that they had not initially been identified as a priority for resurfacing using condition data, and for which there was no commentary in the master spreadsheet of the reason for their addition. Roads ACT advised that the roads were:
- a carryover from the previous year;
 - nearby roads that had not been resurfaced for a long time; and
 - on bus routes that were showing distress, following a bus route inspection process.
- 4.78 In response to the draft proposed report, Roads ACT advised that it is important to recognise the differences between Territorial roads and Municipal roads, and that the additional roads primarily related to the Municipal network.
- 4.79 Officials also referred to timing issues over the availability of the Pavement Management System output (for Territorial) and the automated survey dataset (for Municipal) as stated in paragraph 4.53.

Community influence on program development

- 4.80 Through its routine use of the road network the ACT community reports road surface defects through Fix My Street. Other than the reporting of potholes, the ACT community does not report extensively on the condition of the road surface through Fix My Street.
- 4.81 The 2023-24 resurfacing program identified four Municipal roads as being programmed for resealing as a result of public requests received in the previous year. Officials advised that 'there could be other roads which have some form of input from the public but it would be difficult to estimate'.

Completion versus contracted

- 4.82 The audit further considered the work completed and the contract cost of resurfacing. Table 4-3 shows the value and volume of road resurfacing in the three years to 2024-25.

Table 4-3 Values and volume (sqm) contracted and delivered per year

	Reseal contracted	Reseal completed	Asphalt and other contracted	Asphalt and other completed
2022-23	\$10.19 million	\$9.21 million (883,236 sqm)	\$13.00 million	\$12.36 million (275,964 sqm)
2023-24	\$17.90 million	\$12.64 million (1,068,487 sqm)	\$18.62 million	\$17.19 million (217,594 sqm)
2024-25	\$20.64 million	\$16.03 million (889,256 sqm)	\$15.94 million	\$13.52 million (245,864 sqm)

Source: ACT Audit Office, based on Contract tracker spreadsheets for 2022-23, 2023-24 and 2024-25.

4.83 In the three years to 2024-25 93 per cent of contracted activity was completed in 2022-23, 81 per cent was completed during 2023-24 and 81 per cent was completed during 2024-25.



4.84 Recording reasons for programming changes assists program evaluation and future programming. For 2023-24, the Road Resurfacing Program master spreadsheet, which was relevant to both Territorial and Municipal roads, identified that for 421 roads that were initially identified as a priority for resurfacing: 200 were completed; and 221 were 'deferred'. This means they were initially selected but not completed and possibly not packaged or contracted. For 95 of the 221 roads that were 'deferred' (43 per cent) there was no recorded reason for their deselection. For roads that were added to the program after the initial prioritisation process, and for which there was no commentary in the spreadsheet of the reason for their addition, Roads ACT Officials were able to identify reasons for the additional of Municipal roads, being:

- a carryover from the previous year;
- nearby roads that had not been resurfaced for a long time; and
- on bus routes that were showing distress, following a bus route inspection process.



Recommendation 9

Documentation of policy and practice

The City and Environment Directorate should review all aspects of its resurfacing strategy and its implementation for opportunities to improve the documentation of policy, procedure and practice. Prioritisation of areas for improvement should include:

- Municipal sub-network road selection;
- program validation activities prior to program finalisation; and
- reasons for the addition and removal of roads (or road sections) before and after program finalisation.

Procurement of resurfacing suppliers

- 4.85 Roads ACT groups roads or road sections into viable works packages for an approach to market for resurfacing services. The approach to market involves:
- the formation of a panel of providers. This results from an open tender process that occurs every two to five years; and
 - Requests for Quotation (RFQ) from the panel of providers.¹¹ Roads ACT invites selected panel members to quote for one or more works packages. Panel members are then contracted to provide specific services through Work Orders. This may result in around 20 Work Orders per year.
- 4.86 The current *Road and path maintenance panel* (Contract No. 31012-NCT-001) was established in November 2021. It is for a two-year period and may be extended up to three times for a year at a time, providing a maximum term of five years. Officials advised that establishing the panel and renewing it is very time-consuming.
- 4.87 The new panel, which was established fifteen months before the Assembly announcement of the resurfacing strategy in February 2023, has been productive in creating a more competitive field.
- 4.88 Under the former panel one supplier provided most of the resurfacing procured by Roads ACT for the period May 2016 to March 2022. This supplier had contracts for resurfacing works totalling \$53.84 million for the period (an average of \$9.5 million per year). The only other supplier had one contract for \$8.4 million over the same period.
- 4.89 Table 4-4 shows the value of contracts under the current *Road and path maintenance panel* (Contract No. 31012-NCT-001).

Table 4-4 Road resurfacing suppliers on the *Road and path maintenance panel*

Name	Value to date of contract	Work orders
Capital Asphalt	\$44,939,533	29
Downer	\$46,863,314	30
Patches	\$10,821,392	9

Source ACT Audit Office analysis of ACT Contracts Register, 5 August 2025.

- 4.90 Table 4-4 shows that under the current panel arrangement there are three active suppliers, with two dominating, whereas under the 2016 panel there were two suppliers, with one dominating.

¹¹ Rates are not fixed at the panel stage since the materials price component is volatile in response to commodity price changes (e.g. bitumen)

4.91 The new panel has created greater breadth in the local supplier base and all other things being equal (e.g. discounting price escalation or changes in demand) the new panel has created more competitive tension between suppliers. This can be expected to provide the Territory with keener pricing and more resilience should one supplier be unable to respond to an RFQ.



4.92 The current *Road and path maintenance panel* (Contract No. 31012-NCT-001) was established in November 2021. Under the new panel there are three suppliers, two of which have received contracts worth \$46.86 million and \$44.94 million, while a third has received contracts worth \$10.82 million. This contrasts with the former panel arrangement, under which one supplier received contracts worth \$53.84 million, while the only other supplier received contracts worth \$8.4 million. The new panel has created greater breadth in the local supplier base and all other things being equal (e.g. discounting price escalation or changes in demand) the new panel has created more competitive tension between suppliers. This can be expected to provide the Territory with keener pricing and more resilience should one supplier be unable to respond to an RFQ.

Value for money in procurement

4.93 Roads ACT is obliged to consider, pursue and achieve value for money (VFM) in its procurement and contracting activities. This applies to the establishment and extension of the Standing Offer arrangement (the *Road and Path Maintenance Panel*) and the RFQs and Work Orders that flow from this arrangement. Assessment of individual suppliers' ongoing performance is also an aspect of achieving VFM.

Assessing VFM during the Standing Offer arrangement

4.94 ACT Contracts Register entries for the Standing Offer arrangement (31012-NCT-001) show that deeds were executed in November 2021 with the three suppliers within the scope of the panel (refer to Table 4-4). The two-year contracts with the three suppliers were extended by a letter (dated 10 November 2023) that stated:

The Territory has opted to exercise the remaining two options and thereby extending the contract by a further two years. Therefore, the Agreement will end on 15th of November 2025.

4.95 The statement in the letter does not accord with the original deeds, which prescribed two-year contracts plus up to three, 12-month extensions. Officials advised that a single, two-year extension from November 2023 was intended and the legal basis for this was clarified. Officials also advised that the apprehension of there being only two remaining years (i.e. the reference to 'remaining two options') was an error. Roads ACT officials put this down to time pressure.

4.96 Roads ACT assessed the performance of each of the three resurfacing contractors and discussed performance with the contractors after each year's resurfacing program.

4.97 Internal discussions about extending, refreshing or replacing the panel were underway by April 2023. Following engagement with Procurement ACT, however, modelled timelines indicate that a 14-month timeline was more realistic in order to keep all options open, such as a wholly new approach to market.

4.98 In January 2025 two new concreting suppliers were added to the panel for the remaining nine months of the panel arrangement to November 2025. The two additions were possible under Schedule 3 Item 3 of the deed:

The Territory may, during the term and in its absolute discretion:

(1) choose to appoint other persons to the panel; and

(2) choose the methods by which the other persons will be appointed to the panel.

4.99 It is apparent Roads ACT's intention was to complete the refresh prior to contemplating the November 2023 extension. This did not happen. However, as there has been an opportunity to add to the panel since, and there were no recent additions to the panel that specialise in resurfacing, the delay to the refresh has not been costly to the implementation of the resurfacing strategy.



4.100 Deeds associated with the current *Road and path maintenance panel* (Contract No. 31012-NCT-001) were first executed in November 2021 and the two-year contracts with the three suppliers were extended in November 2023. The decision to extend the panel arrangement in November 2023 was time-constrained. Roads ACT assessed the performance of each of the three resurfacing contractors and discussed performance with the contractors after each year's resurfacing program.



Recommendation 10

Panel planning

The City and Environment Directorate should review its *Road and Path Maintenance Panel* by:

- a) planning ahead for its panel procurement activities (i.e. more than 12 months ahead) of the shortest possible (contracted) panel duration; and
- b) considering and documenting the overall achievement of VFM with the panel.

Assessing VFM in Requests For Quotations (RFQ)

4.101 An internal audit that was finalised in April 2024 (*Panel Contract Management* for the former Transport Canberra and City Services Directorate) considered the management of three panels of the directorate, one of which was the *Road and Path Maintenance Panel*

(31012-NCT-001). The report was broadly positive about the *Road and Path Maintenance Panel* and noted, for example:

Roads and Path Maintenance: Comprehensive and detailed documentation and evidence was retained to support the Request for Quote (RFQ), evaluation and approval processes for the work orders reviewed for the Roads and Path Maintenance Panel.

4.102 The audit considered three work packages relevant to the *Road and Path Maintenance Panel* (31012-NCT-001), to consider whether and how Roads ACT had considered VFM. The three work packages (Package 018 and Package 035 from 2023-24 year and Package 053 from 2024-25) comprised \$16,200,000 in contract value. Table 4-5 shows the features of the three work packages considered for the purpose of the audit.

Table 4-5 Features of three work packages considered as part of April 2024 internal audit

Year	Package	Supplier	Contract value	RFQ close date	Target date for Works Order	Works Order issue
2023-24	018 (1)	Capital Asphalt	\$1,700,000	22 Aug 2023	31 Aug 2023	8 Sept 2023
2023-24	018 (2)	Patches Asphalt	\$2,500,000	22 Aug 2023	31 Aug 2023	13 Sept 2023
2023-24	035 (1)	Downer EDI	\$510,000	22 Aug 2023	31 Aug 2023	06 Sept 2023
2023-24	035 (2)	Capital Asphalt	\$1,700,000	22 Aug 2023	31 Aug 2023	23 Oct 2023
2023-24	035 (3)	Patches Asphalt	\$2,100,000	22 Aug 2023	31 Aug 2023	19 Oct 2023
2024-25	053 (1)	Downer EDI	\$3,000,000	13 Aug 2024	23 Aug 2024	4 Sept 2024
2024-25	053 (2)	Capital Asphalt	\$1,900,000	13 Aug 2024	23 Aug 2024	27 Aug 2024
2024-25	053 (3)	Capital Asphalt	\$2,800,000	13 Aug 2024	23 Aug 2024	27 Aug 2024

Source: ACT Audit Office, based on ACT Contracts Register and panel and delegate records in Objective

4.103 The review of the procurement activities associated with the three work packages shows well evidenced, compliant and logical procurement processes. Overall VFM assessments for the recommended suppliers were adequately articulated in the panel report and in the accompanying correspondence with the delegate. The officials' reflection on VFM evidently included consideration of capability, supplier and capacity given the other packages being sought, as well as risk management, past performance and unit pricing (using relative weighting).

Timing

4.104 It is apparent that the window for issuing the requisite Works Orders is narrow, even where the actual work is scheduled for later in the season. Officials advised this is particularly the case with resealing, which is more season-dependent. Based on the three packages reviewed as part of the audit the Road and Path Network Branch performs well, mostly sticking close to its schedule, but it does place considerable pressure on the panel members,

the Senior Director and the delegate if timely outcomes are to be achieved. This is a potential bottleneck and leaves little allowance for errors or omissions or contemplation of alternatives.

Environmental Responsibility

- 4.105 Continuously upgrading environmental performance is important, as indicated by the Minister's statement to the Assembly on 8 February 2023:

... an increase in asphalt works provides an additional opportunity to embed recycled content, supporting our transition towards a circular economy.

- 4.106 With respect to environmental responsibility, Engineering Advisory Note 22 *Specifications for the use of recycled materials in the construction of road pavements* (13 December 2023) states:

The use of recycled materials in pavements has been the subject of research for many years. Research is continuing to identify how new emerging recycled materials can be incorporated into pavements, and also how a greater proportion of traditional recycled materials can be incorporated into pavements, without compromising performance, durability and future maintenance impacts/costs. This emerging research in Australia is primarily being undertaken by Austroads

...

On this basis, TCCS is proposing to adopt primarily the TfNSW specification requirements for recycled materials in road pavements but is also incorporating some of the latest guidance from Austroads publications.

- 4.107 Furthermore, the *Strategic Road Maintenance and Renewal Program* (September 2024) states:

TCCS will further investigate options to increase its use of sustainable practices and materials [including]:

- use of road-grade recycled plastics for sustainable asphalt pavement (APT6305);
- protocol for the assessment of waste materials in road surfacing (APT6249);
- use of crushed glass in road infrastructure (APT6311); and
- national specification for crumb rubber binders in asphalt and seals (APT6173).



- 4.108 Roads ACT officials effectively consider, and account for, VFM during the RFQ process. However, there are opportunities to improve with respect to approaching the market earlier to avoid time pressure to secure the delegate's approval and issue Work Orders.

Quality assurance

- 4.109 The Accountability Indicators for road resurfacing are used to report the target and actual *quantity* of resurfacing undertaken each year. One aspect of performance not covered is *quality*. The right treatment in the right place will not perform as intended if the quality of the resurfacing work has been compromised. The audit considered how contractor quality is managed by the Road and Path Network Branch.
- 4.110 Contracted resurfacing work is under a contractor warranty for 12 months after completion of construction.¹² A resurfaced road section that has failed will likely be subject to a contractor remedy.¹³ In this respect the responsibility for quality rests primarily with the contractor.
- 4.111 There is no specific, documented standard operating procedure for quality assurance. In the absence of such a procedure there are a set of controls and 'hold points', from the resurfacing design through to construction and post-construction inspection. Surveillance officers in the Road and Path Network Branch seek to quality-assure all lines of activity in all work packages. Roads ACT officials advised this is the case '90 per cent of the time'.
- 4.112 The audit reviewed documentary evidence of eight audit checks relevant to reseal resurfacing and five checks relevant to asphalt resurfacing for 16 selected roads. The audit considered whether there was evidence of:
- a design lodged;
 - equipment calibration (N/A for Asphaltting);
 - materials specification confirmed;
 - a Traffic Control Plan;
 - a shift paper (i.e. crew supervisor summary of activity on the day);
 - results of the joint inspection by the contractor and the Road and Path Network team;
 - a post-completion seal inspection (N/A for Asphaltting); and
 - a post completion sweep schedule (N/A for Asphaltting).
- 4.113 Table 4-6 shows the results of this analysis.

¹² Roads ACT uses the term 'construction' for reseal as well as asphaltting.

¹³ Bleeding and flushing are surface defects in bituminous seals that occur usually when too much bitumen binder or cutter is applied. It can cause poor skid resistance, reduce waterproofing, and create unsightly scuffing (VicRoads Geopave TN18 June 2006)

Table 4-6 Surveillance officer activity before, during and after resurfacing works

Ref No.	Treat-ment	Design lodged	Equip-ment calibr-ation	Material spec confirm	Traffic Control Plan	Shift paper	Joint insp-ection results	Post comp seal inspect	Post comp sweep
MSR151	Reseal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSR177	Reseal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ANR003	Reseal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ANR 009	Reseal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MRA012	Asphalt	No	N/A	Yes	Yes	Yes	Yes	N/A	N/A
MRA031	Asphalt	Yes	N/A	Yes	Yes	Yes	N/A	N/A	N/A
ARA009	Asphalt	No	N/A	Yes	Yes	Yes	Yes	N/A	N/A
ARA012	Asphalt	No	N/A	Yes	Yes	Yes	No	N/A	N/A
MSR164	Reseal	No	Yes	Yes	No	Yes	Yes	Yes	Yes
MSR182	Reseal	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ANR017	Reseal	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
ASR007	Reseal	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
MIA002	Asphalt	No	N/A	Yes	Yes	Yes	N/A	N/A	N/A
MISCM005	Asphalt	No	N/A	Yes	Yes	Yes	N/A	N/A	N/A
NHA001	Asphalt	Yes	N/A	Yes	Yes	Yes	N/A	N/A	N/A
AIA003	Asphalt	Yes	N/A	Yes	Yes	Yes	N/A	N/A	N/A

Source: ACT Audit Office, based on records held in Objective and accessed by Roads ACT officials 20 January 2025.

4.114 The review showed that timely surveillance work had been undertaken at the various points between design submission and post completion inspections. In the case of bituminous reseal, this included a schedule of re-sweeps (of loose gravel) up to 30 days after the resurfacing took place. There were some gaps in the evidence of testing, but Roads ACT officials provided satisfactory explanations for these gaps.

4.115 Some of the missing documentation such as 'design lodged' related to one document that applied across multiple sites. This was not the case with the Traffic Control Plan, which is unique to each site. Roads ACT officials advised resurfacing work would not have proceeded without a valid Traffic Control Plan. In support of this assertion, audit fieldwork showed one such situation on one field visit where work had been halted due to a wrongly scoped Traffic Control Plan.

4.116 For the purpose of managing packages, Roads ACT officials demonstrated a range of measures for aggregating and tracking work package performance including:

- a live 'defects register' with evidence of active use;

- a sweeping register;
- a work package monthly status report; and
- contractors' end-of-year and KPI assessment sheets.

4.117 There is evidence of errors being identified and rectified as a consequence of the application of these quality assurance measures. The frequency and nature of the errors observed does not indicate any systemic failures, which suggests the quality assurance measures are having an impact.

Developments in quality assurance

4.118 There have been multiple references since 2020 to Roads ACT's focus on developing its inspection and surveillance capability:

- the Target Operating Model outlined in the initial review report for the *Roads ACT Workforce Project* (May 2020) refers to 're-designing the inspection function to be space-led, rather than asset-led';
- the *Roads ACT Workforce Plan 2022-24* (September 2022) identifies that 'Inspectors need to be able to integrate strategic investigative inspections, with pro-active, planned and reactive inspections for contractor performance and defect/fault response and management; and
- the two Roads ACT Business Plans prepared since the launch of the *Roads ACT Workforce Plan 2022-24* refer to inspection-focused improvement action although both plans state this is 'to be commenced'. The two actions are:
 - an 'increased focus on the balance of planned and reactive inspections, and on technical investigations to capture information for future investment decisions'; and
 - establishing a 'team level [community of practice] to share and work through inspection issues together'.



4.119 The Road and Path Network Branch is building team capability for surveillance and inspection of resurfacing work. Currently, there is no specific, documented standard operating procedure for quality assurance. In the absence of such a procedure there are a set of controls and 'hold points', from the resurfacing design through to construction and post-construction inspection. A review of documentary evidence of eight audit checks relevant to reseal resurfacing and five checks relevant to asphalt resurfacing for 16 selected roads showed that timely surveillance work had been undertaken at the various points between design submission and post completion inspections. There is appropriate evidence of quality controls being applied, of these detecting errors and of errors being rectified.



Recommendation 11

Quality assurance procedures and practice

The City and Environment Directorate should document its procedures and learnings from its practices with respect to quality assurance over its road resurfacing activities.

5 Performance reporting

5.1 This chapter considers internally and publicly reported information on the state of the ACT road network, specifically with respect to the condition of the road surface. The chapter considers reporting before and after the announcement of the new resurfacing strategy in February 2023. The periods of interest are:

- the five years from July 2017 to June 2022; and
- the three years from July 2022 to June 2025.

Summary



Conclusions

The former Transport Canberra and City Services Directorate has reported on the performance of roads (and road resurfacing specifically) through a range of Strategic and Accountability Indicators presented in statements of performance and annual reports. Publicly reported performance information about the condition of the road network in the period 2017 to 2022 provided an incomplete picture. While the Strategic Indicator target and actual percentage of 'good or better' Territorial roads (based on a road's roughness) was reported as 87 or 90 per cent, a wider range of condition indicators that was only available to Roads ACT supported a different perspective; that of a 'fair' but gradually deteriorating network condition. While resurfacing program underperformance may have been a factor, internal reporting indicates this deterioration was primarily attributed to resurfacing budgets being insufficient to create a sustainable (i.e. stable) road condition.

From 2021-22 the quality and condition of the ACT road network was reported with reference to the *Pavement Condition Index score of Territorial roads* Strategic Indicator. A Pavement Condition Index score was not available for 2024-25. The Pavement Condition Index score was removed as a Strategic Indicator as part of the *2026-27 ACT Budget* process. This means that there is no Strategic Indicator or Accountability Indicator relevant to the condition and quality of roads in the ACT.

The lack of a Pavement Condition Index score limits Roads ACT's ability to provide assurance that its resurfacing strategy is delivering 'a sustainable level of road maintenance and corrective works ... where the overall condition of the network remains static over the longer term' and hampers public accountability.

The new resurfacing strategy seeks to increase the amount of asphalt resurfacing relative to bituminous reseal. Asphalt resurfacing is a more expensive treatment, but has greater longevity. The new resurfacing strategy also seeks to adjust the balance of asphalt relative to bituminous reseal at the sub-network level (i.e. between the Territorial and Municipal sub-networks). However, it is apparent that:

- the overall area of asphalt (relative to that of bituminous reseal) has not increased substantially in the first two full years of the new resurfacing strategy; and
- the ratio of asphalt to reseal has not improved towards the sub-network ratios identified in the November 2022 business case.

In the first two years of the new resurfacing strategy (2023-24 and 2024-25) there has been mixed success in the achievement of the strategy's performance goals. There has been an overall increase in resurfacing and Territorial and Municipal sub-network resurfacing targets have been met. However, this has been achieved through bituminous reseal as opposed to asphalt. The continuing use of bituminous reseal may not have an immediate consequence for the Pavement Condition Index, but it is likely to have a longer-term consequence for the Pavement Condition Index and road network generally (and Municipal sub-network specifically).



Key findings

Reporting (2017 to 2022)

Paragraph

Through to 2021-22, the former Transport Canberra and City Services Directorate reported on the performance of roads (and road resurfacing specifically) through a range of Strategic and Accountability Indicators presented in statements of performance and annual reports. The reporting provides information on annual targets and results and, in certain circumstances, narrative to assist public interpretation of targets and results. Annual reports have also included commentary on *Annual resurfacing coverage across the sealed road network* (in sqm).

5.11

Roads ACT has internally reported on the performance of roads (and road resurfacing specifically) through various documents such as: the *Roads ACT Strategic Asset Management Plan* (2018); annual ARRB reports (2018 to 2024) on the operation of the Pavement Management System; and the *Strategic Road Maintenance and Renewal Program* strategy document (2024). While the *percentage of Territorial roads in good condition* Strategic and Accountability Indicator (based on a road's roughness) was reported as 87 or 90 per cent, a wider range of condition parameters suggested a different perspective; that of a 'fair' but gradually deteriorating network condition. While resurfacing program underperformance may have been a factor, internal reporting indicates this deterioration was primarily attributed to resurfacing budgets being insufficient to create a sustainable (i.e. stable) road condition.

5.32

Reporting (2022 to 2025)

The Transport Canberra and City Services Directorate's annual reporting against the Strategic and Accountability Indicators since 2022 provides a generally positive picture of performance since the introduction of the new resurfacing strategy in February 2023, although there are some exceptions. The *Pavement Condition Index score of Territorial roads* Strategic Indicator has remained better than the mid-point of 'fair' (2.5).

5.42

A Pavement Condition Index score is not available for 2024-25. Roads ACT has not obtained a report from ARRB with the Pavement Condition Index score for 2024-25, nor is there a contract in place (with ARRB or any other provider) for the provision of Pavement Management System reports (as at August 2025). The lack of a Pavement Condition Index score limits Roads ACT's ability to provide assurance that its resurfacing strategy is delivering 'a sustainable level of road maintenance and corrective works [...] where the overall condition of the network remains static over the longer term' and hampers public accountability.	5.43
The <i>Pavement Condition Index score of Territorial roads</i> has since been removed as a Strategic Indicator as part of the 2026-27 ACT Budget process. This means that there is no Strategic Indicator (or Accountability Indicator) related to the condition of roads or the road network in the ACT.	5.44
The new resurfacing strategy seeks to increase the amount of asphalt resurfacing relative to bituminous reseal. The new resurfacing strategy also seeks to adjust the balance of asphalt relative to bituminous reseal at the sub-network level (i.e. between the Territorial and Municipal sub-networks). A review of the ratio of asphalt to bituminous reseal by area between 2020-21 and 2024-25 shows that the overall area of asphalt (relative to that of reseal) has not increased substantially in the first two full years of the new resurfacing strategy. The ratio of asphalt to reseal (by area) was 14:86 in 2023-24 and 17:83 in 2024-25 compared to 17:83, 22:78 and 7:93 in the preceding three years (an average 15:85).	5.51
In response to the draft proposed report Roads ACT advised that the figures are an average over the ten-year period between 2022 and 2031 and that the level of increased focus on asphalt is based on a forecast ten-year average.	5.52
Based on 2023-24 and 2024-25 data it is evident that the ratio of asphalt to reseal has not yet improved towards the sub-network ratios identified in the November 2022 business case. Territorial sub-network bituminous reseal resurfacing is still accounting for more of the total network area of resurfacing than expected.	5.57
A review of expenditure associated with asphalt and reseal treatments in 2023-24 and 2024-25 shows expenditure on reseal treatment has been significantly higher (+34.9 per cent and +67.6 per cent respectively) than was intended based on business case assumptions associated with budget, unit cost and treatment ratios. Conversely expenditure on asphalt treatment has been significantly lower (-26.6 per cent and -43.5 per cent respectively). In response to the draft proposed report Roads ACT advised that the initial focus of the program has been on reseal treatment.	5.66
In the first two years of the new resurfacing strategy (2023-24 and 2024-25) there has been mixed success in the achievement of the strategy's performance goals. There has been an overall increase in resurfacing and Territorial and Municipal sub-network resurfacing targets have been met. There has not yet been an overall increase in the use of asphalt, nor have expected reseal versus asphalt ratios been achieved yet for either the Territory or Municipal sub-network.	5.69

Reporting on the state of ACT roads

5.2 Strategic and Accountability Indicators presented in statements of performance and annual reports and Budget Statements provide annual targets and results and, in certain circumstances, narrative to assist public interpretation of targets and results. The following indicators have been of direct relevance to road resurfacing:

- *percentage of Territorial roads in good condition* (Strategic and Accountability Indicator applied between 2008-09 and 2021-22);
- *Pavement Condition Index score of Territorial roads* (Strategic Indicator applied between 2021-22 and 2024-25);
- *annual percentage of Territorial roads resurfaced (by sqm)* (Accountability Indicator since 2007-08);
- *annual percentage of Municipal roads resurfaced (by sqm)* (Accountability Indicator since 2007-08); and
- *annual resurfacing coverage (m²) for sealed network* (Accountability Indicator since 2022-23).

5.3 The following indicator is of indirect relevance to road resurfacing:

- *percentage of customers satisfied with the public road network* (Accountability Indicator since 2010-11).

5.4 This indicator is of indirect relevance because satisfaction with the public road network covers a range of aspects in addition to potholes, such as ease of use, congestion, speedbumps and roadworks. These are matters other than the *condition* of the road surface. These matters are raised by the community in the roads-related annual *Canberra Omnibus survey: Attitudes to Various TCCS Services*.

Reporting (2017 to 2022)

Public performance reporting (2017 to 2022)

5.5 Table 5-1 shows Transport Canberra and City Services Directorate reporting against relevant Accountability Indicators between 2017-18 and 2021-22.

Table 5-1 Transport Canberra and City Services Directorate reporting against relevant Accountability Indicators (2017-18 to 2021-22)

	2017-18		2018-19		2019-20		2020-21		2021-22	
	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual
% of Territorial roads in good condition	>88.0	90.0	>89.0	90.0	>89.0	89.0	>89.0	89.2	>89.0	87.0
Annual % of Territorial roads resurfaced	5.0	5.0	5.0	5.0	5.0	5.0	5.0	6.0	5.0	6.4
Annual % of Municipal roads resurfaced	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0
% of customers satisfied with road network	>75.0	87.0	>75.0	86.0	>75.0	81.0	>75.0	>80.0	>75.0	>80.0

Source: ACT Audit Office analysis of Transport Canberra and City Services Directorate annual reports.

5.6 In relation to the Accountability Indicator *percentage of Territorial roads in good condition* Table 5-1 shows that:

- Roads ACT's overall performance declined from 90.0 to 87.0 per cent between 2017-18 and 2021-22; and
- Roads ACT met the target level of performance of 90.0 per cent between 2017-18 and 2020-21 but did not meet the target in 2021-22.

5.7 In relation to the Accountability Indicator *annual percentage of Territorial roads resurfaced (by sqm)* Table 5-1 shows that:

- Roads ACT's performance increased from 5.3 to 6.4 per cent between 2017-18 and 2021-22; and
- Roads ACT met the target level of performance of 5.0 per cent between 2017-18 and 2021-22.

5.8 In relation to the Accountability Indicator *annual percentage of Municipal roads resurfaced (by sqm)* Table 5-1 shows that:

- Roads ACT's performance increased from 3.5 to 4.1 per cent between 2017-18 and 2019-20 but decreased significantly in 2021-22 to 2.0 per cent; and
- Roads ACT met its target level of performance of 4.0 per cent between 2018-19 and 2020-21 but significantly fell short in 2021-22 (2.0 per cent achievement against 4.0 per cent target).

5.9 In relation to the Accountability Indicator *percentage of customers satisfied with the public road network* Table 5-1 shows that:

- Roads ACT's performance decreased from 87.0 to 80.0 per cent between 2017-18 and 2021-22; and
- Roads ACT met its target level of performance of 75.0 per cent between 2017-18 and 2021-22.

5.10 Transport Canberra and City Services Directorate annual reports have also included commentary on *Annual resurfacing coverage across the sealed road network* (in sqm) (refer to Table 5-2). This was not an Accountability Indicator at the time and no target had been set.

Table 5-2 Annual resurfacing coverage across the sealed road network (in sqm)

	2017-18	2018-19	2019-20	2020-21	2021-22
Sqm resurfacing	988,278	1,060,000	1,100,00	1,125,008	827,442

Source: ACT Audit Office based on TCCS annual reports between 2017-18 and 2021-22.



5.11 Through to 2021-22, the former Transport Canberra and City Services Directorate reported on the performance of roads (and road resurfacing specifically) through a range of Strategic and Accountability Indicators presented in statements of performance and annual reports. The reporting provides information on annual targets and results and, in certain circumstances, narrative to assist public interpretation of targets and results. Annual reports have also included commentary on *Annual resurfacing coverage across the sealed road network* (in sqm).

Internal performance reporting (2017 to 2022)

5.12 The audit considered internal performance reporting, specifically through:

- the *Roads ACT Strategic Asset Management Plan* (2018);
- annual ARRB reports (2018 to 2024) on the operation of the Pavement Management System; and
- the *Strategic Road Maintenance and Renewal Program* (2024).

5.13 These documents have reported on the following aspects of road network condition:

- road surface condition according to condition parameters such as roughness, rutting, cracking, skid resistance and the Pavement Condition Index composite score;
- road surface age; and
- deflection (road pavement strength).

Roads ACT Strategic Asset Management Plan (2018)

5.14 The *Roads ACT Strategic Asset Management Plan (2018)* has reported on historic data, some of which is 15 years old, and which mostly relates to the Territorial sub-network. The *Roads ACT Strategic Asset Management Plan (2018)* reported a Pavement Condition Index score for the Territorial sub-network in 2016 of 2.6. This was in the middle of the 'fair' band with the percentage of roads 'good' or better being 23 per cent.

5.15 The *Roads ACT Strategic Asset Management Plan (2018)* also reported:

- for roughness, that there was a trend of gradual deterioration between 2003 and 2014 with 12 per cent of the Territorial sub-network being less than 'good' in 2014;
- for rutting, that there was no discernible trend between 2003 and 2014 with 58 per cent of the Territorial sub-network being 'good';
- for cracking, that there was a gradual improvement between 2003 and 2014 with only eight per cent of the Territorial sub-network being problematically cracked;
- for skid resistance, that there was improvement between 2009 and 2014 with six per cent of the Territorial sub-network being identified as less than 'good';
- for age, that the average service life of the whole ACT road network was 28 years; and
- for deflection (i.e. the strength of the road pavement), that the Territorial sub-network was identified as deteriorating over the period between 2006 and 2014 with more and more of the sub-network being categorised as 'fair' and 'poor' rather than 'good'.

ARRB annual reports (2018 to 2024)

5.16 With respect to the Territorial sub-network (including some Major Collector roads), annual ARRB Pavement Management System report data has indicated a Pavement Condition Index score of:

- 2.6 in 2016 (i.e. 'fair');
- 2.85 in 2018 (i.e. 'fair');
- 3.1 in 2019 (i.e. 'poor'); and
- 2.4 in 2021 (i.e. 'fair').

5.17 Annual ARRB Pavement Management System reports also reported:

- for roughness, that there was deterioration between 2018 and 2021, from 96 to 88 per cent being better than 'fair' (noting the condition parameters were changed in 2021);
- for rutting, that there was deterioration between 2018 and 2021, from 93 to 91 per cent being better than 'fair' (noting the condition parameters were changed in 2021);
- for cracking, that there was improvement between 2018 and 2021, from 88 to 89 per cent being better than 'fair' (noting the condition parameters were changed in 2021);
- for skid resistance, there was improvement between 2018 and 2021, from 49 to 58 per cent being better than 'fair'; and
- for age, that the average age of the road surface increased from 4.8 year to 6.6 years.

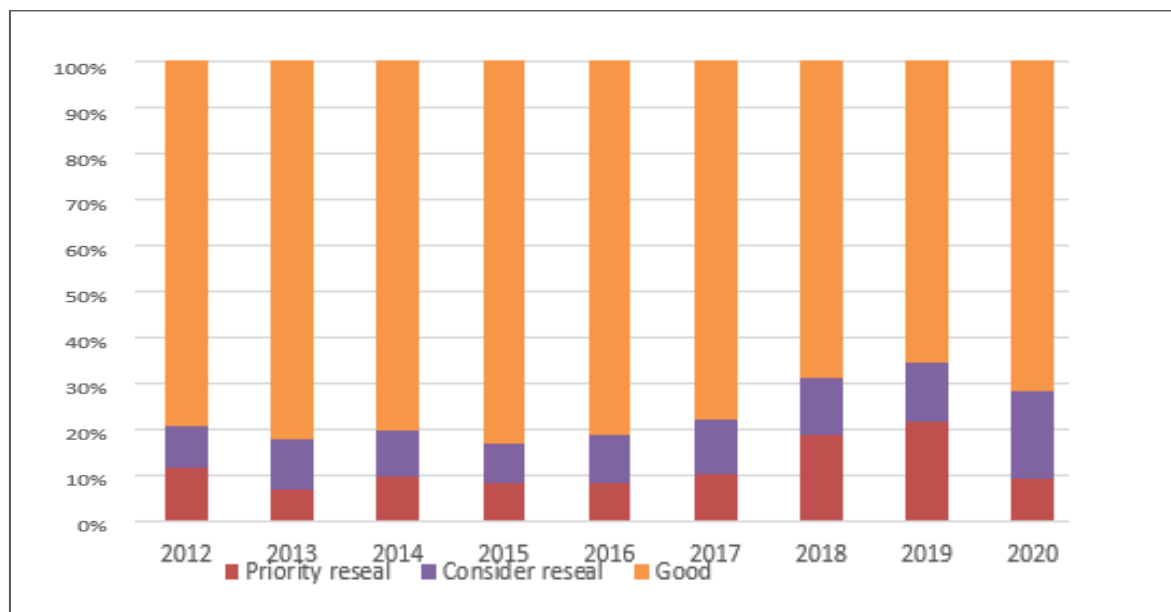
Strategic Road Maintenance and Renewal Program

5.18 The *Strategic Road Maintenance and Renewal Program* strategy document (September 2024) included commentary on the preceding data about the Territorial sub-network. It also provided limited commentary on the Municipal sub-network.

5.19 The *Strategic Road Maintenance and Renewal Program* strategy document (September 2024) made the following observations:

- the percentage of the Territorial sub-network 'in need of treatment' increased between 2016 and 2021 from nine per cent to 15 per cent; and
- based on data from 2012 to 2020, even if Roads ACT had achieved the target of four per cent of the Municipal sub-network resurfacing every year this would have been insufficient to address all the roads identified as a 'priority for reseal' (refer to Figure 5-1).

5.20 Figure 5-1 shows Condition Assessment results for Municipal roads between 2012 and 2020.

Figure 5-1 Municipal roads Condition Assessment results (2012 to 2020)

Source: *Strategic Road Maintenance and Renewal Program* September 2024 (page 8).

Note: A new categorisation of condition was introduced in 2018 resulting in a decrease in the Municipal sub-network in 'good' condition from that year (page 7 of the source document).

5.21 The percentage of Municipal roads assessed as in good condition has fluctuated over the nine years from 2012 to 2020, from 80 per cent in 2012 to 72 per cent in 2020.

Reported observations about budget and expenditure performance

5.22 Various documents have also made observations about budgets and expenditure. The documents have commented on:

- past budgets and expenditure;
- future projected resurfacing budgets and budget scenarios; and
- historic funding levels.

5.23 In doing so the documents have acknowledged the gradual deterioration of the condition of the network.

5.24 The *Strategic Road Maintenance and Renewal Program* strategy document (September 2024) and annual ARRB reports described funding levels and a gradual deterioration of the road network as a rationale for a change in strategy and for a different resurfacing approach in the future.

5.25 The *Roads ACT Strategic Asset Management Plan* (2018) also made several statements about the condition of the road network and resurfacing funding over the long term:

The [...] condition parameters of the pavements indicate that performance of the road assets is slowly deteriorating. For this trend to be stabilised or reversed significant more funding is needed to keep the road surfaces waterproof and regulate surface shape ...

Roads ACT needs \$23 million to achieve the target of resurfacing 5% of Territorial and 4% of Municipal Roads ... [actual expenditure is described elsewhere in the plan from 2008-09 and 2015-16 as between \$11.63 million to \$18.57 million per annum]

The analysis of results of the 2016 Pavement Management System (PMS) shows that 23% of the [Territorial] road network in good condition, 55% classified as fair, and 22% in poor or very poor condition. The trend [...] shows that with the current level of funding for the Territorial Roads, the network condition is expected to start deteriorating from 2019. The trend also shows that the network is forecasted to be in very poor condition in 2026.

If the planned maintenance of resurfacing for the 5% and 4% for the Territorial and Municipal roads, respectively KPI are not being achieved, this would increase unplanned and reactive maintenance of potholes which is an ineffective way of pavement maintenance ... [elsewhere in the plan it indicates KPI targets for resurfacing were not achieved in 12 instances out of 16 in the period 2008-09 to 2015-16].

5.26 A review of *Roads ACT Strategic Asset Management Plan* (2018) reporting on the condition of the road network shows that:

- when examining datasets across multiple condition indicators, the Territorial sub-network was best described as 'fair', based on Pavement Condition Index scores;
- the ACT road network was acknowledged internally by Roads ACT to have been deteriorating for some time due to:
 - under-budgeting; and
 - Roads ACT consistently failing (i.e. 75 per cent of the time) over the previous eight years to achieve the target levels of resurfacing for both the Territorial and the Municipal sub-networks; and
- not achieving the target levels of resurfacing over the decade to 2018 led to more potholes, and therefore more spending on pothole filling.

5.27 In this respect:

- the overall ACT road network was acknowledged by Roads ACT to be likely to continue deteriorating after 2018 without more funding; and
- the Territorial sub-network was acknowledged by Roads ACT to be deteriorating in 2019, when using the Pavement Condition Index as the proxy for condition, unless funding levels were changed.

5.28 The *Strategic Road Maintenance and Renewal Program* strategy document (September 2024) emphasised the importance of maintaining the condition of the road network over the long term:

... a sustainable level of road maintenance and corrective works is where the overall condition of the network remains static over the longer term.

5.29 It is apparent from the data and commentary in the *Roads ACT Strategic Asset Management Plan* (2018) that the approach being taken to road resurfacing up to 2018 was not sustainable. The resurfacing approach up to 2018 was not achieving a static overall network condition. Instead, it was resulting in a gradually deteriorating network condition. In response to the draft proposed report Roads ACT advised that while this was suspected there was insufficient evidence to confirm this was the case, until the development of the new resurfacing strategy.

5.30 It follows that the antecedents to the development of the new strategic approach to resurfacing that commenced in early 2021 were:

- an awareness of a gradual long-term deterioration of the ACT road network;
- a pattern of underinvestment; and
- to some extent, variable resurfacing performance over a long period.

5.31 By its own account, Roads ACT was not investing sufficient funding to achieve its Accountability Indicator targets of 4 per cent resurfacing of Municipal roads and 5 per cent resurfacing of Territorial roads.



5.32 Roads ACT has internally reported on the performance of roads (and road resurfacing specifically) through various documents such as: the *Roads ACT Strategic Asset Management Plan* (2018); annual ARRB reports (2018 to 2024) on the operation of the Pavement Management System; and the *Strategic Road Maintenance and Renewal Program* strategy document (2024). While the *percentage of Territorial roads in good condition* Strategic and Accountability Indicator (based on a road's roughness) was reported as 87 or 90 per cent, a wider range of condition parameters suggested a different perspective; that of a 'fair' but gradually deteriorating network condition. While resurfacing program underperformance may have been a factor, internal reporting indicates this deterioration was primarily attributed to resurfacing budgets being insufficient to create a sustainable (i.e. stable) road condition.

Reporting (2022 to 2025)

Public performance reporting (2022 to 2025)

5.33 A new Strategic Indicator (*Pavement Condition Index score of Territorial roads*) was introduced for 2021-22.¹⁴ Three previously reported Accountability Indicators remained the same and one more was added in 2022-23 (*annual resurfacing coverage across the sealed network*).

5.34 Table 5-3 shows Strategic Indicators and Accountability Indicators relevant to Roads ACT's road resurfacing activities since 2022-23.

Table 5-3 Strategic Indicators and Accountability Indicators (2022-23 to 2024-25)

	2022-23		2023-24		2024-25	
	Target	Actual	Target	Actual	Target	Actual
Pavement Condition Index score of Territorial roads (Strategic)	<2.5	2.34	<2.5	2.43	<2.5	Not available
Annual percentage of Territorial roads resurfaced (Accountability)	6%	7%	7%	10%	7%	7.4%
Annual percentage of Municipal roads resurfaced (Accountability)	3%	3%	4%	3%	4%	4.16%
Percentage of customers satisfied with road network (Accountability)	75%	68%	75%	71%	75%	72%
Annual resurfacing coverage (m ²) for sealed network (Accountability)	>1,000,000	1,030,417	>1,260,000	1,284,950	>1,260,000	1,264,914

Source: ACT Audit Office based on TCCS Annual Reports Statement of Performance information.

Note: These are unaudited figures, as at mid-August 2025.

5.35 Annual reporting against the Strategic and Accountability Indicators provides a generally positive picture of performance since the introduction of the new resurfacing strategy in February 2023. One exception is the *percentage of customers satisfied with road network* Accountability Indicator (of indirect relevance) which has remained below target. Another exception is the *annual percentage of Municipal roads resurfaced* Accountability Indicator result in 2022-23 and 2023-24, which was below the revised target of four per cent (a target for which additional estimated \$3.4 million in funding was approved as part of the new strategy).

5.36 The *Pavement Condition Index score of Territorial roads* Strategic Indicator has remained better than the mid-point of 'fair' (2.5). The *annual resurfacing coverage (m²) for sealed*

¹⁴ This Strategic Indicator was removed as part of the 2026-27 ACT Budget.

network Accountability Indicator targets have also been achieved. In recent years, in 2023-24 and 2024-25, they have substantially exceeded the historic average of 1,021,858 sqm by approximately 26 per cent.

2024-25 Pavement Condition Index score

- 5.37 In August 2025 Roads ACT advised that it had not obtained a Pavement System Management report from ARRB with the Pavement Condition Index score for 2024-25. Roads ACT also advised that a contract for the provision of Pavement Management System reports, including a Pavement Condition Index score, was not in place during 2024-25, either with ARRB or any other contractor.
- 5.38 The lack of a Pavement Condition Index score for 2024-25 was a shortcoming in Roads ACT's public reporting of the road condition, normally reported in the directorate's annual report. This hampers public accountability. The lack of a Pavement Condition Index score also limits Roads ACT's ability to provide assurance that its resurfacing strategy is delivering 'a sustainable level of road maintenance and corrective works [...] where the overall condition of the network remains static over the longer term'. The Pavement Condition Index is key to Roads ACT gauging whether the resurfacing strategy is working.
- 5.39 In response to the draft proposed report Roads ACT advised single year results are not particularly illustrative but that consideration of longer-term trends is more appropriate.
- 5.40 The Transport Canberra and City Services Directorate's *2024-25 Annual Report* does not explain the absence of a Pavement Condition Index score for 2024-25 and the implication for transparency and accountability for performance. The report states:
- This indicator is measured through a Pavement Condition Index (PCI) score for the ACT territorial road network, provided annually by an external expert. The PCI considers a variety of road pavement parameters that would impact road user experience, such as rutting, skid resistance, surface age and cracking, to calculate an overall score.
- The directorate maintains a target of a PCI score less than 2.5, which demonstrates the overall condition is fair or better (please refer to explanatory note). The anticipated PCI score is expected to be less than 2.5 for the 2024–25 financial year based on current available modelling.
- 5.41 The *Pavement Condition Index score of Territorial roads* has since been removed as a Strategic Indicator as part of the *2026-27 ACT Budget* process. This means that there is no Strategic Indicator (or Accountability Indicator) related to the condition of roads or the road network in the ACT.
-  5.42 The Transport Canberra and City Services Directorate's annual reporting against the Strategic and Accountability Indicators since 2022 provides a generally positive picture of performance since the introduction of the new resurfacing strategy in February 2023,

although there are some exceptions. The *Pavement Condition Index score of Territorial roads* Strategic Indicator has remained better than the mid-point of 'fair' (2.5).



5.43 A Pavement Condition Index score is not available for 2024-25. Roads ACT has not obtained a report from ARRB with the Pavement Condition Index score for 2024-25, nor is there a contract in place (with ARRB or any other provider) for the provision of Pavement Management System reports (as at August 2025). The lack of a Pavement Condition Index score limits Roads ACT's ability to provide assurance that its resurfacing strategy is delivering 'a sustainable level of road maintenance and corrective works [...] where the overall condition of the network remains static over the longer term' and hampers public accountability.



5.44 The *Pavement Condition Index score of Territorial roads* has since been removed as a Strategic Indicator as part of the 2026-27 ACT Budget process. This means that there is no Strategic Indicator (or Accountability Indicator) related to the condition of roads or the road network in the ACT.



Recommendation 12

Public reporting on the quality and condition of ACT roads

The City and Environment Directorate should publicly report on the condition of the road network in the ACT through relevant Strategic Indicator(s) and Accountability Indicator(s). Public reporting should be meaningful and informative to the ACT community and address both Territorial and Municipal roads.

Internal performance reporting (2022 to 2025)

5.45 Internal performance reporting for the period 2022 to 2025 has been reviewed with a focus on:

- Statement of Performance mid-year reporting;
- reporting on the asphalt versus reseal ratio in total and across the sub-networks; and
- financial performance.

Asphalt versus reseal (total)

5.46 The new resurfacing strategy seeks to increase the amount of asphalt resurfacing relative to bituminous reseal. This would increase the amount of asphalt (by area) between two to three times (i.e. 2.4 times) compared to the previous approach. The new resurfacing strategy also seeks to adjust the balance of asphalt relative to bituminous reseal at the sub-network level as well (i.e. for the Territorial and Municipal sub-networks).

5.47 Table 5-4 shows the ratio of asphalt to bituminous reseal by area between 2020-21 and 2024-25 by Municipal and Territorial sub-network. It shows year-end data before and after the introduction of the new resurfacing strategy.

Table 5-4 Ratio of asphalt to bituminous reseal by area (sqm) (2020-21 to 2024-25)

	Old approach			New strategy		
In sqm	2020-21	2021-22	2022-23	2023-24	2024-25	Business case target pa
Municipal reseal	539,347 (47%)	237,773 (28%)	497,935 (48%)	488,686 (38%)	675,086 (53%)	574,695 (45%)
Territorial reseal	421,689 (36%)	422,473 (50%)	464,422 (45%)	610,668 (48%)	374,980 (30%)	272,000 (21%)
Reseal sub-total	961,036 (83%)	660,247 (78%)	962,358 (93%)	1,099,354 (86%)	1,050,066 (83%)	846,695 (67%)
Municipal asphalt	116,777 (10%)	88,648 (10%)	9,303 (1%)	57,398 (4%)	48,927 (4%)	109,465 (9%)
Territorial asphalt	80,405 (7%)	102,080 (12%)	58,754 (6%)	128,195 (10%)	165,921 (13%)	312,000 (25%)
Asphalt sub-total	197,182 (17%)	190,729 (22%)	68,058 (7%)	185,593 (14%)	214,847 (17%)	421,465 (33%)
Total	1,158,218	850,976	1,030,417	1,284,947	1,264,914	1,268,160

Source: ACT Audit Office, based on Roads ACT Statement of Performance supporting work papers.

5.48 A review of the ratio of asphalt to bituminous reseal by area between 2020-21 and 2024-25 shows that the overall area of asphalt (relative to that of reseal) has not increased substantially in the first two full years of the new resurfacing strategy.¹⁵ The ratio of asphalt to reseal (by area) was 14:86 in 2023-24 and 17:83 in 2024-25 compared to 17:83, 22:78 and 7:93 in the preceding three years (i.e. an average 15:85). In response to the draft proposed report Roads ACT advised that modelling did not provide for an increase in the first two years.

5.49 The overall area (sqm) of asphalt increased in 2023-24 and 2024-25 compared to 2022-23. However, more asphalt was laid in 2020-21 and 2021-22 than 2023-24. The area of asphalt laid in 2024-25 increased to 214,847 sqm and is at the highest level in the last five years, but remains well below the target of 421,465 sqm.

5.50 In response to the draft proposed report Roads ACT advised that the figures are an average over the ten-year period between 2022 and 2031 and that the level of increased focus on asphalt is based on a forecast ten-year average.

¹⁵ For the purpose of this comparison, a small percentage of micro-cap treatment (about 5 per cent by area) has been added to the asphalt treatment figures.



5.51 The new resurfacing strategy seeks to increase the amount of asphalt resurfacing relative to bituminous reseal. The new resurfacing strategy also seeks to adjust the balance of asphalt relative to bituminous reseal at the sub-network level (i.e. between the Territorial and Municipal sub-networks). A review of the ratio of asphalt to bituminous reseal by area between 2020-21 and 2024-25 shows that the overall area of asphalt (relative to that of reseal) has not increased substantially in the first two full years of the new resurfacing strategy. The ratio of asphalt to reseal (by area) was 14:86 in 2023-24 and 17:83 in 2024-25 compared to 17:83, 22:78 and 7:93 in the preceding three years (an average 15:85).



5.52 In response to the draft proposed report Roads ACT advised that the figures are an average over the ten-year period between 2022 and 2031 and that the level of increased focus on asphalt is based on a forecast ten-year average.

Asphalt vs reseal (sub-networks)

5.53 Based on 2023-24 and 2024-25 data it is evident that the ratio of asphalt to reseal has not yet improved towards the sub-network ratios identified in the November 2022 business case:

- the Municipal sub-network asphalt percentage achieved (four per cent) should have been higher (nine per cent);
- the Territorial sub-network reseal percentage achieved (48 and 30 per cent) should have been lower (21 per cent); and
- the Territorial sub-network asphalt percentage achieved (10 and 13 per cent) should have been higher (25 per cent).

5.54 This means Territorial sub-network bituminous reseal resurfacing is still accounting for more of the total network area of resurfacing than expected. When compared to business case assumptions, the 2023-24 and 2024-25 figures indicate:

- around 441,660 sqm in total Territorial road reseal resurfacing should not have been undertaken; and
- an additional 329,884 sqm of Territorial road asphalting should have been undertaken.

5.55 This has budgeting implications given the significant sqm cost differential between reseal and asphalt treatments. Asphalt is more expensive.

5.56 When comparing the targeted total area (in sqm) of resurfacing (both of reseal and asphalt) for each sub-network, it is evident that the shortfall in the area of asphalt has been compensated for by additional resurfacing with reseal. For the first two full years of the strategy:

- for the Municipal sub-network, a total of 1.269 million sqm has been resurfaced, against a strategy target of 1.366 million sqm (i.e. 93 per cent by area has been achieved); and
- for the Territorial sub-network, a total of 1.276 million sqm has been resurfaced, against a strategy target of 1.368 million sqm (i.e. 94 per cent by area has been achieved).



5.57 Based on 2023-24 and 2024-25 data it is evident that the ratio of asphalt to reseal has not yet improved towards the sub-network ratios identified in the November 2022 business case. Territorial sub-network bituminous reseal resurfacing is still accounting for more of the total network area of resurfacing than expected.

Financial performance

5.58 Table 5-5 shows planned expenditure and actual expenditure on reseal and asphalt resurfacing for the years 2022-23 to 2024-25. 2023-24 was the first full year of implementation of the new resurfacing strategy.

Table 5-5 Budget vs expenditure for asphalt and reseal

	2022-23 (old)	2023-24 (new)	2024-25 (new)
Budget	\$20,300,000	\$32,800,000	\$33,500,000
Reseal 85% area @\$X*	\$10,784,460*		
Asphalt 15% area @\$5X*	\$9,515,540*		
Reseal 66% area @\$X*		\$9,372,857*	\$9,572,320*
Asphalt 33% area @\$5X*		\$23,427,142*	\$23,930,825*
Invoiced/Contracted	\$21,373,985	\$29,826,629	\$29,962,308
Budget versus Invoiced	+5.2%	-9.1%	-11.8%
Reseal expenditure	\$9,209,549	\$12,641,410	\$16,031,232
Asphalt expenditure	\$12,364,436	\$17,185,218	\$13,516,786
Variance Reseal	-14.6%	+34.9%	+67.5%
Variance Asphalt	+29.9%	-26.6%	-43.5%

Source: ACT Audit Office, based on Contract Tracker Spreadsheets 2022-23, 2023-24, and 2024-25, and November 2022 business case assumptions.

Note: * denotes a subdivision of the resurfacing budget based on assumptions outlined in the November 2022 business case.

- 5.59 In each of the three years (2022-23 to 2024-25) expenditure associated with resurfacing contracts has been within 12 per cent of the budgeted amount.
- 5.60 Expenditure can be sub-divided into asphalt and reseal treatments since packages are either one or the other. Table 5-5 shows the variance between what was budgeted and what was invoiced. Table 5-5 shows:
- expenditure in 2023-24 and 2024-25 on reseal treatment has been significantly higher (+34.9 per cent and +67.6 per cent respectively) than was intended based on business case assumptions associated with budget, unit cost and treatment ratios; and
 - expenditure in 2023-24 and 2024-25 on asphalt treatment has been significantly lower (-26.6 per cent and -43.5 per cent respectively) than was intended based on business case assumptions associated with budget, unit cost and treatment ratios.
- 5.61 In response to the draft proposed report Roads ACT advised that the initial focus of the program has been focused on reseal treatment.

Resurfacing Accountability Indicators

- 5.62 One further observation is made with respect to 2023-24 and 2024-25 resurfacing performance, with respect to:
- *annual percentage of Territorial roads resurfaced (by sqm)* Accountability Indicator; and
 - *annual percentage of Municipal roads resurfaced (by sqm)* Accountability Indicator.
- 5.63 Based on the percentages achieved in 2023-24 and 2024-25 (an average of 3.6 per cent of the Municipal sub-network and 8.7 per cent of the Territorial sub-network total areas), the frequency with which the average road will be resurfaced has changed considerably. Based on 2023-24 and 2024-25 performance:
- a road in the Territorial sub-network can be expected to be resurfaced once every 11.5 years; and
 - a road in the Municipal sub-network can be expected to be resurfaced once every 28 years.
- 5.64 This compares with:
- the previously long-standing resurfacing frequencies of once in every 20 years for Territorial roads and once every 25 years for Municipal roads; and
 - the new strategy's implied resurfacing frequencies of once every 14.3 years for Territorial roads and once every 25 years for Municipal roads.

5.65 As with the overall area of resurfacing, the resurfacing frequency under the new strategy is only one goal and should be subordinate to the selection *and* delivery of the right treatment which will assist in sustaining the Pavement Condition Index at less than 2.5 over the medium term.



5.66 A review of expenditure associated with asphalt and reseal treatments in 2023-24 and 2024-25 shows expenditure on reseal treatment has been significantly higher (+34.9 per cent and +67.6 per cent respectively) than was intended based on business case assumptions associated with budget, unit cost and treatment ratios. Conversely expenditure on asphalt treatment has been significantly lower (-26.6 per cent and -43.5 per cent respectively). In response to the draft proposed report Roads ACT advised that the initial focus of the program has been on reseal treatment.

Performance summary

5.67 The new resurfacing strategy is being implemented with the following performance goals:

- an overall increase in resurfacing of approximately 25 per cent. This is being achieved (+/- 2 per cent);
- Territorial and Municipal sub-network resurfacing (sqm) targets. These are being achieved (+/- 10 per cent);
- an overall increase in the use of asphalt of between two and three times (2.4 times). This is not yet being achieved. An increase of 15 per cent has been achieved, but not the 140 per cent increase that was intended;
- Territorial and Municipal sub-network-specific asphalt versus reseal ratios of 25:21 (Territorial, asphalt to reseal) and 9:45 (Municipal, asphalt to reseal) This has not yet been achieved for either sub-network; and
- maintaining or improving the Territorial sub-network level Pavement Condition Index score above 2.5. This is being achieved on the basis of 2022-23 and 2023-24 data. It is, however, a shortcoming that a 2024-25 score is not available.

5.68 While the Pavement Condition Index, the principal measure of overall success, has remained better than 2.5, this needs caution, since:

- the Pavement Condition Index is a medium to long-term measure. Sound (and unsound) resurfacing treatment choices in one year affect many future years' Pavement Condition Index scores; and
- the Pavement Condition Index only relates to the Territorial sub-network, which is a third of the network by lane length. Since 2023-24, area-based (sqm) output performance under the new strategy is skewed towards the Territorial sub-network. There is a risk that sustaining the Pavement Condition Index at less than 2.5 is at the expense of a deteriorating Municipal sub-network.



5.69 In the first two years of the new resurfacing strategy (2023-24 and 2024-25) there has been mixed success in the achievement of the strategy's performance goals. There has been an overall increase in resurfacing and Territorial and Municipal sub-network resurfacing targets have been met. There has not yet been an overall increase in the use of asphalt, nor have expected reseal versus asphalt ratios been achieved yet for either the Territory or Municipal sub-network.

Audit reports

Reports Published in 2026-27	
Report No. 08 - 2026	Annual Report 2025-26
Reports Published in 2025-26	
Report No. 07 - 2026	Changes to the Territory Plan requirements for the Phillip pool
Report No. 06 - 2026	ACT Corrective Services rostering
Report No. 05 - 2026	Concession, rebate and social support schemes
Report No. 04 - 2026	Implementation of the Carers Recognition Act 2021
Report No. 03 - 2026	University of Canberra financial governance arrangements
Report No. 02 - 2026	Management of the Home Buyer Concession Scheme
Report No. 01 - 2026	Diversity, equity and inclusion in the ACT Public Service
Report No. 07 - 2025	2024-25 Financial Audit Program – Overall Results
Report No. 06 - 2025	Annual Report 2024-25
Report No. 05 - 2025	Specialist assessment services for dementia and cognitive decline
Reports Published in 2024-25	
Report No. 04 - 2025	Gaming machine licensee regulation
Report No. 03 - 2025	ACT Government long-term plans and strategies
Report No. 02 - 2025	Energy efficiency standard for rental properties
Report No. 01 - 2025	Management of the Growing and Renewing Public Housing Program
Report No. 14 - 2024	Facilities management and support services for ACT Courts
Report No. 13 - 2024	Invoicing and payments for Digital Health Record hosting services
Report No. 12 - 2024	2023-24 Financial Audits – Financial Results and Audit Findings
Report No. 11 - 2024	Governing boards of selected ACT Government entities
Report No. 10 - 2024	Safer Families Levy
Report No. 09 - 2024	2023-24 Financial Audits – Overview
Report No. 08 - 2024	Annual Report 2023-24
Report No. 07 - 2024	Reusable Facility Services Procurement
Report No. 06 - 2024	Business Transformation Program: ICT renewal activities

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