



PARLIAMENT OF TASMANIA

PARLIAMENTARY STANDING COMMITTEE OF PUBLIC ACCOUNTS

Review of Selected Public Works Committee Reports

**27 of 2015: Midland Highway, Mangalore to Bagdad Stage 1 and
Midland Highway, Kempton to Melton Mowbray Stage 1; and
28 of 2015: Midland Highway, Perth to Breadalbane Duplication**

Members of the Committee

Legislative Council

Hon Ruth Forrest MLC (Chair)

Hon Meg Webb MLC

Hon Josh Willie MLC

House of Assembly

Dr Shane Broad MP

Mr Felix Ellis MP

Mr John Tucker MP

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Charter of the Committee

The Public Accounts Committee (the Committee) is a Joint Standing Committee of the Tasmanian Parliament constituted under the *Public Accounts Committee Act 1970* (the Act).

The Committee comprises six Members of Parliament, three Members drawn from the Legislative Council and three Members from the House of Assembly.

Under section 6 of the Act the Committee:

- **must** inquire into, consider and report to the Parliament on any matter referred to the Committee by either House relating to the management, administration or use of public sector finances; or the accounts of any public authority or other organisation controlled by the State or in which the State has an interest; and
- may inquire into, consider and report to the Parliament on any matter arising in connection with public sector finances that the Committee considers appropriate; and any matter referred to the Committee by the Auditor-General.

Abbreviations and Glossary

AusRAP	Australian Road Assessment Program - has examined 21,921 km of national highway with a speed limit of 90 km per hour or above, awarding Star Ratings based on their level of safety. Sections of road are rated on a scale of 1 to 5-stars, with 1-star being the least safe and 5-star being the safest ¹
Department	Department of State Growth
DITRDC	Department of Infrastructure, Transport, Regional Development and Communications
H:V	Horizontal to vertical ratio
Midland Highway, Mangalore to Bagdad Stage 1	the upgrading of a 3km section of the Midland Highway through Bagdad from south of Eddington Road to Swan Street (north)
Midland Highway, Kempton to Melton Mowbray Stage 1	a 4.3 km long section of the Midland Highway commencing approximately 1.65 km north of the Kempton (north) junction, to Melton Mowbray and extending 0.3 km north of the Lake Secondary Road Junction
P50/P90 Value	determined by probabilistic analysis, these values are established to provide a level of confidence (50%/90%) that the estimated cost of these respective levels will not be exceeded at project completion ²
PPR	Project Proposal Report
Midland Highway, Perth to Breadalbane Duplication	approximately 4.5km of the Midland Highway between Perth and Breadalbane
probabilistic analysis	the process by which cost components are identified along with the likely range of each component and the distribution of values within that range determined, prior to the use of a simulation process (e.g. Monte Carlo or similar analysis using a computer program) to generate a probability distribution of project costs ³
Safe System Approach⁴	The Safe System (otherwise known as Vision Zero, Towards Zero or Sustainable Safety) views human life and health as paramount to all else and should be the first and foremost consideration when designing a road network. The principles underpinning the Safe System acknowledge that:

¹ <https://www.aph.gov.au/DocumentStore.ashx?id=383a0af2-4360-4e13-a5b6-ba8cd2ddd679&subId=304734#:~:text=Ratings%20Report%20%7C%202013-About%20AusRAP,advocating%20for%20safer%20road%20infrastructure>, p.6

² https://www.dpti.sa.gov.au/_data/assets/pdf_file/0003/173532/Estimating_Manual.pdf, p.12

³ As above.

⁴ <http://www.towardszerofoundation.org/thesafesystem/#principles> [Accessed 4 March 2022]

- people make mistakes which can lead to crashes; however, no one should die or be seriously injured on the road as a result of these mistakes;
- the human body has a limited physical ability to tolerate crash forces – any impact greater than 30km/h increases the risk of dying significantly;
- road safety is a shared responsibility amongst everyone, including those that design, build, operate and use the road system; and
- all parts of the road system must be strengthened in combination to multiply the protective effects and if one part fails, the others will still protect people.

At the centre of the system is people – people that are fragile and will at times make mistakes that can lead to crashes. With that understanding, the road system needs to put layers of protection in the form of safe roads, vehicles, speeds, people around the fallible and vulnerable human in order to prevent deaths and serious injuries.

Executive Summary

The Midland Highway Strategic 10 Year Action Plan⁵ (a 10-year plan with a commitment of a total of \$500 million from Australian and Tasmanian Governments to upgrade the Midland Highway) targets a number of key public works during its lifetime. Of those key projects are the following:

- the Midland Highway, Mangalore to Bagdad Stage 1;
- the Midland Highway, Kempton to Melton Mowbray Stage 1; and
- the Midland Highway, Perth to Breadalbane Duplication projects.

The AusRAP Star Rating Australia's National Network of Highways 2013 report found that the majority of the Midland Highway rated either only 1- or 2- star, in its 5-star safety rating scale. The identified projects are part of the Plan's overall objective to deliver a minimum 3-star rating for the Midland Highway using the 'Safe System Approach' which has been adopted by all Australian states and territory road authorities.

The Committee found two of the three projects considered by the Committee were completed within budget, the Mangalore to Bagdad Stage 1 was within budget and the Perth to Breadalbane Duplication was completed significantly under budget.

The Kempton to Melton Mowbray Stage 1, was completed over budget, however funds not expended on the Perth to Breadalbane Duplication were reallocated to other projects related to the Midland Highway Strategic 10 Year Action Plan.

The Committee was informed all three projects under review were subject to contract variations. The Minister and Departmental officers provided explanations for each which are referred to within the body of the Report.

Overall the Committee found that all three projects under review:

- had completed all work elements of the proposed works in accordance with the respective submissions to the Public Works Committee;
- satisfied the intended stated purpose in accordance with the respective submissions to the Public Works Committee;
- delivered the stated intended benefits; and
- utilised local contractors and suppliers.

An above average rainfall over winter during the planned construction phase was the predominant reason for construction delays. This is, of course, unavoidable in the circumstances. The Committee sought clarification regarding stakeholder consultation noting

⁵ See https://www.transport.tas.gov.au/projectsplanning/road_projects/northeastroadprojects/midland_highway_10_year_action_plan [Accessed 2 March 2022]

that more effective and a longer period of consultation may have avoided some additional costs associated with managing expectations of neighbouring property owners. The Committee was informed the Department had improved the consultation processes since these works were planned and completed.

The Committee also sought further detail from the Minister and Departmental Officers regarding the AusRAP Star Rating process and application to Tasmanian roads and the use of wire rope barriers. The Committee found there could be a benefit, in terms of cost and consistency of application through a standardised procurement process for these barriers. The Committee made one recommendation to the Government to consider the potential benefits of standardised procurement.

A handwritten signature in black ink, appearing to read 'R. Forrest', written in a cursive style.

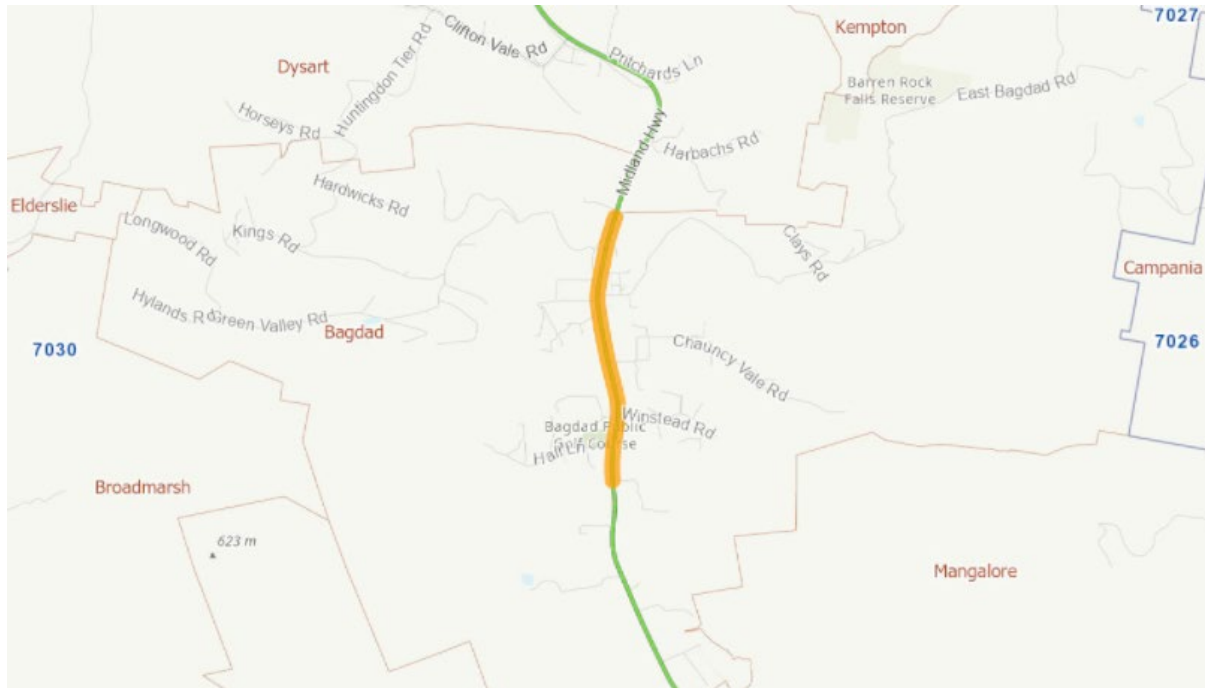
Hon Ruth Forrest MLC
Chair

25 May 2022

Summary of Projects

A summary of the projects proposed works and outcomes as presented to the Public Works Committee in 2015 for approval are as follows:

Midland Highway, Mangalore to Bagdad Stage 1



(Australian Government, DITRDC)⁶

Proposed Works

- a 3.0m central median turn lane from south of Eddington Road to East Bagdad Road to separate northbound and southbound vehicles, and separate vehicles turning right (into property entrances from through traffic);
- separation of northbound and southbound lanes with a 2.1m wide median and central flexible safety barrier between East Bagdad Road and Swan Street (north);
- widening of the sealed shoulders to a minimum of 2.0m; and
- removal of roadside hazards such as steep side slopes and drains, or protection with safety barrier to provide a safer road environment.

Stated Objective

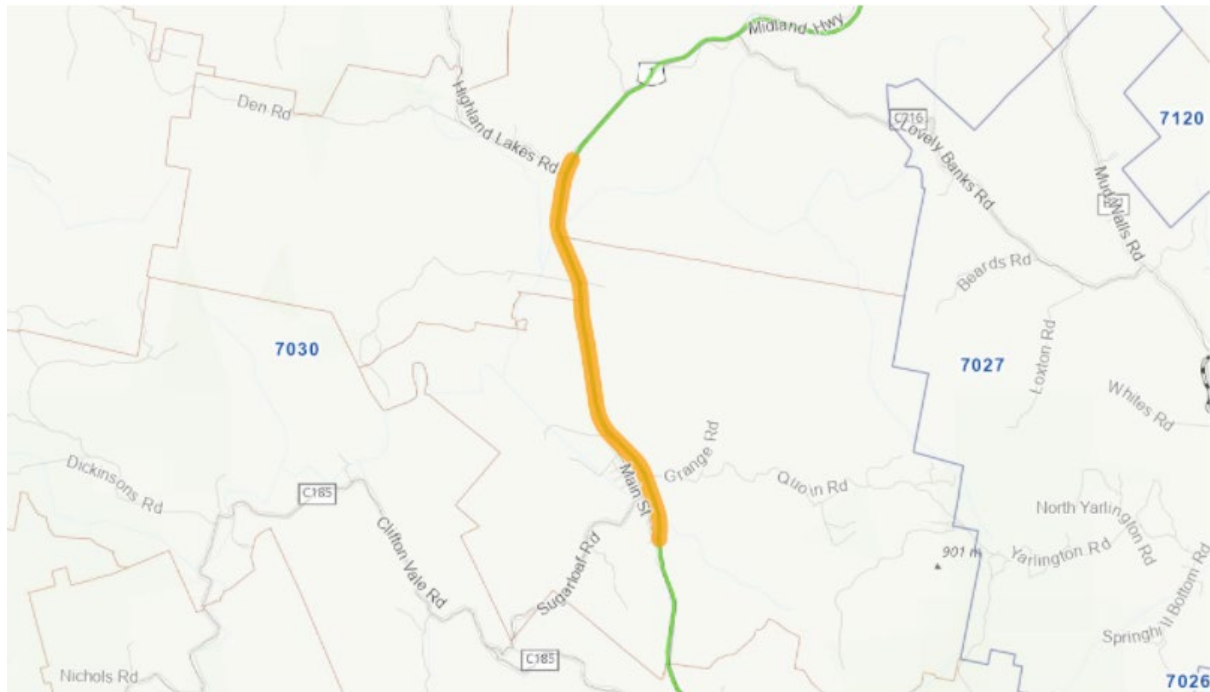
To contribute to the achievement of a minimum 3-star AusRAP rating for the Midland Highway by:

- improving the safety rating of the Midland Highway through Bagdad;
- reducing the potential for head-on collisions by separating opposing north and south bound vehicles;
- reducing the likelihood of run-off road crashes;

⁶ See https://investment.infrastructure.gov.au/projects/ProjectDetails.aspx?Project_id=056288-15TAS-NP [Accessed 4 March 2022]

- providing designated space for right turning vehicles; and
- providing safer access to properties and side roads.

Midland Highway, Kempton to Melton Mowbray Stage 1



(Australian Government, DITRDC)⁷

Proposed Works

- separation of northbound and southbound lanes through provision of a 2.1m wide median strip and including a flexible safety barrier;
- construction of a new south bound and north bound overtaking lane 1,500 m and 980 m in length (excluding taper), respectively;
- flattening of side slopes immediately adjacent to the pavement to 6:1 (H:V) or less where economically achievable (where fill batters of 6:1 cannot be provided due to site constraints, safety barriers will be provided if required in order to meet the AusRAP 3-Star Safety Rating);
- removal of other road side hazards to provide a safer road environment;
- widening of existing structures where required and strengthen where possible to accommodate the 2.1 m wire rope median strip and additional overtaking lanes;
- review of existing junction layouts for safety and efficient operation and upgrading where they do not meet the required safety standards to achieve the AusRAP 3-star rating; and
- provision of turning facilities for both light vehicles (typically spaced at a maximum of 3 km) and heavy vehicles (typically spaced at a maximum of 10 km).

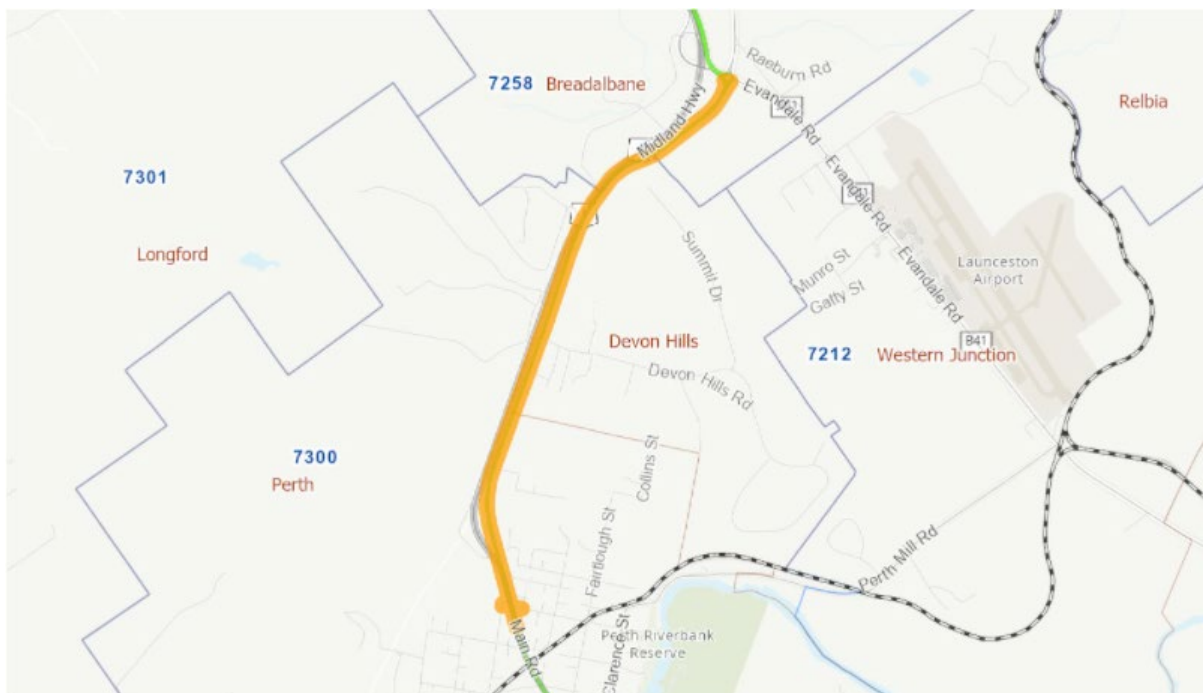
Stated Objective

To contribute to the achievement of a minimum 3-star AusRAP rating for the Midland Highway by:

⁷ See https://investment.infrastructure.gov.au/projects/ProjectDetails.aspx?Project_id=055485-14TAS-NP [Accessed 4 March 2022]

- appropriate separation of the opposing lanes by providing a median and flexible safety barrier to reduce both the likelihood and severity of head-on collisions; and
- other safety measures including:
 - audible edge lining;
 - extending sealed shoulders;
 - protected turn lanes for junctions where required;
 - additional overtaking lanes;
 - improvements to access geometry; and
 - roadside hazard reduction.

Midland Highway, Perth to Breadalbane Duplication



(Australian Government, DITRDC)⁸

Proposed Works

- two traffic lanes each way from Perth to interface with existing highway north of Breadalbane;
- grade-separated interchanges with Evandale Main Road and Devon Hills Road;
- access to adjacent private properties along the existing Midland Highway maintained or reconfigured;
- existing highway to be converted to a new service road to facilitate local traffic movements, property accesses, and pedestrian and cyclist movements; and
- provision for extension of the highway to join with the future Perth Western Link.

⁸ See https://investment.infrastructure.gov.au/projects/ProjectDetails.aspx?Project_id=053975-14TAS-NP, [Accessed 4 March 2022]

Stated Objective

To contribute to the achievement of a minimum 3-star AusRAP rating for the Midland Highway by:

- addressing capacity constraints and provide for additional capacity for projected traffic volumes;
 - providing a National Transport Network standard 110 km/h speed environment;
 - providing a 4-star AusRAP rating for this section of the Midland Highway;
 - improving freight transport efficiency;
 - improving intersection safety and efficiency;
 - improving safety outcomes by providing:
 - a consistent high-speed dual lane road environment from Launceston to Perth with 2 lanes in each direction with wider pavements and sealed shoulders;
 - the elimination of head on collisions through the use of a central flexible safety barrier;
 - provision of new dedicated interchanges that allow for the removal of all accesses from the highway and eliminate dangerous ‘at grade’ turning movements;
 - audible edge lines; and
 - improved sight distances.
-

Summary of Findings

The Committee found:

- F1. There may be opportunities for the Government to consider the procurement of standardised wire rope barriers for similar safety tasks.
- F2. Two of the three projects under review were completed within their approved budget, as presented to the Public Works Committee for approval:
 - a. the Mangalore to Bagdad Stage 1 project came within budget; and
 - b. the Perth to Breadalbane Duplication project came under budget.
- F3. The Kempton to Melton Mowbray Stage 1 project exceeded its approved budget by \$437,094.
- F4. All three projects under review reported variations to the project contract during the life of the respective project:
 - a. the Mangalore to Bagdad Stage 1 project reported a variation to the total construction contract costs of \$815,821 (12.8%) (and the Committee noted the explanation provided);
 - b. the Kempton to Melton Mowbray Stage 1 project reported a variation to the total construction contract costs of \$1,444,277 (16.2%) (and the Committee noted the explanation provided); and
 - c. the Perth to Breadalbane Duplication project reported a variation to the total construction contract costs of \$2,572,916 (7.8%) (and the Committee noted the explanation provided).
- F5. That the Department claimed planning processes behind project community consultation had improved since the completion of the road projects under inquiry.
- F6. Only the Perth to Breadalbane Duplication project was effectively delivered to schedule (and the Committee noted the explanations provided):
 - a. the Mangalore to Bagdad Stage 1 project reported an earlier actual commencement date but completed three months behind schedule (March 2017); and
 - b. the Kempton to Melton Mowbray Stage 1 project reported a later scheduled date of actual completion of six months (June 2017).
- F7. The unusually wet weather conditions in mid-2016 played a significant part in the delays associated with both the Mangalore to Bagdad Stage 1 and Kempton to Melton Mowbray Stage 1 projects.
- F8. All three projects under review reported that all work elements of the proposed works were completed in accordance with the respective submissions to the Public Works Committee.

- F9. All three projects under review reported that the individual completed projects satisfied the intended stated purpose in accordance with the respective submissions to the Public Works Committee.
- F10. All three projects under review reported that the respective projects delivered their intended benefits as stated.
- F11. All three projects under review reported that the respective projects utilised local contractors and suppliers.
-

Summary of Recommendations

The Committee recommends:

- R1. The Government consider the appropriateness, effectiveness and practicality of standardised procurement of wire rope barriers.
-

Conduct of Review

On 7 August 2019, the Committee resolved of its own motion, to examine selected Reports of the Public Works Committee.

The function of the Public Works Committee is prescribed by section 15 of the *Public Works Committee Act 1914*. Under section 2 of that Act, it considers and reports on public works to be undertaken with an estimated cost which exceeds:

- \$8.0 million for building or construction works; and
- \$15.0 million for road or bridges works.⁹

At the time of the review of the projects under review, the project cost threshold for works on roads and bridges was \$5m. The 2015 Reports examined for the purpose of the review included:

- Report No 27 of 2015: Midland Highway, Mangalore to Bagdad Stage 1 and Midland Highway, Kempton to Melton Mowbray Stage 1;¹⁰ and
- Report No 28 of 2015: Midland Highway, Perth to Breadalbane Duplication.¹¹

The Committee's terms of reference were to follow-up on the outcome of the Public Works approved projects with particular reference to the adherence to authorised budgets, project timeframes and agreed deliverables of the public works projects.

On 14 October 2020, questionnaires were distributed to the Department of State Growth (Department) as the relevant entity. Due to an administrative oversight, this was not responded to until 28 July 2021.

The purpose of the questionnaire was to gather data with regard to seven criteria as follows:

- was the project completed on budget;
- were there any variations to the project contract;
- did the project proceed to schedule;
- were all elements of the proposed works completed in accordance with the submission to the Public Works Committee;
- does the completed project satisfy its stated purpose;
- does the project deliver the benefits as stated; and
- to what extent did the project utilise local contractors?

On 17 March 2022, the Committee met in Committee Room 2, Parliament House, Hobart with the Hon Michael Ferguson MP (Minister for Infrastructure and Transport) supported by

⁹ At the point in time when the Public Works Committee approved the respective capital works the relevant threshold for the estimated cost of completing the work was the lesser amount of in excess of \$5 million (section 15: *Public Works Committee Act 1914*)

¹⁰ See

<https://www.parliament.tas.gov.au/ctee/Joint/PWC/Roads/Reports/Midland%20Highway,%20Mangalore%20to%20Bagdad%20Stage%201%20and%20Kempton%20to%20Melton%20Mowbray%20Stage%201.pdf>

¹¹ See

<https://www.parliament.tas.gov.au/ctee/Joint/PWC/Roads/Reports/Midland%20Highway,%20Perth%20to%20Breadalbane%20Duplication.pdf>

Department of State Growth representatives, Ms Denise McIntyre (General Manager, State Roads) and Ms Vanessa King (Manager, Programming and Approvals). A copy of the Hansard transcript is available on the Committee's website.¹²

At the public hearings, the Hon Michael Ferguson MP (Minister for Infrastructure and Transport) stated with regards to the overall and ongoing Midland Highway works related to the Midland Highway Strategic 10 Year Action Plan:

Mr FERGUSON - ... I can certainly say that the Government is very pleased with the progress of the Midland Highway action plan. It is really delivering a safer highway for Tasmanians and now eight years into the 10-year plan with the final stages now being taken to market and substantial projects having been completed. We could not be more pleased with getting AusRAP 3-star rating on now 100 kilometres of the 150 kilometres task. We are pleased with that.

As the committee would be aware, one of the key goals of the action plan is safety so that we can, through a range of treatments, not the least of which is significantly increasing overtaking opportunities, which are much, much safer. Also the isolation of traffic in opposite directions from each other by incorporating the use of the wire rope barrier is a very specific and deliberate strategy to virtually eliminate the chance of head-on collisions. From a point of view of safety, that is what this is really all about for us.¹³

AusRAP Rating System

During the course of the public hearings, the AusRAP rating system and how it applied to the Midland Highway projects in question was raised:

CHAIR - ... In your opening comments, Minister, you said that the 100 kilometres of the 150-kilometre task, if you like, has received an AusRAP rating of three stars. Is there an expectation that we will do better than that or is that the standard we are aiming for with our roads generally across the state, where we can make those changes?

Mr FERGUSON - Thank you, Chair. That is correct. Before this safety upgrade commenced in 2014 I seem to recall a figure of either 7 per cent or 9 per cent of the highway was AusRAP level three - 3 star, I should say. Today we have got that up to, I think, close to 70 per cent. I have indicated the number of kilometres that have now been completed with the remaining 50 kilometres going into the final stages' projects, which are in the public domain.

And the answer is yes. The objective of the Midland Highway safety action plan is to achieve three-star AusRAP accreditation for the Midland Highway. ... But that is the funded, agreed project with the federal government, who, of course, are funding 80 per cent of this task.

¹² See [https://www.parliament.tas.gov.au/Ctee/Joint/PAC/Transcripts/Hansard%20-%20Public%20Accounts%20Committee%2017%20March%202022%20-%20Public%20\(FINAL\).pdf](https://www.parliament.tas.gov.au/Ctee/Joint/PAC/Transcripts/Hansard%20-%20Public%20Accounts%20Committee%2017%20March%202022%20-%20Public%20(FINAL).pdf)

¹³ Transcript of evidence, 17 March 2022, p.1

Ms McINTYRE - The aim is for a minimum of an AusRAP three-star rating. Certainly, the sections of the highway - the four lane sections of the highway with the interchanges meet four star - a high level of four-star rating and the majority of the rest of the Midland Highway that has been upgraded would meet a very high three star, getting towards a four-star rating for some sections.

...

CHAIR - Just on that point, if I might, Minister. It is really because of the agreement with the federal government to the funding level that has determined the AusRAP rating that is to be achieved for these works. Is that correct?

Mr FERGUSON - I wouldn't put it quite like that. What I can say is that that is the objective of the agreed task of the Midland Highway Action Plan. That is an objective very clearly in the interest of the community, on which both governments settled when the original deed was struck in 2014 because we were faced with the situation where so little of the highway was anything above one or two stars.

... I don't think it was a limiting factor in terms of just having a three star but that certainly was the agreed objective.

Ms McINTYRE - At the time of the original commitment, the Tasmanian Government proposed the AusRAP three-star rating as being an objective of the Midland Highway upgrade standard. It wasn't imposed by the Commonwealth.

CHAIR - So there's no barrier, pardon the pun, to aiming for a four-star rating road whenever we can.

Mr FERGUSON - That's right.

CHAIR - It would be interesting to know how much four star rated road we have in the state as well, if you could provide that.

In replying to a Question Taken on Notice, the Hon Michael Ferguson MP (Minister for Infrastructure and Transport) stated:

How much AusRAP four-star rating roads currently exist in Tasmania (and if practicable, the same information for the other AusRAP rated roads)?

The last comprehensive state-wide AusRAP rating for Tasmania was published by the Australian Automobile Association in 2013.¹⁴ This report was one of the catalysts for the Tasmanian Government's development of the Midland Highway 10-Year Action Plan.

¹⁴ <https://cdn-s3-nrspp-2020.s3.ap-southeast-1.amazonaws.com/wp-content/uploads/sites/4/2017/03/10205031/ausrap-star-rating-report-original.pdf>

This report assessed national highway in Tasmania as below:¹⁵

Tasmanian Star Rating Distribution by Highway

Highways	Length (km)	Proportion in each Star Rating				
		1-Star	2-Star	3-Star	4-Star	5-Star
M2/A2 Bass Highway	128.5	33%	30%	34%	2%	Nil
M1 Brooker Highway	12.9	3%	Nil	96%	1%	Nil
A8 East Tamar Highway	36.6	Nil	47%	46%	3%	Nil
M1 Midland Highway	165.4	18%	68%	13%	2%	Nil
A3 Tasman Highway	23.2	Nil	1%	99%	Nil	Nil
Total	366.6	20%	46%	32%	2%	Nil

At the conclusion of the Midland Highway 10-Year Action Plan, approximately 30 per cent of the upgraded sections will achieve 4-star, while the remaining will be 3-star. The Department's Infrastructure Investment Plan Stream 2 - Network Safety Upgrades includes the following Investment Plan:

- improve the safety of Tasmania's rural high-speed Category I network by bringing the Midland Highway up to an AusRAP 3-star safety rating by 2025;
- bring the Bass Highway to Burnie by 2035 up to the same safety rating, followed by the East Tamar Highway and Illawarra Main Road by 2045;¹⁶
- undertake a road width and shoulder widening program by 2025 that will improve the safety of key rural roads; and
- improve the safety of identified junctions as warranted by crash statistics.

From a rapid desktop assessment, the following roads (including state and national highway) would be expected to achieve at least a 4-star rating currently:

- Huon Highway, between the Southern Outlet and Summerleas Road;
- Southern Outlet, between Davey Street and the Algona Road Roundabout (including the Kingston Bypass);
- Tasman Highway, between the Brooker Highway and Holyman Avenue;
- South Arm Highway, between Cambridge Road and just south of Pass Road;
- Brooker Highway, between Berriedale Road and Black Snake Road;
- Bass Highway, Hadspen to Launceston, near Westbury, Port Sorell Road to Brickport Road;
- East Tamar Highway, Rocherlea to Dilston
- Midland Highway, Brighton Bypass, Perth Link Roads, Perth to Breadalbane and various short sections within the upgraded project locations.

¹⁵ Note: For some short sections, the rating is not applicable due to road construction and other activity or the days that the data were collected and could not be star rated (i.e. not rated and so percentages do not add to 100 per cent).

¹⁶

https://www.transport.tas.gov.au/roads_and_traffic_management/about_state_roads/plansstrategies/small_tiles/infrastructure_investment_plan

At the public hearing, the Committee asked further questions with respect to the AusRAP star rating system in Tasmania, in particular more detailed information around how the AusRAP star rating works in practice and in particular what was the difference between the star ratings.

Dr BROAD - My question is along those lines. According to your documentation, the Perth-to-Breadalbane duplication was an AusRAP 4. As a rough guide, so we can get an idea in our heads, is it the provision of the extra lane that makes it AusRAP 4 more than anything else? That is, four lanes? Or are there other features that bump it from an AusRAP 3 to an AusRAP 4?

Ms McINTYRE - The main difference between the new highways and the existing highways is managing accesses and junctions. With the new highway there was an elimination of direct accesses onto the road. Wherever you have an access, you have a conflict point, which has an impact on the overall star rating.

Dr BROAD - More so than the additional lane?

Ms McINTYRE - It is not the lane, as such. The lane is there. It gives you increased capacity for increased volume of traffic. But the star rating is the number of conflict points you are avoiding, effectively.

Dr BROAD - Also in relation to your opening statement, you talked about 100 kilometres of AusRAP 3 out of 150. I assume that part of that is because there are sections yet to be completed. In the 10-year action plan, how much of the road is going to be less than AusRAP 3?

Ms McINTYRE - Effectively, all of the 110 km/h sections of the Midland Highway will be AusRAP 3. There will be some sections that haven't been measured for AusRAP ratings because they are lower speed but generally the 110 km/h section will meet the AusRAP 3 standard.¹⁷

In replying to a Question Taken on Notice, the Hon Michael Ferguson MP (Minister for Infrastructure and Transport) stated:

Wire Rope Barriers

The Committee noted with interest the State Government's claim that Tasmania had not seen any death or serious trauma as a result of head-on collisions where the flexible wire rope barrier was employed in the median strip.

During the public hearing, the Committee asked a range of questions around ongoing maintenance, inspection regimes, standardisation and whole-of lifetime costs around the use of wire rope barriers within Tasmania:

¹⁷ Transcript of evidence, 17 March 2022, p.3-5

Dr BROAD - In relation to wire barriers, have you got an idea of the ongoing maintenance cost? Every now and then you do see those strikes, and sometimes it is probably because a truck has a dozer on the back or something like that and they take out a few, but how much is the quantum of fixing up those strikes on the wire barrier? Is there any early data on that?

Ms McINTYRE - We do not have that information to hand, but we can take that on notice for the committee.

CHAIR - ... Has there been work done on this to actually understand what the lifetime cost [of the wire rope barriers] is? As opposed to a more fixed barrier?

Ms McINTYRE - The fixed barriers do suffer strikes and also have to be repaired. We have only just in the last few years - since the Midland Highway strategy commenced in earnest - really rolled out significant amounts of flexible safety barrier. Again, I do not have the actual numbers for you at this point in time, but it is considered to be an appropriate safety barrier to install in specific circumstances. We look at the appropriate types of barrier to use in specific circumstances and have to manage the maintenance cost accordingly.

Mr WILLIE - How often are they inspected?

Ms McINTYRE - On a very regular basis, our highways are inspected three times a week basis.

Mr WILLIE - For every wire barrier on the Midland Highway?

Ms McINTYRE - The barriers are inspected at the same time.

CHAIR - Can you tell that just by visual inspection or do you need to actually have a tensioning inspection?

Ms McINTYRE - Visual inspection obviously indicates when there are significant issues, there will be tension inspections, but I do not have that data at this point in time.

Dr BROAD - Is there any thoughts to standardising the type of wire barrier used? There are different types used and there was wire barrier that needed replacing near Ulverstone and because it became obsolete; they could not get any more of the posts and they had to redo the whole lot. Are there any thoughts about standardising or is there a process in place to manage that risk?

Ms McINTYRE - There are only a small number of suppliers of flexible safety barrier in the country, and the standards do periodically change according to the manufacture or the Australian standard requirement at a particular point in time. Austroads are currently going through a process with regard to safety barrier assessment and accreditation in terms of installation, as well as the actual standard of manufacture. So, they will change from time to time and we replace on a needs' basis.

Dr BROAD - You don't stockpile just in case?

Ms McINTYRE - No.¹⁸

In replying to a Question Taken on Notice, the Hon Michael Ferguson MP (Minister for Infrastructure and Transport) stated:

The provision of any data related to the lifetime costs including maintenance, repairs, re-tensioning and other costs associated with the use of wire rope barriers in Tasmania

Inspection, maintenance and re-tensioning of wire rope barrier is covered under the Department of State Growth's maintenance contracts in each region as part of a lump sum payment, so unit costs are not available. It would take some time to provide detailed costs for all regions for all repairs: however, as an example, \$46,064 costs were paid for wire rope barrier repairs in the north-west region for the 2020-21 financial year for damage which occurred at ten different locations. Costs for repairs at each location varied from \$682 to \$13,042 depending on the extent of the damage and number of components damaged.

If available, a cost comparison between wire rope and other fixed barriers used in Tasmania

Prices for 'wire rope' and steel 'W' beam barrier are approximately comparable per metre. Typical prices have ranged from \$95/m to \$130/m for flexible safety barrier, and from \$105/m to \$120/m for 'W' beam, noting that 'W' beam end terminals add several thousand dollars to each section of barrier, and that prices for steel products are increasing across the board due largely to international events.

It is noted that road environment and safety considerations are often key factors in selecting the barrier types and not the cost. Flexible safety barriers absorb energy when impacted by a vehicle, slowing the vehicle, whereas inflexible barriers, such as concrete, while preventing vehicles from leaving the carriageway, can 'bounce' vehicles back into traffic and result in further consequential crashes and more serious injuries.

In addition, tensioned wire rope barriers are suitable for long sections of highway, with little or no curve. 'W' beam is commonly adopted where short lengths are required or the road curves considerably.

The maintenance schedule requirements of maintenance related to the wire rope barriers

All State roads are inspected once or twice a week (depending on the road category) to identify defects related to the road asset including road furniture. In addition, incidents such as motor vehicle accidents are reported in real time and asset inspections are conducted to identify asset damage. When wire rope barriers are damaged, all damaged components are replaced and wires are re-tensioned as required. Wire rope barriers are

¹⁸ Transcript of evidence, 17 March 2022, p.2-3

re-tensioned on a two-year cycle, unless in the interim period they have previously been re-tensioned after being damaged.

Further detail as to who conducts the safety testing around wire rope barriers that have been hit or otherwise damaged

Inspections and damage repairs are undertaken through the Department's maintenance contracts.

At the public hearing, the State Government noted that the motorcycle community were generally opposed to the use of wire rope barriers:

Dr BROAD - ... We have probably all heard from motorcyclists about wire ropes, especially in the media. Is there any evidence of increased risk or harm to motorcyclists in particular due to wire barriers?

Ms McINTYRE - Not to my knowledge. I think any solid object - motorcyclists are vulnerable road users and I think that - we have implemented specific different types of barriers where we have curves, for example. Where we have a significant curve, we won't put a flexible safety barrier, we will actually install the steel barrier potentially. We also have what is known as rub rails, which are also a protection specifically for motorcyclists, where we have the steel barrier in place.

...

Ms McINTYRE - But we do acknowledge that motorcyclists generally are opposed to the barriers that we use.¹⁹

Committee Finding

- F1. That there may be opportunities for the Government to consider procuring standardised wire rope barriers to reduce costs.

Committee Recommendation

- R1. The Government consider the appropriateness, effectiveness and practicality of standardised procurement of wire rope barriers.

¹⁹ Transcript of evidence, 17 March 2022, p.4

Departmental Responses

The Hon Michael Ferguson MP (Minister for Infrastructure and Transport) provided the following detail from the Department of State Growth, to the Committee in response to the Committee’s questionnaire provided related to the projects under review:

Review of Projects Summary

Questions	Midland Mangalore to Bagdad	Kempton to Melton Mowbray	Perth to Breadalbane Duplication
Was the project completed within budget?	Yes	No	Yes*
Were there any variations to the project contract?	Yes	Yes	Yes
Did the project proceed to schedule?	No	Yes	Yes
Were all elements of the proposed works completed?	Yes	Yes	Yes
Does the completed project satisfy its stated purpose?	Yes	Yes	Yes
Does the project deliver the benefits as stated?	Yes	Yes	Yes
Did the project utilise local contractors?	Yes	Yes	Yes

Table 1 Summary of Departmental responses to review criteria

* The Perth to Breadalbane Duplication came significantly under budget, nearly \$17,698,960 (29%) less than the PPR P50 estimate of \$61,831,000.

Was the Project completed within budget?

The following public works projects under review were completed within budget:

- the Mangalore to Bagdad Stage 1; and
- the Perth to Breadalbane Duplication.

With respect to the Mangalore to Bagdad Stage 1 project, the Committee was advised by the Department that the original estimates submitted to the Public Works Committee in September 2015 were subsequently refined: in October 2015 the budget was resubmitted as part of the Development and Delivery Phase Project Proposal Report (PPR) prepared for the Australian Government funding. The revised P50 and P90 budgets approved by the Australian Government were \$9,931,240 and \$10,624,140 respectively. The actual expenditure for the project was \$9,914,561.

With respect to the Perth to Breadalbane Duplication project, the Committee was advised by the Department that this project was delivered well within the original PPR P50 and P90 budgets of \$61,831,000 and \$70,013,000 respectively. The actual expenditure was \$44,132,040. It is noted that this project was one of many within the Midland Highway 10 Year Action Plan, and the surplus funds were reallocated to other projects within this program (i.e. were expended on other sections of the Midland Highway).

At the public hearing, the Committee raised the question around whether the budget for the Perth to Breadalbane Duplication project was overly conservative by design:

CHAIR - ... In this project we are looking at of the Public Work's Committees assessment and approved budget, the actual project delivery or expenditure was significantly less. ... but does that perhaps indicate there is a bit of fattening been put into the contracts? ... Are we seeing on other jobs a bit of extra fat being put in where it is not really needed?

Mr FERGUSON - I will invite the experts to respond here. It is worth noting we are expected by the Commonwealth on projects that have Commonwealth funding to deliver up robust P50 and P90 estimates and then work to those numbers. I will leave it to Denise and Vanessa to discuss with you how robust they are and how they are arrived at.

Ms KING - To clarify, the budget number we go to the Parliamentary Standing Committee on Public Works with is not a contract estimate. It is a project estimate, so it includes our estimate for what the construction will cost. Also, the design and engineering, including the geotechnical and other investigations, including land acquisition where that occurs and including service relocations - moving power poles, moving water mains and other things. The estimate - and it is an estimate - is at the time we go to the Public Works Committee. The other really key component of that estimate is what are called contingencies.

Contingencies are owned by the department, not the contractor, and the contract prices - what we pay the contractor - is a publicly tendered competitively bid amount. Whether our estimate is accurate or inaccurate, what we pay is a tendered commercial amount.

...

Ms KING - In terms of the estimating on this project, looking back we can see the estimating was conservative. The estimate was in the order of \$60 million and we delivered the project for around \$40-odd million.

Mr FERGUSON - \$61 million and \$44 million.

Ms KING - Thank you. We can see there yes, that estimating was conservative. At the time we went to the committee, there were a number of risks we were very concerned about in the project - several of which did not eventuate to the full extent we thought they might have. Fundamentally, it did not turn out to be as expensive as we thought.

I would describe that project as an outlier.

CHAIR - It did seem to be quite a difference.

Ms KING - Yes. We are not commonly delivering projects for two thirds of the estimate.²⁰

The Committee also asked what potentials risks did not eventuate on that Project:

Dr BROAD - What were some of those risks identified but did not come through?

Ms KING - We had potential federal environmental referral and approvals and the federal Environmental Protection and Biodiversity Conservation Act 1999 can be triggered by our works through impacts on flora or fauna. While the key project cost impact of an EPBC Act referral is not so much the direct cost of doing the science and writing the report, although that is a not insignificant professional services cost, the main cost on projects is it means we go to tender a year or two years later than we had intended and, therefore, we pay more for the project through natural inflation and escalation and there was an allowance for costs associated with that.

Depending on what is going on with the flora or fauna that is affected, there may be reasonably significant costs in either redesign, such as having to design around a section which might make the road construction itself more expensive. There are several flow-on costs. In this case, we were able to manage the environmental impact of this project and not have an EPBC referral. So that was money we were able to not spend.

The tender price at the time that we were estimating the project, there was considerable uncertainty about the capacity in the Tasmanian market to undertake some of these projects. When the market is very hot, very busy, prices go up and not down. We had a considerable allowance in there for the impact of market conditions.

We also had considerable allowances for how construction staging might impact the tender price. It is not only the work the contractor has to do to work on the road, it is

²⁰ Transcript of evidence, 17 March 2022, p.11-12

how they stage it and can they be efficient. Or do they have to stage the works in a way to do things like manage traffic flows, that means that it is a slow build. If it is a slow build, it is a costly build. We had some - and the public utility relocations too - as we now realise, we had some conservative allowances in there for some of that work. They were the main things we thought might be extraordinarily expensive and turned out to be better than we hoped, better than we had planned.²¹

The Kempton to Melton Mowbray project was **not** completed within budget. This project came in 11.2% over the P50 budget (\$11,590,000), and 3.5% above the P90 budget (\$12,450,000). The actual expenditure for the project was \$12,887,094. The Committee was advised by the Department that:

Poor ground and water conditions of much greater extent than anticipated were encountered requiring substantial road foundation and drainage works. Civil works of this nature are relatively expensive per unit area treated. In addition, refinements to bridge designs were required during construction.

To complete this project, additional funds above the approved P90 were provided by the overall Midland Highway 10 Year Action Plan. This was achieved by reallocating savings from other Action Plan projects with approval from appropriate Australian and State Government delegates.

The State Government budget contribution was increased from \$2,318,000 to \$2,577,419 to complement an increased Australian Government allocation and meet the expenditure required to deliver the safety objective.

Committee Findings

- F2. Two of the three projects under review were completed within their approved budget, as presented to the Public Works Committee for approval:
- a. the Mangalore to Bagdad Stage 1 project came within budget; and
 - b. the Perth to Breadalbane Duplication project came under budget.
- F3. The Kempton to Melton Mowbray Stage 1 project exceeded its approved budget by \$437,094.

²¹ Transcript of evidence, 17 March 2022, p.12

Were there any variations to the project contract?

All three projects under review reported variations to the project contract during the life of the respective project.

Mangalore to Bagdad Stage 1

A summary of variations to the Mangalore to Bagdad Stage 1 construction contract is provided in the table below:

Variation Works	Variation Cost	% of Construction Contract
Unanticipated water main relocation	\$225,542	3.5%
Footpath, traffic management item alterations and bus shelter	\$174,339	2.7%
Property and side road access adjustments	\$164,057	2.6%
Bulk earthworks, additional	\$144,256	2.3%
Drainage additions and modifications	\$61,257	1.0%
Bridge scope adjustments	\$46,370	0.7%
Total	\$815,821	12.8%

The Committee was advised by the Department that:

The Mangalore to Bagdad Stage 1 project was conducted in a rural but peri-urban area with a mix of adjacent residential, community and light commercial land uses. The design phase and associated community consultation was constrained by time. This contributed to some important issues not emerging until the construction phase. Poor ground conditions were also encountered.

In addition, a water main was not identified during design due to incomplete utility owner records. Relocation of this water main was required and involved significant design and approvals during construction, resulting in delays to other works in the contract.

The variation percentage result sits just outside of the desirable range of 8 to 12%, however a construction variation percentage of 13% is not uncommon in the Tasmanian roadworks industry.

Kempton to Melton Mowbray Stage 1

Numerous variations worth approximately \$1.45m were necessary to successfully complete the Kempton to Melton Mowbray Stage 1 construction contract:

Variation Works	Variation Cost	% of Construction Contract
Drainage additions and modifications	\$382,608	4.3%
Bulk earthworks (additional), including strengthening the ground prior to pavement placement	\$302,187	3.4%
Bridge design adjustments	\$217,816	2.5%
Environmental works, additional (including tree removal and silt traps)	\$161,454	1.8%
Finishing works, additional (including fencing and access works)	\$118,764	1.3%
Pavements and surfacing	\$79,353	0.9%
Traffic facilities including barriers and signs	\$76,125	0.9%
Retaining wall adjustments	\$64,969	0.7%
Public utility adjustments	\$17,171	0.2%
Variations that do not fit in above categories	\$23,830	0.2%
Total	\$1,444,277	16.2%

The Committee was advised by the Department that:

The time constraint to achieve a fit-for-purpose design that met industry plant and labour availability and the 10 Year Midland Highway Action Plan schedule significantly increased design uncertainty. This contributed to some important issues not emerging until the construction phase such as poor ground conditions, drainage issues, bridge widening adjustments and tree removal works. The first three of these activities are expensive components of road construction in comparison to other items.

With respect to the time constraint observation, at the public hearing the Committee were apprised of the following:

CHAIR - ... I will go to some comments in the response you provided to the committee, under Criteria 2 for the Mangalore to-Bagdad Stage One. This is under 'where there any

variations to the project contract'. I note in the comments you have said: 'The design phase and associated community consultation was constrained by time.' Then, when I went to the Public Works Committee Report, it talks about a significant amount of consultation had occurred. On page 10 of the Public Works Committee Report it says:

'The committee was informed that a significant amount of community consultation had taken place and the number of changes to the project design were incorporated to address the majority of issues raised by affected residents'.

I'm trying to get some clarity around this one comment in your response. It says 'some of the design phase and community consultation was constrained', but the [Public Works] Committee is saying there was plenty in relation to some, if not all, aspects of it.

Ms KING - I think part of that is that the amount of time we spend on community consultation never seems enough. We can do a substantial amount, we might say we've done a substantial amount, but we always feel like we need to go longer.

CHAIR - Your response goes on to say: 'This contributed to some important issues not emerging until the construction phase.' What were the issues that emerged during the construction phase related to?

...

I am interested in what the constrained community consultation then contributed to important issues not emerging. What were they?

Ms KING - Some of the things in relation to, particularly the variation works that we're talking about here, included sorting out some issues on the footpath and the bus shelter that we may have been able to sort out earlier. That's a community issue.

Other variations we had on property and side road access adjustments, particularly the property access adjustments, were fencing changes for some property owners and changes to accesses, so changes to driveways for property owners.

We find that sometimes it is hard for some property owners to visualise some of the impacts of the projects until we're on ground.

Other times, we find that we are getting changes because perhaps we could have spent a bit more time with the property owner during the design phase. Sometimes more time spent with the property owners might have sorted out a fencing issue before we went to tender. That is a time, perhaps, when more time might have prevented a variation.

Other times, with those fencing and access changes, we believe we've spent appropriate, considerable time with property owners and still we are making changes during construction. That's often because it is really hard to visualise what this is actually going to be like in the end. Therefore, when we're in construction, people say: 'Oh, no, hang on. This isn't going to work for me. Can we have a change?. We work with the property

owners during construction to make sure that we are resolving their issues to the appropriate level.²²

The Committee was also informed of the standard stakeholder engagement process for Midland Highway project works:

CHAIR - On that point, are there set times for consultation? Obviously, when a project is first put out there and around the time the Public Works Committee looks to see if there is another point where the public can have input. You mentioned sometimes during the construction phase you have to re-engage with the community because these matters become apparent. Are there fixed points or is just a bit of an ad hoc, as needed approach once the initial consultation has occurred?

Ms KING - The stakeholder engagement process is customised for each project so it's neither a formula nor ad hoc. They're planned. We write a stakeholder and community engagement plan at the start of projects. That is our current process. We weren't as strong on that at the time of these projects, I would accept but our current process is that we write a stakeholder community engagement plan at the start. That is a customised plan to that project and those plans and the implementation of those are reviewed during the projects because, obviously, at the start of the project we try our best to predict the community response to the project. Of course, the community actually tells us what they actually think and then we listen and respond and adjust to that.

It is worth noting while thinking about stakeholder and community engagement that you can think of the involved or affected people largely as two groups and they don't necessarily have the same goals. The road users and the road users can be different types of road users - heavy vehicles, motorcyclists - so the road users are one stakeholder group. Other stakeholders are the people who live and work immediately adjoining the highway and they often have a different perspective as well.

In talking here about the property accesses and the fencing, for example, I am talking about the people who are the property owners immediately adjoining the projects.²³

The Committee asked how often unanticipated poor ground conditions affected major roadwork project planning:

Mr WILLIE - Just in terms of the unanticipated poor ground conditions and water. Kempton is a pretty dry place but what sort of testing is done and how rigorous is that? How often does this happen where there are unanticipated ground conditions that you have to deal with?

²² Transcript of evidence, 17 March 2022, p.6-7

²³ Transcript of evidence, 17 March 2022, p.7

Mr FERGUSON - ... The largest single outstanding unanticipated cost variation there was due to a water main that hadn't been documented by the water utility going back goodness knows how many years.

Ms KING - We put quite a lot of time, effort and a proportion of the design money into geotechnical testing and we are constantly opening up the ground and going, 'oh'. We prevent a lot of problems through early knowledge by doing that geotechnical testing and that engineering analysis before the project starts but it is also extremely common. As I said, you take the top off the road, have a look under it and go, 'Oh, that's wetter; that's drier; that's harder; that's softer than anticipated'. It's simply a consequence of working in the ground. We do what we believe is our best to manage that risk by getting undertakings, informed, intelligent geotechnical testing and analysis and we are constantly surprised.

CHAIR - Just on the water main which was unanticipated that needed to be relocated, we know that records are not really good in some of our councils because they were the original developers of these facilities. Is there any way of reducing the risk of this? ...

Ms KING - It is a nationwide problem. Austroads are doing some projects on service relocations for road projects at the moment, trying to address it at a national level. There is not a lot of consolation in knowing that everybody struggles with this but everybody struggles. One of the keys is good data collection, good systems and the funding to run the systems and good communication between departments and service authorities, between infrastructure owners and asset owners.²⁴

With that in mind, the Committee asked who bears the cost of those unexpected ground conditions and in general who covers the risk contractually:

Dr BROAD - ... Who bears the cost of those unexpected ground conditions? Is it purely coming back to government or does the contractor or the people who assist wear any of that?

Ms KING - We operate under Australian Standard 2124 contracts which are a particular Australian Standard contract conditions and those contracts include a concept called 'latent conditions'. A latent condition is a condition which occurs on the site. I am slightly paraphrasing. The words won't be exactly right but I am pretty close: a condition which occurs on the site which could not have been reasonably predicted by the contractor at the time that they tendered it. So, the fair and equitable -

Mr FERGUSON - It would be a latent condition, wouldn't it?

Ms KING - Potentially. We have contractual discussions and more about these from time to time, if there is something on the site which a reasonably informed tenderer could have reasonably known about at the time that they priced it, that is their problem. If they

²⁴ Transcript of evidence, 17 March 2022, p.8-9

could not have reasonably known at the time they priced it then it is the principal's problem and the Crown is the principal on these contracts. Does that help? I can give you examples.

Dr BROAD - Maybe an example would help.

Ms KING - An example of one that is in the Perth to Breadalbane project was that an asbestos dump was discovered under the ground when the project was underway. No reasonable person would expect that there might be an asbestos dump under the road. That is one that is a latent condition that is on the Crown.

Another situation where you might find asbestos might be that if a contractor is demolishing a 1950s house. Because asbestos is legislated if we were the property owners we would have an asbestos register. Even without an asbestos register, an informed, competent contractor working in their field of experience would look at a 1950s house and go, you know what might be there, we are going to have to watch out for asbestos. At the time of tendering a competent contractor would say, you haven't told me there is asbestos here, I am assuming there is not, because it would get named up. Does that help clarify it? It is what is reasonable. The risk is born by the party who has the best chance of managing it. We have the best chance of understanding what is under the ground before we dig it up. If it is something where contractors, that the reasonable person would expect they could predict was going to happen, that was going to be in the ground conditions then they wear the cost of it. There is a lot of contract law on that.²⁵

²⁵ Transcript of evidence, 17 March 2022, p.9-10

Perth to Breadalbane Duplication

Similarly, variations worth approximately \$2.27m were necessary to successfully complete the Perth to Breadalbane Duplication construction contract:

Variation Works	Variation Cost	% of Construction Contract
Property and side road access adjustments	\$995,822	3.0%
Bulk earthworks, additional	\$460,364	1.4%
Traffic facilities including barriers and signs	\$383,373	1.2%
Pavements and surfacing	\$314,865	1.0%
Environmental works, additional	\$241,103	0.7%
Drainage additions and modifications	\$163,490	0.5%
Other (including scope reductions, minor additional fencing and anti-graffiti coating)	\$13,899	0.04%
Total	\$2,572,916	7.8%

The Committee was advised by the Department that:

The above six percentage values are of the final contract sum not the final project cost. They are of relatively low percentage for a significant highway project involving realignment, duplication and works conducted in live traffic.

The category with the highest percentage and value of variations was Accommodation Works. Discussions with landowners were conducted during the design phase and designs devised to incorporate landowner requirements. Gaps in landowner, designer and contractor knowledge became apparent during the physical works, resulting in variations. It was not possible to entirely remove or substantially reduce this risk during the design due to the significant time delays it presented to construction commencement and negative impact on the local economy. The variation percentage result sits below the desirable range of 8 to 12%.

Committee Findings

- F4. All three projects under review reported variations to the project contract during the life of the respective project:
- a. the Mangalore to Bagdad Stage 1 project reported a variation to the total construction contract costs of \$815,821 (12.8%) (and the Committee noted the explanation provided);
 - b. the Kempton to Melton Mowbray Stage 1 project reported a variation to the total construction contract costs of \$1,444,277 (16.2%) (and the Committee noted the explanation provided); and
 - c. the Perth to Breadalbane Duplication project reported a variation to the total construction contract costs of \$2,572,916 (7.8%) (and the Committee noted the explanation provided).
- F5. That the Department claimed planning processes behind project community consultation had improved since the completion of the road projects under inquiry.
-

Did the project proceed to schedule?

Project	Commencement Date			Completion Date		
	Contract	Actual	Schedule	Contract	Actual	Schedule
Mangalore to Bagdad Stage 1	Apr 2016	Mar 2016	Early	Dec 2016	Mar 2017	Late
Kempton to Melton Mowbray Stage 1	Jan 2016	Feb 2016	Late	Jan 2017	Jun 2017	Late
Perth to Breadalbane Duplication	Jan 2016	Jan 2016	On-time	Mar 2018	Apr 2018	On-time

Table 2 – Summary of Project Performance against Contract Schedule

The Committee was advised by the Department of the following delays to the respective projects:

Mangalore to Bagdad Stage 1

Physical completion was later than forecast due to a wetter than average winter and spring in 2016. This hindered the resumption of works after a winter shutdown, as site upkeep, such as maintenance of unsealed sections, was more onerous than usual. A significant utility relocation risk was identified during construction requiring additional planning, design and approvals.

Kempton to Melton Mowbray Stage 1

Construction start was delayed due to longer than expected tender assessment. Construction was significantly delayed by a wetter than average winter and spring in 2016 and associated poor ground conditions. Physical completion was also hindered by the lack of suitable surface stone materials from quarries during a period of peak demand.

Perth to Breadalbane Duplication

The Scoping Phase PPR identified the completion of Works by June 2018, this was revised during the Development and Delivery Phase PPR and in the Submission to the Parliamentary Standing Committee on Public Works to March 2018. The Project achieved April 2018 despite additional works being required during construction.

Committee Findings

- F6. Only the Perth to Breadalbane Duplication project was effectively delivered to schedule (and the Committee noted the explanations provided):
- a. the Mangalore to Bagdad Stage 1 project reported an earlier actual commencement date but completed three months behind schedule (March 2017); and
 - b. the Kempton to Melton Mowbray Stage 1 project reported a later scheduled date of actual completion of six months (June 2017).
- F7. The unusually wet weather conditions in mid-2016 played a significant part in the delays associated with both the Mangalore to Bagdad Stage 1 and Kempton to Melton Mowbray Stage 1 projects.
-

Were all elements of the proposed works completed?

All three projects under review reported that all work elements of the proposed works were completed in accordance with the respective submissions to the Public Works Committee.

The Committee was advised by the Department of the following:

Mangalore to Bagdad Stage 1

All work elements were delivered, including:

- *a 3.0m central median turn lane from south of Eddington Road to East Bagdad Road to separate northbound and southbound vehicles, and separate vehicles turning right from traffic following from behind (at property entrances);*
- *separation of northbound and southbound lanes with a 2.1m wide median and central flexible safety barrier between East Bagdad Road and Swan Street (north junction)*
- *widening of the sealed shoulders to a minimum of 2.0m; and*
- *removal of roadside hazards such as steep side slopes and drains or protection of hazards with safety barrier, to provide a safer road environment.*

Kempton to Melton Mowbray Stage 1

All work elements were delivered, including:

- *separation of northbound and southbound lanes through provision of a 2.1m wide median strip with flexible safety barrier;*
- *construction of new, unimpeded southbound and northbound overtaking lanes;*
- *roadside slope hazards addressed to provide a safer road environment should motorists lose vehicle control and leave the road;*
- *widening of existing bridge and drainage structures to accommodate a wider road cross-section;*
- *junction layouts revised to provide safer and more efficient operation; and*
- *turning facilities for both light and heavy vehicles, to accommodate right-turns and u turns (for reaching destinations amended by the provision of central flexible safety barrier).*

Perth to Breadalbane Duplication

Below are the elements identified within the submission to the Public Works Committee - all were achieved:

- *two traffic lanes each way from Perth to interface with existing highway north of Breadalbane;*
- *grade-separated interchanges with Evandale Main Road and Devon Hills Road;*
- *access to adjacent private properties along the existing Midland Highway maintained or reconfigured;*
- *existing highway to be converted to a new service road to facilitate local traffic movements, property accesses, and pedestrian and cyclist movements; and*
- *provision for extension of the highway to join with the future Perth Western Link.*

Committee Finding

F8. All three projects under review reported that all work elements of the proposed works were completed in accordance with the respective submissions to the Public Works Committee.

Does the completed project satisfy its stated purpose?

All three projects under review reported that the individual completed projects satisfied the intended stated purpose in accordance with the respective submissions to the Public Works Committee. The Committee was advised by the Department of the following:

Mangalore to Bagdad Stage 1

The purpose of the project was met by upgrading this section of highway to a minimum 3-star AusRAP rating. This was achieved whilst:

- *maximising retention of the existing pavement;*
- *avoiding impact on significant environmental features wherever possible;*
- *minimising land acquisition; and*
- *minimising impacts on existing public utilities.*

Kempton to Melton Mowbray Stage 1

The purpose of the project was met by delivering a minimum 3-star AusRAP rating along this segment of the highway. The improved safety rating was primarily achieved by constructing a median with flexible safety barrier to target loss-of-control and head-on collisions, reducing both the likelihood and severity of these crash types.

Perth to Breadalbane Duplication

The Project achieved the stated objectives identified within the report to the Public Works Committee. The stated objectives were:

- *address capacity constraints and provide for additional capacity for projected traffic volumes;*
- *provide a National Transport Network standard 110 km/h speed environment;*
- *provide a 4-star AusRAP rating for this section of the Midland Highway;*
- *improve freight transport efficiency; and*
- *improve intersection safety and efficiency.*

Further information around the AusRAP rating system and its application to the Tasmanian highway network is covered under '[AusRAP Rating System](#)' (p.10-15).

Committee Finding

- F9. All three projects under review reported that the individual completed projects satisfied the intended stated purpose in accordance with the respective submissions to the Public Works Committee.

Does the project deliver the benefits as stated?

All three projects under review reported that the respective projects delivered their intended benefits as stated. The Committee was advised by the Department of the following:

Mangalore to Bagdad Stage 1/Kempton to Melton Mowbray Stage 1

Both projects delivered the benefits communicated to the PSCPW ... Project treatments delivered the benefits of: separating opposing traffic; and providing more sealed space for motorists to regain control of their vehicle if required. This will reduce the frequency and severity of crashes. The projects are also components of the Midland Highway 10 Year Action Plan which is treating the highway holistically. The location of head-on and run-off-the-road crashes is not specific to particular sections of the Midland, they occur in relatively random locations. Therefore, provision of a consistent, wider road cross-section and median safety barrier is delivering an immediate and long-term road safety benefit along tens of kilometres of the Midland Highway.

Perth to Breadalbane Duplication

The Project delivered the following benefits:

- a consistent high-speed dual lane road environment from Launceston to Perth with 2 lanes in each direction with wider pavements and sealed shoulders;*
- the elimination of head on collisions through the use of a central flexible safety barrier;*
- provision of new dedicated interchanges that removed all direct access between the highway and private property and eliminated much riskier 'at grade' turning movements;*
- audio-tactile edge lines; and*
- improved sight distances.*

At the public hearing, the Committee were advised of the following by Minister Ferguson:

CHAIR - ... how do you actually measure the outcomes of the work that is done? We know that these two projects include fairly significant intersections and things like that. How do you actually measure the outcomes of the work as against the purpose of the works?

Mr FERGUSON - ... the road statistics are objective and measured and very vigorously measured. It can be said very easily that from year to year the road statistics which includes death and serious injuries are very troubling for the Government and for the wider community. You can't and we wouldn't pretend to be able to lay claim to a particular target other than zero.

The simple fact is that you continue to see collisions taking place on our road network but on the Midland Highway I think that the early evidence is already that we have not had - and there have been some deaths and serious injuries on the Midland Highway, including over the life of this project - my early advice is that we haven't seen any death or serious

trauma as a result of head-on collisions where we have had the solid wire rope barrier in the median strip.²⁶

Ms McIntyre apprised the Committee on the crashes avoided by the installation of barriers in the relevant projects:

Ms McINTYRE - In terms of crash data on the Midland Highway, as we all know one or two crashes can make all the difference to the data. What we do know is the incidents of where the barriers have been struck indicates locations and the times where serious or fatal consequences have been avoided. We have not run specific data recently on the Midland Highway, but we do know it does meet the AusRAP 3 minimum standard that we had identified as being the main target of the upgrade program and we do know where there are incidents or strikes on the barriers themselves they are a potential serious crash averted.

CHAIR - Do you have numbers on the number of strikes you have had on the barriers in those areas?

Ms McINTYRE - On the three projects we are here to discuss, we do not have a barrier at the first project; the Bagdad to Mangalore Project. We do not have any - obviously - any information about potential crashes avoided. On the next section, the Kempton to Melton-Mowbray stage one, the barrier strikes there since the implementation are 19, that is potentially 19 serious crashes avoided. On the Perth to Breadalbane section, there are 11 strikes recorded to date and potentially 11 serious crashes avoided.

Committee Finding

F10. All three projects under review reported that the respective projects delivered their intended benefits as stated.

²⁶ Transcript of evidence, 17 March 2022, p.2

Did the project utilise local contractors?

All three projects under review reported that the respective projects utilised local contractors and suppliers. The Committee was advised by the Department of the following:

Mangalore to Bagdad Stage 1/Kempton to Melton Mowbray Stage 1

For both projects local contractors and suppliers delivered a very high percentage of the materials and works under the management of a Tasmanian-based head contractor. Some materials such as flexible safety barrier are speciality products that are only manufactured nationally or overseas ... Construction contract tender submissions included tenderers responding to evaluation criterion that clearly identified how their tender would provide benefits to the local economy. Mangalore to Bagdad Stage 1 was delivered by a wholly local company at that time, VEC who engaged several local sub-contractors.

Kempton to Melton Mowbray Stage 1 was constructed by Shaw, a long-established Tasmanian company who utilised its own plant and labour as well as local sub-contractors.

Local businesses supplied, and in some cases installed, the following items:

- *property boundary fencing (where relocation was necessary);*
- *quarried pavement/gravel materials;*
- *concrete culvert and drainage infrastructure;*
- *surface seals;*
- *line-markings;*
- *traffic control and navigation signs; and*
- *tree plantings and irrigation systems.*

Machinery required fuel from local distributors, whilst operators and site managers typically purchase food and drink at nearby towns and near their Tasmanian residence.

Perth to Breadalbane Duplication

Local contractors and suppliers delivered a majority of the material and works under the management of a Tasmanian primary contractor. Some materials such as flexible safety barrier are speciality products that are manufactured nationally or overseas ... The Request for Tender complied with the Tasmanian Government Treasury requirement to include an evaluation criterion requiring the tenderers to clearly identify how their tender would provide a benefit to the local economy. The weighting provided to this criterion was 20% of the overall evaluation. This evaluation criterion was assessed by an external party independent to the Project to ensure that the assessment was both adequate and appropriate.

The successful Contractor was a joint venture between two of Tasmania's oldest and largest civil contractors. These two companies employ, between them, over 200 employees. The joint venture engaged local suppliers to provide the items including the following:

- *safety fencing;*
- *pavement raw materials;*
- *fuel;*
- *concrete for the two bridge structures; and*
- *street lighting.*

At the public hearing, the Committee noted that with respect to the Midland Highway projects there were some things that local contractors cannot actually deliver at present:

CHAIR - I think when you have addressed that criteria about the extent to which the project utilised local contractors, there are some things that local contractors can't actually deliver. Is that true?

Ms KING - Yes, that is right. There are a few specific skills that the contractors need to import, one of those currently is the accreditation for the final testing of the flexible safety barrier. There are businesses in Tasmania which install the barrier, but the final testing and certification often requires someone to come in from interstate.

As Denise said earlier, Austroads are looking nationally at programs involving that accreditation and testing. That is a topic of interest to the broader industry. ...

There are some materials obtained from interstate and those are materials that are not manufactured in Tasmania. Any petrochemical inputs, bitumen for the sealing, fuel for equipment, it is clearly not manufactured in Tasmania. Steel products commonly come from interstate so that can be the flexible safety barrier, clearly that is a steel product, but also things that you see, the signs. Those are often manufactured interstate and often the reinforcing for the concrete in bridges and culverts comes from interstate.

Much of the purchasing of those interstate products comes through local distributors or locally-owned businesses. The signage firms tend to be Tasmanian firms but they purchase the signs from interstate, for example. The bulk materials for us come out of Tasmanian quarries.²⁷

Committee Findings

F11. All three projects under review reported that the respective projects utilised local contractors and suppliers.

²⁷ Transcript of evidence, 17 March 2022, p.13