

QR Ref: MCR-24-656

Professor Flavio Menezes  
Chair  
Queensland Competition Authority  
GPO Box 2257  
Brisbane Qld 4001

Dear Professor Menezes

### **Queensland Rail's Draft Access Undertaking 3 (DAU3) – Collaborative Submissions**

Attached is Queensland Rail's collaborative submission. Queensland Rail is and has been engaging with key stakeholders on issues outlined in the Draft Decision.

Queensland Rail recognises the efforts by customers and other stakeholders in the collaborative process. As included in our attached submission, Queensland Rail has reached agreement, including in relation to drafting of new undertaking provisions, on key issues.

Queensland Rail understands that the QCA will consider the collaborative submissions and subsequently issue papers on matters that were not decided in the Draft Decision to allow further consultation.

Should your officers have any questions in relation to the attached submission they can contact Queensland Rail's Manager Policy and Regulations Mr Douglas Jasch on 0488 314 741 or by email at [douglas.jasch@qr.com.au](mailto:douglas.jasch@qr.com.au).

Yours sincerely



**Kat Stapleton**  
Chief Executive Officer

  
November 2024

# Queensland Rail's Collaborative Submission on Queensland Rail's Draft Access Undertaking 3 (DAU3)

8 November 2024  
**Commercial-In-Confidence**



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# 1. QCA Consultation

Queensland Rail submitted its voluntary draft access undertaking (**DAU3**) and accompanying explanatory document to the Queensland Competition Authority (**QCA**) in November 2023. Queensland Rail has been working closely with stakeholders to seek agreed outcomes and supports agreement as the best option.

The QCA’s indicative DAU3 timetable for the approval of DAU3 is outlined in Table 1.

**Table 1: QCA’s DAU3 indicative Consultation Process<sup>1</sup>**

| Date                   | Consultation  |
|------------------------|---|
| 10 November 2023       | Queensland Rail lodged its voluntary DAU3 undertaking |
| 2 February 2024        | Submissions on DAU3 due                               |
| 14 March 2024          | Submissions on the original DAU3 submissions due      |
| 6 June 2024            | QCA Draft Decision published                          |
| 23 July 2024           | Submissions on the QCA Draft Decision due             |
| <b>8 November 2024</b> | <b>Collaborative Submissions due</b>                  |
| February 2025          | Final submissions                                     |
| 30 June 2025           | Queensland Rail’s Access Undertaking 2 expires        |

# 2. Queensland Rail’s Approach to the Draft Decision on DAU3

## 2.1 DAU3 Stakeholder Consultation

Queensland Rail is committed to working with its customers and stakeholders for agreed outcomes. Queensland Rail has been meeting weekly to work together with our shared goals and seeking agreement on shared outcomes.

The QCA DAU3 Draft Decision (**Draft Decision**) was issued on 6 June 2024. The Draft Decision responded to reference tariff and non-reference tariff issues with indicative Draft Decisions. However, there were a large number of matters where the QCA did not make a Draft Decision on and the QCA preferred that Queensland Rail and stakeholders work together to seek agreement. Queensland Rail is committed to working with customers and other stakeholders as agreed outcomes have joint benefits.

<sup>1</sup> <http://www.qca.org.au/project/queensland-rail/queensland-rails-2025-draft-access-undertaking/>

Queensland Rail understands that once collaborative submissions are submitted the QCA intends to address key issues, and in particular matters that hadn't been decided in the Draft Decision, through specific Draft Decision position papers.

### 3. Collaborative Submissions

Queensland Rail, prior to submitting DAU3, met with all key stakeholders and provided a presentation on Queensland Rail's view that regulatory certainty is important and Queensland Rail only proposed changes on an exception basis, similar to Queensland Rail's Access Undertaking 2 (AU2).

Queensland Rail's AU2 was approved on 1 July 2020 and expires on 30 June 2025. Queensland Rail worked closely with customers in agreeing to key elements of AU2. Reflecting this, the QCA stated in its final decision on AU2:

*"Stakeholders endorsed Queensland Rail's approach of only proposing to change a limited number of matters from the 2016 undertaking, and its efforts to reach agreed positions during the collaborative process after our draft decision.*

*We also welcome Queensland Rail's desire to continue many of the policies we considered appropriate to approve in the final decision on the 2015 DAU in October 2016, and to find common ground with its customers....."*

*....Throughout the 2020 DAU assessment process, we have encouraged open communication between stakeholders as a way to improve regulatory outcomes. We have strongly supported stakeholders collaborating and, where possible, providing joint submissions on agreed positions. We therefore welcome the common ground on several issues that Queensland Rail and a number of its stakeholders have found through the collaborative submission process."*

Consistent with AU2, Queensland Rail has continued through the QCA's collaborative process to work with customers on agreed outcomes. Queensland Rail has held regular meetings, usually on a weekly basis except where a topic required additional work such as drafting requirements etc. With the help of our customers Queensland Rail set up two committed working groups:

- the West Moreton System coal companies; and
- Rail Operators.

Queensland Rail and stakeholders agreed the agenda the week prior to the meeting. During the meetings Queensland Rail prepared a presentation and wrote agreed outcomes live in the meetings which were confirmed by stakeholders and subsequently circulated after the meetings. This provided certainty that the outcomes were understood and agreed. Queensland Rail appreciates the discussions and the information provided by our customers.

In addition to the "regulatory meetings' Queensland Rail has also worked with its customers on questions around DAU3 in its commercial meetings.

Queensland Rail appreciates and recognises the commitment it has received in the discussions with key customers and stakeholders during the collaborative process and this is an ongoing process.

Queensland Rail held the following formal consultation for DAU3 in addition to regular meetings with our customers where we also discussed DAU3. Queensland Rail recognises the support our customers provided during both the formal and informal discussions. At the time of writing Queensland Rail held the following formal meetings.

**Table 2: West Moreton System Weekly Collaborative Discussion Meetings**

| West Moreton System Weekly Collaborative Discussion Meetings |
|--|
| 13 August  |
| 20 August  |
| 27 August  |
| 20 September   |
| 10 October   |

**Table 3: Rail Operator Weekly Collaborative Discussion Meetings**

| Rail Operator Weekly Collaborative Discussion Meetings |
|--|
| 9 August   |
| 16 August  |
| 23 August  |
| 30 August  |
| 6 September  |
| 16 October   |
| 25 October   |

The following documents and information were provided to the West Moreton System users.

**Table 4: Rail Operator Weekly Collaborative Discussion Meetings**

| Information provided to West Moreton System users   |
|---|
| Indicative West Moreton Tariffs including Waterfalls (for 9.6 mtpa, 5.0 mtpa and 2.5 mtpa   |
| New Acland Tonnage Scenarios - \$ per net tonne Waterfalls  |
| Cameby Downs Tonnage Scenarios - \$ per net tonne Waterfalls  |
| AU3 Loss Capitalisation Repayment Options   |
| Queensland Rail – Capital Approval RACI and Approving Committee Calendar  |
| West Moreton Capital Demand (Prioritisation of Projects vs Forecast Coal Tonnage Scenarios (i.e. 9.6 mtpa, 7.5 mtpa, 5.0 mtpa and 2.5 mtpa (FY26 – FY30)) |
| DAU3 Capital Scenarios FY26-FY30 and Risk Commentary for Customer Collaboration Workshop  |

**Information provided to West Moreton System users**

B.06507 WM Slope Stabilisation Concept Development for Collaboration Meetings/ Business Case Summary

B.06162 West Moreton Pier Bridge Replacement Stage 2 Concept/Development Commencement Brief/Business Case Summary

B.06155 West Moreton Reconditioning Stage 2 Jondaryan to Dalby – Works Management Summary

Far West Moreton Asset Strategy (Jondaryan – Columboola)  
Toowoomba Rage Geotechnical Risk Management Strategy for Collaboration Meeting

B.06800 West Moreton Bridge Strike Protection Business Case

E.06156 West Moreton Formation Strengthening Rosewood Business Case Summary

Attachment 1 is an example of the presentation used for stakeholders, notwithstanding, the agreed outcomes are subject to Board approval of all parties and ‘without prejudice positions’. Queensland Rail found the meetings very productive and appreciates the support of our stakeholders in the process.

Summaries of proposed amendments to the Network Management Principles and the Standard Access Agreement (**SAA**) are shown in Section 4.16 and 4.17, respectively and proposed drafting amendments are provided in Attachment 2.

## 4. The West Moreton System Reference Tariff

With the West Moreton System Reference Tarriff, Queensland Rail collaborated with coal customers on a range of tonnage scenarios including the original 9.6mtpa scenario ( [REDACTED] a 7.5 mtpa scenario ( [REDACTED] 5.0 mtpa scenario [REDACTED] and a 2.5 mtpa scenario [REDACTED]. Queensland Rail undertook a full buildup of costs for these scenarios including capital, maintenance and operating costs and derived indicative West Moreton System Reference Tariffs for each scenario. It was agreed with New Hope and Yancoal that the 7.5mtpa scenario was an alternative scenario to the 9.6mtpa scenario, [REDACTED]

This submission builds upon feedback from the QCA’s June 2024 Draft Decision on Queensland Rail’s DAU3 proposal, which incorporated technical assessments from Arcadis. A key recommendation from the QCA, outlined on page 2 of its Draft Decision, emphasised the need for Queensland Rail to engage further with customers to reach a consensus on aspects (including those related to the West Moreton system reference tariff) of this submission. In response, Queensland Rail has undertaken extensive consultation since November 2023 with West Moreton users, providing additional information, facilitating discussions, and jointly evaluating projected tonnages for DAU3. See the *Consultation* section for more detail.

These collaborative efforts have resulted in an agreement with users on the 9.6 mtpa and 7.5 mtpa scenarios as the most likely outcomes for DAU3, shaping the focus of this resubmission. More information on these scenarios is provided in the sections below. Table 5 below provides an overview of the key adjustments to building block elements.

Queensland Rail has also considered the findings from the Arcadis report<sup>2</sup> and sought the advice of AECOM to make its external assessment on the appropriateness of the Arcadis findings, and necessary changes Queensland Rail should consider when writing this collaborative submission.

Through this process, AECOM concluded that the capital and maintenance activities proposed in DAU3 are of reasonable value, with the appropriate methodologies being followed and considerations for cost effective solutions to maintaining a safe and operationally efficient rail system. The full summary of arguments in AECOM’s response is provided in Attachment 3<sup>3</sup>.

This revised submission aims to deliver a DAU3 proposal that is reasonable, aligns with industry and organisational standards, and incorporates prudent forecasts for capital, maintenance, and operational expenditures.

**Table 5 Queensland Rail's Draft Access Undertaking 3 West Moreton Reference Tariff Version History**

| Submission Date | Summary   | Comments  |
|-----------------|---|---|
| November 2023   | The original DAU3 submission made to the QCA in November 2023 was based on forecast tonnages up to 9.6 mtpa by the end of the DAU3 period.  |   |
| November 2024   | The collaborative submission (this submission) considers the feedback provided through the QCA’s Draft Decision and considers two tonnage scenarios agreed upon with system customers at 9.6 mtpa and 7.5 mtpa. | <p>Changes reflected throughout this collaborative submission include the following:</p> <p><b>Collaboration</b></p> <p>A key recommendation made by the QCA in its Draft Decision was the continued collaboration and engagement with Queensland Rail customers to reach agreement across the various aspects of this submission. Section 3 details the efforts of Queensland Rail to address this consideration.</p> <p><b>Capital Expenditure</b></p> <p>A second capital expenditure program has been developed to accommodate the forecast tonnages of 7.5 mtpa.</p> <p><b>Maintenance Expenditure</b></p> <p>The maintenance expenditure projects have been extended to consider the forecast tonnage of 7.5 mtpa due to the respective capital program for this scenario and its impacts on variable maintenance.</p> <p><b>Operating Costs</b></p> <p>A second operating cost profile has been developed based on the forecast tonnage of 7.5 mtpa based on the same methodology as the November 2023 submission.</p> <p><b>Reference Tariffs</b></p> <p>Following the redevelopment of the costs associated with supporting a safe and reliable rail network, Queensland Rail has provided an unchanged reference tariff for 9.6 mtpa, and a reference tariff for 7.5 mtpa based upon the updated volume, capital, maintenance and operational expenditure forecasts. These are provided in Section 4.7.</p> |

<sup>2</sup> Arcadis, Review of West Moreton System Costs and Other Technical Matters in Queensland Rail’s 2025 DAU, April 2024

<sup>3</sup> AECOM, AECOM’s Response to the QCA and Arcadis Commentary, October 2024

| Submission Date | Summary | Comments   |
|-----------------|---------|--|
|                 |         | To support the changes made for this submission, Queensland Rail engaged the engineering consultancy AECOM Australia Pty Ltd (AECOM) to provide a peer assessment of the feedback provided by both the QCA and Arcadis, and make a recommendation for each area that was considered ‘not reasonable’. The outcomes of this peer review, provided in Attachment 3, have been incorporated throughout this submission. |

## 4.1 Introduction

Coal carrying train services traverse Queensland Rail’s West Moreton System, which spans approximately 321 route kilometres from Rosewood to Miles, and through the Metropolitan System<sup>4</sup> along approximately 80 route kilometres from Rosewood to the Port of Brisbane (Fisherman Islands). Both the West Moreton System and the Metropolitan System have QCA approved reference tariffs for coal carrying train services.

## 4.2 West Moreton System DAU3 Reference Tariff Inputs

A summary of the proposed reference tariff inputs is provided in Table 6, with detailed explanations and the supporting external reports to this collaborative submission provided in the following sections.

**Table 6 West Moreton System DAU3 reference tariff Inputs (\$2025-26 terms)**

| Topic   | Tonnage Scenario 1a   | Tonnage Scenario 2   |
|---|---|--|
| Description   | This scenario is reflective of the maximum forecast tonnages and consistent with the original DAU3 submission, made in November 2023. | This scenario is reflective of tonnages reaching 7.5 million tons per annum (mtpa) by the end of AU3, [REDACTED] |
| Coal Volumes (mtpa)                                 | 9.6   | 7.5  |
| Opening Regulatory Asset Base (\$FY2025-26 million) | \$446.2   | \$446.2  |
| Weighted Average Cost of Capital (WACC)             | 7.39%   | 7.39%  |
| Capital Expenditure                                 | \$346.9   | \$256.6  |

<sup>4</sup> The Metropolitan System means that part of the Network bounded to the north by (and including) Nambour station and to the west by (and including) Rosewood and including all branch lines comprised in that part of the Network. Coal trains travel on the System between Rosewood and the Port of Brisbane.

| Topic   | Tonnage Scenario 1a   | Tonnage Scenario 2  |
|---|---|---|
| (\$FY2025-26 million)   |   |   |
| Accelerated Depreciation Stranded Assets and Applying Equity Principles to Adjusted Asset Lives | Asset lives of 19 years for existing assets; and 14 years for new assets. | Asset lives of 19 years for existing assets; and 14 years for new assets. |
| Appreciation  | N/A   | N/A   |
| Maintenance Expenditure (\$FY2025-26 million)   | \$172.5   | \$141.3   |
| Operational Expenditure (\$FY2025-26 million)   | \$85.3  | \$74.6  |
| West Moreton System Reference Tariff (headline one-part)  | \$32.63/000 gross tonne kilometres (gtk)                                  | \$37.75/000 gtk   |

Queensland Rail acknowledges that the cost of labour and materials in the rail/construction industry is growing at a higher rate than the underlying forward inflation projection and may be updated during the submission process.

To facilitate a like-for-like comparison and avoid the re-examination of time-dependent parameters that will require further updating prior to the start of AU3, in developing a 7.5mtpa Coal Reference Tariff, Queensland Rail has retained its originally submitted building blocks for the 9.6mtpa Coal Reference Tariff aside from parameters that will not be common between the two levels of forecast volume (capital expenditure, maintenance and other operating expenditure). More detail on this approach is provided in the following sections.

### 4.3 Coal Volumes

In its voluntary DAU3 Undertaking submission lodged with the QCA on 10 November 2023, Queensland Rail forecast that West Moreton System coal volumes will build up to a total of 9.6Mtpa during the course of DAU3. This estimate was based on Queensland Rail's acceptance of the advice from the West Moreton System miners i.e. Yancoal (Cameby Downs mine), New Wilkie Energy (New Wilkie mine) and New Hope (New Acland Stage 3 mine) of volumes they wish to contract and/or renew.

New Wilkie Energy (**NWE**), which owns and operates the Wilkie Creek coal mine was placed into administration on 27 December 2023. The initial Administrators, BRI Ferrier were replaced by

KordaMentha on 9 January 2024 at the First Creditor’s meeting and FTI Consulting were also appointed as Receivers.

[REDACTED]

Through the process, the Receiver has been in discussion with a party/parties regarding a sale process for the mine. A Deed of Company Arrangement (DOCA) was approved at the Second Creditors meeting on 25 September 2024 to restart the Wilkie Creek mine and the DOCA formally signed on 17 October 2024.

The DOCA has a number of “Effectuation Steps”, which must be satisfied or waived for the DOCA to take effect.

The proposed new owners of New Wilkie Energy have confirmed that it is their intention to ramp the production at the Wilkie Creek mine [REDACTED]

[REDACTED]

[REDACTED]

Table 7 sets out the West Moreton coal railings in FY24 and contracted capacity for each of the three operating mines.

**Table 7 – 2023-24 West Moreton Coal Railings and Contract Capacity**

| Mine               | Net Tonnes Coal<br>2023-24 | Contract Entitlement as of 1 July 2024<br>(mtpa) |
|--------------------|----------------------------|--|
| Cameby Downs       | [REDACTED]                 | [REDACTED]                                       |
| New Wilkie         | [REDACTED]                 | [REDACTED]                                       |
| New Acland Stage 3 | [REDACTED]                 | [REDACTED]                                       |
| <b>Total</b>       | <b>3,648,000</b>           | <b>4.6 mtpa</b>                                  |

**West Moreton System Coal Railings Forecast**

At this point in time, West Moreton System coal railings forecast remains at up to 9.6mtpa for the DAU3 period assuming the Wilkie Creek mine restarts and New Acland Stage 3 is successful in an appeal concerning the grant of water rights.

[REDACTED]

[REDACTED]

During the collaboration period, Queensland Rail consulted with New Hope Group and Yancoal regarding their current forecast railings during DAU3 and their views on total West Moreton System railings. The Receivers for New Wilkie Energy were also invited to participate with DAU3 consultation but declined.

Based on discussions with New Hope Group and Yancoal and [REDACTED] Queensland Rail developed revised capital, maintenance and operational expenditure programs for West Moreton and derived a revised Coal Reference Tariff using the building block approach for a maximum of 7.5mtpa.

Queensland Rail agreed with New Hope and Yancoal that Queensland Rail develop an alternative West Moreton System Reference Tariff based on total railings of 7.5mtpa.

**Table 8 - DAU3 Forecast Railings Under the Revised 9.6mtpa and 7.5mtpa West Moreton Tonnage Scenarios**

| 9.6mtpa Tonnage Scenario (1a) |            |            |            |            |            |             |
|-------------------------------|------------|------------|------------|------------|------------|-------------|
| Mine                          | 2025/26    | 2026/27    | 2027/28    | 2028/29    | 2029/30    | Total       |
| Cameby Downs                  | [REDACTED] |            |            |            |            |             |
| New Wilkie                    | [REDACTED] |            |            |            |            |             |
| New Acland Stage 3            | [REDACTED] |            |            |            |            |             |
| <b>Total</b>                  | <b>8.2</b> | <b>9.5</b> | <b>9.6</b> | <b>9.6</b> | <b>9.6</b> | <b>44.3</b> |
| 7.5mtpa Tonnage Scenario (2)  |            |            |            |            |            |             |
| Mine                          | 2025/26    | 2026/27    | 2027/28    | 2028/29    | 2029/30    | Total       |
| Cameby Downs                  | [REDACTED] |            |            |            |            |             |
| New Wilkie                    | [REDACTED] |            |            |            |            |             |
| New Acland Stage 3            | [REDACTED] |            |            |            |            |             |
| <b>Total</b>                  | <b>6.0</b> | <b>6.0</b> | <b>7.5</b> | <b>7.5</b> | <b>7.5</b> | <b>34.5</b> |

**Opening Regulatory Asset Base (RAB)**

Notwithstanding that the 2022-23 West Moreton RAB roll-forward has now been accepted by the QCA and that 2023-24 CPI indexation has become available, Queensland Rail has retained its previous estimated DAU3 opening RAB value of \$446.2 million.

**Table 9: RAB Parameters**

| Parameter           | Method  |
|---------------------|---|
| CPI Indexation      | The AU2 RAB is rolled-forward each year and escalated in line with actual inflation:<br>2020-21—4.93%<br>2021-22—7.30%<br>2022-23—6.33%<br><br>For 2023-24 and 2024-25, the RAB has been rolled forward using a forecast inflation rate of 3.0%, the geometric mean of 2023-24 to 2027-28 following the QCA's inflation forecasting approach. |
| Depreciation        | Consistent with the approach applied in the QCA's AU2 Final Decision, straight line depreciation based on detailed QCA regulatory asset class lives for already approved RAB assets and a 35-year weighted average life for 2022-23 to 2024-25 capital expenditure.   |
| Capital Expenditure | Capital expenditure has been included as approved by the QCA for 2020-21 and 2021-22 with 2022-23 to 2024-25 as per the AU2 Capital Indicator. Capital expenditure approvals will be subject to prudency assessments as part of the capital expenditure claim process.  |

**Table 10: Asset Roll Forward—Rosewood to Columboola**

| \$000's             | 2020-21  | 2021-22  | 2022-23  | 2023-24  | 2024-25  |
|---------------------|----------|----------|----------|----------|----------|
| Opening asset value | 388,912  | 419,083  | 469,185  | 506,476  | 521,000  |
| Capex               | 23,582   | 33,348   | 23,595   | 16,937   | 17,242   |
| Inflationary gain   | 19,746   | 31,783   | 30,450   | 15,446   | 15,887   |
| Less Depreciation   | (13,157) | (15,029) | (16,754) | (17,860) | (18,899) |
| Closing asset value | 419,083  | 469,185  | 506,476  | 521,000  | 535,230  |

**Table 11: Assets/Asset Allocators**

|                          | Proportion | Percentage |
|--------------------------|------------|------------|
| Pre 1995 Common Network  | 97/137     | 70.8%      |
| Post 1995 Common Network | 97/113     | 85.8%      |
| Coal Specific            | 1/1        | 100.0%     |

Applying the above percentages to common network and coal specific assets reduces the full \$535.2 million DAU3 opening RAB value to a coal allocated network value of \$446.2 million as at 1 July 2025.

At an appropriate point in the future, the DAU3 opening RAB value (including the corresponding AU2 capital expenditure carryover adjustment) will be updated with upcoming AU2 capital expenditure approvals and CPI indexation values.

## **WACC**

Queensland Rail has taken note that the QCA in its Draft Decision, extended its preferred sampling period of the market risk premium to February 2024, thus reducing it from 6.5% to 6.3%. However, to continue with a like-for-like comparison, this along with the updating of the risk-free rate and ten-year rolling cost of

debt (2014 and 2015 observations being replaced by 2024 and 2025 observations) will be addressed prior to the start of the AU3 period.

Previously submitted WACC parameters alongside their AU2 equivalents are summarised below.

**Table 12: Bottom up and top-down adjusted WACC assessments from AU2 and for DAU3 as at 30 April 2023**

| Parameter   | AU2          | DAU3 estimate |
|---|--------------|---------------|
| Credit rating                                     | BBB          | BBB           |
| Risk free rate                                    | 1.18%        | 3.37%         |
| MRP   | 6.50%        | 6.50%         |
| Asset beta  | 0.5          | 0.48          |
| Gearing   | 40%          | 40%           |
| Corporate tax rate                                | 30%          | 30%           |
| Gamma   | 0.484        | 0.484         |
| Equity beta                                       | 0.71         | 0.71          |
| Debt beta   | 0.12         | 0.12          |
| Cost of equity                                    | 5.82%        | 8.02%         |
| <b>Debt margin</b> (incl. refinancing and uplift) | 3.74%*       | n/a           |
| Debt financing cost                               | n/a          | 0.10%         |
| Cost of debt                                      | 4.92%*       | 4.95%         |
| <b>Bottom-up WACC</b>                             | <b>5.46%</b> | <b>6.79%</b>  |
| Top-down adjustment (1.5% to the debt margin)     | n/a          | 0.60%         |
| <b>WACC after top-down adjustment</b>             | <b>5.46%</b> | <b>7.39%</b>  |

Source: QCA, Queensland Rail 2020 draft access undertaking | Decision, February 2020, p 33; HoustonKemp analysis.

\*Note: Debt financing costs and the cost of debt for AU2 include the effect of an adjustment so that they are not based off a benchmark business with a BBB credit rating, but instead a business that has a BBB credit rating, and additional risks.

## 4.4 Capital Expenditure

### 4.4.1 Background

Queensland Rail's investment strategy for the West Moreton System focuses on capital improvements between Rosewood and Miles, aimed at supporting safe and reliable operations at varying coal throughput scenarios.

In previous regulatory periods (AU1 and AU2), track condition and age were central to planning both capital and maintenance initiatives. Queensland Rail has continued to improve track quality through its capital programs; however, network age-related issues still impact service delivery.

For the DAU3 period, Queensland Rail has proposed a capital expenditure program designed to align with the aging infrastructure's operational needs and the anticipated haul volumes. The West Moreton system was not initially designed for the current level of coal throughput, posing continuing challenges that require targeted investment. The DAU3 strategy is built on reducing operational risk, optimising maintenance costs, and enhancing the supply chain's reliability to meet coal transport demand.

Following Queensland Rail's DAU3 submission, the strategy has now been expanded to include two capital branches, each addressing a different volume scenario. These scenarios offer Queensland Rail the flexibility to adapt to operational demands while prioritising network safety, reliability, and efficiency under varying conditions.

Queensland Rail has reviewed its original DAU3 planned capital projects following feedback received by the QCA and Arcadis commentary. Furthermore, Queensland Rail has reasonably engaged its users on the capital program with requests for information, meetings and presentations to ensure customer consultation remains a key driver in the capital investment strategy development process for the West Moreton system.

The following section provides an overview of the volume scenarios that frame this investment approach. The proposed capital expenditure allowance for DAU3, is then detailed in Table 13, outlining planned investments for each volume scenario. Further project-specific cost breakdowns is provided in Attachment 4<sup>5</sup>.

Queensland Rail has included the capital expenditure projects identified in this submission in the capital indicator for DAU3

#### 4.4.2 Overview of Capital Scenarios

##### Scenario 1a: Higher-Volume Capital Plan for 9.6mtpa (Original)

This scenario reflects the investments necessary to support the system's peak operational capacity of up to 9.6mtpa of coal. This scenario requires substantial investment in infrastructure to maintain the system's reliability and safety under peak demand. Key areas of focus include:

1. **Asset Resilience Programs**, including:
  - Formation strengthening for black soil sections.
  - Slope stabilisation on the Toowoomba Range to manage high-risk embankments.
  - Track reconditioning to upgrade to 50kg rail on concrete sleepers east of Macalister.
  - Replacement of timber piers and bridge supports east of Jondaryan.
  - Track strengthening at curve transitions on the Toowoomba Range.
2. **Operational Risk Reduction**: The improvements aim to mitigate risks such as track failures due to high temperatures and rainfall, reduce the incidence of summer heat-related speed restrictions, and allow for higher-speed operations where feasible.
3. **Capacity and Efficiency**: The strategy seeks to increase rail network resilience and reliability, reduce maintenance costs, and ensure capacity meets rising demand. Shared corridor investments east of Macalister are accelerated to avoid disruptions during peak volume periods, while significant reconditioning projects west of Macalister are scheduled within the DAU3 term to meet capacity needs

This investment plan remains essential for Queensland Rail to maintain the capacity to handle peak coal traffic. Without these necessary capital upgrades, the West Moreton System would risk performance degradation, asset wear, and potentially service disruptions under high-volume conditions. The plan is fully

<sup>5</sup> Queensland Rail's West Moreton System DAU3 Capital Expenditure 2025-26 to 2029-30 Submission. Provides the full detail for Queensland Rail's capital expenditure programs.

aligned with long-term system requirements, and its approach reflects the importance of ensuring infrastructure can meet future demand.

The total proposed capital expenditure for the DAU3 period (FY2025-2026 to FY2029-2030) is **\$346.9M**, exclusive of Interest During Construction (**IDC**).

### Scenario 2: Lower-Volume Plan – Adjustments for Reduced Coal Traffic

Given the uncertainty around coal production, particularly at Wilkie Creek, this scenario assumes a more conservative forecast, accounting for reduced coal throughput. This plan involves deferring or scaling some investment to align with lower demand. It allows Queensland Rail to manage resources more efficiently while maintaining operational safety and system integrity.

Major changes include:

- **Deferral of certain track strengthening projects** that were designed to accommodate higher load, as these investments are no longer justified at lower volume levels.
- **Scaling back of bridge rehabilitation programs** to focus instead on maintaining operational safety for lower tonnage levels rather than full-scale upgrades.

Several smaller but critical projects aimed at enhancing safety and network resilience have also been added:

1. **Toowoomba Range Drones & Sensors** – This project involves deploying drones and sensors along the Toowoomba Range to monitor track conditions, detect potential hazards, and prevent failures in this critical section of the network. The use of advanced monitoring technologies enhances safety and reduces the risk of unexpected track issues, ensuring uninterrupted service.
2. **West Moreton Heat Sensors** – Queensland Rail is installing heat sensors across the West Moreton system to monitor temperature-related track stress. As extreme weather events impact more services, these sensors will help identify potential risks of rail buckling and ensure timely intervention to prevent accidents.
3. **West Moreton Bridge Strike Protection Program** – This initiative aims to install protection systems to prevent and mitigate the impact of bridge strikes. Given the critical importance of West Moreton's bridges to the system's operation, this program enhances overall resilience, particularly as volume grows.

This plan allows Queensland Rail to prudently manage resources and infrastructure while remaining flexible to demand changes.

The total proposed capital expenditure for the DAU3 period (FY2025-2026 to FY2029-2030) is **\$256.6M**, exclusive of IDC.

**Table 13 Capital Investment Plan for DAU3 Tonnage Scenarios (\$FY2025 26 million), excluding IDC**

| Tonnage Scenario       | 2025-26 | 2026-27 | 2027-28 | 2028-29 | 2029-30 | Total DAU3     |
|------------------------|---------|---------|---------|---------|---------|----------------|
| Scenario 1a – 9.6 mtpa | \$105.9 | \$104.0 | \$43.0  | \$49.3  | \$44.6  | <b>\$346.9</b> |
| Scenario 2 – 7.5 mtpa  | \$43.3  | \$52.4  | \$71.5  | \$35.3  | \$54.1  | <b>\$256.6</b> |

#### 4.4.3 Approach to Scenario Capital Planning

Queensland Rail has opted to retain the high-volume (1a) scenario without amendments to avoid regulatory delays, despite the significant issue of volume uncertainty. The 9.6 mtpa scenario is still Queensland Rail's preferred outcome, though neither Queensland Rail nor system users can confidently predict this volume will be achieved. The [REDACTED].

Locking in a capital plan solely for a high-volume scenario could overstate infrastructure needs if volumes fall short, whereas underestimating investment for a lower volume could lead to inefficiencies and service gaps. Given time-sensitive tariff determinations and capital expenditure interdependencies, Queensland Rail has chosen not to modify the high-volume scenario now to prevent regulatory delays. Premature adjustments may risk creating a tariff misaligned with actual operational needs.

The dual-scenario approach offers flexibility in capital planning. [REDACTED]. Should system volume expectations change significantly, Queensland Rail will reassess its program in consultation with users to align with the updated demand.

Queensland Rail’s decision to maintain the high-volume scenario as the basis for tariff and capital submissions supports stability in tariff calculations and aligns capital planning with long-term demand expectations. The carryover mechanism further ensures alignment by enabling Queensland Rail to adjust expenditures as actual demand evolves.

The proposed DAU3 framework allows Queensland Rail to adjust capital expenditures dynamically based network requirements. This approach enables projects to be integrated through post-decision consultations with users and regular capital submissions without disrupting the regulatory timeline or imposing premature adjustments that could later prove unwarranted. The carryover mechanism provides an effective tool to incorporate revisions when volume levels become clearer.

#### 4.4.4 Capital expenditure by line

Table 14 and Table 15 provide the breakdown of capital expenditure by line for the two tonnage scenarios considered in this collaborative submission. The values presented exclude Interest During Construction (IDC).

**Table 14 Scenario 1a - Proposed capital expenditure by year and corridor (\$FY2025 26 million), excluding IDC**

| Corridor               | 2025-26        | 2026-27        | 2027-28       | 2028-29       | 2029-30       | Total DAU3     |
|------------------------|----------------|----------------|---------------|---------------|---------------|----------------|
| Miles - Macalister     | \$6.9          | \$-            | \$21.7        | \$24.4        | \$33.9        | \$87.0         |
| Macalister - Jondaryan | \$32.4         | \$33.9         | \$11.1        | \$9.5         | \$3.2         | \$90.2         |
| Jondaryan - Rosewood   | \$66.6         | \$70.0         | \$10.1        | \$15.4        | \$7.5         | \$169.6        |
| <b>Total</b>           | <b>\$105.9</b> | <b>\$104.0</b> | <b>\$43.0</b> | <b>\$49.3</b> | <b>\$44.6</b> | <b>\$346.9</b> |

**Table 15 Scenario 2 - Proposed capital expenditure by year and corridor (\$FY2025 26 million), excluding IDC**

| Corridor <sup>^</sup>  | 2025-26       | 2026-27       | 2027-28       | 2028-29       | 2029-30       | Total DAU3     |
|------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Miles - Macalister     | \$6.9         | \$0.0         | \$1.8         | \$0.8         | \$12.3        | \$21.9         |
| Macalister - Jondaryan | \$12.7        | \$10.6        | \$6.6         | \$14.4        | \$27.4        | \$71.7         |
| Jondaryan - Rosewood   | \$23.7        | \$41.8        | \$63.1        | \$20.1        | \$14.3        | \$163.0        |
| <b>Total</b>           | <b>\$43.3</b> | <b>\$52.4</b> | <b>\$71.5</b> | <b>\$35.3</b> | <b>\$54.1</b> | <b>\$256.6</b> |

<sup>^</sup>Projects apportioned for consistency based on geography and 1a capital program

#### 4.4.5 Capital expenditure by project and year

Queensland Rail has proposed 24 capital expenditure projects (excluding Ballast Undercutting) for the West Moreton System over the DAU3 period. The proposed capital forecast for FY2025-26 to FY2029-30 (the DAU3 period), excluding IDC is \$346.9M (\$FY2025-26) to support the movement of 9.6 mtpa and \$256.6M (\$FY2025-26) to support the movement of 7.5 mtpa.

Table 16 sets out the proposed capital expenditure projects by year for the DAU3 period (\$FY2025-26) for Scenario 1a (9.6 mtpa).

**Table 16 Scenario 1a - Proposed DAU3 capital expenditure by project (\$FY2025 26 million), excluding IDC**

| Project Name          | Tonnage dependent | Regulatory driver | Total         |
|-----------------------|-------------------|-------------------|---------------|
| <b>Civil projects</b> |                   |                   |               |
| Slope Stabilisation   | No                | Level of Service  | █             |
| Culvert Renewals      | No                | Asset Renewal     | █             |
| <b>Sub-total</b>      |                   |                   | <b>\$40.4</b> |
| <b>Track projects</b> |                   |                   |               |
| Reconditioning        | Yes               | Asset Renewal     | █             |

| Project Name               | Tonnage dependent | Regulatory driver          | Total          |
|----------------------------|-------------------|----------------------------|----------------|
| Formation Strengthening    | Yes               | Asset Renewal              | █              |
| Curve Transitions          | No                | Asset Renewal              | █              |
| Re-sleepering              | No                | Asset Renewal              | █              |
| Re-railing                 | Yes               | Asset Renewal              | █              |
| Level Crossing Transitions | No                | Asset Renewal              | █              |
| Ballast Undercutting       | Yes               | Level of Service           | █              |
| <b>Sub-total</b>           |                   |                            | <b>\$224.7</b> |
| <b>Signalling projects</b> |                   |                            |                |
| Signalling Cables          | No                | Asset Renewal              | █              |
| Digital Telemetry          | No                | Asset Renewal / Compliance | █              |
| SER / PER Upgrade          | No                | Asset Renewal              | █              |
| LED Upgrade                | No                | Asset Renewal              | █              |
| Re-signalling              | No                | Asset Renewal              | █              |
| Interlocking Renewal       | No                | Asset Renewal              | █              |
| <b>Sub-total</b>           |                   |                            | <b>\$11.8</b>  |
| <b>Bridges</b>             |                   |                            |                |
| Bridge █                   | No                | Asset Renewal              | █              |
| <b>Sub-total</b>           |                   |                            | <b>\$68.4</b>  |
| <b>Facilities</b>          |                   |                            |                |
| Refurbishment              | Yes               | Asset Renewal / Compliance | █              |
| <b>Sub-total</b>           |                   |                            | <b>\$1.6</b>   |
| <b>Total</b>               |                   |                            | <b>\$346.9</b> |

Table 17 sets out the proposed capital expenditure by project (\$FY2025-26) for Scenario 1a (9.6 mtpa).

**Table 17 Scenario 1a - Proposed capital expenditure by year (\$FY2025-26 million)**

| Project                    | 2025-26       | 2026-27       | 2027-28       | 2028-29       | 2029-30       | Total DAU3     |
|----------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| <b>Civil</b>               |               |               |               |               |               |                |
| Slope Stabilisation        |               |               |               |               |               |                |
| Culvert Renewals           |               |               |               |               |               |                |
| <b>Sub-total</b>           | <b>\$9.5</b>  | <b>\$16.6</b> | <b>\$4.8</b>  | <b>\$4.8</b>  | <b>\$4.8</b>  | <b>\$40.4</b>  |
| <b>Track</b>               |               |               |               |               |               |                |
| Reconditioning             |               |               |               |               |               |                |
| Formation Strengthening    |               |               |               |               |               |                |
| Curve Transitions          |               |               |               |               |               |                |
| Re-sleepering              |               |               |               |               |               |                |
| Re-railing                 |               |               |               |               |               |                |
| Level Crossing Transitions |               |               |               |               |               |                |
| Ballast Undercutting       |               |               |               |               |               |                |
| <b>Sub-total</b>           | <b>\$80.5</b> | <b>\$68.3</b> | <b>\$25.3</b> | <b>\$25.3</b> | <b>\$25.3</b> | <b>\$224.7</b> |
| <b>Signalling</b>          |               |               |               |               |               |                |
| Signalling Cables          |               |               |               |               |               |                |
| Digital Telemetry          |               |               |               |               |               |                |
| SER / PER Upgrade          |               |               |               |               |               |                |
| LED Upgrade                |               |               |               |               |               |                |
| Re-signalling              |               |               |               |               |               |                |
| Interlocking Renewal       |               |               |               |               |               |                |
| <b>Sub-total</b>           |               |               | <b>\$0.2</b>  | <b>\$8.1</b>  | <b>\$3.5</b>  | <b>\$11.8</b>  |
| <b>Bridges</b>             |               |               |               |               |               |                |
| Bridge [REDACTED]          |               |               |               |               |               |                |
| <b>Sub-total</b>           |               |               |               |               |               | <b>\$68.4</b>  |

| Project           | 2025-26        | 2026-27        | 2027-28       | 2028-29       | 2029-30       | Total DAU3     |
|-------------------|----------------|----------------|---------------|---------------|---------------|----------------|
| <b>Facilities</b> |                |                |               |               |               |                |
| Refurbishment     | [REDACTED]     |                |               |               |               | [REDACTED]     |
| <b>Sub-total</b>  | [REDACTED]     |                |               |               |               | <b>\$1.6</b>   |
| <b>Total</b>      | <b>\$105.9</b> | <b>\$104.0</b> | <b>\$43.0</b> | <b>\$49.3</b> | <b>\$44.6</b> | <b>\$346.9</b> |

Table 18 sets out the proposed capital expenditure projects by project for the DAU3 period (\$FY2025-26) for Scenario 2 (7.5 mtpa).

**Table 18 Scenario 2 - Proposed DAU3 capital expenditure by project (\$FY2025 26 million), excluding IDC**

| Project Name               | Tonnage dependent | Regulatory driver          | Total DAU3     |
|----------------------------|-------------------|----------------------------|----------------|
| <b>Civil projects</b>      |                   |                            |                |
| Slope Stabilisation        | No                | Level of Service           | [REDACTED]     |
| Culvert Renewals           | No                | Asset Renewal              | [REDACTED]     |
| <b>Sub-total</b>           |                   |                            | <b>\$33.8</b>  |
| <b>Track projects</b>      |                   |                            |                |
| Reconditioning             | Yes               | Asset Renewal              | [REDACTED]     |
| Formation Strengthening    | Yes               | Asset Renewal              | [REDACTED]     |
| Curve Transitions          | No                | Asset Renewal              | [REDACTED]     |
| Re-sleepering              | No                | Asset Renewal              | [REDACTED]     |
| Re-railing                 | Yes               | Asset Renewal              | [REDACTED]     |
| Level Crossing Transitions | No                | Asset Renewal              | [REDACTED]     |
| Ballast Undercutting       | Yes               | Level of Service           | [REDACTED]     |
| <b>Sub-total</b>           |                   |                            | <b>\$154.7</b> |
| <b>Signalling projects</b> |                   |                            |                |
| Signalling Cables          | No                | Asset Renewal              | [REDACTED]     |
| Digital Telemetry          | No                | Asset Renewal / Compliance | [REDACTED]     |
| SER / PER Upgrade          | No                | Asset Renewal              | [REDACTED]     |

| Project Name           | Tonnage dependent | Regulatory driver          | Total DAU3     |
|------------------------|-------------------|----------------------------|----------------|
| LED Upgrade            | No                | Asset Renewal              | █              |
| Re-signalling          | No                | Asset Renewal              | █              |
| Interlocking Renewal   | No                | Asset Renewal              | █              |
| LX Protection Upgrades | No                | Asset Renewal              | █              |
| <b>Sub-total</b>       |                   |                            | <b>\$12.1</b>  |
| <b>Bridges</b>         |                   |                            |                |
| Bridge █               | No                | Asset Renewal              | █              |
| Bridge █               | No                | Level of Service           | █              |
| <b>Sub-total</b>       |                   |                            | <b>\$53.1</b>  |
| <b>Rail Systems</b>    |                   |                            |                |
| Range Drones           | No                | Level of Service           | █              |
| Heat Sensors           | No                | Level of Service           | █              |
| <b>Sub-total</b>       |                   |                            | <b>\$1.3</b>   |
| <b>Facilities</b>      |                   |                            |                |
| Refurbishment          | Yes               | Asset Renewal / Compliance | █              |
| <b>Sub-total</b>       |                   |                            | <b>\$1.6</b>   |
| <b>Total</b>           |                   |                            | <b>\$256.6</b> |

Table 19 sets out the proposed capital expenditure by year and project (\$FY2025-26) for Scenario 2 (7.5 mtpa).

Table 19 Scenario 2 - Proposed capital expenditure by year (\$FY2025-26 million)

| Project             | 2025-26      | 2026-27      | 2027-28       | 2028-29      | 2029-30      | Total DAU3    |
|---------------------|--------------|--------------|---------------|--------------|--------------|---------------|
| <b>Civil</b>        |              |              |               |              |              |               |
| Slope Stabilisation | █            |              |               |              |              |               |
| Culvert Renewals    | █            |              |               |              |              |               |
| <b>Sub-total</b>    | <b>\$0.5</b> | <b>\$1.2</b> | <b>\$24.7</b> | <b>\$4.1</b> | <b>\$3.2</b> | <b>\$33.8</b> |

| Project                    | 2025-26       | 2026-27       | 2027-28       | 2028-29       | 2029-30       | Total DAU3     |
|----------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| <b>Track</b>               |               |               |               |               |               |                |
| Reconditioning             | [REDACTED]    |               |               |               |               |                |
| Formation Strengthening    |               |               |               |               |               |                |
| Curve Transitions          |               |               |               |               |               |                |
| Re-sleepering              |               |               |               |               |               |                |
| Re-railing                 |               |               |               |               |               |                |
| Level Crossing Transitions |               |               |               |               |               |                |
| Ballast Undercutting       |               |               |               |               |               |                |
| <b>Sub-total</b>           | <b>\$37.8</b> | <b>\$28.8</b> | <b>\$28.0</b> | <b>\$24.3</b> | <b>\$34.0</b> | <b>\$153.0</b> |
| <b>Signalling</b>          |               |               |               |               |               |                |
| Signalling Cables          | [REDACTED]    |               |               |               |               |                |
| Digital Telemetry          |               |               |               |               |               |                |
| SER / PER Upgrade          |               |               |               |               |               |                |
| LED Upgrade                |               |               |               |               |               |                |
| Re-signalling              |               |               |               |               |               |                |
| Interlocking Renewal       |               |               |               |               |               |                |
| LX Protection Upgrades     |               |               |               |               |               |                |
| <b>Sub-total</b>           | <b>\$0.1</b>  | <b>\$1.2</b>  | <b>\$0.2</b>  | <b>\$5.7</b>  | <b>\$5.0</b>  | <b>\$12.1</b>  |
| <b>Bridges</b>             |               |               |               |               |               |                |
| Bridge Pier Replacement    | [REDACTED]    |               |               |               |               |                |
| Bridge Strike Protection   |               |               |               |               |               |                |
| <b>Sub-total</b>           | <b>\$3.9</b>  | <b>\$19.7</b> | <b>\$16.8</b> | <b>\$1.0</b>  | <b>\$11.7</b> | <b>\$53.1</b>  |
| <b>Rail Systems</b>        |               |               |               |               |               |                |
| Range Drones               | [REDACTED]    |               |               |               |               |                |
| Heat Sensors               |               |               |               |               |               |                |
| <b>Sub-total</b>           |               |               |               |               |               | <b>\$1.3</b>   |

| Project          | 2025-26       | 2026-27       | 2027-28       | 2028-29       | 2029-30       | Total DAU3     |
|------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Facilities       |               |               |               |               |               |                |
| Refurbishment    |               |               |               |               |               |                |
| <b>Sub-total</b> |               |               |               |               |               | <b>\$1.6</b>   |
| <b>Total</b>     | <b>\$43.3</b> | <b>\$52.4</b> | <b>\$71.5</b> | <b>\$35.3</b> | <b>\$54.1</b> | <b>\$256.6</b> |

#### 4.4.6 Comparison to capital expenditure in AU2

Proposed capital expenditure for Scenario 1a of \$346.9 million (\$FY2025-26) to facilitate 9.6 mtpa is 127 per cent higher than the capital expenditure allowance for FY2021-22 to FY2024-25 of \$153.1 million (\$FY2025-26). Scenario 2 capital expenditure of \$246.6 million (\$FY2025-26) which facilitates 7.5 mtpa is 68 per cent higher. However, as discussed earlier, AU2 capital expenditure is based upon a forecast of 2.1 mtpa, whereas the DAU3 forecast is based upon a record tonnage forecasts of 9.6 mtpa and 7.5 mtpa. The additional tonnes, regardless of the eventuating scenario, will significantly increase the stress on the network and the forecast capital investment required so that the mines can achieve their tonnages and Queensland Rail can provide a fit for purpose, operationally efficient, safe and cost-effective network.

The comparison of capital expenditure FY2020-21 to FY2029-30 to the proposed DAU3 capital expenditure is shown in Figure 1 and Figure 2 below for each tonnage scenario.

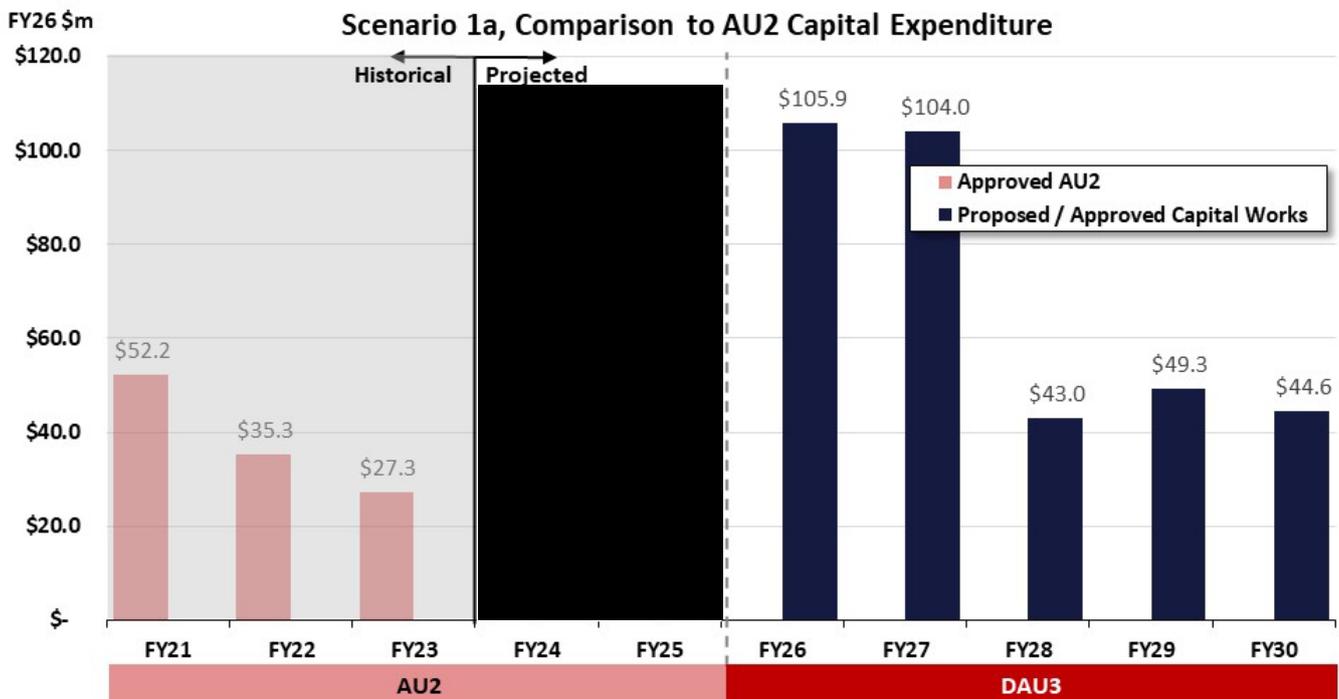


Figure 1 Scenario 1a - Proposed capital expenditure AU2 and DAU3, by year (\$FY2025 26, million)

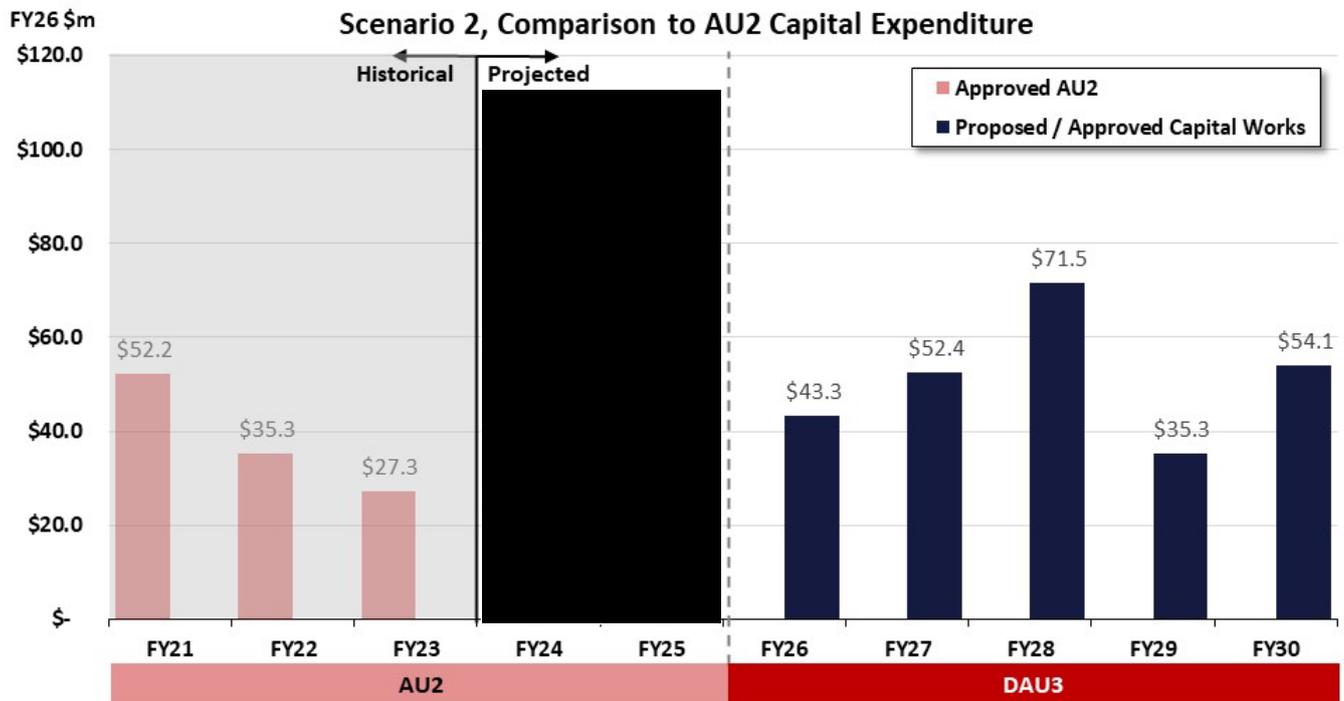


Figure 2 Scenario 2 - Proposed capital expenditure AU2 and DAU3, by year (\$FY2025 26, million)

#### 4.4.7 Independent peer review

Independent engineering consultants AECOM Australia (**AECOM**) have completed a peer review of a sample of Queensland Rail's proposed West Moreton System capital program, representing 80% of the total capital expenditure over the DAU3 Reference Tariff period (FY26 to FY30). AECOM found that the DAU3 proposed capital program was prudent in terms of cost, standard and scope in all aspects except their assessment of the following:

- (B.04763) Digital Telemetry Rollout – Prudency of Standard
- (B.06800) Bridge Strike Protection – Prudency of Cost
- (B.06927) Toowoomba Range Drones and Sensors – Prudency of Cost
- (B.06928) Heat Sensors – Prudency of Cost
- (B.06580) Level Crossing Protection Upgrades – Prudency of Cost

These assessments were not able to be completed by AECOM due to the projects not having sufficient information due to the early stages of planning in the project lifecycle. It is usual in the undertaking process that the projects, which for example may not be required for several years for the QCA to approve a capital indicator and then approve the capital through a prudency process. Twenty of the 24 project assessments were complete in preparation of Queensland Rail's original DAU3 Submission in November 2023, with the remaining 4 assessments complete in preparation of this collaborative submission. The methodology

applied by AECOM remains consistent across all projects and can be viewed in greater detail in Attachment 5<sup>6</sup> and Attachment 6<sup>7</sup>. AECOM determined that:

*“Our review has concluded that the proposed capital expenditure meets the conditions of DAU3, and in our view QR may proceed with the submission.”*

**Accelerated Depreciation**

Queensland Rail previously put forward an approach to shorten asset lives to partially mitigate asset stranding risk. Rather than adopt existing regulatory lives that are primarily based on the technical lives of assets, regulatory lives that are more closely aligned to the economic lives of assets were proposed.

From the start of the AU3 period, existing pre-AU3 assets would have their lives shortened to 19 years, with full life expiry by 30 June 2044, and future AU3 assets would attract a life of up to a maximum of 14 years that would see them fully life expired by 30 June 2039.

This approach has been maintained in developing a 7.5mtpa Coal Reference Tariff.

**Table 20: West Moreton System asset lives**

| Asset Lives (Years)    | Current Regulatory Lives in the AU2 Period | Proposed Existing Pre-AU3 Assets  | Proposed Future AU3 Assets                                  |
|------------------------|--|---|---|
| Track (inc Turnouts)   | 35   | Shortened to 19 Years Remaining from 1 July 2025 with Full Life Expiry 30 June 2044 | Maximum Life of 14 Years with Full Life Expiry 30 June 2039 |
| Roads                  | 38   |   |   |
| Fences                 | 20   |   |   |
| Signals                | 20   |   |   |
| Bridges                | 100  |   |   |
| Tunnels                | 100  |   |   |
| Culverts               | 100  |   |   |
| Earthworks             | 100  |   |   |
| Other                  | 20   |   |   |
| Land acquisition costs | 50   |   |   |
| Telecommunications     | 20   |   |   |
| Land                   | Not Depreciated                            |   |   |

**4.5 Maintenance**

**4.5.1 Background**

The West Moreton maintenance program is designed to support supply chain efficiency and deliver safety, reliability, and availability to customers.

<sup>6</sup> AECOM, Review of Queensland Rail’s West Moreton Capital Investment Plan for DAU3, November 2023

<sup>7</sup> AECOM, Review of Queensland Rail’s West Moreton Capital Investment Plan for DAU3 – Addendum 1, October 2024

Like capital planning, the November 2023 maintenance proposal for 9.6 mtpa has been retained, with an alternative program proposed to align with the projected lower throughput of 7.5 mtpa. Preserving the 9.6 mtpa program is intended to expedite regulatory processes and reflects that core capital assumptions remain unchanged.

The full detail for Queensland Rail's maintenance expenditure program for each of the tonnage scenarios is provided in Attachment 7.

#### 4.5.2 Summary

Queensland Rail has proposed a maintenance allowance of \$172.5M (\$FY2025-26) for the West Moreton System over the DAU3 period to enable peak tonnage forecasts of 9.6 mtpa and its respective capital program. The tonnage forecast of 7.5 mtpa in Scenario 2 has a proposed maintenance allowance of \$141.3M (\$FY2025-26) over the DAU3 period. These programs seek to maximise West Moreton supply chain efficiency and deliver safety, reliability, and availability to its customers.

Table 21 provides a breakdown of maintenance costs by major activity for Scenario 1a (9.6 mtpa).

**Table 21 West Moreton coal maintenance costs by major activity, DAU3 Scenario 1a (\$FY2025-26 million)**

| Major Activity    | 2025-26       | 2026-27       | 2027-28       | 2028-29       | 2029-30       | Total DAU3     |
|-------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Track             | \$25.9        | \$28.0        | \$28.0        | \$27.7        | \$27.4        | <b>\$137.1</b> |
| Structures        | \$1.7         | \$1.7         | \$1.7         | \$1.7         | \$1.7         | <b>\$8.4</b>   |
| Trackside systems | \$4.4         | \$4.4         | \$4.4         | \$4.4         | \$4.4         | <b>\$21.8</b>  |
| Facilities/other  | \$1.0         | \$1.0         | \$1.0         | \$1.0         | \$1.0         | <b>\$5.2</b>   |
| <b>Total</b>      | <b>\$33.0</b> | <b>\$35.1</b> | <b>\$35.1</b> | <b>\$34.8</b> | <b>\$34.4</b> | <b>\$172.5</b> |

Table 22 provides a breakdown of maintenance costs by major activity for Scenario 2 (7.5 mtpa).

**Table 22 1 West Moreton coal maintenance costs by major activity, DAU3 Scenario 2 (\$FY2025-26 million)**

| Major Activity    | 2025-26       | 2026-27       | 2027-28       | 2028-29       | 2029-30       | Total DAU3     |
|-------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Track             | \$19.5        | \$19.7        | \$22.6        | \$22.4        | \$21.8        | <b>\$106.0</b> |
| Structures        | \$1.7         | \$1.7         | \$1.7         | \$1.7         | \$1.7         | <b>\$8.4</b>   |
| Trackside systems | \$4.4         | \$4.4         | \$4.4         | \$4.4         | \$4.4         | <b>\$21.8</b>  |
| Facilities/other  | \$1.0         | \$1.0         | \$1.0         | \$1.0         | \$1.0         | <b>\$5.2</b>   |
| <b>Total</b>      | <b>\$26.6</b> | <b>\$26.8</b> | <b>\$29.7</b> | <b>\$29.4</b> | <b>\$28.9</b> | <b>\$141.3</b> |

A core objective of Queensland Rail's approach to asset management is reaching a balance between levels of service, management of risk and efficient whole of life costs. Both maintenance and capital

expenditure contribute to maintaining the availability and reliability of the network and need to be considered together to identify efficient costs of operations.

The maintenance cost estimates over DAU3 are based on Queensland Rail's FY2020-21 to FY2022-23 maintenance expenditure actuals for the West Moreton System, with the exclusion of outliers and non-recurring expenses<sup>8</sup>. The maintenance base has then been adjusted for the considerations provided within Attachment 7<sup>9</sup>, to support forecast tonnages during the period.

Costs have been developed in current \$FY2023-24 terms and escalated according to forecast inflation<sup>10</sup> for this collaborative submission in \$FY2025-26 terms.

Some of the key considerations for maintenance of the West Moreton System over the DAU3 period include:

1. **Tonnage Forecast Impacts:** The large projected increase in tonnage up to 9.6 mtpa over the period will increase wear on the track and therefore increase the level of maintenance required on the network to minimise speed restrictions and closures. Conversely, this will likely also decrease the amount of time available to deliver planned maintenance.
2. **Possession Constraints:** A higher level of maintenance is also projected to increase the possession time required to undertake the works, potentially acting as a limit to the paths available and therefore risking the tonnage that the system can safely carry. If the required maintenance is not carried out, the system is at increasing risk of events occurring that require reactive (unplanned) maintenance, which would impact customer service by reducing availability and result in higher costs.
3. **Capital Program Dividends:** Queensland Rail has proposed a capital program that responds to the specific requirements of the network, addresses existing issues on the system, and targets resilience. Queensland Rail's proposed maintenance costs have considered the reduction in maintenance that will result from the proposed capital program, noting that upgraded or recently refurbished track is unlikely to require extensive maintenance in the period following the upgrade. The capital program is also targeted to reduce the occurrence of reactive maintenance by improving track quality and durability. The reduction in reactive maintenance will contribute towards an available track for Queensland Rail customers.

### 4.5.3 Tonnage forecast impacts

The West Moreton System transports coal loaded at Columboola, Macalister and Jondaryan to Rosewood, interfacing with the Brisbane Metropolitan System. The historical gross tonnage loaded at these three corridor locations is represented in the grey shaded area in the Figure 3 for the periods FY2011-12 to FY2022-23.

When considering the Jondaryan to Rosewood shared corridor, the gross tonnage transported in 2018-19 was 6.4 mtpa, decreasing to 2.2 mtpa by FY2022-23. This represents a 66% decrease in tonnage over that timeframe.

<sup>8</sup> Excluded costs are those with inconsistent occurrences over historical years and are of a value insignificant proportional to other maintenance activities.

<sup>9</sup> AECOM, Review of Queensland Rail's DAU3 West Moreton Maintenance Submission, November 2023

<sup>10</sup> Reserve Bank of Australia, Measures of CPI Inflation, ABS, June 2023

When forecasting future tonnage, a key consideration is the expectation that the production of coal will increase from current levels. [REDACTED]

[REDACTED] The uncertainty raised by the QCA around tonnage forecasts in its Draft Decision has been suitably responded to by Queensland Rail who has sought the advice on consultation of its customers to agree upon likely scenarios to move forward with in this collaborative submission. Queensland Rail has included the two most likely tonnage scenarios in this submission, that are based on the assumptions in Table 23.

**Table 23 2 Future Usage of the Network Assumptions**

| Tonnage Scenario                              | Assumptions   |
|---|---|
| Scenario 1a (9.6 mtpa)<br>November Submission | Scenario 1 (ramps up to 9.6 mtpa from July 2027).<br>[REDACTED] |
| Scenario 2 (7.5 mtpa)                         | Scenario 2 (ramps up to 7.5 mtpa from July 2027).<br>[REDACTED] |

When considering the Jondaryan to Rosewood section in Scenario 1a, the gross tonnage is forecasted to increase by [REDACTED] and reach a peak of 9.6 mtpa by FY2027-28. The Scenario 2 tonnage forecasts over the track section from Jondaryan to Rosewood similarly increases by [REDACTED] and reaches a peak of 7.5 mtpa by FY2027-28.

The increasing tonnages will impact Queensland Rail’s variable maintenance costs by increasing costs proportionally to the increased usage of the system. This is driven primarily by wear and degradation of the track and is attributed to three key factors including: compression damage, centrifugal force and acceleration (braking) force. Detailed discussion of these three key drivers and projections of variable maintenance costs are provided in Queensland Rail’s DAU3 Maintenance Submission in Attachment 7.

Figure 3 shows the forecast increase in tonnage to the system based on the assumptions of Scenario 1a with a maximum tonnage of 9.6 mtpa as it compares to AU1 and AU2.

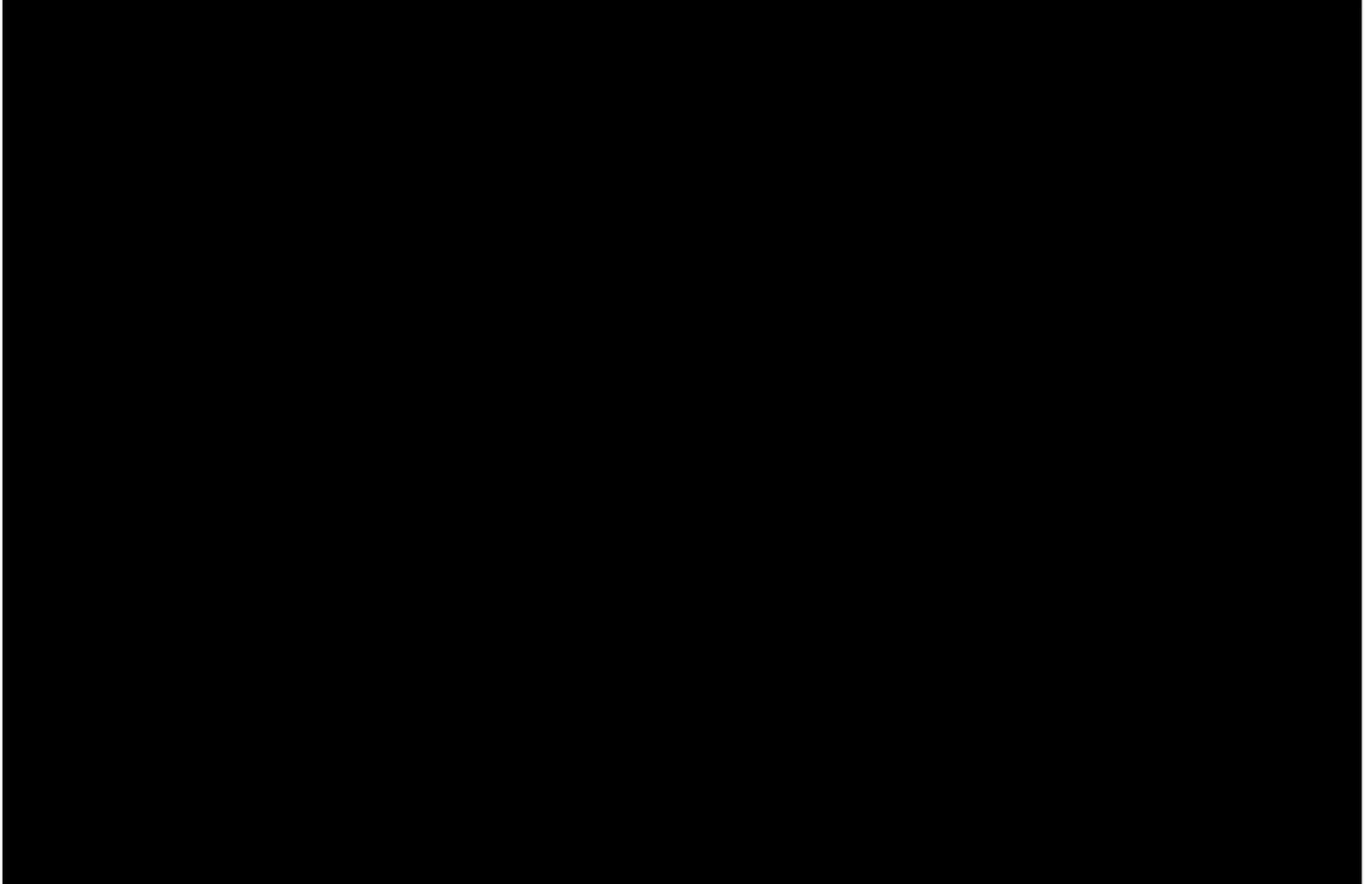
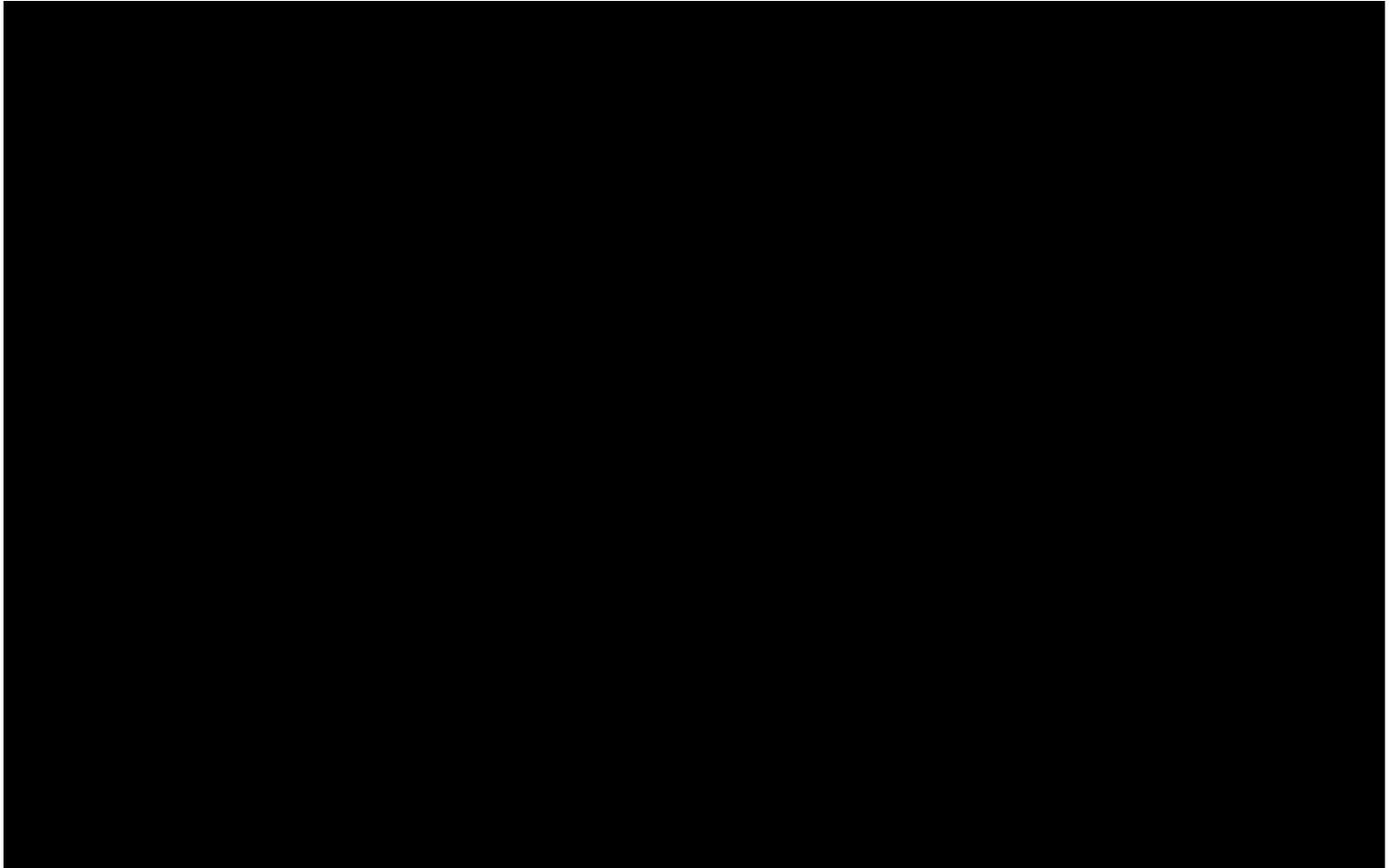


Figure 4 shows the forecast increase in tonnage to the system based on the assumptions of Scenario 2 with a maximum tonnage of 7.5 mtpa as it compares to AU1 and AU2.



#### 4.5.4 Possession constraints

Analysis of Queensland Rail's historical employee billed hours between FY2020-21 to FY2022-23 compared to available track possession windows found that the track possession required for maintenance works will be greater than the possession actually available during the DAU3 period (a higher number of paths is required for the higher tonnage expected). Possession time avoided as a result of projected capital works (which also require track possession) will be insufficient to offset this shortfall, and by itself, will not allow for the required track possessions to fit within the possession windows available.

Queensland Rail will therefore be required to increase the minimum number of crew members (or number of teams deployed) to complete required track works to overcome the constraints and fit within allowable possession windows. These increases have the effect of increasing projected maintenance costs.

The corridor from Jondaryan to Rosewood is most impacted by the expected increased tonnages and therefore has been assessed for the billed hours and required crew sizes to enable the required maintenance to be complete within available possessions. Figure 5 demonstrates that total employee billed hours are projected to increase from [REDACTED] hours in FY2023-24 to [REDACTED] hours by FY2029-30, which is a [REDACTED] increase over this period.

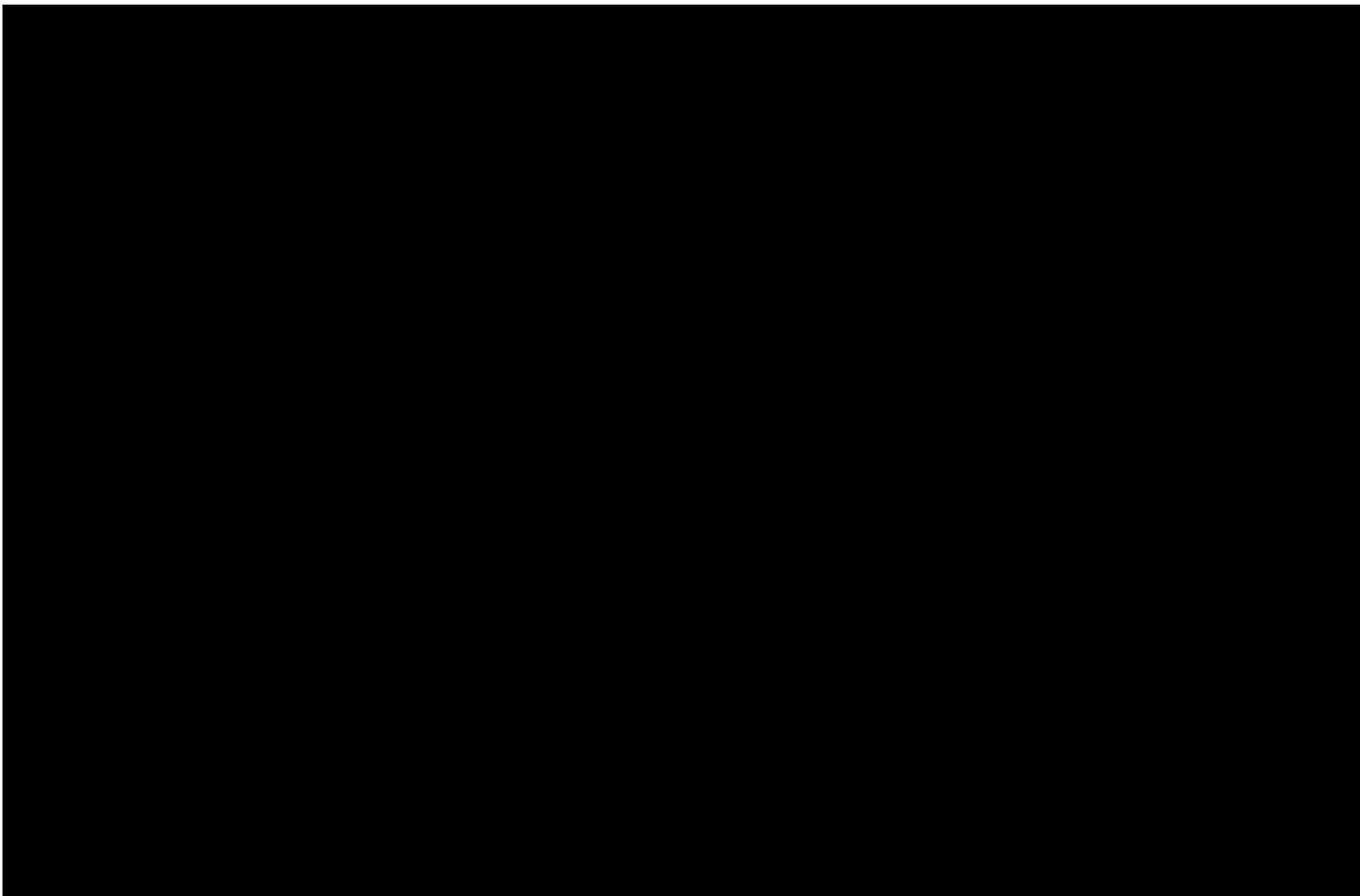
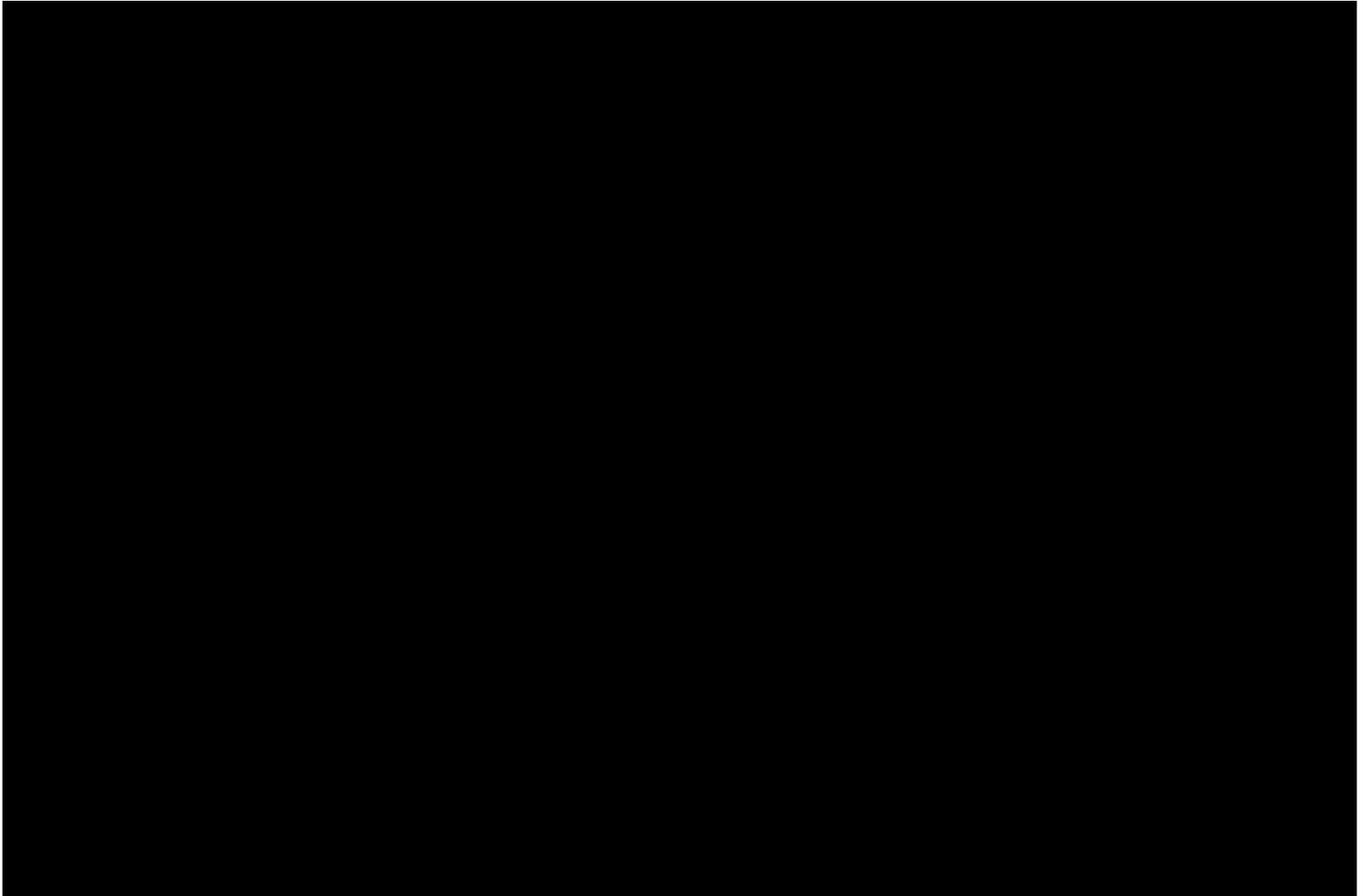


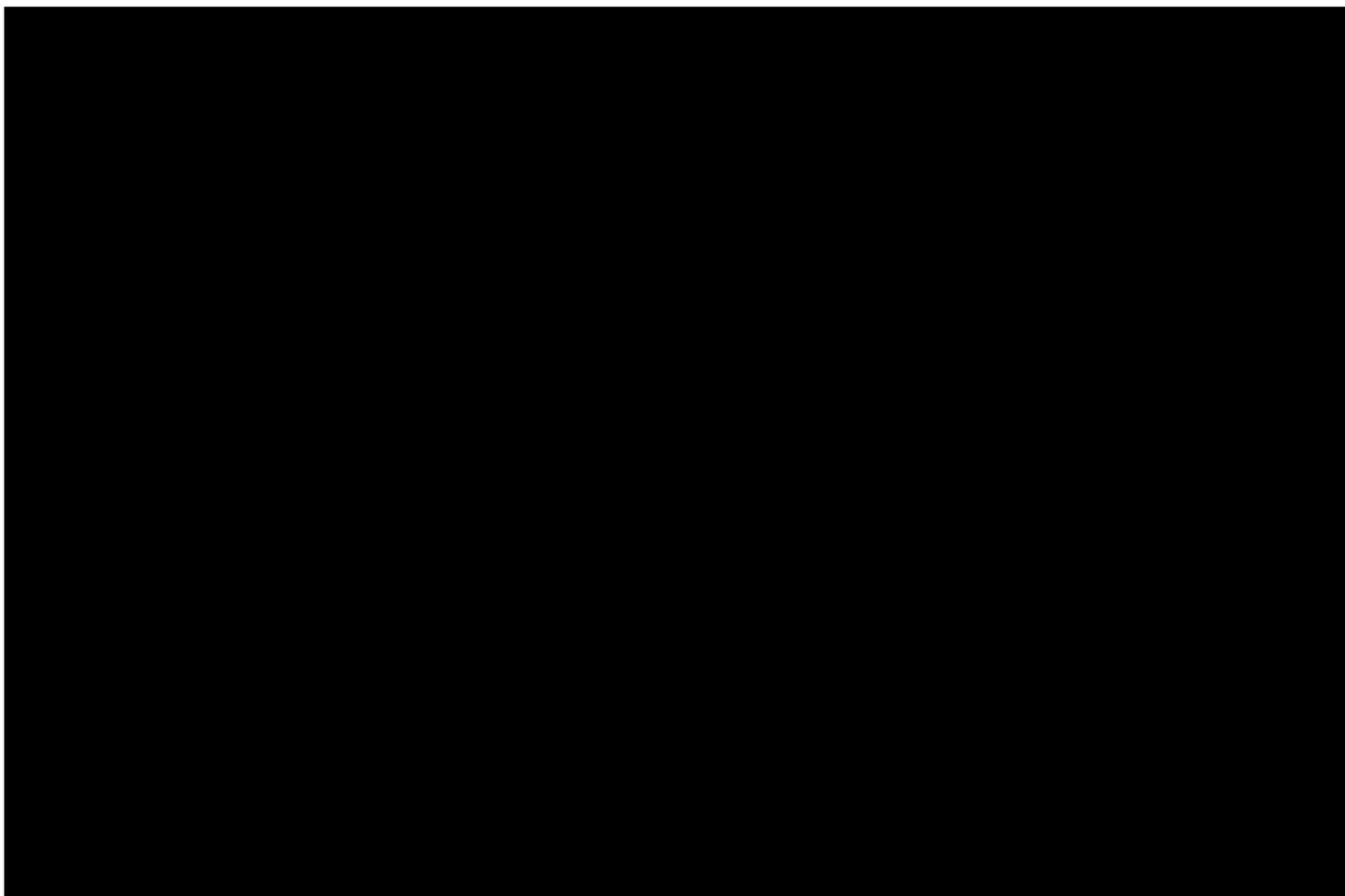
Figure 6 demonstrates that total employee billed hours are projected to increase from [REDACTED] hours in FY2023-24 to [REDACTED] hours by FY2029-30, which is a [REDACTED] increase over this period.



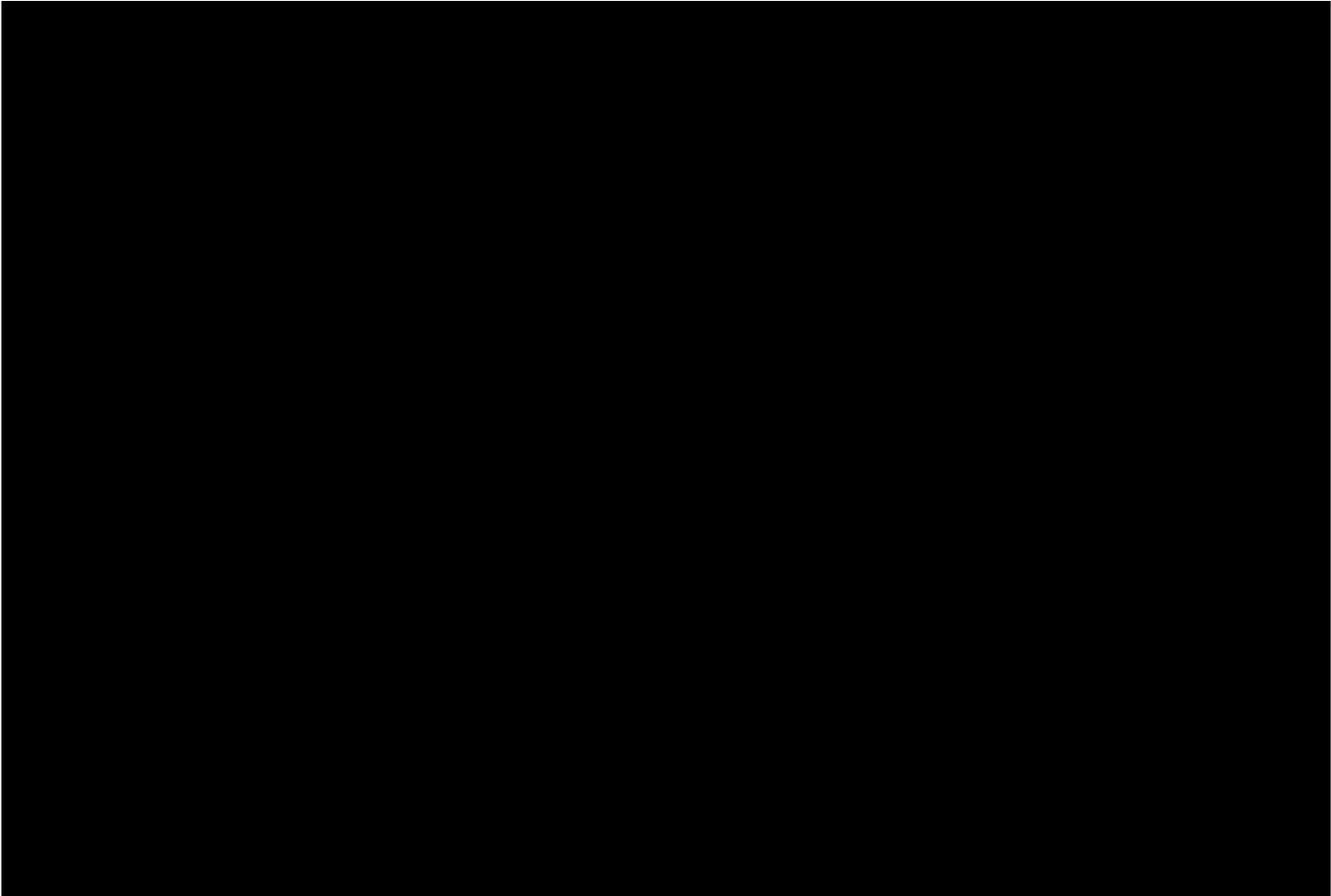
The implication of this analysis demonstrates the need to increase minimum crew size (or teams) deployed to align with possession windows, consequently decreasing the number of possessions required.

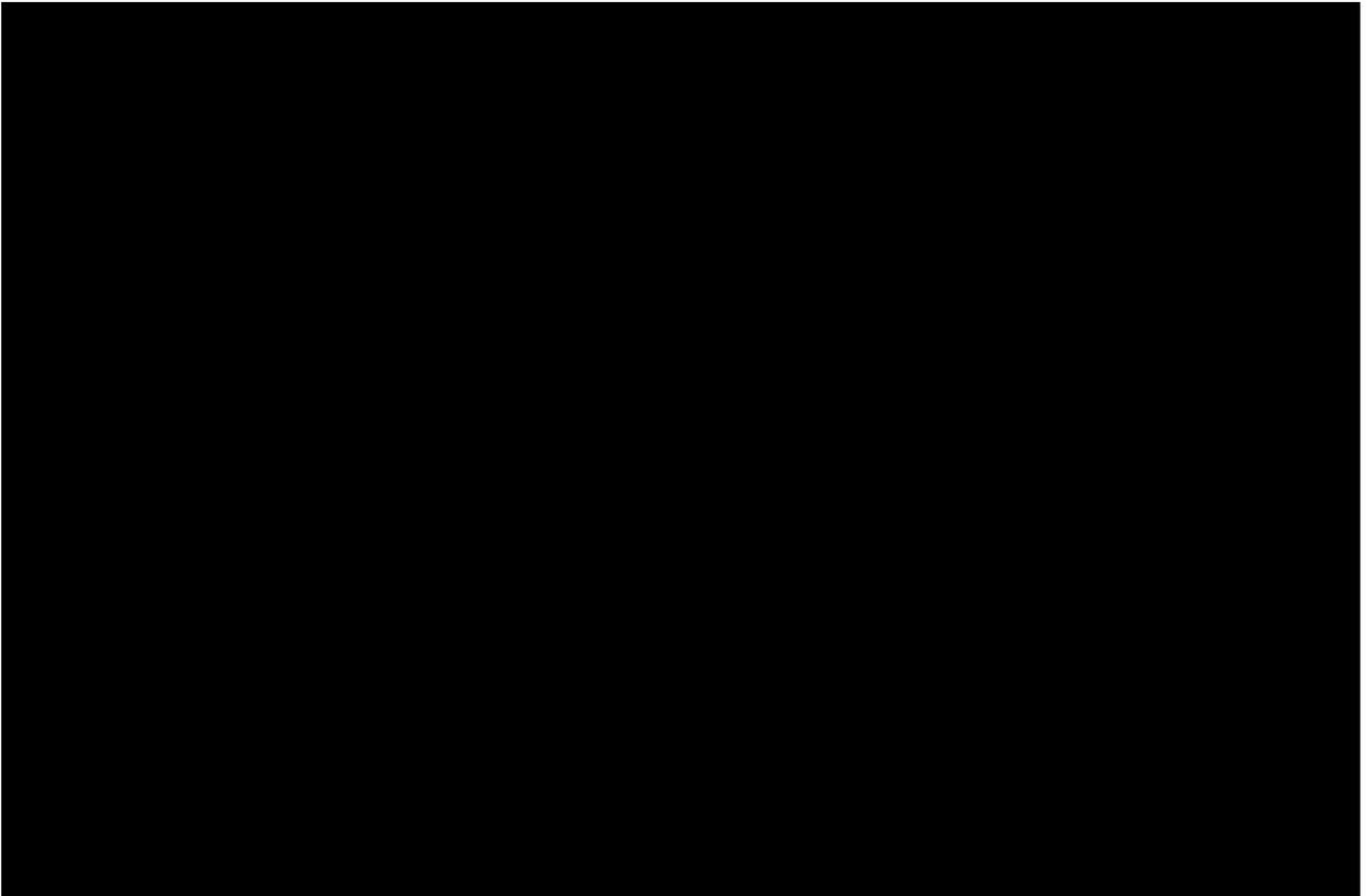
Figure 7 demonstrates the forecast possession availability for Scenario 1a while retaining current crew sizes, and Figure 8 showing the crew size required to complete required maintenance within the available possession window.





Similarly, Figure 9 and Figure 10 provide the same analysis for tonnage forecasts of 7.5 mtpa according to Scenario 2 assumptions.





It's important to emphasise that the hours reflected in Figure 8 and Figure 10 are based on the minimum number of crew members (indicated by the blue line) needed to be deployed to complete works within the possession windows available and does not represent the crew size that might actually be deployed.

#### **4.5.5 Maintenance avoided due to capital program**

For the DAU3 period, Queensland Rail has proposed efficient capital costs for the West Moreton System having regard to the age and condition of the network, and the volumes proposed to be hauled over a network that was not originally designed for this purpose.

The priority of these project works is aligned with the need to address track stability, structural integrity, and geotechnical risks inherent to these assets. These programs are targeted at addressing asset failure risks and reducing current operational restrictions that limit the confidence that the required capacity can be maintained.

In addition to the condition and performance of the system and the expected throughput increases, some categories of maintenance cost may reduce or be avoided for a period of time as a result of investments included in the proposed DAU3 Capital Program. Queensland Rail's estimate of maintenance avoided as a result of capital is shown in Figure 11. Total maintenance avoided according to the planned capital expenditure to enable 9.6 mtpa is \$39.1 million in \$FY2025-26 dollars.

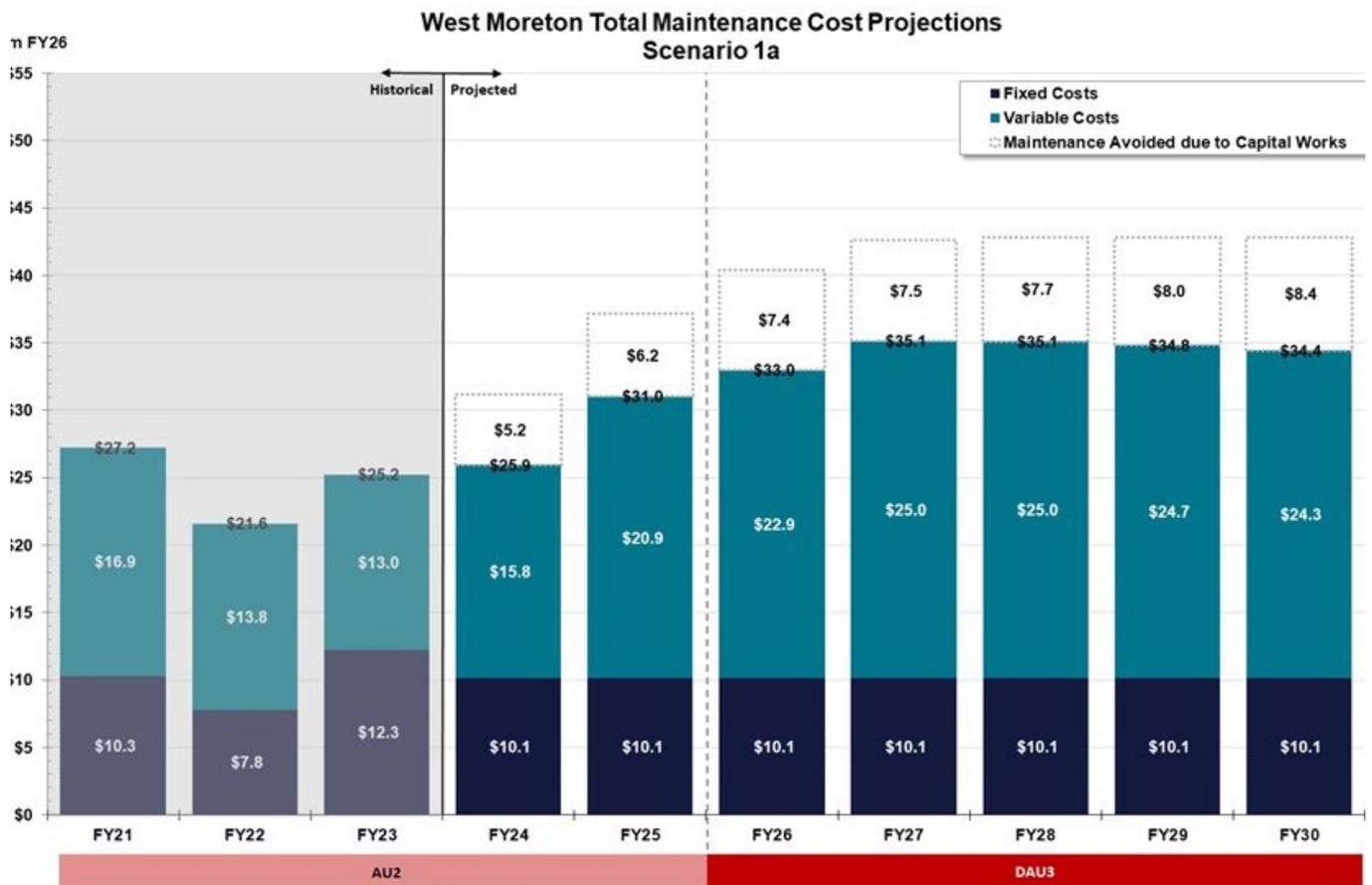


Figure 11 Scenario 1a, Total Maintenance Costs and Maintenance Avoided due to Capital Works (\$FY2025-26 million) (FY24 tonnage is based on the forecast consistent with Queensland Rail's November 2023 submission rather than actual)

Figure 12 presents the total maintenance required and maintenance avoided due to planned capital works for Scenario 2. Total maintenance avoided according to the planned capital expenditure to enable 7.5 mtpa is \$28.5 million in \$FY2025-26 dollars.

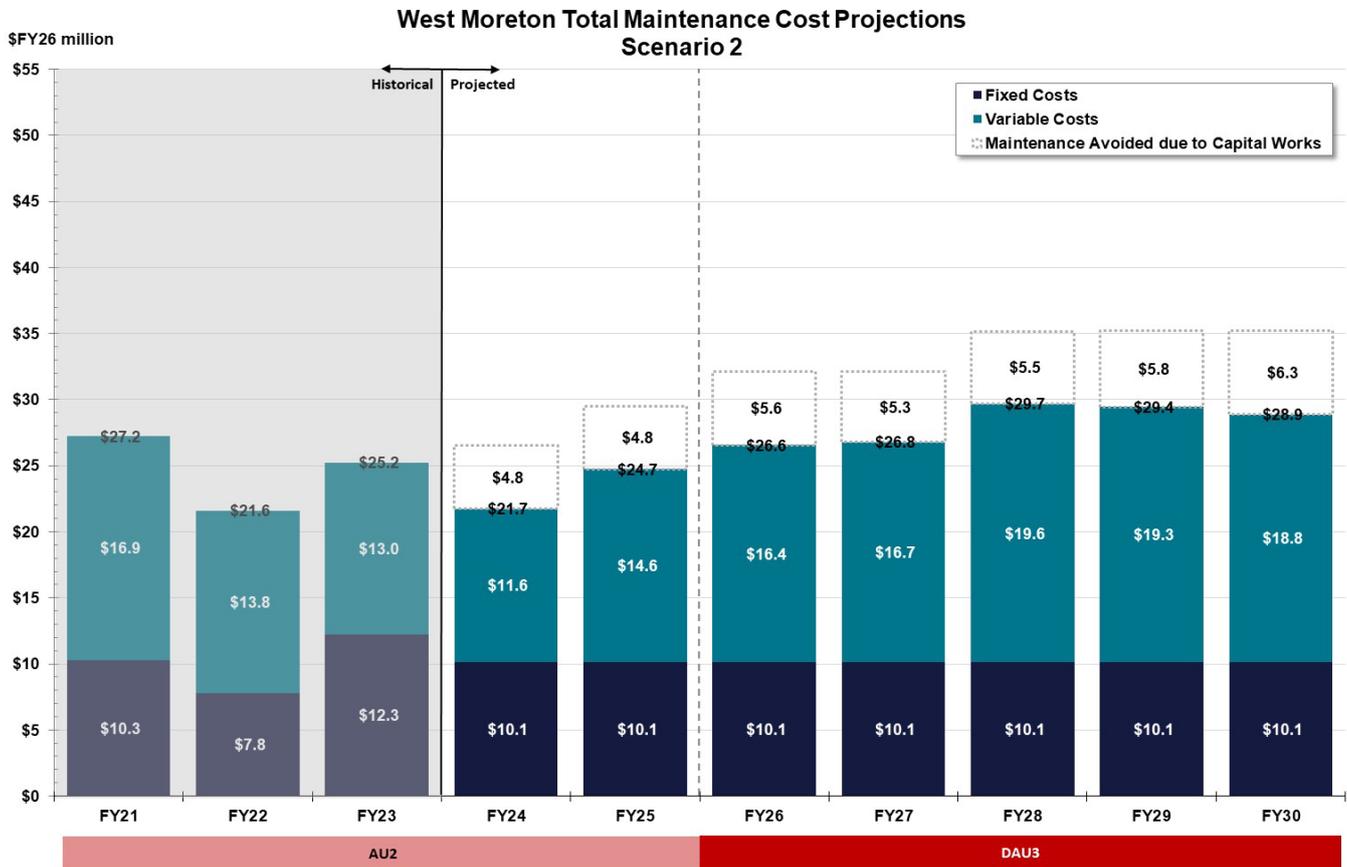


Figure 12 Scenario 2, Total Maintenance Costs and Maintenance Avoided due to Capital Works (\$FY2025-26 million)

### 4.5.6 Comparison to AU2

It is shown in Figure 13, with the West Moreton System projected to increase haulage to a maximum of 9.6 mtpa for the DAU3 period under Scenario 1a assumptions, overall maintenance costs are estimated to be, on average 65% higher per annum in \$FY2025-26 terms than the AU2 maintenance allowance approved by the QCA.

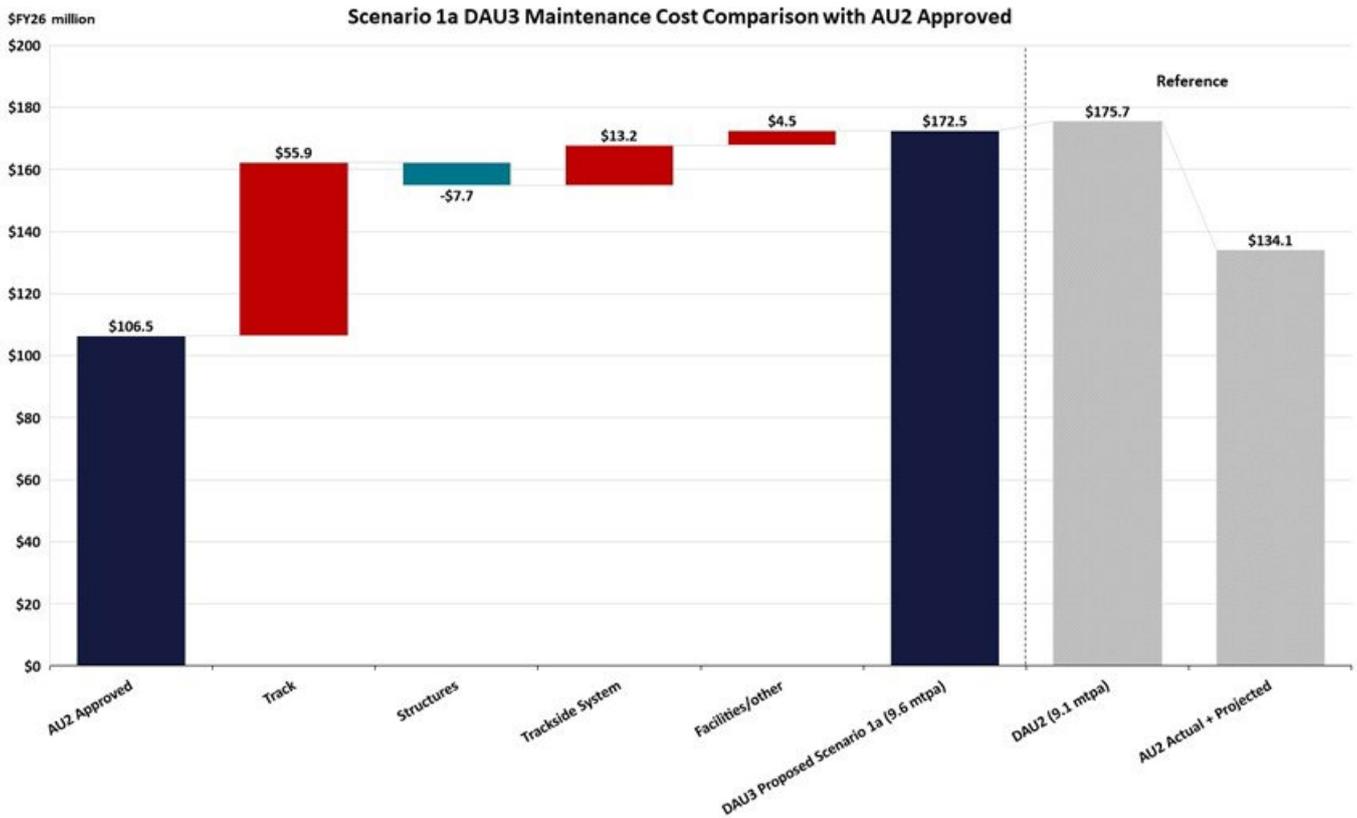


Figure 13 Scenario 1a, Comparison between AU2 approved maintenance expenditure with DAU3 (\$FY2025–26 million)

Figure 14 demonstrates the overall maintenance costs based on 7.5 mtpa maximum tonnages according to Scenario 2, are estimated to be, on average 33% higher per annum in \$FY2025-26 terms than the AU2 maintenance allowance approved by the QCA.

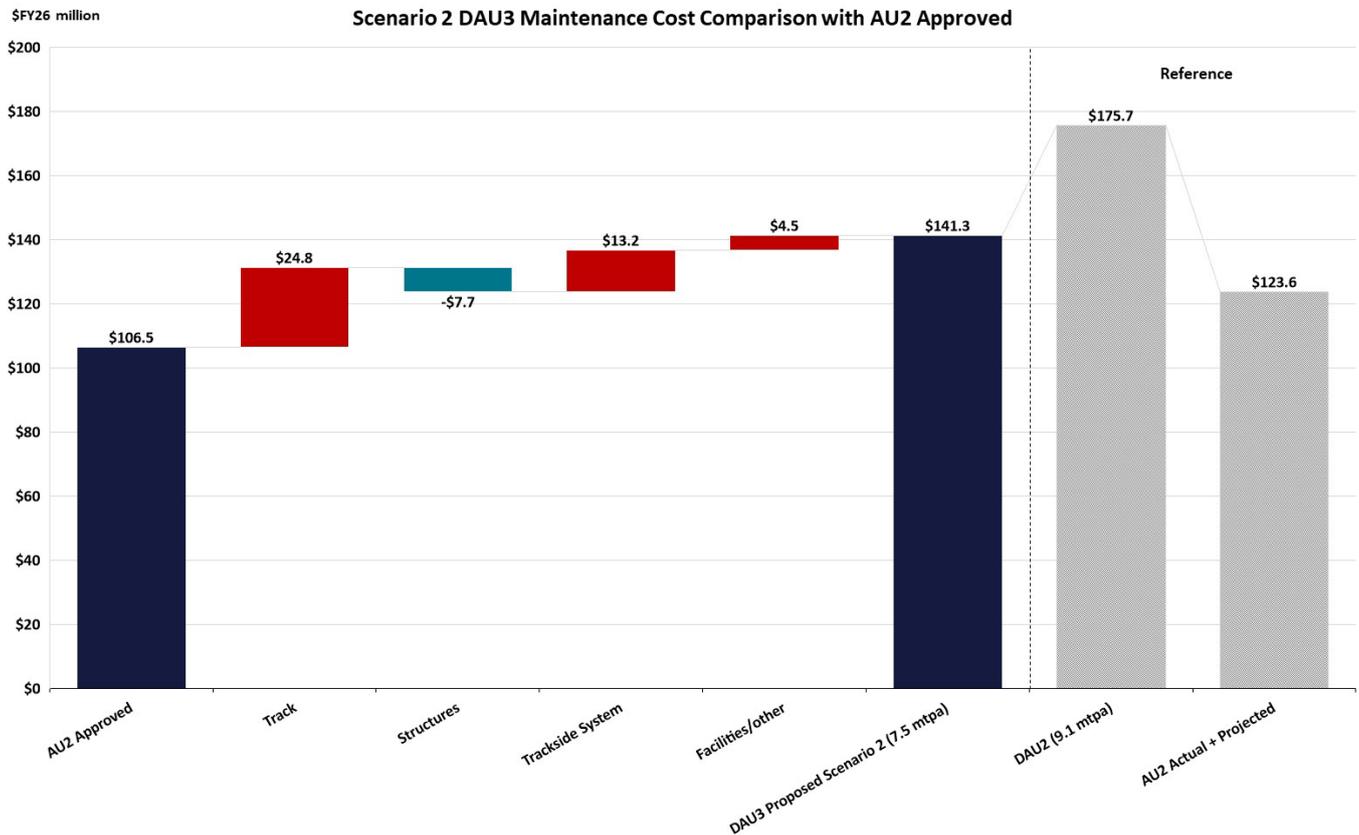


Figure 14 Scenario 2, Comparison between AU2 approved maintenance expenditure with DAU3 (\$FY2025-26 million)

#### 4.5.7 Corridor allocations

For AU1, total maintenance costs for the West Moreton System were split by each corridor's forecast percentage of gross tonne kilometres (gtk) operated on the system. For AU2 and DAU3, with the use of the Enterprise Asset Management System (EAMS) and the capacity to identify maintenance more definitely by corridor, the allocation of maintenance costs is proposed to be amended to reflect the location of forecast costs by corridor.

The percentage allocation of costs for Scenario 1a tonnages of 9.6 mtpa, by corridor, for AU1, AU2 and DAU3 is shown in Table 24, while Figure 15 shows total maintenance costs split between the three corridors. The difference in cost allocation between the three corridors impacts the maintenance forecast for DAU3, as the Rosewood to Jondaryan corridor has the most significant changes with tonnage.

Table 24 West Moreton Scenario 1a, Total Maintenance Allocation by Corridor for AU1, AU2 and DAU3

| Corridor               | AU1 % of gtk | AU2 Corridor Maintenance | DAU3 Corridor Maintenance |
|------------------------|--------------|--------------------------|---------------------------|
| Miles - Macalister     | 21-24%       | 39%                      | 16.6%                     |
| Macalister - Jondaryan |              |                          | 17.7%                     |
| Jondaryan - Rosewood   | 76-79%       | 61%                      | 65.7%                     |

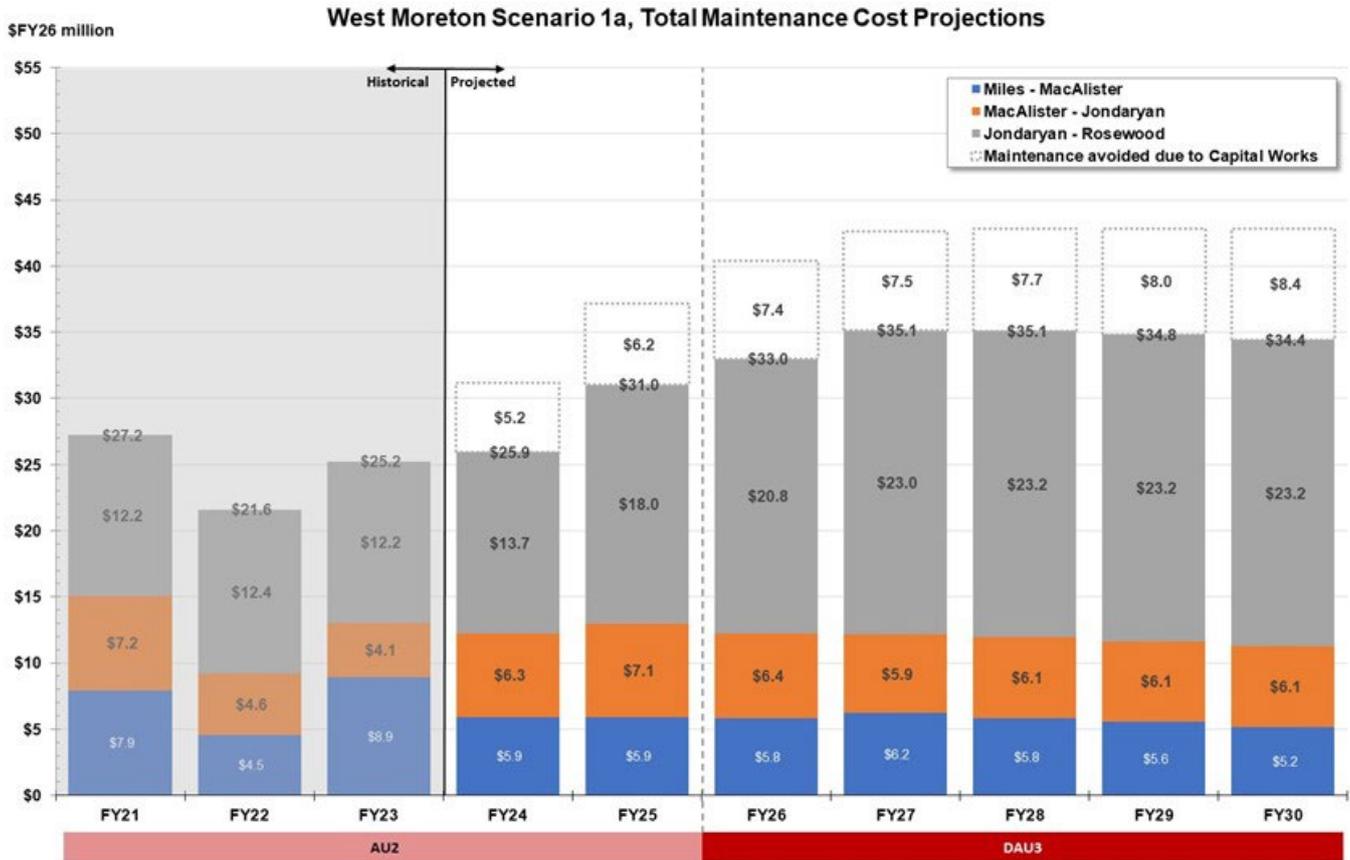


Figure 15 West Moreton Scenario 1a, Total Maintenance Costs by Corridor (\$FY2025-26 million)

The percentage allocation of costs for Scenario 2 tonnages of 7.5 mtpa, by corridor, for AU1, AU2 and DAU3 is shown in Table 25, while Figure 16 shows total maintenance costs split by corridor.

Table 25 West Moreton Scenario 2, Total Maintenance Allocation by Corridor for AU1, AU2 and DAU3

| Corridor               | AU1 % of gtk | AU2 Corridor Maintenance | DAU3 Corridor Maintenance |
|------------------------|--------------|--------------------------|---------------------------|
| Miles - Macalister     | 21-24%       | 39%                      | 22.1%                     |
| Macalister - Jondaryan |              |                          | 14.4%                     |
| Jondaryan - Rosewood   | 76-79%       | 61%                      | 63.5%                     |

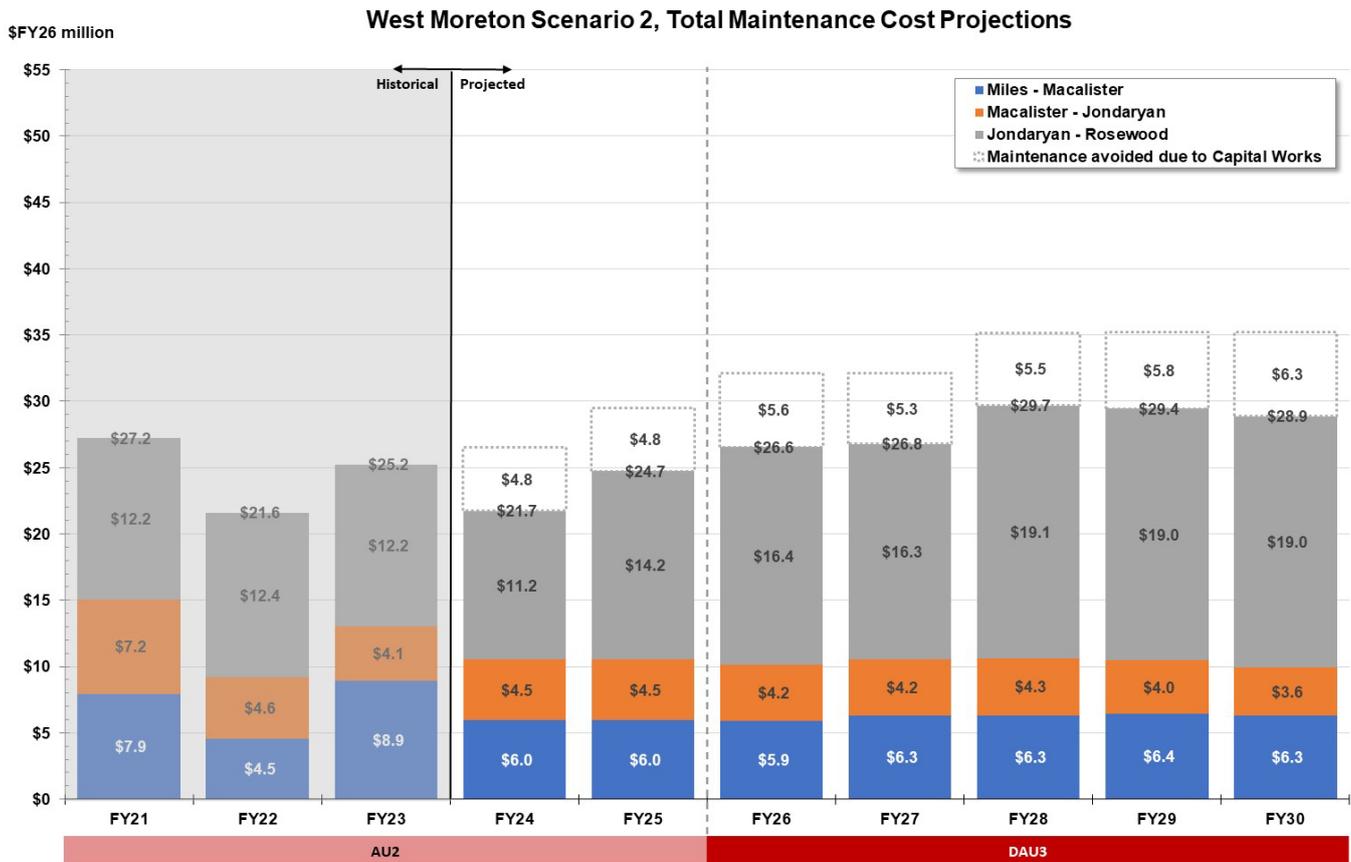


Figure 16 West Moreton Scenario 2, Total Maintenance Costs by Corridor (\$FY2025-26 million)

#### 4.5.8 Allocation of maintenance costs to coal

To allocate the maintenance cost forecasts between coal and non-coal traffics, Queensland Rail propose to carry over the methodology used in AU1 and AU2, formerly approved by the QCA. This approach involves splitting maintenance costs into fixed and variable categories. The fixed component of costs to coal will be allocated based on coal's share of train paths, and the variable component allocated on the basis of coal's share of gross tonne kilometres.

Queensland Rail acknowledge the Draft Decision made by the QCA in June 2024, which was accompanied by an assessment of reasonableness provided by Arcadis. The findings of this assessment suggested the percentage of maintenance costs allocated to variable maintenance was unreasonable (greater) across 5 cost categories.

AECOM's external review of the methodology applied by Queensland Rail to review the fixed and variable maintenance percentages determined a consistent approach with that applied by B&H Strategic Services and concluded that:

*'We find it not appropriate to adjust the existing fixed and variable cost split, considering their original assessment by B&H Strategic Services and approval by the QCA in both AU1 and AU2.'*

Further commentary made by AECOM on this matter can be viewed in its response to the QCA and Arcadis commentary in Attachment 3.

Queensland Rail’s proposed costs (by category) have been overlaid onto the original assessment by B&H Strategic Services<sup>11</sup> using the same fixed (and variable) percentage assessments to derive a weighted average percentage of 44.8 per cent fixed for the DAU3 period. This compares to 72.1 per cent in AU2 and 57.3 per cent in AU1.

Detailed breakdowns of the fixed and variable maintenance costs for both tonnage scenarios is provided in Queensland Rail’s DAU3 Maintenance Submission<sup>12</sup>.

#### 4.5.9 Independent peer review

Queensland Rail engaged AECOM to undertake a review of its Maintenance Submission<sup>13</sup> for the West Moreton System, which forecasts maintenance for the DAU3 period based on maximum tonnages of 9.6 mtpa. AECOM’s review of Queensland Rail’s maintenance costs concluded that:

*“Overall, we consider that Queensland Rail’s Maintenance Submission demonstrates consideration for the key drivers of maintenance costs over DAU3 and is reflective of prudent and efficient practices. Based on our review of the proposed activities combined with our understanding of the age and condition of the network, we consider that the activities and associated costs, as well as Queensland Rail’s delivery approach, supports the achievement of prudent and efficient outcomes.”*

The full peer review can be viewed in Queensland Rail’s original DAU3 submission<sup>14</sup>.

## 4.6 Operational Expenditure

To support the two levels of forecast volume, Queensland Rail is proposing the operating cost allowances presented in Table 26 for 2025-26 to 2029-30 (the DAU3 period). A total DAU3 operating cost of **\$85.3 million** (\$2025-26) supports movement of **9.6 mtpa**, whilst a total of **\$74.6 million** (\$2025-26) supports the movement of **7.5 mtpa**.

**Table 26: West Moreton proposed DAU3 operating costs by forecast volume—DAU3 (\$2025-26 million)**

|  | 2025-26     | 20 26-27    | 2027-28     | 2028-29     | 2029-30     | Total DAU3  |
|--|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>9.6 mtpa - No change</b>                |             |             |             |             |             |             |
| Train Control                              | 4.7         | 4.7         | 4.7         | 4.7         | 4.7         | <b>23.3</b> |
| Corporate Overhead                         | 3.2         | 3.2         | 3.2         | 3.2         | 3.2         | <b>15.9</b> |
| Other                                      | 9.2         | 9.2         | 9.2         | 9.2         | 9.2         | <b>46.1</b> |
| <b>Total</b>                               | <b>17.1</b> | <b>17.1</b> | <b>17.1</b> | <b>17.1</b> | <b>17.1</b> | <b>85.3</b> |
| <b>7.5 mtpa – Amended for lower volume</b> |             |             |             |             |             |             |
| Train Control                              | 4.7         | 4.7         | 4.7         | 4.7         | 4.7         | <b>23.3</b> |
| Corporate Overhead                         | 2.5         | 2.5         | 2.5         | 2.5         | 2.5         | <b>12.6</b> |
| Other                                      | 7.7         | 7.7         | 7.7         | 7.7         | 7.7         | <b>38.7</b> |

<sup>11</sup> B&H Strategic Services Pty Ltd Supplementary Report Part 4, Discussion relating to Categorisation of Maintenance Costs (May 2016), p.12

<sup>12</sup> Queensland Rail, DAU3 Maintenance Submission, November 2024

<sup>13</sup> Queensland Rail, DAU3 Maintenance Submission, November 2023

<sup>14</sup> AECOM, Review of Queensland Rail’s DAU3 West Moreton Maintenance Submission, November 2023

|              | 2025-26     | 20 26-27    | 2027-28     | 2028-29     | 2029-30     | Total DAU3  |
|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Total</b> | <b>14.9</b> | <b>14.9</b> | <b>14.9</b> | <b>14.9</b> | <b>14.9</b> | <b>74.6</b> |

Following the QCA's Draft Decision on DAU3, Queensland Rail has reviewed the issues raised by the Authority and its consultant Arcadis regarding the development and finalisation of its operating cost allowance. After consideration, Queensland Rail has maintained its original methodology and approach, applying this to the lower 7.5 mtpa scenario and retaining for the existing 9.6 mtpa tariff proposal with no modifications to the framework.

The following responds to certain issues identified in the Draft Decision, supported by benchmarking analysis and review work conducted by AECOM Australia (**AECOM**). A detailed breakdown of the 7.5 mtpa proposal is also provided.

#### 4.6.1 Background

Queensland Rail's approach to its West Moreton System operating cost profile was outlined in the DAU3 Explanatory Document, which involved the direct build-up of Train Control costs, and the allocation of direct and indirect costs based on an efficient base year (2021-22) basis<sup>15</sup>. To account for the increase in expected volume, proposed costs are supported by a revised statistical allocator, developed in accordance with the principles of Queensland Rail's 2020 Cost Allocation Manual. Table 27 outlines the expenditure categories and how they were treated.

**Table 27: Summary Operating Expenditure Categories and Forecast Methodology Used**

| Expenditure Category                                | Functional Area                                       | Proposed Forecast Method |
|---|---|--------------------------|
| Train Control                                       | Train Control   | Bottom up-escalate       |
| Network Customer Service                            | Train Operations Management                           | Base-escalate            |
| Regional Asset Delivery                             | Regional Delivery Support                             | Base-escalate            |
| Program on Costs                                    | Management and infrastructure administration expenses | Base-escalate            |
| Control and Monitoring Systems                      | Management & infrastructure administration expenses   | Base-escalate-allocate   |
| Engineering Support                                 | Management and infrastructure administration expenses | Base-escalate-allocate   |
| Network Business Management and Support             | Management and infrastructure administration expenses | Base-escalate-allocate   |
| Network Infrastructure Material Logistics           | Management and infrastructure administration expenses | Base-escalate-allocate   |
| Asset Support                                       | Management and infrastructure administration expenses | Base-escalate-allocate   |
| Telecommunication Backbone Network                  | Telecommunications                                    | Base-escalate-allocate   |
| Corporate Overhead                                  | Enabling Governance                                   | Base-escalate-allocate   |
| Return on Buildings, Plant, Software, and Inventory | Return on Buildings, Plant, Software, and Inventory   | Base-escalate-allocate   |

<sup>15</sup> Queensland Rail's Draft Access Undertaking 3 (DAU3) Explanatory Document, page 50.

In its review of the Queensland Rail proposal, Arcadis largely endorsed this methodology, finding 8 out of 9 general cost categories as reasonable<sup>16</sup>. However, it raised concerns about the increase in corporate overheads (+87% relative to 2020-21), requesting additional justification for this increase.

### 4.6.2 Overhead Cost Drivers

In the time since its original DAU3 submission, Queensland Rail has provided supporting material to the QCA and Arcadis to demonstrate the basis for the proposal, including cost breakdowns, reported actuals, the development model, explanations on the coal/non-coal allocation development, and historical system volumes. These materials are intended to support the submission and demonstrate the correlation between network activity and cost levels.

Queensland Rail's development approach for its operating cost profile(s) is partly fixed and partly variable. For example, train control costs have been developed using a bottom-up approach, largely unaffected by network volume since they are primarily linked to the number of boards monitored by staff. This approach, reviewed and approved in DAU2, has remained consistent in DAU3. Similarly, some direct costs, such as regional asset delivery, are relatively fixed and have been carried forward.

However, corporate functions like safety compliance and IT support are more volume-sensitive, adjusting in response to fluctuations in network demand. With increases in system volume come greater operational needs, which in turn necessitate scaled-up corporate overhead to support essential services and compliance requirements.

The practical implementation of Queensland Rail's Cost Allocation Manual ensures indirect costs, including corporate overheads, are allocated based on system usage, avoiding cross-subsidisation between regions. This approach aligns with regulatory principles across industries, where shared resources are proportionally assigned based on activity levels. In high-demand areas like West Moreton, increased network volume naturally drives a higher demand for corporate services and support functions, leading to a corresponding rise in allocated costs.

Historically, Queensland Rail's volume-driven cost adjustments were accepted as reasonable during DAU2, where fluctuations between 2.1 mtpa and 9.1 mtpa were shown to correlate with changes in system complexity, compliance, and managerial requirements. The QCA agreed that overheads in capacity-constrained environments should adjust to meet the needs of increased operations, an approach that continues in DAU3.

The 2019 Systra Review, commissioned by the QCA, further supported this relationship, indicating that corporate overheads and other shared costs can vary with throughput<sup>17</sup>. This aligns with Queensland Rail's position that increases in network activity require a proportional rise in corporate overhead to adequately manage the demands of a complex, highly regulated rail network like West Moreton.

### 4.6.3 Reported Corporate Overhead

As defined in Queensland Rail's 2020 Cost Allocation Manual, corporate overhead includes Queensland Rail's costs associated with governance, management, finance, IT, HR, and regulatory compliance<sup>18</sup> which

<sup>16</sup> Arcadis Review of West Moreton System Costs and Other Technical, page 35

<sup>17</sup> May 2019 Systra QCA Queensland Rail West Moreton System Review, Review of Proposed Maintenance, Capital & Operating Expenditure DAU2, page 146

<sup>18</sup> Queensland Rail 2020 Costing Allocation Manual Part 5 Definitions, page 20

are critical functions for maintaining an efficient rail network. With higher volumes, the demand for these corporate functions will grow, making a larger share of overhead costs necessary and appropriate.

In the case of the West Moreton system, peak demand in 2017-18 and 2018-19 led to a corresponding increase in the system's share of corporate overhead (the higher level of cost directly referenced by the QCA in its Draft Decision)<sup>19</sup>. In line with the 2017 Cost Allocation Manual (later replaced by the 2020 version) the system standard allocator was adjusted for such variations being recast on a trailing three-year average based on a mix of system volume measures. With a higher allocator, it follows that the system would reflect a higher share of costs during peak periods. See Table 28 below.

**Table 28: West Moreton reported operating costs and net tonnes by financial year (\$ - nominal)**

|                 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 |
|-----------------|---------|---------|---------|---------|---------|---------|
| Operating Costs | 8.1     | 11.7    | 16.0    | 12.3    | 12.4    | 11.4    |
| Net Tonnes      | 6.4     | 7.2     | 7.0     | 5.6     | 4.1     | 2.8     |

Source: Queensland Rail Annual Performance Reporting 2016-17 to 2021-22

#### 4.6.4 Cost Pressures in Corporate Overhead

Like other network providers, Queensland Rail will be contending with significant cost inflation across key areas of overhead driven by factors such as wage growth, stricter regulatory requirements, and critical IT investments. While these factors inflate cost, a sufficient allowance for Queensland Rail to meet these pressures is vital to maintain the quality, compliance, and safety standards across network.

A summary of example cost drivers and their implications for Corporate Overheads is provided in Table 29.

**Table 29: Cost drivers and implications for Corporate Overhead**

| Cost Driver                            | Description  | Implications for Corporate Overhead   |
|--|--|---|
| <b>Sustained Labour Inflation</b>      | Queensland's Wage Price Index (WPI) increased by 12.8% from FY2020 to FY2024, with a compound annual growth rate of 3.1% <sup>20</sup> . The need for highly skilled staff to meet operational and safety requirements drives Queensland Rail to offer competitive wages to retain talent. | Rising wages and employment costs, necessitate a larger overhead allocation to maintain workforce stability and retain essential skills. This increase supports workforce training and development, critical for meeting service quality and safety standards.      |
| <b>Regulatory and Compliance Costs</b> | Australia's regulatory restrictions have grown by 5.5% annually <sup>21</sup> , with Queensland as the most regulated state <sup>22</sup> . New requirements for WHS, environmental compliance, and sustainability reporting may expand compliance costs significantly.                    | The expanded regulatory landscape requires Queensland Rail to allocate more resources toward compliance functions, including WHS, environmental duties, and sustainability reporting. These obligations demand additional personnel, safety systems, and monitoring |

<sup>19</sup> QCA Draft Decision Queensland Rail's 2025 Draft Access Undertaking, page 130

<sup>20</sup> Queensland Government Statistician's Office, Wage Price Index Queensland and Australia 1997-98 to 2023-24 [Prices and indexes: Wages | Queensland Government Statistician's Office](#)

<sup>21</sup> March 2020 IPA Report [The Growth of Regulation in Australia](#), page 5

<sup>22</sup> March 2020 IPA Report [The Growth of Regulation in Australia](#), page 7

| Cost Driver          | Description   | Implications for Corporate Overhead   |
|----------------------|---|---|
|                      |   | technologies, thus increasing corporate overhead for essential compliance support.  |
| <b>IT Investment</b> | Australian IT spending is projected to grow by 7.8% in 2024, driven by the need for advanced cybersecurity, data analytics, cloud platforms, and environmental monitoring technologies to meet regulatory and operational standards <sup>23</sup> . | IT investment has become a substantial component of Queensland Rail’s costs. These technologies support compliance, operational efficiency, and service quality. Increasing the corporate overhead allowance is critical to fund these IT investments, which are essential to Queensland Rail’s ability to meet regulatory and operational demands. |

#### 4.6.5 Base Year Efficiency and Cost Allocation Approach

To demonstrate efficiency, Queensland Rail has opted to use the 2021–22 base year, which represents the lowest total corporate overhead in real terms within the observed period as the foundation for corporate overhead forecasts (see below Table 30). By using this year, Queensland Rail ensures that future allocations (driven by network volumes) will reflect only the resources required to maintain efficient operations.

**Table 30: Queensland Rail Actual Corporate Overhead and Other Expenses—DAU3 (\$2025-26 - million)**

|                         | 2018-19      | 2019-20      | 2020-21      | 2021-22      |
|-------------------------|--------------|--------------|--------------|--------------|
| Other Expenses          | 110.3        | 86.7         | 90.8         | 84.9         |
| Corporate Overhead      | 61.5         | 44.3         | 35.9         | 27.6         |
| <b>Total Below Rail</b> | <b>171.8</b> | <b>131.0</b> | <b>126.8</b> | <b>112.5</b> |

Source: Queensland Rail’s Below Rail Financial Statements 2018-19 to 2021-22

#### 4.6.6 AECOM Review and Benchmarking

Queensland Rail commissioned AECOM to review the principles applied in the development of its corporate overhead allowances in DAU3. AECOM concluded that the allocation approach is not only justified but is also aligned with the 2020 Cost Allocation Manual’s approved principles. The findings support the view that corporate overheads tied to increasing volume are both necessary and efficient, reflecting the real resources required to manage growing system demands and ensure safe and effective operations.

Queensland Rail also asked AECOM to benchmark both operating costs profiles for reasonableness. AECOM’s benchmarking analysis confirms that Queensland Rail’s corporate overhead costs are competitive within the industry, comparing favourably with other rail infrastructure operators such as ARTC and Aurizon Network. The analysis supports Queensland Rail’s position that its overhead costs are efficient and necessary for the effective management of its system.

<sup>23</sup> 12 September 2023, Gartner Forecasts IT Spending in Australia to Grow 7.8% in 2024

Figure 17 below demonstrates the DAU3 Corporate Overheads as a proportion of Total Costs<sup>24</sup> against key comparators. AECOM noted that while DAU3 is 8% greater than DAU2 in this metric for 9.6 mtpa and 6% greater for 7.5 mtpa, it is still consistently lower than the benchmarks and within the thresholds set out by Queensland Rail's previous undertakings.

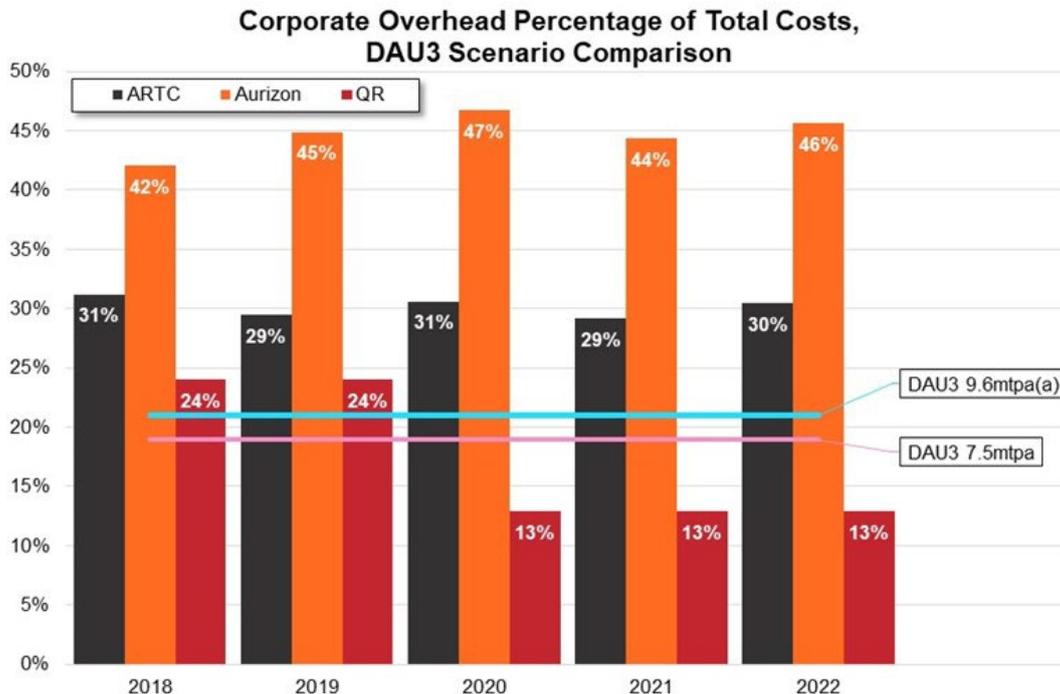


Figure 17 Corporate overhead percentage of total costs, DAU3 scenario comparison

Additional benchmarking is provided in the AECOM report (AECOM's Response to the QCA Draft Decision and Arcadis Commentary on DAU3 – Attachment 3).

#### 4.6.7 Determining 7.5mtpa

Queensland Rail's approach to forecasting operating costs for the West Moreton system remains consistent with its previous submission, the only difference being the volume level. For both the 7.5 mtpa and 9.6 mtpa scenarios, Queensland Rail has applied a consistent approach to forecasting operating costs, using the adjusted reported expenditure for the West Moreton System during the 2021-22 financial year (Base Year).

To project operating costs into 2025-26 terms, the Base Year has been escalated using both actual and forecast inflation and adjusted accordingly:

- **Train Control:** Queensland Rail's approach to train control costs is consistent with the previous submission as the costs are function-based rather than volume-sensitive. The costs are derived from a bottom-up methodology that meets the system operation through the staff and support needed to monitor network boards that are operated 24/7, 365 per year.
- **Management and Infrastructure Administration:** Expenses such as Regional Delivery Support, Train Operations Management, and Program Oncosts that are directly attributable to the West Moreton System have been maintained from the Base Year.

<sup>24</sup> Total costs aligned to the categorisation used in the ARUP Report. Total costs (TC) = Business Unit Management Costs (BMC) + Network Costs (NC)). Where cost types from comparators do not directly align to these categories, the most suitable alignment has been used (i.e. Train Control (QR) = Network Control (Aurizon)).

- **QCA Levy:** The allocated QCA Fee of \$214,830 for 2021-22 has been removed from operating costs as these expenses are recovered separately through the QCA levy.
- **Statistical Allocator:** The West Moreton statistical allocator "C" has been revised for the 2022-23 financial year, reflecting expected average coal volumes in the West Moreton and Metropolitan systems, and factoring in anticipated passenger services over the DAU3 period.
- **Corporate Overhead and Other Costs:** Network-wide costs, such as corporate overheads, are allocated to the West Moreton System through this revised statistical allocator. These adjustments ensure that the higher level of corporate support required by West Moreton's network activity is appropriately reflected.

As in previous submissions, a return on Buildings, Plant, Software, and Inventory at the estimated WACC is also added, as these assets are not included in the Regulatory Asset Base.

The results are provided in Table 31, with a comparison demonstrating the difference in the West Moreton statistical indicator and the allocation of indirect costs on a lower expected volume level.

**Table 31 Comparison of DAU3 proposed operating expenditure to West Moreton operating expenses Below Rail Financial Statements 2021-22 (\$2025-26 terms)**

|   | 9.6mtpa           | 7.5mtpa           | Difference         |
|---|-------------------|-------------------|--------------------|
| <b>Train Operations Management</b>                                |                   |                   |                    |
| Train Control   | 4,662,091         | 4,662,091         | -                  |
| Operations administration   | 76,677            | 76,677            | -                  |
| <b>Sub-total</b>  | <b>4,738,768</b>  | <b>4,738,768</b>  | -                  |
| <b>Other Expenses</b>   |                   |                   |                    |
| Network Business  | 4,220,380         | 3,352,043         | (868,337)          |
| Program On Costs  | 1,090,358         | 1,090,358         | -                  |
| Other regional  | 247,818           | 247,818           | -                  |
| Telecommunications backbone                                       | 1,665,736         | 1,359,197         | (306,539)          |
| <b>Sub-total</b>  | <b>7,224,292</b>  | <b>6,049,415</b>  | <b>(1,174,877)</b> |
| <b>Corporate Overhead</b>   | <b>3,179,455</b>  | <b>2,517,068</b>  | <b>(662,387)</b>   |
| <b>Total Operating Expenses</b>                                   | <b>15,142,514</b> | <b>13,220,424</b> | <b>(1,922,091)</b> |
| <b>Return on Buildings, Plant, Software &amp; Inventory</b>       |                   |                   |                    |
| Buildings (excluding land and stations)                           | 3,348,862         | 3,032,348         | (316,514)          |
| Plant   | 10,817,684        | 9,365,930         | (1,451,754)        |
| Software  | 3,087,618         | 2,446,050         | (641,568)          |
| Current Inventory   | 6,840,962         | 5,415,762         | (1,425,200)        |
| Non-Current Inventory   | 1,965,306         | 1,555,867         | (409,439)          |
| Asset value as at 30 June 2022                                    | 26,060,433        | 21,815,958        | (4,244,475)        |
| WACC Estimate   | 7.39%             |                   |                    |
| <b>Total Return on Buildings, Plant, Software &amp; Inventory</b> | <b>1,925,866</b>  | <b>1,612,199</b>  | <b>(313,667)</b>   |
| <b>Grand Total</b>  | <b>17,068,380</b> | <b>14,917,450</b> | <b>(2,150,930)</b> |

The proposed operating expenditure profile from the 2021-22 base have been indexed by actual inflation and forecast inflation to derive the \$2025-26 equivalents.

#### 4.6.8 Fixed/Variable split of cost

To allocate operating costs between coal and non-coal traffic, Queensland Rail has adhered to the established approach of splitting costs into fixed and variable categories. Fixed costs are allocated based on coal's share of train paths, while variable costs are apportioned according to coal's proportion of gross tonne kilometres (GTKs).

This consistent method reflects Queensland Rail's previous submission, where cost categories were overlaid onto the original analysis by B&H Strategic Services, to derive an 82 per cent fixed and 18 per cent variable cost weighted average. See below Table 32.

**Table 32: Weighted Average Fixed proposed operating costs (\$2025-26 - thousands) 7.5mt**

|  | 9.6mtpa       | 7.5mtpa       | Fixed %    | 9.6mtpa Fixed | 7.5mtpa Fixed |
|--|---------------|---------------|------------|---------------|---------------|
| <b>Train Operations Management</b>               |               |               |            |               |               |
|  |               |               |            |               |               |
| Operations Administration                        | 77            | 77            | 70.0%      | 54            | 54            |
| <b>Sub total</b>                                 | <b>4,739</b>  | <b>4,739</b>  |            | <b>4,107</b>  | <b>4,107</b>  |
| <b>Other Expenses</b>                            |               |               |            |               |               |
| <b>Network Business</b>                          |               |               |            |               |               |
|  |               |               |            |               |               |
| Program On Costs                                 | 1,090         | 1,090         | 79.0%      | 861           | 861           |
| Other Regional Costs                             | 248           | 248           | 100.0%     | 248           | 248           |
| Telecommunications Backbone                      | 1,666         | 1,359         | 95.0%      | 1,582         | 1,291         |
| <b>Sub total</b>                                 | <b>7,224</b>  | <b>6,049</b>  |            | <b>5,444</b>  | <b>4,588</b>  |
| <b>Corporate Overhead</b>                        |               |               |            |               |               |
| Corporate Overhead                               | 3,179         | 2,517         | 80.0%      | 2,544         | 2,014         |
| <b>Sub total</b>                                 | <b>3,179</b>  | <b>2,517</b>  |            | <b>2,544</b>  | <b>2,014</b>  |
| <b>TOTAL OPERATING EXPENSES</b>                  | <b>15,143</b> | <b>13,305</b> |            | <b>12,094</b> | <b>10,708</b> |
| Return on Buildings, Plant, Software & Inventory | 1,926         | 1,612         | 95.0%      | 1,830*        | 1,532         |
| <b>GRAND TOTAL OPEX</b>                          | <b>17,068</b> | <b>14,917</b> |            | <b>13,924</b> | <b>12,240</b> |
| <b>Weighted Average Fixed</b>                    |               |               | <b>82%</b> |               |               |

Source: Queensland Rail, B& H Strategic Services Estimate of Queensland Rail's Fixed Operating Costs

\* This was mistakenly provided as \$1,003 in the original submission.

Arcadis, in its review, did not present any substantial rationale for departing from this methodology, supporting Queensland Rail's decision to maintain its approach. The framework ensures reliability in allocating costs between coal and non-coal traffic. This view has been supported by AECOM as detailed in Attachment 3.

### 4.6.9 Working capital allowance

Queensland Rail has proposed no change to the methodology for the working capital allowance applied for AU2, forecast at 0.3 per cent of the proposed total revenue for the DAU3 period.

## 4.7 Proposed West Moreton Reference Tariffs

In November 2023, Queensland Rail submitted a proposed headline (one-part) West Moreton reference tariff for a 9.6mtpa forecast volume of \$32.63/000gtk (\$2025/26) that is equivalent to \$16.32/000gtk and \$6,116.07/train path on a two-part basis.

Revising building block parameters that would vary with the level of tonnage (capital expenditure, maintenance and other operating expenditure), Queensland Rail proposes a headline (one-part) West Moreton reference tariff for a 7.5mtpa forecast volume of \$37.75/000gtk (\$2025/26) that is equivalent to \$18.87/000gtk and \$7,067.74/train path on a two-part basis.

Below are comparisons between the AU2 ceiling reference tariff and the proposed DAU3 West Moreton reference tariffs.

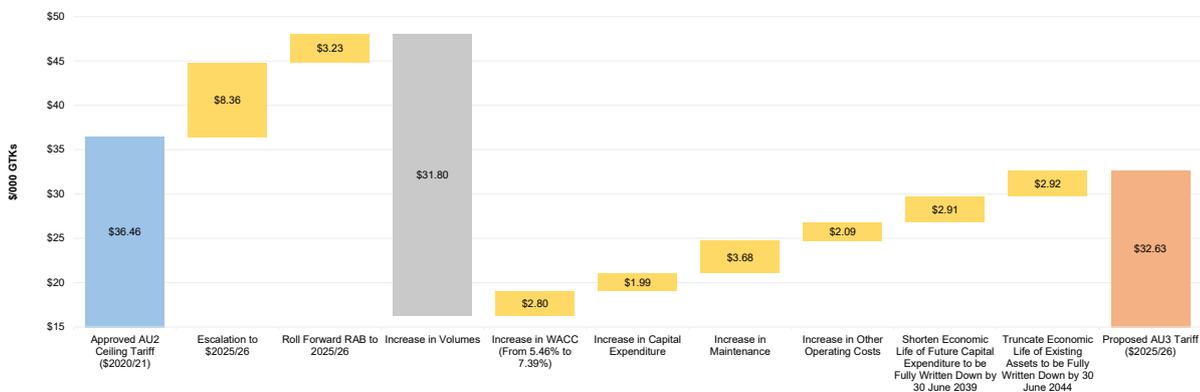


Figure 18: Indicative 9.6mtpa West Moreton System Reference Tariff Movements from AU2 Tariff

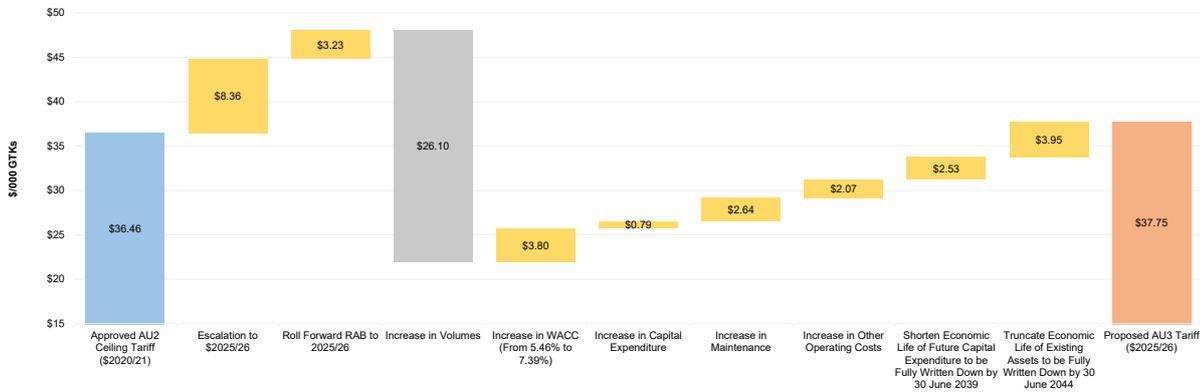


Figure 19: Indicative 7.5mtpa West Moreton System Reference Tariff Movements from AU2 Tariff

## 4.8 QCA proposed CPI approach

Queensland Rail remains strongly opposed to the QCA’s proposal to escalate the incremental (temporary) Reference Tariff by CPI as the DAU3 Reference Tariff. If a CPI approach were adopted, it should be based on the Actual Reference Tariff. Queensland Rail should not continue to bear the burden of the risk of further adding to the loss capitalisation account during DAU3 (a time with high coal prices), and an additional increased risk of being unable to recover the balance. Rather, Queensland Rail should be able to recover any loss capitalisation account balance during DAU3 as originally intended. Queensland Rail volunteered the AU2 approach but is not willing to continue to sustain increased loss capitalisation balances in DAU3.

## 4.9 System Capacity

The QCA’s Draft Decision sought that Queensland Rail consider using an independent capacity expert to reassess capacity and to consult with stakeholders with regard to this. Coal producers have also sought that an independent expert be appointed to undertake an annual review of Queensland Rail’s capacity and capital program.

Notwithstanding the QCA’s Draft Decision, the QCA has advised that it has engaged consultants (Arcadis) to undertake a capacity assessment of the West Moreton System and they have sought information from Queensland Rail and from other stakeholders to assist with this process. Queensland Rail is not in a position to know the information upon which Arcadis’ assessment will be undertaken and how it fits into the current regulatory process.

Additionally continual capacity assessments bring regulatory uncertainty with respect to how findings from these assessments relate to parties’ contractual rights and capacity extension requirements in the Undertaking.

Given the QCA’s action, Queensland Rail does not propose including a mechanism for an annual capacity review, due to the cost, complexity and uncertainty that would result. It should not be taken as a given that processes that have been agreed between Aurizon Network and stakeholders using the Central Queensland Coal Network (which arose out of a particular set of circumstances) are appropriate or transferrable to the West Moreton System, which will have, at most, three operating mines. In addition,

the conduct of continual capacity assessments create regulatory uncertainty which is not to the benefit of Queensland Rail or network users.

Instead, Queensland Rail will address stakeholder concerns about capacity by implementing a mechanism for consultation with West Moreton stakeholders on proposed capital expenditure.

Queensland Rail will continue to work with stakeholders to agree that mechanism.

## 4.10 Loss Capitalisation

In the February 2020 AU2 Final Decision, the QCA approved a ceiling coal reference tariff of \$36.46/000 gtk (\$44.82 in \$FY26) with an incremental "affordable" reference tariff of \$21.50/000 gtk (\$26.42 / gtk in \$FY26). The difference between the two tariffs by the coal volumes railed is accumulated in a "Loss Capitalisation Account" up to a revenue ceiling based on West Moreton System railings of 2.1mtpa.

As of 30 June 2024, the Loss Capitalisation Account had a balance of \$23M owed to Queensland Rail. However, based on forecast FY25 railings the Loss Capitalisation Account balance could reduce to [REDACTED]. The coal companies could also be entitled to a rebate against this amount for assets that they funded in the West Moreton System (e.g. Yancoal for the Columboola balloon loop), which they have not received a rebate for during AU2 because the incremental tariff that has been applied has not included a return on existing assets. The amount of any potential rebate has not been determined at this stage. Queensland Rail has been discussing with West Moreton coal companies, as part of the DAU3 collaboration phase, a process for Loss Capitalisation recovery during AU3. Queensland Rail has explored different recovery options (e.g. upfront payment or recovered over the first four years of AU3) and different apportioning between coal companies (e.g. based on net tonne, gtk or a combination) and have provided indicative repayment numbers (refer **Attachment 8**).

For example, with a loss capitalisation balance at [REDACTED] based on total West Moreton System tonnages of 7.5mtpa, the loss capitalisation recovery surcharge would be approximately [REDACTED]. Queensland Rail's preferred position is upfront payment of the outstanding loss capitalisation amount at the start of AU3, whereas verbal indications from the coal companies is that their preferred option would be recovery mechanism over the duration of AU3

At this stage, coal companies have not agreed to any recoupment mechanism and are more concerned about the total cost to them (i.e. Coal Reference Tariff and loss capitalisation recovery surcharge) at various tonnage levels. However, it is proposed that Queensland Rail should adopt the loss capitalisation recoupment mechanism which amortises the 30 June 2025 account balance over the first four years of AU3 based on a path/gtk basis (i.e. Option 3 in **Attachment 8**), similar to how the tariffs are applied.

## 4.11 West Moreton Reference Tariff Affordability

Queensland Rail maintains the proposed West Moreton Reference Tariffs for the 9.6mtpa (i.e. \$32.63 / 000 gtk \$FY26) and the proposed 7.5mtpa (i.e. \$37.75 / 000 gtk \$FY26) tonnage scenarios are affordable. They are both below the QCA approved ceiling West Moreton Reference Tariff (i.e. \$44.82 / 000 gtk (\$FY26) approved for the 2.1mtpa system tonnage scenario.

Table 33 shows a comparison of the AU2 incremental tariff with the proposed 9.6mtpa and 7.5mtpa West Moreton system tonnage scenarios and gtk rates converted net tonne rates for each mine.

**Table 33 – Comparison of AU2 Incremental with Proposed 9.6mtpa and 7.5mtpa West Moreton System Tonnage Scenario Reference Tariffs and Converted Net Tonne Rates**

|  |  | One-part<br>Headline<br>\$ / 000 gtk<br>(\$FY26) | Cameby Downs<br>\$ / nt Rate<br>(\$FY26) | New Acland<br>\$ / nt Rate<br>(\$FY26) | Wilkie Creek<br>\$ / nt Rate<br>(\$FY26) |
|--|--|--|--|--|--|
| <b>Currently<br/>Paying under<br/>AU2</b>      | West Moreton<br>Escalated AU2<br>Incremental | \$26.42  |  |  |  |
|  | Brisbane Metro                               | \$21.93  |  |  |  |
|  | <b>Total</b>                                 |  |  |  |  |
| <b>Proposed<br/>under 9.6mtpa<br/>Scenario</b> | West Moreton                                 | \$32.63  |  |  |  |
|  | Brisbane Metro                               | \$21.93  |  |  |  |
|  | <b>Total</b>                                 |  |  |  |  |
| <b>Proposed<br/>under 7.5mtpa<br/>Scenario</b> | West Moreton                                 | \$37.75  |  |  |  |
|  | Brisbane Metro                               | \$21.93  |  |  |  |
|  | <b>Total</b>                                 |  |  |  |  |

Seaborne traded thermal coal prices have increased substantially from when reference tariff affordability was considered during the development of AU2 in circa 2019. As shown in Figure 20<sup>25</sup>, NEWC6000 has increased from around \$75USD / t in 2019 to approximately \$140USD / t currently. New Hope Group contend that thermal coal prices will remain above historical averages due to a shortfall of supply.

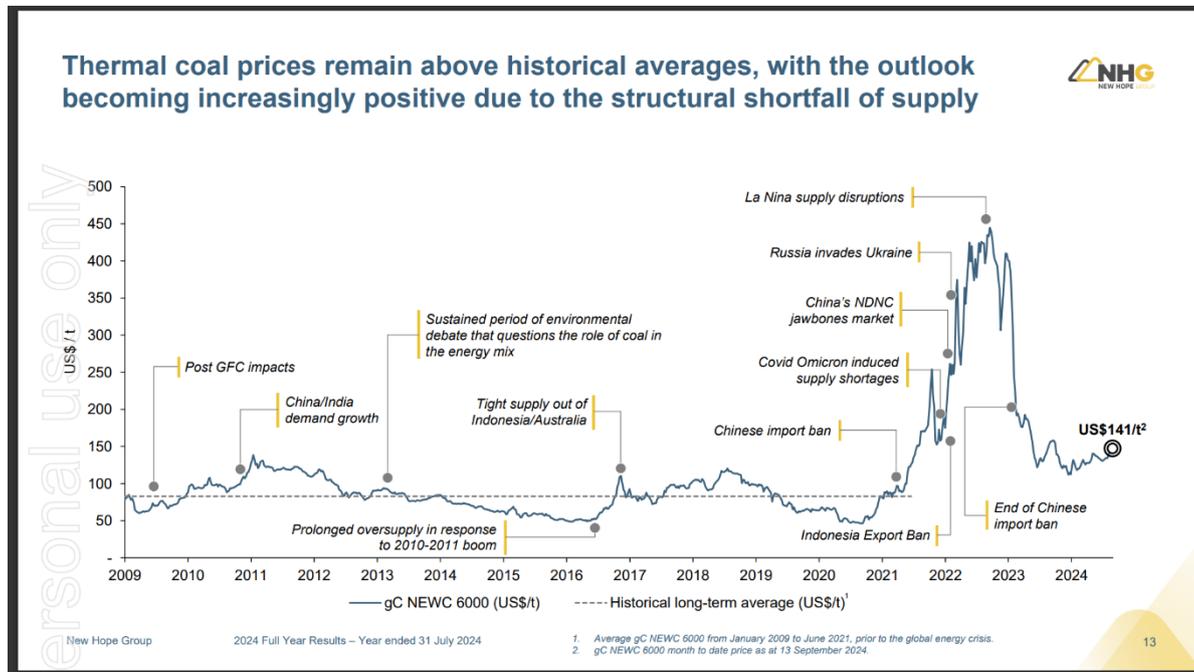


Figure 20 – Historical Seaborne Traded Thermal Coal Prices

Given the increase in thermal coal prices since AU2, Queensland Rail believes that coal companies can also afford to repay the Loss Capitalisation account that has accumulated during AU2 during the first four years of AU3.

#### 4.12 Single West Moreton Coal Mine Scenario

While not likely, it is possible that circumstances could change, resulting in there being only one mine utilising the West Moreton System.

In those circumstances, any reference tariff build up consistent with the QCA's usual methodology would likely result in a tariff that would be unaffordable for a single operator and generate sufficient revenue for Queensland Rail to meet the efficient costs of providing access and provide a return on investment commensurate with the regulatory and commercial risks involved, as required by the QCA Act.

During the collaborative phase, Queensland Rail undertook a cost buildup and shared indicative West Moreton reference tariffs with New Hope Group and Yancoal under the scenarios of their respective mine being the sole operating mine in the West Moreton system. The consensus view was that the derived tariffs would likely be unaffordable at current coal prices and that it would be appropriate for Queensland Rail to negotiate access charges directly with the remaining mine operator, taking into

<sup>25</sup> New Hope Group, Full Year Results Investor Presentation, 17 September 2024

account coal chain affordability and potential recovery options, if coal prices spiked. Should those discussions not be successful, the access seeker would have the right to refer an Access Dispute to the QCA.

#### **4.13 Treatment of Private Infrastructure**

In its Draft Decision, the QCA proposed that the West Moreton tariff be amended so that private infrastructure – in this case the New Acland rail spur and balloon loop (NAS3 Spur) be included in the tariff calculation, subject to there being a rebate and a process for the QCA to assess the prudence of the assets.

Queensland Rail did not consult with New Hope Group or Yancoal specifically on this issue as there was clearly a difference of view on the treatment of private infrastructure between the two coal companies and that they did not want to discuss this issue as a group.

Queensland Rail is not the rail infrastructure manager for the NAS3 Spur. Accordingly, the NAS3 Spur is not part of the declared service, and the QCA has no power to include it in the build up of the Regulatory Asset Base.

#### **4.14 Renewal rights**

In its Draft Decision the QCA expressed a preliminary position that it may be appropriate to amend DAU3 to include renewal rights that apply to West Moreton access holders.

Queensland Rail agrees that it is appropriate to amend DAU3 to provide renewal rights to West Moreton coal access holders, applying to access agreements that are for a period of at least ten years, or for the remainder of mine life (whichever is earlier). Queensland Rail will continue to work with West Moreton coal access holders to agree the mechanism for implementing those rights.

The ROG also requested a preferential queuing position for renewing Access Holders. However, as noted in the QCA's Draft Decision, other access holders do not provide capital underwriting and other risk mitigation measures for Queensland Rail.

Queensland Rail was prepared to consider the request for a preferential queuing position, subject to stakeholders considering a minimum contracting term for that position to apply. There has been an increasing trend towards short term contracts (as short as six months) for general freight, providing no certainty for Queensland Rail to facilitate efficient management of the network. Giving an automatic preferential queuing position creates a disincentive for access holders to enter into long (or even medium) term contracts. Queensland Rail understands that the ROG does not wish to consider a minimum contract term.

#### **4.15 Reporting**

In addition to the amendments proposed in DAU3, Queensland Rail proposes to amend the reporting requirements to delete clause 5.1.2(a)(iv), which does not provide valuable information.

Queensland Rail cannot readily amend its reporting systems to provide the additional reports requested by the ROG. However, Queensland Rail has already worked with the North Coast Line User Group to provide additional reporting. Queensland Rail will continue to work with customers on an ongoing basis to further develop the available reporting, subject to the feasibility of updating reporting systems.

## 4.16 Amendments to Network Management Principles

Queensland Rail has consulted with the Rail Operators Group (ROG) in respect of changes to the Network Management Principles.

Queensland Rail's position on proposed changes to the Network Management Principles is shown in Table 34 and Attachment 2 provides drafting amendments agreed and those on which it may be beneficial to engage in further discussions.

In its Draft Decision the QCA found that it would be appropriate that Queensland Rail reduce the notification timeframes associated with modifying the MTP to one month.

Queensland Rail's planning systems were updated when the three month notification period was introduced in AU2. The MTP is finalised at the three month mark and converted to the DTP. The systems cannot be readily updated to allow changes to the MTP once it has been converted to the DTP. Once the DTP is generated, changes are made subject to the requirements of the Network Management Principles.

Table 34 – Proposed Amendments to Network Management Principles

| Clause      | Issue   | Position  |
|-------------|---|---|
| Definitions | Ad Hoc Planned Possessions                                    | <p>The definition of Ad Hoc Planned Possession has been deleted and not replaced, and all references to Ad Hoc Planned Possessions have been deleted.</p> <p>No Possessions that are not in the Master Train Plan (<b>MTP</b>) are taken if they adversely affect the operation of Train Services. The definition of Regular Planned Possession has also been deleted and replaced with the definition of Planned Possession (which is the definition that existed before the introduction of the concept of Ad Hoc Planned Possessions).</p> |
| Throughout  | Notification of Nominated Rolling Stock Operators             | <p>There are various obligations in the NMP requiring Queensland Rail to notify Access Holders of proposed updates to the MTP or Daily Train Plan (DTP).</p> <p>The ROG requested that Queensland Rail also be required to notify affected Nominated Rolling Stock Operators. Queensland Rail has agreed to make those amendments.</p>  |
| Throughout  | Consultation/agreement with Nominated Rolling Stock Operators | <p>The ROG require further amendments to the NMP to require Queensland Rail to formally consult with and gain the consent of a Nominated Rolling Stock Operator to changes to the MTP or DTP.</p>   |

| Clause | Issue | Position   |
|--------|-------|--|
|        |       | Queensland Rail does not intend to amend the NMP to give rolling stock operators who are not Access Holders, the same rights as Access Holders. Arrangements between an Access Holder and its Nominated Rolling Stock Operator are a matter for those parties. |

In its Draft Decision, the QCA said that it is appropriate to require quarterly reporting on Ad Hoc Planned Possessions. However, the QCA said that if it is not possible to report on Ad Hoc Planned Possessions, it may be necessary to include a requirement for Queensland Rail to delay implementing any planned possession that is subject to a dispute.

The amendments to DAU3 to remove the definition of Ad Hoc Planned Possessions makes clear that all Possessions (other than Emergency Possessions and Urgent Possessions) that adversely affect train services are scheduled in the MTP. Planned Possessions are reported on.

Accordingly, the QCA should not require reporting on possessions which do not impact rail traffic, and need not reconsider its view that it is not necessary that DAU3 include a requirement for Queensland Rail to delay implementing any planned possession that is subject to a dispute.

#### 4.17 Amendments to Standard Access Agreement

Queensland Rail has consulted with the Rail Operators Group (ROG) in respect of changes to the SAA.

Queensland Rail's position on proposed changes to the SAA is shown in Table 35 below and Attachment 2 provides drafting amendments agreed and those on which it may be beneficial to engage in further discussions.

Table 35 - Proposed Amendments to the SAA

| Clause | Issue     | Position   |
|--------|-----------|--|
| 16     | Insurance | <p>A number of largely administrative amendments have been agreed.</p> <p>Queensland Rail has agreed that there should be further discussions about the quantum of insurance required.</p> <p>██████████ also requires a new clause to be included specifically permitting insurance to be obtained through a captive insurer.</p> <p>Queensland Rail does not consider it necessary or appropriate to include a provision specifically approving insurance through a captive in a standard access agreement, giving Queensland Rail no ability or right to assess the appropriateness of that arrangement at the time of negotiation.</p> <p>To address the issue that a captive insurer may not meet the requirement for a financial strength rating, Queensland Rail has agreed</p> |

| Clause | Issue                                     | Position  |
|--------|---|---|
|        |   | <p>to remove that requirement and instead include a requirement that an insurer be a corporation licenced to conduct insurance business in Australia, or otherwise reasonably acceptable to Queensland Rail.</p> <p>Aurizon Operations has advanced no justification for its requirement.<br/> <span style="background-color: black; color: black;">[REDACTED]</span></p> <p>It is not necessary to facilitate access to the declared service to prescribe the form of insurer that Queensland Rail must accept in a standard access agreement for the commercial convenience of one party, particularly in the absence of any evidence that Queensland Rail has unreasonably refused to negotiate on this issue. The SAA is a template agreement for the use of all access seekers, <span style="background-color: black; color: black;">[REDACTED]</span>. Some matters should properly be left for commercial agreement.</p> |
| 19     | Disputes                                  | <p>Minor amendments have been made to the dispute resolution provisions to make the timeframes for resolution by escalation match those in the body of DAU3.</p>  |
| 21     | Rescheduling and reduction of train paths | <p>Queensland Rail has proposed amendments which it believes meets the Operators' requirements that Queensland Rail be given the ability to reschedule paths held by an Access Holder that do not operate consistently on schedule.</p> <p>These provisions are not agreed.</p>   |
| 22     | Assignment                                | <p>Queensland Rail has accepted amendments proposed by the West Moreton coal companies, and agreed further amendments to provide for a 21 Business Day notice period to facilitate the Access Holder seeking information to confirm the Assignee's competence and capacity to operate the network, and negotiate an interface agreement with the Assignee, to comply with their obligations under the RSNL.</p>   |

## Attachment 1: Collaboration Template Used with Stakeholders



# DAU3 Collaboration

**Rail Operators**

**Meeting 9 - 25 October 2024 - Agenda**



# AGENDA

- Competition Law Protocols
- Action Tracker Register
- Review of Agreed Positions
- Other Issues

# PROTOCOLS FOR GROUP

## Competition Law Meeting Protocol

- Queensland Rail will:
  - circulate an agenda to participants before each meeting
  - take and circulate notes of the meeting
- Participants must ensure that discussions are limited to matters contemplated by the agenda
- Participants must not share with each other competitively sensitive information (being information that if disclosed to a competitor could affect its current or future commercial strategies, including the terms and conditions of above-rail haulage contracts)
- Queensland Rail must not share with the other Participant any confidential or competitively sensitive information provided to it by a Participant

# ACTION TRACKER REGISTER (1)

| #  |   | Action   | Resp.   | Updates   | Status |
|----|---|--|---------|---|--------|
| 4  | 2 | QR to provide drafting for the assignment clause which includes a minimum notice period for the access holder.   | QR      | QR provided drafting on 3 Oct. ROG to review and discuss at next meeting. |        |
| 5  | 2 | QR to provide drafting for Dispute Resolution including for referral to CEOs 10 business days to resolve.  | QR      | QR provided drafting on 3 Oct. ROG to review and discuss at next meeting. |        |
| 6  | 3 | Limitation on claims - QR to provide drafting with addition of "to the extent known" to reflect that circumstances may change.   | QR      | QR provided drafting on 3 Oct. ROG to review and discuss at next meeting. |        |
| 7  | 3 | Coverage of Operator's associates, agents and other parties - Aurizon to send out proposed drafting to QR and other operators to include principle for optionality for contractors to take out own insurance or are covered by operators' insurance, and review changing 'ensure' to 'require'.  | Aurizon | QR provided drafting on 3 Oct. ROG to review and discuss at next meeting. |        |
| 8  | 3 | Coverage and Deductible levels - Limit of liability to be taken offline for further discussion. QR to provide drafting to reflect removal of max. deductibles, references to 'without limitation' and need for carriers' liability. QR to provide drafting in response to concern with financial strength rating (reduce A to A- or better). | All     | QR provided drafting on 3 Oct. ROG to review and discuss at next meeting. |        |
| 9  | 3 | QR to provide drafting to include captive insurance companies.   | QR      | QR provided drafting on 3 Oct   |        |
| 10 | 3 | Essential Terms and conditions - PN to suggest wording for other operators and QR to consider.   | PN      | QR provided drafting on 3 Oct   |        |
| 11 | 3 | Insurance Claims - QR to propose drafting to address the concerns around commercial in confidence information. Needs to be restricted to claims related to the SAA.  | QR      | QR provided drafting on 3 Oct   |        |
| 12 | 4 | QR to have an internal discussion around stance on Train Path Rescheduling   | QR      |   |        |
| 13 | 5 | Train Service Levels - QR will accept the proposed changes to train service level in principle and will prepare drafting for consideration.  | QR      | QR to provide drafting next week  |        |

# ACTION TRACKER REGISTER (2)

| #  |   | Action   | Resp. | Updates                          | Status |
|----|---|--|-------|----------------------------------|--------|
| 16 | 5 | Ad-hoc Train services - QR to propose drafting that distinguishes between additional versus adhoc services. Tammy to consider protocols for urgent movement of rollingstock outside normal business hours covered by an access agreement/Operating Plan. | QR    |                                  |        |
| 17 | 5 | Train Path Resumption - QR will consider additional requirements as proposed by the Rail Operator's Group and prepare drafting for consideration   | QR    | QR to provide drafting next week |        |
| 18 | 6 | QR to document what is happening in practice regarding possessions / ad-hoc possessions.   | QR    |                                  |        |
| 19 | 7 | QR to consider the revision or removal of KPI 5.1.2 (a) (ii) B – given it is rare that any service is solely impacted by a single cause  | QR    |                                  |        |
| 20 | 7 | QR to consider the revision of KPI 5.1.2 (iii) – to minutes per transit hours rather than minutes per 100 tkm  | QR    |                                  |        |
| 21 | 7 | QR to consider the revision of KPI 5.1.2 (iii) – to minutes per transit hours rather than minutes per 100 tkm  | QR    |                                  |        |
| 22 | 7 | QR raised proposal of new clause in SAA to facilitate safety outcomes re exchange of investigation reports. Drafting to be provided and discuss next week.   | QR    |                                  |        |
|    |   |  |       |                                  |        |

# ITEMS TO BE DISCUSSED AS A GROUP

| Topic   | Issues   | To Be Discussed as a Group (Y, N) |
|---|--|-----------------------------------|
| <b>Scheduling/Management Principles</b>         | Train Path Rescheduling (inc renewals)                 | Y                                 |
|   | Train Service Level Description (inc train lengths)    | Y                                 |
|   | Ad Hoc Train Services Response Times                   | Y                                 |
|   | Path Resumption  | Y                                 |
| <b>Standard Access Agreement – Insurance</b>    | Limitation on Claims                                   | Y                                 |
|   | Liability Coverage                                     | Y                                 |
|   | Coverage / Deductible Levels                           | Y                                 |
|   | Minimum Financial Strength                             | Y                                 |
|   | Notification of Claims                                 | Y                                 |
| <b>Standard Access Agreement - Other Issues</b> | Dispute Resolution Escalation                          | Y                                 |
|   | Assignment rights                                      | Y                                 |
| <b>Reporting</b>                                | Standard Performance Indicators (Schedule 5, Clause 1) | Y                                 |
|   | Reporting of Ad Hoc possessions                        | Y                                 |
|   | Quarterly Reporting                                    | Y                                 |
| <b>Other</b>                                    | Disputes on planned possessions                        | Y                                 |
|   | Review of Network Management Principles                | Y                                 |

# OTHER ISSUES

**Outcome of Discussions**

**Attachment 2: Proposed Drafting Amendments Agreed or Where Further Discussion may be Beneficial**

## Attachment 2 – Proposed drafting amendments

### West Moreton System

| Issue  | Outcome   | Further discussion                                   |
|--|---|--|
| <b>West Moreton Coal Reference Tariff Approach</b> | <p>It was agreed that Queensland Rail will propose an alternative reference tariff build up based on a 7.5 mtpa scenario.</p> <p>Queensland Rail shared cost build ups (including capital, maintenance and operating expenditure) and indicative reference tariffs for 9.6mtpa ( [REDACTED] ), 5.0mtpa ( [REDACTED] ) and 2.5mtpa ( [REDACTED] ) but did not agree reference tariffs.</p> <p>It is agreed that if circumstances change and only one mine remains operating on the West Moreton System, the QCA approved Reference Tariff will cease to apply and Queensland Rail will negotiate a new tariff with the remaining Mine.</p> | <p>Drafting of appropriate mechanism.</p>            |
| <b>Capital expenditure</b>                         | <p>Queensland Rail agrees that it is appropriate to include a mechanism to permit West Moreton Access Holders to review and determine whether to support capital expenditure projects.</p>  | <p>Detail and drafting of appropriate mechanism.</p> |
| <b>Tariff reset</b>                                | <p>Volume triggers to reset tariff each time a West Moreton contract is not renewed</p>   | <p>Drafting to be agreed</p>                         |
| <b>Renewal Rights</b>                              | <p>It was agreed that West Moreton coal users would be given renewal rights to enter into access agreements with a minimum term of ten years or life of mine (whichever is greater)</p>   | <p>Drafting to be agreed</p>                         |
| <b>Accelerated Depreciation</b>                    | <p>No agreement reached.</p>  |  |
| <b>Loss Capitalisation</b>                         | <p>Queensland Rail shared repayment options for Loss Capitalisation accrued under AU2.</p>  |  |

| Issue                                      | Outcome  | Further discussion |
|--|--|--------------------|
|  | Coal producers stated a preference for the Loss Capitalisation amount being amortised over the term of AU3 rather than an up-front payment but no agreement was reached on method or quantum of repayments |                    |
| <b>Independent Capacity Assessment</b>     | No agreement reached   |                    |
| <b>Affordability</b>                       | Discussions progressed with one Producer but no agreement reached for any Loss Capitalisation mechanism to extend into AU3   |                    |
| <b>Treatment of Private Infrastructure</b> | Coal Producers did not want to discuss this as a group.  |                    |

## Other issues

| Issue                                 | Outcome  | Further discussion       |
|---------------------------------------|--|--------------------------|
| <b>DAU3</b>                           |  |                          |
| <b>Definitions</b>                    | Queensland Rail will delete the definitions of 'Ad Hoc Planned Possessions' and 'Regular Planned Possessions' and insert a new definition of Planned Possessions.  |                          |
| <b>Reporting</b>                      | Queensland Rail will amend clause 5.1.2(x) to remove references to reporting on Ad Hoc Planned Possessions and Regular Planned Possessions, and replace that with an obligation to report on Planned Possessions | Drafting agreed with ROG |
| <b>SAA Insurance</b>                  |  |                          |
| <b>Limitation on claims (cl 13.2)</b> | Agreed that a requirement to provide full details of a claim be amended to require that information to be provided 'to the extent known'.  | Drafting agreed with ROG |

| Issue  | Outcome   | Further discussion  |
|--|---|---|
| <p><b>Operator's Obligation to obtain and maintain insurance</b></p> <p><b>(cl 16.1)</b></p> | <p>Agreed to:</p> <ul style="list-style-type: none"> <li>• remove the requirement for an Operator's public liability policy to cover its associates, agents, consultants, contractors and their subcontractors with a requirement that the operator must ensure that those parties take out their own insurance.</li> <li>• Delete the words 'without limitation' wherever they appear</li> <li>• Remove the obligation for carrier liability insurance</li> <li>• Remove the requirement for a maximum deductible</li> </ul> | <p>Drafting agreed with ROG</p> <p>Public liability coverage requirements to be discussed</p> |
| <p><b>Insurer &amp; Minimum financial strength rating</b></p> <p><b>(cl 16.3)</b></p>        | <p>Queensland Rail has agreed to remove the requirement for a minimum financial strength rating.</p> <p>Queensland Rail proposes that the requirements for an insurer be that it is a corporation licensed to conduct business in Australia or otherwise reasonably acceptable to Queensland Rail</p>   | <p>Queensland Rail does not agree to include an obligation to accept any captive insurer</p>  |
| <p><b>Essential terms and conditions of insurance</b></p> <p><b>(cl. 16.4)</b></p>           | <p>Queensland Rail has agreed to remove the requirement for access holders and operators to ensure that any change to their insurances do not contain any exclusions, endorsements or alterations that adversely amend the cover provided, without the written consent of Queensland Rail.</p>  | <p>Drafting agreed with ROG</p>   |
| <p><b>Insurance claims</b></p> <p><b>(cl. 16.9)</b></p>                                      | <p>Queensland Rail agrees to amend the requirement that parties notify Queensland Rail of reasonable details of insurance claims related to the SAA and keep Queensland Rail informed of developments,</p>  | <p>Drafting agreed with ROG</p>   |
|  |   |   |

| Issue   | Outcome  | Further discussion   |
|---|--|--|
| <b>SAA Dispute resolution escalation</b>                                      |  |  |
| <b>Dispute resolution escalation</b><br><br><b>(cl 19.2)</b>                  | Agreed to amend the timelines for dispute resolution escalation in the SAA to be consistent with timeframes in the DAU.  | Drafting agreed with ROG   |
| <b>Rescheduling reduction and relinquishment of Access Rights</b>             |  |  |
| <b>Train path rescheduling</b><br><br><b>(cl 21)</b>                          | Queensland Rail agrees it would be appropriate to amend the SAA to allow Queensland Rail to reschedule train paths where an operator had consistent poor reliability performance and to require an operator to use its best endeavours to negotiate variations to agreements defining network entry and exit times to accommodate the varied schedule. | Details and drafting of the proposed mechanism is under discussion.  |
| <b>Path resumption (cl 21)</b>  | Queensland Rail agrees that it would be appropriate to amend the SAA path resumption provisions to modify resumption utilisation thresholds and add new resumption triggers.   | Details and drafting of the proposed mechanism is under discussion.  |
| <b>SAA assignment of Queensland Rail's rights</b>                             |  |  |
| <b>Assignment of Queensland Rail's rights under SAA</b><br><br><b>(cl 22)</b> | Queensland Rail proposed adding a new clause (cl. 22.1(a)) to provide for the assignment of its rights under the SAA in circumstances where it ceases (or no longer expects) to have a right to operate all or part of the network.  | Agreed drafting as provided by the West Moreton System users, with additional requirements for 21 Business Days notice of assignment, and obligation for Queensland Rail to use reasonable |

| Issue  | Outcome  | Further discussion   |
|--|--|--|
|  |  | endeavours to procure the Assignee to provide information to allow the Access Holder to confirm the competence and capacity of the Assignee, and enter into an interface plan as required by the Rail Safety National Law. |
| <b>Network Management Principles (NMP)</b>                                       |  |  |
| <b>Ad Hoc Planned Possessions</b>  | Queensland Rail will remove references to Ad Hoc Planned Possessions and Regular Planned Possessions. All references to Regular Planned Possessions will be replaced with the words 'Planned Possessions'. | Drafting Agreed. All Planned Possessions that affect train services are entered into the MTP.  |
| <b>Requirement to notify/consult with Nominated Operators on MTP/DTP changes</b> | Queensland Rail agrees to notify Nominated Operators, but not to consult on proposed changes   | For further discussion.<br><br>Queensland Rail does not agree to requirement to consult/agree with Nominated Operators (i.e. Operators who are not Access Holders)   |

- (iv) the number and percentage of Train Services scheduled in the DTPs relating to the subject Quarter that were cancelled in each of the following circumstances:
  - (A) where that cancellation can be solely attributed directly to Queensland Rail in its capacity as the Railway Manager;
  - (B) where that cancellation can be solely attributed directly to an Access Holder or a Nominated Rolling Stock Operator; and
  - (C) where that cancellation occurred for any other reason;
- (v) the number of category A notifiable occurrences (as defined under the RNSL), as reported to the Rail Safety Regulator, for Train Services that operated in the subject Quarter;
- (vi) the average percentage, and the average number of kilometres, of Track under a temporary speed restriction for the subject Quarter (excluding Track in the Metropolitan System);
- (vii) the most recent measure of Track quality, in the subject Quarter, for the Network measured by a quality index with component measures including gauge, top, twist and versine;
- (viii) (viii) the number of written complaints by Access Holders that are verified by Queensland Rail (acting reasonably) as correct in connection with any of the following:
  - (A) the Operating Requirements Manual;
  - (B) an IRMP;
  - (C) any environmental investigation and/or risk management negotiation process or report created pursuant to **clause 2.7.2**;
  - (D) a Rolling Stock authorisation<sup>5</sup>; and
  - (E) the application of the Network Management Principles;
- (ix) an outline as to the cause or causes of any material change in the matters reported under **clauses 5.1.2(a)(ii) to (viii)** relating directly to Queensland Rail's operating performance by comparison to the preceding Quarter;
- (x) the number and percentage of Regular Planned Possessions and the number of Ad Hoc Planned Possessions for the subject Quarter, ~~and the number and percentage for each of those types of Possession that:~~
  - (A) started within 15 minutes of the scheduled time and finished within 15 minutes of the scheduled time;
  - (B) started between 15 minutes and two hours later than the scheduled time;

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<sup>5</sup> That is, an Authority to Travel (being an authorisation issued by Queensland Rail under an Access Agreement which authorises a Rolling Stock Operator to temporarily operate specified Train Services on the Network for a specified period and using specified Train Configurations) or a Train Route Acceptance (which has the same meaning as an Authority to Travel but rather than being temporary applies until the expiry or termination of the Access Rights for the relevant Train Services).

**Accredited** means accredited (including exempted from the requirement to be accredited and any conditions applying to that accreditation or exemption) in accordance with Part 3 Division 4 of the RSNL;

**Accrued Interest**, for a Year, has the meaning given in **clause 8.4(a)(i)(D) of schedule D**;

**Additional Capacity** means the additional capability of the Network to accommodate Train Services that would result from an Extension;

~~**Ad Hoc Planned Possession** means a Possession (other than an Urgent Possession, or an Emergency Possession) that is not entered into the MTP because it is not a Regular Planned Possession, and adversely affects the operation of Train Services.~~

**Ad Hoc Train Service** means any Train Service:

- (a) additional to the number of Train Services permitted under an existing Access Agreement, but otherwise consistent with the Train Service Entitlement and Rolling Stock and Train Configuration authorised pursuant to that existing Access Agreement; or
- (b) varying from the Train Service Entitlement specified in an existing Access Agreement, but agreed to by Queensland Rail;

**Adjustment Charge** has the meaning given to that term in **clause 6.1(a) of schedule D**;

**Adjustment Charge Amount** has the meaning given to that term in **clause 6.1(a) of schedule D**;

**Allotted Time Threshold** means the threshold within which a Train Service is considered to be on time as follows, for a Train Service operated for the purpose of:

- (a) transporting coal, 30 minutes;
- (b) transporting bulk minerals (other than coal), 60 minutes;
- (c) transporting freight products, 60 minutes; and
- (d) transporting passengers over long distances, 20 minutes

**Alternate Access Applications** means the Access Applications of two or more Access Seekers that are seeking Access Rights relating to the same traffic task – that is, where if one of those Access Seekers is granted Access Rights, then the other Access Seekers will no longer need a grant of Access Rights. For Example:

- (a) Where two Access Seekers are competing to provide Train Services under a rail haulage agreement with the same Customer for the same Train Service. This might occur where a mine is conducting a competitive tender for the provision of rail haulage services, there is more than one person seeking to provide those rail haulage services and each of those persons submits an Access Application.
- (b) Where an Access Seeker is seeking Access Rights in order to provide Train Services under a rail haulage agreement with a Customer and that Customer is also seeking Access Rights itself for the same Train Service;

**Alternate Access Seekers** means the Access Seekers whose Access Applications are Alternate Access Applications;

**Operating Plan** means an operating plan setting out how the proposed Train Services are to be operated and which either:

- (a) is consistent with the template in **schedule C**; or
- (b) where the Access Seeker already has a pre-existing operating plan, includes the same information as that referred to in **schedule C**;

**Operating Requirements Manual** means the document set out in **schedule G** as varied or amended by Queensland Rail from time to time in accordance with **clause 4.3**;

**Operational Constraint** means any temporary or permanent constraint on the operation or use of any part of the Network imposed by Queensland Rail (acting reasonably) as it considers necessary in relation to the proper, efficient or safe operation or management of the Network (including speed restrictions, load restrictions, ~~Regular~~ Planned Possessions, ~~Ad Hoc Planned Possessions~~, Urgent Possessions, Emergency Possessions and signalling or overhead restrictions);

**Passenger Priority Obligations** means the obligations of a Railway Manager pursuant to sections 265 and 266 of the TIA;

**Planned Possession** means a Possession (other than an Urgent Possession or an Emergency Possession) where such Possession is entered into the MTP and DTP and adversely affects the operation of Train Services;

**Possession** means a temporary closure or occupation by Queensland Rail of part of the Network (including closure of Track or isolation of any electrical overhead traction system) for the purpose of carrying out Rail Infrastructure Operations, other work or other activities on or in the proximity of the Network and includes ~~Regular~~ Planned Possessions, ~~Ad Hoc Planned Possessions~~, Emergency Possessions and Urgent Possessions;

**Pre-feasibility Study** means a study that, in relation to the possible Extension solutions identified in a Concept Study for consideration in this stage of the study process (**Possible Extensions**):

- (a) confirms the project objectives in relation to the creation of additional Capacity;
- (b) assesses each of the Possible Extensions in respect of:
  - (i) the technical and operating requirements for that Possible Extension;
  - (ii) an indicative assessment of the additional Capacity that might reasonably be expected by implementing that Possible Extension; and
  - (iii) a preliminary risk assessment for that Possible Extension;
- (c) includes preliminary survey and geotechnical investigation to support the level of design and cost accuracy required for the study;
- (d) identifies as the preferred Extension solution to be studied under a Feasibility Study, the Possible Extension that is fit-for-purpose and the most efficient and effective solution; and
- (e) provides:
  - (i) a high level engineering assessment of the preferred Extension solution in respect of the total cost of ownership, after allowing for risk, for the purpose of minimising that total cost of ownership;

(d) the Metropolitan System;

**Regional Network User Group** means a separate group in relation to each Regional Network established to review, discuss and improve supply chain performance, comprised of each Access Holder, rail transport operator (as defined in the RNSL) and End User Access Seeker relevant to each Regional Network.

~~**Regular Planned Possession** means a Possession (other than an Ad Hoc Planned Possession, Urgent Possession or an Emergency Possession) where such Possession is entered into the MTP and DTP and adversely affects the operation of Train Services;~~

**Regulatory Asset Base** means the asset value accepted by the QCA for the purpose of developing a Reference Tariff, as maintained by Queensland Rail in accordance with **clause 3.8**;<sup>12</sup>

**Related Party** means a related body corporate as defined in the Corporations Act and, for Queensland Rail, includes the Rail Authority;

**Relevant Person** has the meaning given to that term in **clause 6.1.2(c)**.

**Renewal** means, in relation to an Access Holder's Access Rights that are to expire, the Renewal Access Seeker entering into an Access Agreement to hold or continue to hold Access Rights for a further term commencing immediately after the expiry of the relevant Access Rights that have the same origin and destination, require the same or less Train Path requirements and otherwise are substantially equivalent to the relevant Access Holder's Access Rights immediately prior to their expiry, subject to any variation referred to in **clause 3.3(k)**;

**Renewal Access Seeker** means, in relation to an Access Holder's Access Rights (acquired prior to the Approval Date) that are to expire:

- (a) the Access Holder;<sup>13</sup>
- (b) an Access Holder's Rolling Stock Operator; or
- (c) another Rolling Stock Operator competing for the relevant Access Rights

A person may only be a Renewal Access Seeker for Access Rights which were acquired prior to the Approval Date.

**Renewal Application** means an Access Application by a Renewal Access Seeker solely for a Renewal;

**Renewal Timeframe** means, in relation to the submission of a Renewal Application:

- (a) no later than 20 Business Days after the later of:
  - (i) the date on which Queensland Rail gave the relevant notice under **clause 2.9.3(a)**; and
  - (ii) the date that is three years before the expiry of the relevant Access Agreement; or
- (b) no less than two years before the expiry of the relevant Access Agreement;

**Revenue Adjustment Amount**, for a Year, has the meaning given in **clause 8.4(a)(i)(E)** of **schedule D**;

<sup>12</sup> Separate Regulatory Asset Bases may be maintained for different Reference Tariff inputs in respect of the same Reference Tariff – with the consequence that each of those Regulatory Asset Bases is relevant to the development of that Reference Tariff.

<sup>13</sup> For example, the mine operator who uses the Access Rights to transport coal from its mine is the Access Holder.

**Safeworking Procedures** has the meaning given to that term in the Operating Requirements Manual;

**Special Event** means:

- (a) New Year's Eve;
- (b) Brisbane Exhibition;
- (c) Riverfire;
- (d) Australia Day;
- (e) Anzac Day (includes School Commemoration Service);
- (f) Toowoomba Carnival of Flowers;
- (g) Major sporting events; and
- (h) other events notified to Queensland Rail from time to time by the Chief Executive of the Department of Transport and Main Roads, and for which Queensland Rail is required to provide passenger services in addition to the then scheduled passenger timetable.

**Stand Alone provision of Access** means the provision of Access as if the relevant Train Service(s) was (were) the only Train Service(s) provided with Access by Queensland Rail;

**Standard Access Agreement** means a pro forma Access Agreement set out in **schedule H**;

**Standard and Poor's** means Standard and Poor's Financial Services LLC and its Related Parties;

**Supply Chain Calendar** means a document published by Queensland Rail on its website and updated in accordance with **clause 2.1(a)(ii)** of **schedule F** which lists, in respect of a Regional Network, all ~~Regular~~ Planned Possessions, ~~proposed Ad Hoc Planned Possessions~~, Urgent Possessions (to the extent known) and Special Events for that Regional Network.

**System** means a part of Queensland Rail's Network including, but not limited to, a Regional Network, that forms an identifiable portion of the Network.

**System Master Plan** means a plan relating to Queensland Rail's proposed expansion projects containing the information referred to in **clause 1.5(e)** in relation to each System to which **clause 1.5** applies;

**System Planning Group** means a separate group in relation to each System to which **clause 1.5** applies established to assist Queensland Rail to develop each System Master Plan comprised of each Access Holder and rail transport operator (as defined in the RNSL) relevant to each System to which **clause 1.5** applies.

**Take or Pay Charge** means a charge or other amount payable by an Access Holder to Queensland Rail under an Access Agreement in relation to the Access Holder not fully using its Access Rights for a specified period (and for a Train Service, the description of which accords with the Reference Train Service, is calculated as set out in **clause 4** of **schedule D**);

**Tariff Train Service** means a coal carrying Train Service for which there is a Reference Tariff.

# Schedule F – Network Management Principles

## 1 Application

Unless otherwise required by any Law, the Network Management Principles set out in this **schedule F** will apply in relation to all Train Services.

## 2 Train Planning Principles

### 2.1 Master Train Plan Principles

- (a) Queensland Rail will:
- (i) indicate in a MTP the Capacity necessary to satisfy all relevant Train Service Entitlements, all of Queensland Rail's passenger Train Services, and time allocated for ~~Regular~~ Planned Possessions;
  - (ii) in addition to the MTP, indicate the timing of any proposed ~~Ad Hoc Planned Possessions or~~ Urgent Possessions (to the extent known), as well as ~~Regular~~ Planned Possessions, in the Supply Chain Calendar; and
  - (iii) update the Supply Chain Calendar at least once per calendar month and notify all Access Holders, Nominated Rolling Stock Operators and other parties whose activities may be affected by the proposed Possession.
- (b) Access Holders' Train Service Entitlements and Queensland Rail's passenger Train Services will be allocated particular Train Paths.
- (c) A MTP will be in a form that sets out the time/distance (location) relationship of the Train Services and other activities on the relevant part of the Network and is readily convertible to a DTP.
- (d) Queensland Rail will notify all Access Holders, Nominated Rolling Stock Operators and any other parties whose activities may be affected (for example, parties that are affected by the availability of access to the Network including operators of rail and port facilities) by any modifications to a MTP, ~~or the scheduling of an Ad Hoc Planned Possession~~, at least three months prior to the commencement of the modification (except in the case of an Urgent Possession or Emergency Possession).<sup>28</sup> However, despite the foregoing, Queensland Rail is only required to notify parties (other than Access Holders and Nominated Rolling Stock Operators) who have notified Queensland Rail that they require to be notified in relation to changes.
- (e) Subject to **clause 2.1(f)**, an Access Holder or Nominated Rolling Stock Operator must give Queensland Rail sufficient notice of any requested changes to a MTP to enable Queensland Rail to consider the requested changes and, if Queensland Rail agrees to the making of those modifications, to comply with **clause 2.1(d)**.
- (f) A notice given by an Access Holder of Nominated Rolling Stock Operator under **clause 2.1(e)** must be given no less than:
- (i) six months prior to the date to which the change relates, where the change relates to a passenger Train Service; or

<sup>28</sup> Notification to parties other than Access Holders may be done by posting suitable information to Queensland Rail's website. The MTP will be complete and not be redacted in any way.

- (ii) three months prior to the date to which the change relates, where the change relates to a non-passenger Train Service.
- (g) Except as otherwise provided in an Access Agreement, the cancellation of a Train Service does not excuse either Queensland Rail, ~~or~~ an Access Holder or Nominated Rolling Stock Operator from any relevant obligations under that Access Agreement.
- (h) Queensland Rail will publish on its website the MTPs applicable as at the Approval Date and will update the MTPs published on its website, from time to time, so that the MTPs published are those applicable as at the last semi-anniversary or anniversary of the Approval Date, as applicable.
- (i) Despite **clause 2.1(h)**, an Access Holder, their Nominated Rolling Stock Operator or ~~their~~ Customer may (acting reasonably) request a copy of the current MTP or Supply Chain Calendar from Queensland Rail, from time to time, and if Queensland Rail receives such a request Queensland Rail will provide a copy of the relevant MTP or Supply Chain Calendar to that Access Holder, Nominated Rolling Stock Operator or Customer as soon as reasonably practicable.
- (j) The MTPs and Supply Chain Calendar published under **clause 2.1(h)**, or provided under **clause 2.1(i)**, will be complete and will not be redacted in any way.
- (k) Nothing in this **schedule F** requires the preparation and publication of a single MTP or Supply Chain Calendar that applies to the Network as a whole. Queensland Rail may prepare separate MTPs (and, as a consequence, DTPs), and separate Supply Chain Calendars, for different parts of the Network.

#### **Modifying a MTP/~~Scheduling Ad Hoc Planned Possessions~~**

- (l) Subject to **clause 2.1(m)**, Queensland Rail may from time to time modify a MTP or update the Supply Chain Calendar ~~or schedule an Ad Hoc Planned Possession~~.
- (m) Queensland Rail will not modify the MTP, ~~or schedule an Ad Hoc Planned Possession~~, where to do so would result in an Access Holder's scheduled Train Services not being met in accordance with the Access Holder's Train Service Entitlement, unless:
  - (i) Queensland Rail has consulted with that Access Holder and given the notice required under **clause 2.1(d)** of this **schedule F**; and
  - (ii) to the extent that the modification ~~or Ad Hoc Planned Possession~~ is not an Emergency Possession or an Urgent Possession, the Access Holder has agreed to the modifications ~~or scheduled Ad Hoc Planned Possession~~ (such agreement not to be unreasonably withheld).

## **2.2 Daily Train Plan Principles**

- (a) A DTP will indicate all scheduled Train Services, ~~Regular~~ Planned Possessions, ~~Ad Hoc~~ Planned Possessions, Urgent Possessions and Emergency Possessions (to the extent known) in a form that indicates the time/distance (location) relationship of all activities,
- (b) A DTP represents an expected performance target that, subject to variations to the DTP permitted by this **schedule F**:
  - (i) Queensland Rail must comply with in making available Access to the Network for a particular day of operation; and
  - (ii) each Access Holder and its Nominated Rolling Stock Operator must comply with for its Train Services, for a particular day of operation for a specified part of the Network.

- (c) Queensland Rail will:
- (i) no more than three months prior to the day (commencing at 0000 hours and ending at 2359 hours) to which the DTP relates (**Day of Operation**), prepare an indicative DTP;
  - (ii) At least one Business Day prior to the Day of Operation, Queensland Rail will schedule a DTP and provide all relevant Access Holders, Nominated Rolling Stock Operators and Infrastructure Service Providers and any other parties whose activities are affected (including for example, relevant operators of rail and port facilities) with an extract of the DTP specifying the relevant Train Services. However, despite the foregoing, Queensland Rail is only required to notify parties (other than Access Holders and Nominated Rolling Stock Operators) who have notified Queensland Rail that they require to be notified in relation to changes. For clarity, the DTP provided will be complete and will not be redacted in any way.
- (d) Except as otherwise provided in an Access Agreement, the cancellation of a Train Service does not excuse either Queensland Rail, ~~or an Access Holder~~ or a Nominated Rolling Stock Operator from any relevant obligations under an Access Agreement.

#### Scheduling a DTP in variation from a MTP

- (e) A DTP must be developed by Queensland Rail from, and except as provided in this **schedule F**, be consistent with, the applicable MTP and Supply Chain Calendar. However, a DTP may be scheduled in variation to a MTP by Queensland Rail:
- ~~to accommodate an Ad Hoc Planned Possession scheduled in accordance with the requirements of clauses 2.1(l) and (m); or~~
- (i) at least two Business Days prior to the Day of Operation, and prior to the DTP being scheduled, in circumstances where any of the following apply:
    - (A) an Access Holder or its Nominated Rolling Stock Operator requests a short-term change to the times at which any of its Train Services, as scheduled in the MTP, operate;
    - (B) an Access Holder or its Nominated Rolling Stock Operator requests to run an Ad Hoc Train Service; or
    - (C) Queensland Rail modifies the times at which any of its passenger Train Services, as scheduled in the MTP, operate; and

provided that the variation does not result in any other Access Holder's scheduled Train Services not being met in accordance with the Access Holder's Train Service Entitlement.
  - (f) A DTP may be scheduled by Queensland Rail in variation from a MTP and the Supply Chain Calendar where at least two Business Days prior to the Day of Operation, and prior to the DTP being scheduled, Queensland Rail wishes to make a short-term change to the times at which one or more scheduled Train Services operate, provided that:
    - (i) the change is intended to accommodate:
      - ~~(A) the modification of an existing Ad Hoc Planned Possession;~~
      - ~~(B)~~(A) the modification of an existing Regular Planned Possession;
      - ~~(C)~~(B) the creation of an Urgent Possession or Emergency Possession;

or

- ~~(D)~~(C) \_\_\_\_\_ any other Operational Constraint affecting the DTP; or
- ~~(E)~~(D) \_\_\_\_\_ a Special Event; and
- (ii) Queensland Rail has, for changes under **clause 2.2(f)(i)(A), (B) and (D)**, consulted, and made reasonable endeavours to reach agreement in relation to the proposed modifications, with the affected Access Holders;
- (iii) for changes under **clause 2.2(f)(i)(C) and (E)** Queensland Rail has used its reasonable endeavours to consult with the relevant Access Holders; and
- (iv) for changes under **clause 2.2(f)(i)(E)**, Queensland Rail has also, where reasonably possible, included the Special Event in the Supply Chain Calendar.
- (g) A DTP may be scheduled in variation from a MTP by Queensland Rail where at least two Business Days prior to the Day of Operation, and prior to the DTP being scheduled, Queensland Rail makes a short-term change to the times at which one or more scheduled Train Service/s operate, whether or not within the scope of the applicable Access Holders' Train Service Entitlement, for the purpose of accommodating an Emergency Possession provided that where the variation would result in an Access Holder's scheduled Train Services not being met, Queensland Rail has consulted with that Access Holder.
- (h) A DTP may be scheduled in variation from a MTP by Queensland Rail where at least two Business Days prior to the Day of Operation, and prior to the DTP being scheduled, Queensland Rail and all affected Access Holders agree to the modification provided that where Queensland Rail seeks such a modification, Queensland Rail:
- (i) invites affected Access Holders to consider the variation in an appropriate forum;<sup>29</sup> at least 36 hours prior to the day of operation; and
- (ii) gives each of those parties a copy of the proposed variation at least 12 hours prior to the scheduled consideration of the variation.
- (i) For clarity, Queensland Rail may schedule a DTP in variation from a MTP under any one of **clauses 2.2(e) to (h)** even if Queensland Rail cannot do so under, or does not comply with, any of the other of those clauses in respect of that modification.

#### **Making modifications to a DTP once scheduled**

- (j) Queensland Rail may make modifications to a scheduled DTP on a case by case basis:
- (i) where:
- (A) before the Day of Operation, Queensland Rail receives a request from an Access Holder or its Nominated Operator to run an Ad Hoc Train Service; or
- (B) before a Train Service commences operation, the Access Holder or its Nominated Operator requests a change to the time at which its Train Service will operate and that change is within the scope of the Access Holder's Train Service Entitlement,
- provided that the modification does not result in any other Access Holder's scheduled Train Services not being met; or

<sup>29</sup> This could include a face-to-face meeting, a telephone conference or any other forum that provides the affected parties with the best opportunity to participate.

- (ii) where, before the commencement of a relevant Train Service, Queensland Rail notifies the Access Holder and its Nominated Rolling Stock Operator that an Emergency Possession is required; and
- (iii) Queensland Rail has used reasonable endeavours to notify and consult with any Access Holder whose Train Services may be affected by the modification or any other affected party.

## 2.3 Minimising the adverse effects of Possessions

- (a) To the extent that:
  - (i) a MTP is to be modified under **clause 2.1**;
  - ~~(ii) an Ad Hoc Planned Possession is to be scheduled under clause 2.1; or~~
  - ~~(iii)~~(ii) a DTP is to be scheduled in variation from a MTP under clause 2.2,

Queensland Rail will use its reasonable endeavours to minimise any material adverse effects on Train Services that will be caused by that modification or variation.
- (b) In determining what (if anything) can and should be done under **clause 2.3(a)** to minimise any material adverse effects, Queensland Rail may take into account:
  - (i) all relevant commercial, operational and other matters relating to the Network including:
    - (A) the proper, efficient and safe operation and management of the Network; and
    - (B) Prudent Practices; and
  - (ii) the extent to which the modification or variation is consistent with the scope of any relevant Train Service Entitlements.
- (c) Subject to **clause 2.3(b)**, Queensland Rail must use its reasonable endeavours to offer an Access Holder, affected by a modification referred to in **clause 2.3(a)(i)** or **(iii)**, an Alternative Schedule Time.
- (d) For clarity, an Access Holder's Train Services cannot be materially adversely affected for the purpose of this **clause 2.3** to the extent that the modification or variation referred to in **clause 2.3(a)(i)** or **(iii)** does not prevent those Train Services operating in accordance with the Access Holder's Train Service Entitlement.
- (e) The amount of time prior to the relevant Possession commencing may affect the degree of consideration given to minimising adverse effects and what can be done to minimise adverse effects.
- (f) Nothing in this **clause 2.3** obliges Queensland Rail to pay compensation to Access Holders whose Train Services are adversely affected.

## 2.4 Disputes

- (a) ~~Subject to clause 2.4(b) and except in relation to Emergency Possessions and Urgent Possessions, if there is a bona fide dispute between an Access Holder, Rolling Stock Operators and Queensland Rail in relation to any proposed changes or modifications to the MTP or the scheduling of an Ad Hoc Planned Possession, the proposed change will not take effect until the dispute has been resolved using the dispute resolution provisions of the Undertaking.~~
- (b) ~~A dispute in relation to a Regular Planned Possession or an Ad Hoc Planned Possession must be commenced in accordance with the dispute resolution provisions of the Undertaking within 30 days of:~~

- (c) ~~In the case of a Regular Planned Possession, the date of the publication of the MTP which includes that Possession; and~~
- (d) ~~In the case of an Ad Hoc Planned Possession, the date of notification of the Possession in accordance with clause 2.1(a) of this schedule F.~~

### 3 Network Control Principles

#### Objective

- (a) The prime objective of Network Control is to facilitate the safe running of Train Services, and the commencement and completion of Possessions, as scheduled in the DTPs.
- (b) Queensland Rail will manage the Network based on entry/exit times as specified in the DTPs with the objectives of managing Train Services according to their schedule for on time exit, not contributing to late running and, if a Train Service is running late, making up time and holding the gain where reasonably possible.
- (c) A deviation from a DTP by Queensland Rail and/or an Access Holder on the day of running in accordance with this **clause 3** does not necessarily excuse either party from any relevant obligations relating to the conduct in question.

#### Access Holders

- (d) Access Holders must ensure that Above Rail issues, including Train crewing, locomotive and wagon availability and loading and unloading requirements, are appropriately managed to ensure that such issues do not adversely affect a DTP.

#### Provision of Network Control information

- (e) Queensland Rail will provide an Access Holder and its Nominated Rolling Stock Operator with:
  - (i) real time Network Control information that indicates actual running of that Access Holder's Train Services against the relevant DTP;
  - (ii) subject to reasonable terms and conditions, access to Network Control diagrams that indicate actual running of that Access Holder's Train Services against the relevant DTP; and
  - (iii) subject to reasonable terms and conditions, information about the type of Train Services operated on the same network (including, for example, coal, freight, passenger and livestock Train Services) to assist Access Holders to determine whether the ~~Network Controller~~ Network Control Officer is applying the principles in this **schedule F** in a consistent manner between Access Holders.

#### Traffic Management Decision Making Matrix

- (f) Where the operation of a Train Service differs from a DTP, the ~~Network Controller~~ Network Control Officer will apply the Traffic Management Decision Making Matrix in **clause 3(h)**, for the purposes of giving a Network Control Direction.
- (g) In the context of the Traffic Management Decision Making Matrix the meaning of "On Time", "Ahead" and "Late" are determined by the scheduling of paths in the relevant DTP. A Train Service will be running "On Time" if:
  - (i) in the case of Train Services outside the Metropolitan System, it is travelling in accordance with the schedule for the path allocated to it in the relevant DTP, plus or minus 15 minutes; and

- (ii) in all other cases; it is travelling in accordance with the schedule for the path allocated to it in the relevant DTP.
- (h) The Traffic Management Decision Making Matrix is as follows:

|                                  |  | Train Service A - Current Status           |                              |
|----------------------------------|--|--|------------------------------|
|                                  |  | Train Service Running "On Time" or "Ahead" | Train Service Running "Late" |
| Train Service B - Current Status | Train Service Running "On Time" or "Ahead" | Rule 2                                     | Rule 1                       |
|                                  | Train Service Running "Late"               | Rule 1                                     | Rule 3                       |

Rule 1. The "Late" Train Service may be given priority provided that the other Train Service will still meet its "On Time" objective, subject to the principles for managing deviations from the DTP in **clause 3(i)**.

Rule 2. Both Train Services must meet their "On Time" objective.

Rule 3. Give priority to the Train Service that (in the [Network Controller Network Control Officer's](#) opinion), based on its performance, will lose the least time (or make up more time) and hold a greater gain, subject to the principles for managing deviations from the DTP in **clause 3(i)**.

**Principles for managing deviations from a DTP**

- (i) It is necessary for [Network Controllers Network Control Officers](#) to have sufficient discretion to take into account the varying objectives of different traffic types, and the circumstances of a particular part of the Network, in assessing the priority to be given to Train Services and other activities on the Network. [Network Controllers Network Control Officers](#) will apply the following principles in managing deviations from a DTP:
  - (i) a Train Service may be given priority over other Train Services if it is reasonably necessary to do so:
    - (A) due to, or to avoid, an accident, emergency or incident relating to any part of the Network;
    - (B) to remedy, or to mitigate or avoid, the operation of Train Services on any part of the Network being congested, prevented or otherwise materially adversely affected;
    - (C) to remedy, or to mitigate or avoid, any Emergency Possession or Urgent Possession on any part of the Network being prevented or otherwise materially adversely affected; or
    - (D) to ensure the safe operation of any part of the Network;
  - (ii) subject to **clause 3(i)(i)**, passenger Train Services may be given priority over other Train Services if the [Network Controller Network Control Officer](#) reasonably believes that this is necessary to seek:
    - (A) to bring a "Late" passenger Train Service back to being "On Time" or closer to being "On Time";

- (B) to prevent that "Late" passenger Train Service becoming "Later"; or
  - (C) to avoid an "On Time" or "Ahead" passenger Train Service that is operating, is scheduled to operate, or will be scheduled to operate in the Metropolitan System during any peak period<sup>30</sup> from becoming a "Late" passenger Train Service;
- (iii) subject to **clause 3(i)(i)**, livestock Train Services may be given priority over other Train Services if the ~~Network Controller~~ [Network Control Officer](#) believes that this is desirable taking into consideration the livestock being transported (including, for example, the welfare of the livestock);
  - (iv) subject to **clauses 3(i)(i) to (iii)**, a Train Service may be given priority over other Train Services if it is necessary to do so to remedy, or to mitigate or avoid, any Planned Possession on any part of the Network being prevented or otherwise materially adversely affected; and
  - (v) subject to **clauses 3(i)(i) to (iv)**, where a Train Service is running "Late" due to a Below Rail Delay, it may be given preference over other Train Services if the ~~Network Controller~~ [Network Control Officer](#) believes that this is consistent with the critical objectives of the Train Services in question, and that it will result in less aggregated consequential delays to other Train Services than otherwise would be the case.

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<sup>30</sup> The time periods: (a) from 6:00am to 9:00am; and (b) from 3:30pm to 6:30pm, on Business Days or as otherwise notified by Queensland Rail (acting reasonably) from time to time.

Commencement Date and the Termination Date) and on each day after the Termination Date while those indemnities survive the expiry or termination of this agreement.

## 13. Limitations on liability

### 13.1 No liability for Consequential Loss

- (a) Subject to clause 13.1(b), despite any other provision in this agreement no Party is liable to another Party for any Consequential Loss suffered or incurred by, or Claimed against, the other Party.
- (b) Clause 13.1(a) does not apply in relation to any Loss suffered or incurred by, or Claimed against a Party to the extent caused or contributed to by an Inspecting Party failing to comply with its obligations under clauses 9.4 to 9.10 in relation to conducting that Inspection or Audit.

### 13.2 Limitation on Claims

A Party must not make any Claim against the other Party under, in relation to or arising out of this agreement or its subject matter including any breach of this agreement by, or any act or omission of, the other Party unless:

- (a) notice and, to the extent known, full details of the Claim have been given to the other Party within one year after the occurrence of the event or circumstance out of which such Claim arises; and
- (b) subject to clause 13.3, the amount of the Claim exceeds \$100,000 in respect of any one event or cause of action or series of related events or causes of action (and, for clarity, the amount of any Claim is not limited to the amount exceeding that threshold).

### 13.3 Failure to pay amounts

No exclusion or limitation of liability, or restriction on the existence of or ability to make any Claim, in this clause 13 applies to Claims made by a Party against the other Party for monies due and payable in accordance with this agreement including under clause 6 and clauses 13.4, 13.5, and 13.6.

### 13.4 Liability for Network

- (a) Subject to clause 13.4(b), without limiting any other provisions of this agreement and to the extent permitted by law, Queensland Rail and its Associates are not liable to another Party for any Losses, and the other Party must not make any Claim against either Queensland Rail or its Associates, including in respect of any damage to or loss or destruction of any property (including that other Party's property) or any injury to or death of any person, arising out of or in connection with:
  - (i) the standard, capability or condition of the Network; or
  - (ii) any failure of or defect in the Network;
  - (iii) maintenance of the Network; or
  - (iv) failure to meet Performance Indicators (but not including payments due for failure to meet the Agreed Performance Levels).
- (b) Despite clause 13.4(a), another Party may bring a Claim against Queensland Rail to the extent that any Loss, damage, injury, cost or expense results directly from the failure of Queensland Rail to perform its obligations under clause 7.1 or Queensland Rail's negligence in performing those obligations.

- (i) rights which accrued on or before termination, including for breach of this agreement which occurred before termination. Any liability in respect of such prior breach will be limited in the manner provided in this agreement; or
- (ii) any provisions which are expressed as surviving the expiry or termination of this agreement.

### 15.11 Removal of Rolling Stock following termination

- (a) Immediately on expiration of the Term, and as soon as practicable after termination of the operational right to operate for any other reason, the Operator must, at the Operator's cost and risk, remove from the Network (or the land on which the Network is located) all of the Operator's Rolling Stock and all vehicles, equipment, freight, debris, or rubbish brought onto the Network (or the land on which the Network is located) by, for or on behalf of the Operator relating to the Train Services.
- (b) If the Operator fails to remove its Rolling Stock and other items from the Network in accordance with clause 15.11(a):
  - (i) Queensland Rail may give a notice to the Operator demanding the removal of Rolling Stock by a time specified by Queensland Rail; and
  - (ii) if the Operator fails to remove that Rolling Stock by that time, Queensland Rail may remove that Rolling Stock and recover the reasonable costs of doing so from the Operator.
- (c) The Operator is liable, and indemnifies Queensland Rail, for all costs and expenses incurred by Queensland Rail in relation to any damage caused to the Network by the Operator in removing any Rolling Stock.
- (d) The Operator must comply with all Network Control Directions, and all other directions issued by Queensland Rail (acting reasonably), in relation to the removal of the Rolling Stock and other items in accordance with this clause 15.11.

### 15.12 Access Holder remedy of Operator breach

If the Operator has breached the agreement then the Access Holder, at its election, may seek to remedy the breach in accordance with clause 15.6.

## 16. Insurance

### 16.1 Operator's Obligation to obtain and maintain Insurance

- (a) The Operator must:
  - (i) effect, or cause to be effected, before the Commitment Date (or, if applicable, the earliest Commitment Date); and
  - (ii) maintain, or cause to be maintained, until both the expiry of the Term and the Operator having fully complied with clause 15.11, insurances in accordance with Prudent Practices having regard to the Operator's activities, works, obligations and responsibilities under this agreement (including insurances covering all risks of an insurable nature in respect of which the Operator is obliged to indemnify Queensland Rail under this agreement) provided that such insurances must include **without limitation**:
    - (iii) insurance covering such liability as arises at common law or by virtue of any relevant Workers Compensation Legislation in respect of any Operator's staff;
    - (iv) a public liability policy of insurance:
      - (A) ~~that covers the Operator and each of the Operator's agents, consultants, contractors and their sub-contractors (each an Insured Party);~~

~~(B)(A)~~ for an amount of not less than \$350 million per occurrence;

~~(C)(B)~~ the coverage of which includes ~~(without limitation)~~:

(I) the rights, interests and liability in respect of any Claim against an Insured Party arising out of:

- (1) any damage or loss occurring to any property; and
- (2) injury (including death) to any person,

arising out of or in connection with ~~any thing done or omitted to be done in the performance or purported performance of this agreement~~the business activities of the Operator.; and

~~(II)~~ the Operator's operations and activities on the Network; and

~~(D)~~ that has a maximum deductible for any one claim of \$500,000;

~~(v)~~ a carrier liability policy of insurance:

~~(A)~~ that covers the Operator's liability in relation to goods being transported by Train Services;

~~(B)~~ for an amount of not less than \$10 million per occurrence; and

~~(C)~~ that has a maximum deductible for any one claim of \$500,000; and

~~(vi)(v)~~ all other insurances that the Operator or the Operator's agents, consultants, contractors and their sub-contractors are required by Law to hold in relation to or in connection with the exercise of rights or the performance of obligations under this agreement.

~~(b)~~ The Operator must ensure that each of the Operator's Associates, agents, consultants, contractors and their subcontractors take out and maintain insurance referred to in this clause 16, sufficient to protect the interests of those Associates, agents, consultants, contractors and their subcontractors (as the case may be).

~~(e)(b)~~ The Operator agrees to use its best endeavours to engage its agents, consultants and contractors involved in the provision of services relevant to the performance of the Operator's functions under this Agreement on terms that require those agents, consultants and contractors to hold the same types and values of insurance policies that the Operator is obliged to hold under this Agreement, to the extent relevant to the particular service being provided by the consultant or contractor.

## 16.2 Access Holder's obligation to obtain and maintain Insurance

The Access Holder must:

- (a) effect, or cause to be effected, before the Commitment Date (or, if applicable, the earliest Commitment Date); and
- (b) maintain, or cause to be maintained, until both the expiry of the Term and the Operator having fully complied with clause 15.11,

insurance in accordance with Prudent Practices having regard to the Access Holder's activities, works, obligations and responsibilities under this agreement (including insurances covering all risks of an insurable nature in respect of which the Access Holder is obliged to indemnify Queensland Rail under this agreement) provided that such insurances must include insurance covering such liability as arises at common law or by virtue of any relevant Workers Compensation Legislation in respect of any Access Holder's staff.

## 16.3 Insurer

~~The Access Holder and the Operator must ensure that their respective Insurance, effected and maintained in accordance with clause 16.1 or 16.2, is with an insurer having an insurance~~

~~financial strength rating of "A" or better by Standard & Poor's or, if Standard & Poor's ceases to exist or to provide such ratings, the rating which most closely corresponds to that rating by another agency or person which is recognised in global financial markets as a major ratings agency.~~

~~The Access Holder and the Operator must ensure that their respective insurance, effected and maintained in accordance with clause 16.1 or 16.2, is with an insurer that is:~~

- ~~(a) a corporation (as defined in the Corporations Act; and~~
- ~~(b) licensed to conduct insurance business in Australia; or~~
- ~~(c) otherwise reasonably acceptable to Queensland Rail.~~

#### **16.4 Essential terms and conditions**

The Access Holder and the Operator must ensure that, for their respective Insurances, to the extent permitted by Law, all Insurances effected and maintained in accordance with clause 16.1 or 16.2 must:

- (a) note the interests of Queensland Rail; and
- (b) not contain any exclusions, endorsements or alterations which ~~adversely amend~~ reduce the cover ~~provided below that which is required by clause 16 of this agreement without the written consent of Queensland Rail (which consent must not be unreasonably withheld or delayed).~~

#### **16.5 Payment of premium and deductibles**

The Access Holder and the Operator:

- (a) must pay when due all premiums, charges and other expenses necessary for effecting and maintaining in force their respective Insurances; and
- (b) are responsible for the payment of all policy deductibles or excesses for their respective Insurances.

#### **16.6 No prejudicial action by the Operator**

The Access Holder and the Operator respectively must not do, or permit anything to be done (including any omission), which:

- (a) may result in any respective Insurance being vitiated or rendered void or voidable; or
- (b) would give rise to an entitlement by its insurer to avoid payment of any claim in whole or in part under its respective Insurances.

#### **16.7 Disclosure of Insurance**

- (a) The Access Holder and the Operator must provide to Queensland Rail evidence of their respective insurance policies effected and maintained pursuant to this clause 16 (including evidence that the cover provided under those insurance policies comply with clause 16 and of the currency of those insurance policies) to Queensland Rail's reasonable satisfaction:
  - (i) at least ten Business Days prior to the initial Commitment Date;
  - (ii) upon renewal of each Insurance during the Term; and
  - (iii) whenever requested to do so in writing by Queensland Rail.
- (b) If the Access Holder or the Operator, whenever required to do so under this agreement, fails to produce to Queensland Rail evidence to the satisfaction of Queensland Rail (acting reasonably) of Insurances that have been effected or maintained by it, Queensland Rail may:
  - (i) effect and maintain the Insurance and pay the premiums and any amount so paid will be a debt due from the Operator to Queensland Rail; or

- (ii) suspend this agreement under clause 14.1(a)(i) or 14.2(a).
- (c) For the avoidance of doubt, a certificate of currency which provides evidence of compliance with clause 16 will be considered sufficient evidence for the purposes of clause 16.7(a).

## **16.8 Compliance**

The Access Holder and the Operator must at all times comply with the terms of their respective Insurances effected under this clause 16.

## **16.9 Claims**

- (a) In addition to any other obligation on the Access Holder or the Operator, the Access Holder and the Operator respectively must:
  - (i) notify Queensland Rail as soon as practicable after the occurrence of any claim under their respective Insurance (including providing reasonable details of the claim relevant to or arising out of the subject matter of this agreement); and
  - (ii) keep Queensland Rail informed of subsequent developments concerning any claim  
to the extent that such claims affect, relate to or are in connection with this agreement or any right, liability or real or other property of Queensland Rail or otherwise affect the ability to claim under the relevant policy of insurances.-
- (b) Upon settlement of a claim under any Insurance covering damage to the Network, if Queensland Rail is entitled to payment in respect of such damage, the Insurance monies received must be paid to Queensland Rail commensurate with the amount to be paid out by Queensland Rail in relation to the damage unless the Access Holder or the Operator has already partially or totally indemnified Queensland Rail for the relevant damage (including in respect of the amount of any deductible), in which case the monies will be paid to the Access Holder or the Operator (as applicable) but only to the extent that Queensland Rail has been indemnified.

## **16.10 Insurance not a limit of Operator's liability**

The Access Holder and the Operator's compliance with their respective Insurances does not limit that Party's liabilities or obligations under this agreement.

## **16.11 Joint Insurance Policy**

- (a) To the extent that the Operator has complied with its obligations to insure in accordance with clause 16.1, the Access Holder is not required to take out insurance which would cover the same risks.
- (b) If the Operator and Access Holder deem it efficient and appropriate, the Operator and Access Holder may take out joint insurance policies to comply with their respective insurance obligations under this clause 16.

# **17. Security**

## **17.1 Obligation to provide Security**

- (a) The Operator and the Access Holder (if the Access Holder is not also the Operator) must (in appropriate cases):
  - (i) on or before the Commitment Date, provide to Queensland Rail security in the form set out in clause 17.1(b) for the relevant Security Amount respectively (except where the relevant Security Amount is zero); and

## 18.2 Adjustment for a Material Change

- (a) This clause 18.2 does not apply where a Reference Tariff applies or in relation to a Material Change to the extent that the Net Financial Effect of that Material Change has been, or will be, removed as a result of:
  - (i) amendments to Schedule 3 in accordance with clause 18.1; or
  - (ii) the escalation or variation of Access Charge Inputs in accordance with this agreement.
- (b) If a Material Change occurs, then Queensland Rail must as soon as reasonably practicable notify the Access Holder giving details of the Net Financial Effect of that Material Change.
- (c) Within five Business Days after Queensland Rail gives a notice under clause 18.2(b), the Access Holder and Queensland Rail must meet and negotiate, in good faith, adjustments to this agreement, including adjustments to the Access Charges, in order to remove as far as practicable the relevant Net Financial Effect and to put Queensland Rail in the position it would have been in had there been no Material Change.
- (d) If the Access Holder and Queensland Rail do not reach agreement within 15 Business Days after Queensland Rail's notice under clause 18.2(b) or otherwise resolve the matter in accordance with clause 19.2, then the matter must be referred to an Expert for determination in accordance with clause 19.3.
- (e) Each Party's obligations under this agreement will continue despite the existence of a Material Change.

## 19. Disputes

### 19.1 Application of Dispute resolution process

If any dispute, complaint or question arises between the Parties in relation to this agreement (Dispute), then:

- (a) that Dispute must be resolved in accordance with this clause 19; and
- (b) a Party may give the other Parties a notice in writing (**Dispute Notice**) setting out details of the Dispute and requiring that it be dealt with in the manner set out in this clause 19.

### 19.2 Resolution by escalation

- (a) Within five Business Days after the date on which a Party gives the other Parties a Dispute Notice (**Dispute Notice Date**), representatives of the Parties must meet and use reasonable endeavours to resolve the Dispute.
- (b) If the Dispute is not resolved under clause 19.2(a), senior management representatives of the Parties (who, for a Party, are senior to that Party's representative(s) referred to in clause 19.2(a)) must, within 10 Business Days after the Dispute Notice Date, meet and use reasonable endeavours to resolve the Dispute.
- (c) If the Dispute is not resolved under clause 19.2(b), the Dispute must be referred to each Party's chief executive officer (or his or her nominee – who, for a Party, must be more senior than that Party's representative(s) referred to in clauses 19.2(a) and (b)) for resolution who must use reasonable endeavours to resolve the Dispute within ten Business Days (or such longer period as agreed by the parties) after the Dispute has been so referred.
- (d) If the Dispute is not resolved under clause 19.2(c) within ~~20~~10 Business Days after the ~~Dispute Notice Date~~dispute has been so referred (or such other time as agreed between the Parties), the relevant Dispute:

- (i) unless otherwise agreed by the Parties to the Dispute (in each Party's absolute discretion), must, where this agreement requires referral to an Expert; and
- (ii) may, by agreement of the Parties to the Dispute (in each Party's absolute discretion) in any other case,

be referred for resolution by an Expert in accordance with clause 19.3.

- (e) If a Party's representative under clause 19.2(a) or 19.2(b) is not authorised:

- (i) to act on behalf of that Party in relation to the Dispute; or
- (ii) to resolve the Dispute with immediate binding effect on that Party,

the Dispute is deemed to have not been resolved under clause 19.2(a) or 19.2(b) (as applicable).

### 19.3 Resolution by Expert

- (a) If a Dispute, or any other matter, is required to be referred to, or determined by, an Expert in accordance with this agreement (including under clause 19.2(d)):

- (i) the Expert must be appointed by agreement between the Parties or, in default of such appointment within 10 Business Days after the need to refer the Dispute to an Expert, will be that person nominated, at either Party's request, by:

- (A) where the Parties agree the Dispute is primarily of a technical nature, the President (for the time being) of Engineers Australia – Queensland Division;
- (B) where the Parties agree the Dispute is primarily of a financial or accounting nature, the Chairperson (for the time being) of the Resolution Institute; or
- (C) in any other case, the President (for the time being) of the Queensland Law Society Inc.;

- (ii) the Expert must:

- (A) have appropriate qualifications and practical experience having regard to the nature of the Dispute;
- (B) have no interest or duty which conflicts or may conflict with his or her function as Expert, he or she being required to fully disclose any such interest or duty by written notice to the Parties before his or her appointment;
- (C) not be an employee of a Party or of a Related Party of a Party;
- (D) not be permitted to act until he or she has given written notice to each Party that he or she is willing and able to accept the appointment;
- (E) have regard to the provisions of this agreement and consider all submissions (including oral submissions by each Party provided that such oral submissions are made in the presence of the Parties), supporting documentation, information and data with respect to the matter submitted by the Parties;
- (F) for clarity, only make a determination in a way that is consistent with this agreement;
- (G) provide the Parties with a copy of his or her determination in the form of a report within a reasonable time after his or her appointment;
- (H) be required to undertake to keep confidential all matters coming to his or her knowledge by reason of his or her appointment and performance of his or her duties; and

- (i) be deemed to be and act as an expert and not an arbitrator and the law relating to arbitration including the *Commercial Arbitration Act 2013* (Qld), will not apply to him or her or the determination or the procedures by which he or she may reach a determination; and
  - (iii) if the Expert is to be nominated by a person referred to in clause 19.3(a)(i), the Parties must comply with and do all things necessary to satisfy and to give effect to the reasonable requirements of that person (including providing relevant indemnities and paying any charges or fees (which charges or fees will be borne equally by the Parties)) that must be satisfied or complied with as a condition of that person agreeing to nominate an Expert; and
  - (iv) the Parties must comply with, and do all things necessary to satisfy and to give effect to, the reasonable requirements of an agreed or nominated Expert (including providing relevant indemnities and paying any charges or fees (which charges or fees will be borne equally by the Parties)) that must be satisfied or complied with as a condition of that person accepting appointment as the Expert.
- (b) The Parties must do everything reasonably requested by the Expert to assist the Expert including producing information and materials as requested by the Expert and attending any hearing convened by the Expert.
  - (c) In the absence of manifest error, a decision of the Expert is final and binding upon all Parties.
  - (d) The costs of the Expert (and any advisers engaged by the Expert) will be borne in equal shares by the Parties. Each Party must bear its own costs of participating in the dispute resolution process (unless otherwise agreed by the Parties).

#### **19.4 Resolution of technical Disputes**

If there is a Dispute in respect of clauses 6.7(e), 8.3(c), 8.6, 8.7(b), 8.8(a), 8.8(c), 8.10, 9.1(a), 9.1(d), 9.2 or 10.7:

- (a) the Parties must seek to resolve the Dispute in accordance with clause 19.2; and
- (b) if the Parties do not resolve the Dispute in accordance with clause 19.2, the Dispute must be referred for determination by an Expert under clause 19.3.

#### **19.5 Determination by court**

If any Dispute is not resolved in accordance with this clause 19, then the Dispute may be referred to one of the courts of the State having jurisdiction, and sitting in Brisbane.

#### **19.6 Injunctive Relief**

Nothing in this agreement prevents a Party from seeking urgent injunctive relief from a court.

#### **19.7 Dispute not to affect performance of obligations**

The Parties are not relieved from performing their obligations under this agreement because of the existence of a Dispute.

#### **19.8 Extension of time frames**

Where a timeframe applies under this clause 19 in relation to a Dispute, the Parties may (acting reasonably) agree to vary that timeframe and if the Parties do agree a varied timeframe then this clause 19 will apply in relation to that Dispute subject to that varied timeframe.

- (iv) Queensland Rail's intention to not repair or replace the relevant part of the Network unless the Access Holder or any other access holder using that part of the Network pays the difference between the amount of insurance available to effect the necessary repairs or replacement and the actual anticipated cost to effect those repairs or replacements.
- (b) If the Access Holder gives notice to Queensland Rail advising that it will pay the difference between the amount of insurance available to effect the necessary repairs or replacement works and the cost of necessary repairs or works (or a part of that cost as requested by Queensland Rail), then Queensland Rail will proceed with the repairs or replacement within a reasonable time after receipt by Queensland Rail from the Access Holder of payment of the relevant amount subject to reaching agreement with any other access holder using the affected part of the Network. Where the Access Holder pays to Queensland Rail the whole of the estimated cost, Queensland Rail must, upon completion of the necessary repairs or replacement works, refund to the Access Holder any amount by which the amount paid by the Access Holder exceeds the actual cost and the Access Holder shall pay to Queensland Rail the amount by which the actual cost exceeds the amount paid by the Access Holder.
- (c) If within three months after receipt of a notice from Queensland Rail under clause 20.5(a) the Access Holder has not given notice to Queensland Rail pursuant to clause 20.5(b) indicating that it will pay the whole, or that part requested by Queensland Rail, of the cost of the necessary repairs or replacement works, and Queensland Rail has not subsequently agreed to fund the repairs or replacement works within that period, the Access Holder or Queensland Rail shall have the right to terminate this agreement in accordance with clause 20.7.

## 20.6 Repair Negotiations

If an Access Holder gives Queensland Rail a notice pursuant to clause 20.5(b), then the Access Holder and Queensland Rail will promptly commence negotiations of a Funding agreement in accordance with clause 1.4 of the Access Undertaking.

## 20.7 Termination after extended Force Majeure Event

Subject to clause 20.6 or the process under clause 20.5 having been finalised (if applicable), if by reason of a Force Majeure Event either Queensland Rail or the Access Holder (relevantly the **Afflicted Party**) is rendered unable to perform its obligations under this agreement for a period of more than six consecutive months, the Access Holder and Queensland Rail must meet in an endeavour to identify any alternative viable means to provide the suspended Access Rights and failing an alternative means being agreed upon within one month of the end of the six month period the other Party may terminate this agreement by 30 days' written notice to the Afflicted Party and the provisions of this agreement relating to termination set out in clauses 15.10 and 15.11 apply without prejudice to any of the rights of the Parties accrued prior to the date of such termination.

# 21. Rescheduling, rReduction and relinquishment of Access Rights

## 21.1 Definitions

In this clause 21:

\_\_\_\_\_Timetabled Train Service means a Train Service operating on a Timetabled Train Path

(a) \_\_\_\_\_

\_\_\_\_\_Timetabled Train Path means the use of a specified portion of the Network, which may include multiple sections in sequential order, at times specified in Attachment 1 of Schedule 2.

~~(a)(b)~~ \_\_\_\_\_

## **21.2 Rescheduling of #Timetabled Train Paths**

(a) \_\_\_\_\_ This clause 21.224.4. applies to Timetabled Train Services.

(b) \_\_\_\_\_ In this clause 21:

(i) \_\_\_\_\_ On Time means:

(A) \_\_\_\_\_ in the case of a Timetabled Train Service outside the Metropolitan System, it is travelling in accordance with the schedule for the Timetabled Train Path allocated to it, plus or minus 15 minutes; and

(B) \_\_\_\_\_ in all other cases, it is travelling in accordance with the schedule for the Timetabled Train Path allocated to it.

(ii) \_\_\_\_\_ Ahead means:

(A) \_\_\_\_\_ in the case of Timetabled Train Service outside the Metropolitan System, it is travelling more than 15 minutes in advance of the schedule for the Timetabled Train Path allocated to it; and

(B) \_\_\_\_\_ in all other cases it is travelling in advance of the schedule for the Timetabled Train Path allocated to it.; ~~and~~

(iii) \_\_\_\_\_ Late means:

(A) \_\_\_\_\_ in the case of a Timetabled Train Service outside the Metropolitan System, it is travelling more than 15 minutes behind the schedule for the Timetabled Train Path allocated to it; and

(B) \_\_\_\_\_ in all other cases it is travelling behind the schedule for the Timetabled Train Path allocated to it.

(c) \_\_\_\_\_ Nothing in this clause 21.224.4 prevents Queensland Rail from exercising its rights under the remainder of this clause 21.

(d) \_\_\_\_\_ If:

\_\_\_\_\_During any period of three or more (not necessarily consecutive) months out of any Year, more than 50 per cent Timetabled Train Services operated under this agreement are Ahead or Late; and

(i) \_\_\_\_\_ the failure to operate the Timetabled Train Service On Time is not the result of:

(A) \_\_\_\_\_ a Queensland Rail Cause; or

(B) \_\_\_\_\_ prior agreement between Queensland Rail and the Operator, at Queensland Rail's request,

then:

(ii) \_\_\_\_\_ Queensland Rail may, within 30 Business Days after the last of those occasions, give notice to the Access Holder (**Review Notice**):

(A) \_\_\_\_\_ that Queensland Rail is considering amending the Timetabled Train Path so that the Timetabled Train Path reflects, as closely as is reasonably practicable, the demonstrated three month history; and

- (B) requesting the Access Holder to demonstrate an ability to have an Operator utilise the Timetabled Train Path On Time, and provide any other information relevant to Queensland Rail's assessment of whether the Timetabled Train Path should be amended.
- (iii) If a Review Notice is given to the Access Holder and the Access Holder has not demonstrated, to Queensland Rail's reasonable satisfaction, within 40 Business Days (or longer period agreed between the Access Holder and Queensland Rail (both acting reasonably)) of receiving the Review Notice, an ability to have an Operator operate the Timetabled Train Services On Time:
- (A) Queensland Rail must promptly notify the Access Holder of whether Queensland Rail has decided to proceed to amend the Timetabled Train Path (**Review Decision Notice**); and
- (B) If Queensland Rail has decided to proceed with rescheduling, the Access Holder's entitlement to have an Operator operate Timetabled Train Services will be amended with effect on and from the date specified in the Review Decision Notice.
- (iv) If the Access Holder does not agree with the amendment of the Access Holder's entitlement proposed by Queensland Rail pursuant to clause 21.2(d)(iii)~~21.1(d)(iv)~~, the Access Holder may, within 20 Business Days of the receipt of the Review Decision Notice, notify Queensland Rail in writing that it disputes the proposed amendment in which case the Access Holder may refer the Dispute for determination by an Expert in accordance with clause 19.3 of this agreement (subject to any other dispute resolution process otherwise agreed by the Parties to the Dispute (in each Party's absolute discretion)). The Expert will determine whether the conditions for an amendment of a Timetabled Train Service have been met. The amendment will not take effect until resolution of the dispute and then only to the extent that the reduction is consistent with the Expert's determination.
- (v) In the event that the Access Holder's entitlement to operate the Timetabled Train Services is amended in accordance with this clause ~~21.224.1~~, the agreement will be varied accordingly.
- (vi) Queensland Rail may not amend a Timetabled Train Path if to do so would cause the Access Holder to be in breach of its contractual obligations owed to any person (including Queensland Rail).

### **20.821.3 Reduction of Access Rights**

- (a) If:
- (i) the Access Holder fails to have an Operator operate ~~all a~~ Train Services on a Scheduled Train Paths for seven or more (not necessarily consecutive) weeks out of any 12 consecutive weeks when such Train Services are scheduled; or
- (ii) the Access Holder fails to have an Operator operate a Train Service on a Scheduled Train Path for seven or more (not necessarily consecutive) weeks out of any 26 consecutive weeks when such Train Services are scheduled; or
- (iii) the Access Holder no longer has rights to access or use Private Infrastructure that are necessary to enter or exit the Network at the scheduled times,
- (b) \_\_\_\_\_ and
- (c) Queensland Rail can demonstrate that it has a reasonable expectation of:
- (d) a sustained alternative demand for the capacity used by the Access Rights in question; or
- (e) receiving a commercial benefit sufficiently material to justify the resumption of the Access Rights in question,

then:

~~(f)~~(iv) Queensland Rail may, within ten Business Days after the last of those seven occasions, or after receipt of notice from the Access Holder that it no longer has rights to access or use Private Infrastructure that are necessary to enter or exit the Network at the scheduled times, give a notice to the Access Holder (**Resumption Notice**):

- (A) that Queensland Rail is considering reducing the Access Holder's Access Rights from a nominated date (**Date of Resumption**) to the extent of that underutilisation; and
- (B) requesting the Access Holder to demonstrate a sustained requirement for and ability to utilise the Access Rights.

~~(f)~~(b) If a Resumption Notice is given to the Access Holder and the Access Holder has not demonstrated to Queensland Rail's reasonable satisfaction, within 40 Business Days (or longer period if agreed between the Access Holder and Queensland Rail (both acting reasonably)) of receiving the Resumption Notice, a sustained requirement for and ability to utilise the Access Rights that were not utilised:

- (i) Queensland Rail must promptly notify the Access Holder of whether Queensland Rail has decided to proceed with the resumption and, if Queensland Rail has decided to proceed, whether Queensland Rail has decided to reduce the level of resumption, or nominate a later date for the Date of Resumption, from that given in the Resumption Notice (**Resumption Decision Notice**); and
- (ii) if Queensland Rail has decided to proceed with the resumption, the Access Holder's entitlement to operate Train Services shall be reduced to the level specified in the Resumption Notice with effect on and from the Date of Resumption (except to the extent that those matters have been varied in accordance with clause ~~21.3(b)(i)21.2(b)(i)21.1(b)(i)~~).

~~(g)~~(c) If the Access Holder does not agree with the reduction of the Access Holder's entitlement proposed by Queensland Rail pursuant to clause ~~21.3(a)21.2(a)21.1(a)~~ and ~~21.3(b)21.2(b)21.1(b)~~, the Access Holder may, within 20 Business Days of the receipt of the Resumption Decision Notice, notify Queensland Rail in writing that it disputes the proposed reduction in which case the Access Holder may refer the Dispute for determination by an Expert in accordance with clause 19.3 of this agreement (subject to any other dispute resolution process otherwise agreed by the Parties to the Dispute (in each Party's absolute discretion)). The Expert will determine whether the conditions for a reduction in Access Rights set out in clause ~~21.3(a)21.2(a)21.1(a)~~ have been met and whether the Access Holder has demonstrated a sustained requirement for that part of the Access Rights to which the reduction would apply. The reduction proposed in the Resumption Decision Notice will not take effect until resolution of the dispute and then only to the extent that the reduction is consistent with the Expert's determination.

~~(h)~~(d) Queensland Rail may withdraw the Resumption Notice or the Resumption Decision Notice at any time prior to the later of the Date of Resumption and 10 Business Days following the resolution of the dispute.

~~(i)~~(e) In the event that the Access Holder's entitlement to operate Train Services is reduced in accordance with this clause ~~21.221.4~~, the agreement (including the Access Charges) will be varied accordingly.

~~(j)~~(f) A Train Service has not been operated on a Scheduled Train Path if the Operator has failed:

- (i) to present the relevant Train at the scheduled entry point onto the Network; ~~or~~
- (ii) to operate the relevant Train so that it completes its full journey; or

(iii) to operate the relevant Train with at least fifty per cent of the approved maximum length of the consist specified in the train route acceptance applicable to the relevant Train in Attachment 3 of Schedule 2,

in conformance with the locations and days set out in the Scheduled Train Paths applicable to such Train Service except:

(iv) for a Queensland Rail Cause; or

(ii)(v) where the prior agreement of Queensland Rail and the Operator has resulted in the Operator using an alternative Train Path for that Train Service.

#### **20.921.4 Relinquishment of Access Rights**

- (a) If the Access Holder intends to relinquish all or part of the Access Rights, the Access Holder must give Queensland Rail reasonable notice of its intention to do so specifying:
- (i) the Access Rights that the Access Holder intends to relinquish (**Nominated Access Rights**);
  - (ii) if the Access Holder intends that all or part of the Relinquished Access Rights be used so Queensland Rail can grant specific access rights to a specified Access Seeker (as defined in the Access Undertaking) (**Transfer**), the identity of that Access Seeker (**Transferee**) – and, for clarity, the Access Holder may itself be that Access Seeker; and
  - (iii) subject to clause 21.4(b)21.3(b)21.2(b), the date (**Relinquishment Date**) on which and the period for which the Nominated Access Rights are to be relinquished.
- (b) The period from the giving of the notice under clause 21.4(a)21.3(a)21.2(a) until the Relinquishment Date must not exceed nine months.
- (c) The relinquishment of any Nominated Access Rights in accordance with this clause 21.421.321.2 is subject to and conditional on the Access Holder paying to Queensland Rail the Relinquishment Fee on or before the Relinquishment Date.
- (d) If the Access Holder pays the Relinquishment Fee to Queensland Rail on or before the Relinquishment Date, then the terms of this agreement will cease to apply in respect of the Nominated Access Rights on the Relinquishment Date.
- (e) Queensland Rail must facilitate a Transfer in respect of a Transferee if:
- (i) the relevant Access Rights to be granted to the Transferee are included in a new or varied access agreement with the Transferee on terms satisfactory to Queensland Rail (acting reasonably);
  - (ii) Queensland Rail is satisfied (acting reasonably) that the new or varied access agreement with the Transferee has been developed in accordance with the requirements of the Access Undertaking;
  - (iii) the Access Holder has complied with clause 21.4(a)21.3(a)21.2(a) and paid the Relinquishment Fee to Queensland Rail on or before the Relinquishment Date; and
  - (iv) Queensland Rail has sufficient Available Capacity (as defined in the Access Undertaking) so that it can grant all of the relevant access rights to the Transferee without adversely affecting any other third Party.
- (f) If the Relinquishment Fee is not paid on or prior to the Relinquishment Date, then the Access Holder is taken to have withdrawn the notice given under clause 21.4(a)21.3(a)21.2(a) and Queensland Rail has no further obligations under this clause 21.421.321.2 in relation to the relevant relinquishment.

### **20.1021.5 Replacement Access Agreement**

If Queensland Rail or the Access Holder identify an opportunity for Queensland Rail to enter into an access agreement with an existing or prospective access holder that would result in a lessening of the Relinquishment Fee that would otherwise be payable to Queensland Rail under clause ~~21.421.3~~~~21.2~~, Queensland Rail will not unreasonably delay the process for negotiating and executing an Access Agreement with that existing or prospective access holder.

### **20.1121.6 Termination where no Access Rights remain**

- (a) Subject to clause ~~21.6(b)~~~~21.5(b)~~~~21.4(b)~~, where Access Rights have been resumed, reduced, relinquished or transferred in accordance with this agreement to the extent that there are no longer any Access Rights remaining the subject of this agreement, then Queensland Rail may terminate this agreement by notice to the Access Holder (without prejudice to those provisions which are stated to survive this agreement).
- (b) Where, but for the operation of Ad Hoc Train Services, the Access Holder has no right to utilise the Network, unless otherwise agreed between the Parties (each acting reasonably), this agreement will continue to operate in relation to those Ad Hoc Train Services.
- (c) Any termination under clause ~~21.6~~~~21.5~~~~21.4~~ is without prejudice to any rights of any Party which accrued on or before termination.

### **20.1221.7 Effect on entitlement to operate and Access Charge Rates**

Where Access Rights have been resumed, reduced, relinquished or transferred in accordance with this agreement then for the avoidance of doubt:

- (a) the Access Holder's entitlements to have an Operator operate Train Services is also reduced in accordance with that resumption, reduction, relinquishment or transfer of Access Rights;
- (b) the Access Holder's Nominated Monthly Train Services for each applicable Train Service Description will be taken to be varied to be reduced in accordance with that resumption, reduction, relinquishment or transfer of Access Rights; and
- (c) the Access Holder will no longer be obliged to pay Access Charges in respect of the resumed, reduced, relinquished or transferred Access Rights (except for any such Access Charges that accrued prior to the resumption, reduction, relinquishment or transfer payable in respect of the part of the Year prior to the resumption, reduction, relinquishment or transfer).

## **21.22. Assignment**

### **21.122.1 Assignment by Queensland Rail**

~~If Queensland Rail no longer has or expects to no longer have a right to operate the Network or any part of the Network, it may Assign all or part of its rights or obligations under this agreement to an Assignee who has the expertise, the financial resources and other relevant resources to enable it to provide the relevant Access Rights without the prior consent of the other Parties provided that Queensland Rail procures the Assignee to covenant by deed with the other Parties to provide the Access Rights to the extent of the rights and obligations Assigned to the Assignee.~~

- (a) ~~If Queensland Rail will no longer have a right to operate the Network or any part of the Network relevant to providing the Access Rights under this Agreement it will Assign all or part of its rights or obligations under this agreement corresponding to the parts of the Access Rights which Queensland Rail can no longer provide to an Assignee who:~~
  - (i) ~~will have the right to operate the relevant parts of the Network; and~~

(ii) has the expertise, the financial resources and other relevant resources to enable it to provide the relevant Access Rights,

without the prior consent of the other Parties, provided that Queensland Rail procures the Assignee to covenant by deed with the other Parties to provide the Access Rights to the extent of the rights and obligations Assigned to the Assignee.

~~(a)~~(b) Queensland Rail may Assign all or part of its rights or obligations under this agreement to an Assignee who has the expertise, the financial resources and other relevant resources to enable it to discharge the obligations of Queensland Rail under ~~the QCA Act, the Access Undertaking and~~ this agreement without the prior consent of the other Parties provided that Queensland Rail procures the Assignee to covenant by deed with the other Parties to be bound by and to perform the obligations of Queensland Rail under ~~the Access Undertaking and~~ this agreement to the extent of the rights and obligations Assigned to the Assignee.

(c) Before exercising its right under clause 22.1(a) or 22.1(b), Queensland Rail will:

(i) give the Access Holder and the Operator no less than 21 **Business** Days notice; and

(ii) use its best endeavours to secure the cooperation of the Assignee to:

(A) provide information requested by the Access Holder or the Operator to confirm that it has the expertise, financial resources and other relevant resources to enable it to provide the relevant Access Rights; and

(B) negotiate and enter into an interface agreement (as defined in the RSNL) with the Operator.

~~(b)~~(d) On the Assignee entering ~~that a~~ deed required under clause 22.1(a)-22.1(a) or clause 22.1(b), and subject to that deed becoming effective in accordance with its terms, Queensland Rail is released and discharged from further liability under this agreement in respect of the obligations which the Assignee has undertaken to be bound by and to perform.

## 21.222.2 **Assignment by the Access Holder**

(a) The Access Holder may only Assign all or part of its rights and obligations under this agreement in accordance with this clause 22.2.

(b) The Access Holder may, provided it is not in material default in the performance or observance of any of its obligations under this agreement, Assign the whole of its rights and obligations under this agreement to:

(i) subject to clause 22.2(c), a Related Party who is capable of performing the obligations of the Access Holder under this agreement; or

(ii) a person who is not a Related Party with the prior written consent of Queensland Rail provided that such consent will not be unreasonably withheld if Queensland Rail is satisfied (acting reasonably) that such person:

(A) has the financial resources and capability to perform the Access Holder's obligations under this agreement; and

(B) is otherwise capable of performing the Access Holder's obligations under this agreement.

(c) Where clause 22.2(b)(i) applies:

(i) the Access Holder remains liable for the performance of the duties, responsibilities and obligations assumed by the Assignee (**Assigned Obligations**); and

- (ii) the Assignee's performance of the Assigned Obligations will (to the extent of such performance) discharge the Access Holder's liability for performance of those Assigned Obligations.
- (d) Any Assignment by the Access Holder of its rights or obligations under this agreement is conditional on and does not take effect until:
  - (i) the Assignee covenants with Queensland Rail by deed, in such terms as Queensland Rail may reasonably require, to be bound by and to perform the obligations of the Access Holder under this agreement; and
  - (ii) the Assignee provides to Queensland Rail any Security that is required to be provided and maintained by the Access Holder in accordance with clause 17.

### **21.322.3 Assignment by Operator**

The Operator cannot Assign all or part of its rights and obligations under this agreement.

### **21.422.4 Charging**

- (a) The Access Holder (Chargor) may only mortgage, charge, encumber or otherwise grant any security over (Charge) all or any of its rights and obligations under this agreement in whole or in part, in favour of any person (Chargee), if the Chargor, the Chargee and Queensland Rail execute a covenant by deed on terms satisfactory to Queensland Rail (acting reasonably), including terms that the Chargee, and any person (including any receiver or receiver and manager or agent) claiming through the Chargee, must comply with the provisions of this agreement including this clause 22 in the exercise of its rights in relation to the Charge (including in exercising any power of sale) as if it were originally a Party to this agreement in the position of the Chargor.
- (b) If the Operator is not also the Access Holder, then the Operator cannot Charge all or any of its rights and obligations under this agreement in favour of any person.

### **21.522.5 Effect of Assignment or Charge**

Any purported Assignment or Charge in breach of this clause 22 is of no effect.

## **22.23. Representations and warranties**

- (a) In addition to any other express or implied representations and warranties in this agreement, Queensland Rail and the Operator respectively represent, warrant and undertake to each other that:
  - (i) it is a corporation validly existing under the laws applicable to it;
  - (ii) it has the power to enter into and perform all of its obligations under this agreement and has obtained all necessary consents and approvals to enable it to do so;
  - (iii) it has the resources and capability to perform all of its obligations under this agreement and is able to pay its debts as and when they fall due;
  - (iv) its obligations under this agreement are enforceable in accordance with the relevant terms and are fully binding on it;
  - (v) it is not in breach or default under any agreement to which it is a Party to an extent or in a manner which would have a material adverse effect on its ability to perform its obligations under this agreement;
  - (vi) there is:
    - (A) no litigation, arbitration or administrative proceeding taking place, pending, commenced or, to its knowledge, threatened against it; and

## Attachment 3: AECOM Response to Arcadis Report

# AECOM's Response to the QCA Draft Decision and Arcadis Commentary on DAU3

01-Nov-2024  
Commercial-in-Confidence

# AECOM's Response to the QCA Draft Decision and Arcadis Commentary on DAU3

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## Definitions

| Term | Definition                                      |
|------|---|
| AU2  | Queensland Rail's 2020 Access Undertaking       |
| AU3  | Queensland Rail's 2025 Access Undertaking       |
| BMC  | Business Unit Management Costs                  |
| CO   | Corporate Overhead                              |
| DAU2 | Queensland Rail's 2020 Draft Access Undertaking |
| DAU3 | Queensland Rail's 2025 Draft Access Undertaking |
| GTK  | Gross Tonne Kilometres                          |
| mtpa | Mega tonnes per annum                           |
| NC   | Network Costs                                   |
| QCA  | Queensland Competition Authority                |
| QR   | Queensland Rail                                 |
| TAL  | Tonne Axle Load                                 |
| TC   | Total Cost                                      |
| UT5  | Aurizon Network's 2017 Access Undertaking       |
| WM   | West Moreton                                    |

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## Executive Summary

The Queensland Competition Authority (QCA) has submitted its draft decision on Queensland Rail's (QR) Draft Access Undertaking 3 (DAU3) submission, supported by commentary from Arcadis. The commentary received from Arcadis around several facets of QR's submission has been reviewed by AECOM in consultation with QR and suitable responses developed for potential use by QR in its formal response to the QCA.

Arcadis recommended adjustments to QR's proposed capital, maintenance and operational expenditure totalling \$182.1 million (in \$FY25-26), as shown in Table 1. A summary of the initial findings was provided in response to the Draft Decision<sup>1</sup>.

**Table 1 Arcadis' Summary of DAU3 Submission and findings<sup>2</sup>**

| Expenditure Type        | DAU3 Value<br>(\$2025-26 million) | Arcadis Value<br>(\$2025-26 million) | Difference |
|-------------------------|-----------------------------------|--------------------------------------|------------|
| Capital Expenditure     | 346.9                             | 225.8                                | (121.1)    |
| Operating Expenditure   | 85.3                              | 69.4                                 | (15.9)     |
| Maintenance Expenditure | 173.1 <sup>3</sup>                | 128.0                                | (45.1)     |

The Arcadis value is representative of the costs deemed reasonable, and excludes the total cost of works not deemed reasonable, rather than re-evaluate those that are not. For this reason, it is probable that the total value represented by Arcadis is less than the necessary expenditure.

We have reviewed all cost items that Arcadis assessed as 'unreasonable' and developed rationale in response to justify the costs submitted by QR. Where possible, the impact of the opex and capex program on operational capacity of the system has been incorporated into the responses.

The responses provided in this Report draw on quantitative evidence to support the original submission, where possible, and provide qualitative arguments where additional data was not available. A summary of our findings is provided in Table 2.

**Table 2 AECOM's Summary for DAU3 Submission and findings**

| Question Area   | Findings  |
|---|---|
| Capital expenditure should be reduced and / or reallocated to maintenance in three areas. | We find that the capital projects in question have been scoped appropriately as risk mitigation measures and the most prudent whole-of-life cost option.<br><b>No adjustment is required to QR's submission for capital expenditure.</b>  |
| Opportunities should be identified to improve Operational Capacity.                       | The opportunities for maintaining and improving operational capacity are achieved through the completion of proposed works in DAU3, primarily capital projects that improve the quality and durability of the track.<br><b>More comprehensive rationale could be provided by QR in its submission to highlight the impact of works on operational capacity.</b> |

<sup>1</sup> QCA, Queensland Rail 2025 Draft Access Undertaking, Draft Decision, June 2024

<sup>2</sup> Arcadis, Review of West Moreton System Costs and Other Technical Matters in Queensland Rail's 2025 DAU

<sup>3</sup> The reported maintenance expenditure in Table 1-1 of the Arcadis review is found to be not consistent with the correct DAU3 maintenance total of \$172.5 million (FY2025-26), as submitted.

| Question Area   | Findings   |
|---|--|
| Fixed operating costs should be increased in five areas.  | <p>The methodology for calculating fixed and variable operating rates was original assessment by B&amp;H Strategic Services<sup>4</sup> and approved by the QCA in both AU1 and AU2. We note that the same methodology has been used in DAU3.</p> <p><b>No adjustment is required to QR's submission for the fixed and variable cost split.</b></p>  |
| The allocation of corporate overhead costs (18.6% of forecast operating costs) should be justified. | <p>We find that corporate overheads have been calculated in accordance with the QR Costing Manual, approved by the QCA, and is deemed reasonable as an approach when compared to its peers. The allocation methods defined in the costing manual have been accurately applied to the relevant cost centres and allocated correctly to the West Moreton System. The escalation value applied for DAU3 is suitably in line with RBA indexation rates.</p> <p><b>No adjustment is required to QR's submission for corporate overhead.</b></p>   |
| Maintenance costs should be justified in six areas.   | <p>We find that the methodology for calculating maintenance costs is reasonable and appropriate in accounting for maintenance avoided as a result of capital works.</p> <p><b>More comprehensive rationale could be provided by QR to define which cost centres and work types are included in each maintenance category.</b></p> <p><b>No adjustment is required to QR's submission for maintenance costs; however it is recommended for Queensland Rail to improve justification of maintenance costs and cost categories in the next undertaking.</b></p>   |
| Arcadis expressed doubt in QR's ability to deliver the works required.                              | <p>QR has responded to the risk of delivery in its DAU3 capital program in Section 11 of its DAU3 Capital submission, where several strategies for procurement are highlighted across each capital project. In addition to these statements, QR is reallocating internal resources to the South-East Queensland region.</p> <p>Additionally, if QR does not deliver the schedule of works, then the capital expenditure claim cannot be approved by the QCA and therefore the assets are not included in the Regulated Asset Base (RAB). While there is benefit in including the totals in the reference tariff modelling, there would be a true-up in the next undertaking (AU4) if this were to occur.</p> <p><b>No adjustment is required to QR's submission for delivery constraints and considerations.</b></p> |

We have also undertaken a high-level benchmarking exercise to supplement the response provided in relation to Arcadis' assessment of corporate overhead costs. The benchmarking provided in this Report is subject to several assumptions which are stated in Section 1.3, and uses data sources listed in Section 4.0. We find that **the approach used by QR is reasonable when compared to its peers**, and that if alternative approaches as used by its peers are applied to QR's cost base, the outcome is similar to that obtained by QR using its current approach.

AECOM has summarised its assessment of changes in comparison with Arcadis in Table 3 below.

<sup>4</sup> B&H Strategic Services Pty Ltd, Review of Queensland Rail's DAU 2015, September 2015 (p31-32)

Table 3 Summary of Changes to the DAU3 Values

| Expenditure Type | Category                | DAU3 Value (\$FY2025-26 million) | Arcadis Value (\$FY2025-26 million) | AECOM Assessment of Reasonable Change in DAU3 Value |
|------------------|-------------------------|----------------------------------|-------------------------------------|---|
| Capital          | Reconditioning          | ████                             | ████                                | — No Change to DAU3 value                           |
| Capital          | Re-sleepering           | ██                               | ██                                  | — No Change to DAU3 value                           |
| Capital          | Bridge Pier Replacement | ████                             | ████                                | — No Change to DAU3 value                           |
| Operating        | Corporate Overhead      | 3.179                            | No value provided                   | — No Change to DAU3 value                           |
| Maintenance      | Renewals                | 2.651                            | No value provided                   | — No Change to DAU3 value                           |
| Maintenance      | Repair                  | 19.938                           | No value provided                   | — No Change to DAU3 value                           |

The findings of this response will also be applied accordingly to the lower tonnage volume of 7.5 mtpa.

## 1.0 Introduction

Queensland Rail (QR) formerly engaged AECOM to undertake a peer review of its proposed maintenance expenditure for the DAU3 period, covering FY2025-26 (FY26) to FY30. This peer review supported the Explanatory Documents submitted by QR to the Queensland Competition Authority (QCA) on 17 November 2023.

The QCA has sought the consulting services of Arcadis to review QR's DAU3 submission, and has provided its draft decision on the 6 June 2024. This report presents AECOM's response to each argument made by Arcadis in disagreement with QR's original submission, to support the development of QR's response submission, as well as its collaborative submission to the QCA.

### 1.1 Context

The QCA released its draft decision in relation to the Queensland Rail's Draft Access Undertaking 3 (DAU3) in early June, and published the report produced by Arcadis after its review of QR's submission for the QCA.

Arcadis recommended that several changes be made to QR's submission and observed several times that insufficient information had been provided to enable it to make a more comprehensive assessment of the costs included in the submission.

The QCA found that stakeholders were concerned with the significant increases in maintenance and operating costs proposed by QR, as well as the difficulty in assessing the proposal based on the amount of information provided.

It considered that the objectives of the QCA Act would best be achieved by QR and its customers working towards agreed approaches, and encouraged QR to engage with users and above-rail operators so that they may be able to agree on alternative maintenance programs that minimise costs through greater consideration of the interaction between service levels and above-rail costs.

### 1.2 Issues Raised in the QCA's Draft Decision

Arcadis noted in its findings that there was a general lack of supporting information, and made specific recommendations in 7 aspects of QR's submission:

- Capital expenditure should be reduced and / or reallocated to maintenance in three areas:
  - Track reconditioning
  - Re-sleepering
  - Bridge pier replacement.
- Opportunities should be identified to improve Operational Capacity by addressing crucial factors like improved headways, increased passing opportunities, or higher line speeds.
- QR should implement proactive asset management strategies
- Fixed operating costs should be increased in five areas:
  - Planning & Systems
  - Operations Admin
  - Monitoring Systems
  - Management support
  - Assurance and Capability (Asset Maintenance)
- The allocation of corporate overhead costs (18.6% of forecast operating costs) should be justified

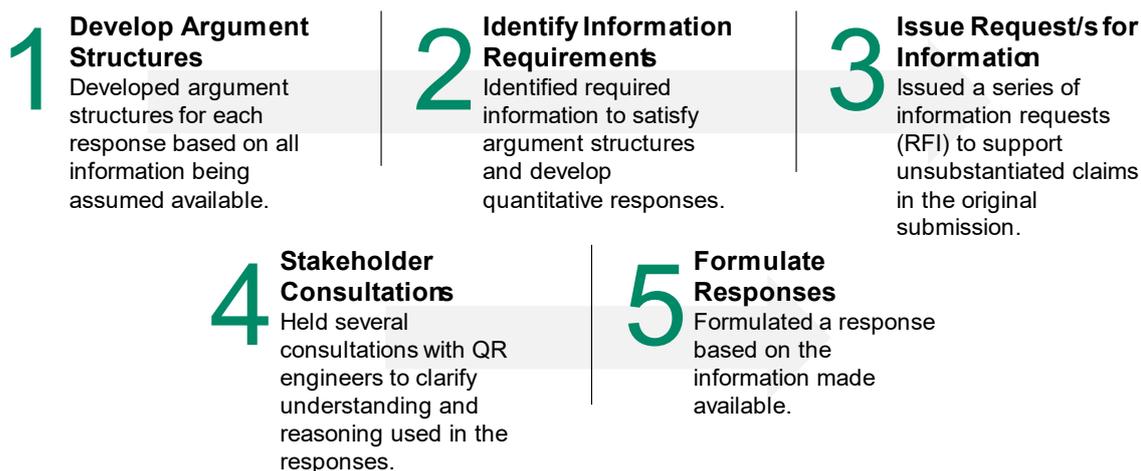
- Maintenance costs should be justified in six areas:
  - Repairs
  - Maintenance Ballasting
  - Renewals
  - Turnout Maintenance
  - Lubrication
  - Other
- Arcadis expressed doubt in QR's ability to deliver the works required

Arcadis concluded that it would be more efficient to retain existing maintenance practices between Macalister and Columboola since capacity is forecast to remain the same as present on that section, and since that section of the track has relatively low utilisation there are sufficient spare paths available for maintenance possessions.

Arcadis also noted that it was unable to calculate the associated costs that should be included because sufficiently detailed information on maintenance activities was not available, but suggested that the maintenance allowance may need to be revised in line with demand and capital indicator changes, taking into account further information to be provided by QR.

### 1.3 Approach

The approach we have taken to develop its responses, detailed in Section 2.0, is presented in the figure below.



The benchmarking approach we have taken to compare corporate overheads against peer organisations is further defined in Section 2.3.2. Several assumptions have been made to develop the benchmarking analysis. These include:

- Referenced figures are assumed current as of the year of the publication from which they have been sourced.
- Cost type terminology between the comparator organisations varies slightly, and an assumption of best fit has been made.
- Track kilometres for Aurizon and ARTC have been adopted as consistent across all years, based on values sourced from ARUP's benchmarking report<sup>5</sup>.
- Gross tonne kilometres (GTK) values for Aurizon in 2018, 2019 and 2020 have adopted 2017 values sourced from ARUP's benchmarking report.

<sup>5</sup> ARUP, ACCC ARTC – Hunter Valley Operating cost benchmarking, September 2022

## 2.0 Response to Issues Raised in the QCA's Draft Decision

To support QR in its response to the QCA, we have developed responses, setting out key arguments across the areas of:

- Capital Expenditure
- Maintenance Expenditure
- Operating Costs
- Project Delivery.

These arguments have been developed with quantitative analysis where possible, supported by qualitative commentary describing the logical steps of the argument.

Arcadis provided recommendations to strengthen the initiatives aimed towards enhancing Operational Capacity and reflect the impact that the projects in question will have on operational capacity over the DAU3 period. To this point, the responses provided in this report make reference to, where applicable, the improvements they will have on QR's operational capacity as it prepares for increased tonnages on the track.

### 2.1 Capital Submission

Table 4 presents the rationale developed in response to the findings made by Arcadis that QR's capital expenditure submission was 'unreasonable' in relation to track reconditioning, re-sleepering and bridge pier replacements.

Table 4 Capital Expenditure, Responses

| Topic                       | Arcadis Commentary   | Argument   |
|-----------------------------|--|--|
| <b>Track Reconditioning</b> | <p>"Insufficient information to justify proposed changes to historic capex and maintenance practices based on increased tonnages.</p> <p>Reallocate track conditioning capex from Koomi to Dalby, Dalby to Macalister and Macalister and Columboola to maintenance."</p> | <p><b>Reason for the Project:</b></p> <p>Track reconditioning has historically proven to be an effective strategy to reduce occurrences of derailment, evidenced in the West Moreton Derailment Reduction Strategy<sup>6</sup>. This Strategy was approved by the QCA in 2019, and its effectiveness at reducing instances of derailments and the need for major maintenance and renewals is shown in Appendix A in a series of rash maps. The Track Reconditioning capital works in DAU3 are a continuation of this strategy in anticipation of increasing tonnages on the line, which the QCA has acknowledged. Derailment is still an unacceptable risk in all tonnage scenarios greater than 2.5 mtpa if current speeds are maintained. The projects are required as planned for any significant load increase.</p> <p>Areas with poor formation strength and drainage issues require higher resurfacing effort to maintain alignment, which results in ballast breakdown, ballast height issues, and contamination. Renewing the formation and ballast reinstates track stability, top and line. Failing formation, poor drainage, high ballast profile or ballast contamination reduce track stability and increase the risk of track buckling. This results in an increasing need for reactive maintenance and repetitive resurfacing.</p> <p><b>Risk Mitigation:</b></p> <p>This option will reduce the risk of service disruption and safety risks by improving the network through the replacement of below rail infrastructure that is known to have increasing operational maintenance costs.</p> <p>QR developed its capital works program for Track Reconditioning over the DAU3 period assuming a 9.6mtpa tonnage projection. The optioneering for these capital works complied with QR's business case requirement to select the most cost-effective solution that mitigates risk to the operational capacity of the system.</p> <p>Track reconditioning is focused on the area west of Toowoomba where the topography is relatively flat. This enables the increased traffic to be moving at speed, which accelerates the rate of deterioration, particularly of the 41kg rail. The light track sections have an increased risk of derailment due to its reduced stability under the projected tonnages.</p> <p><b>Operational Efficiency:</b></p> <p>Possession times available for track reconditioning will reduce as tonnage and the number of train paths increase, so to provide the track capacity needed by QR's customers, this activity needs to be completed while spare paths are still available.</p> <p>Maintenance cost estimates will be revised to match any tonnage agreement reached between QR and its customers.</p> |

<sup>6</sup> West Moreton Derailment Strategy – Jondaryan to Columboola, September 2019

| Topic              | Arcadis Commentary   | Argument  |
|--------------------|--|---|
| <b>Re-sleeping</b> | <p>“The expected increase in tonnage on track sections is not immediately urgent enough to justify moving the capital projects forward in time.</p> <p>Reallocate capex costs relating to Macalister and Columboola section to maintenance.”</p> | <p><b>Reason for the Project:</b></p> <p>Re-sleeping involves the efficient renewal of deteriorated timber sleepers. Timber sleepers degrade by environmental factors more than load, so this project is required in all tonnage scenarios.</p> <p>Queensland Rail has generally maintained track with timber sleepers on the regional freight network through a robust “one pass” maintenance cyclic sleeper renewal program delivered by a mechanised production team. This approach primarily includes renewal of ineffective timber sleepers (like-for-like timber replacement), but also includes ancillary maintenance on other assets such as rail joints, turnouts, level crossings, and vegetation management. Each cycle of 100% ineffective sleeper replacement will ensure a safe and compliant corridor for 5 to 6 years.</p> <p>There is significant benefit in completing a mechanised re-sleeping cycle, with the advantage of utilising the optional time to resurface the track following re-sleeping, improving alignment and reducing speed restriction levels. This resurfacing pass is not achievable unless low defective sleeper rates are achieved in the re-sleeping cycle. Reduction of speed restrictions is not achievable using an operational sleeper cluster management approach due to lack of a resurfacing run.</p> <p><b>Risk Mitigation:</b></p> <p>Re-sleeping with new timber sleepers will achieve enhanced lateral, longitudinal, rotational and vertical stability, reducing the risk of gauge widening, rail misalignments and track buckling. Sleeper spacing, spot tamping, and resurfacing will reinstate track stability, load distribution, and top and line, reducing the risk of misalignments and accelerated track deterioration.</p> <p>It is increasingly difficult to source good quality bush timber for sleeper use and future supply will be at a premium price, as identified in Section 4.1.6.2 of QR’s Discipline Asset Management Plan (DAMP)<sup>7</sup>.</p> <p><b>Operational Efficiency:</b></p> <p>Possession times available for track reconditioning will reduce as tonnage and the number of train paths increase, so to provide the track capacity needed by QR's customers, this activity needs to be completed while spare paths are still available. The cost benefit analysis included in Appendix 2.1 of the Far West Moreton Asset Strategy<sup>8</sup> demonstrates the accelerated delivery of this project as capital is the most cost-effective option for delivery.</p> |

<sup>7</sup> MD-15-182 Track and Civil Discipline Asset Management Plan, March 2024

<sup>8</sup> Queensland Rail Far West Moreton Asset Strategy, January 2020

| Topic                                 | Arcadis Commentary  | Argument  |
|---------------------------------------|---|---|
| <p><b>Bridge Pier Replacement</b></p> | <p>“Insufficient evidence to justify replacement of timber piers with concrete.</p> <p>Replace only very poor condition elements with a capital program (62% of the claim). Deal with the remaining elements in an ongoing predictive maintenance program.”</p> | <p><b>Reason for the project:</b></p> <p>There are 71 remaining timber bridges, many over one hundred years old. This project forms part of an ongoing West Moreton bridge replacement program to replace timber bridges where asset deterioration is resulting in speed restrictions – impacting operational services. Timber bridges are a legacy asset. Timber bridges are maintenance-intensive and present a higher risk of derailment and unplanned repairs resulting in speed restrictions. Queensland Rail have identified an organisational risk for structural deterioration or unknown defect resulting in a timber bridge failure and/or closure of the railway line and ceasing of services (possible derailment). This project proposes to remove the underground timber that is not visible, mitigating this risk.</p> <p><b>Risk Mitigation:</b></p> <p>Bridge pier replacements enable an increased service capacity and axle loads while managing the risks to underground timber.</p> <p>Timber was used for bridging when there was a ready supply of cheap bush materials and labour, and it was easier to build timber bridges than high earth embankments. Traffic tasks were low, and loadings were at a maximum 15.75 TAL. All SEQ rail bridges now have a load capacity of 20 TAL.</p> <p>The timber used by the West Moreton timber bridges is now increasingly difficult to obtain, and repair requires skilled labour that is increasingly difficult to source. Availability of materials and suitably skilled personnel to perform renewals and maintenance is declining presenting an obsolescence risk.</p> <p>Where timber bridge piers are submerged in water within black soil, the combination of prolonged water exposure and the unique properties of black soil (high moisture retention) contribute to degradation of timber, leading to compromised structural stability. Water exposure increases the risk of an undetected failure below ground level, requiring on-going inspections and maintenance.</p> <p><b>Operational Efficiency:</b></p> <p>QR has included high risk piers only in its capital works proposal, and notes that the consequence of a failure would range from load and / or speed restrictions to track closure while repairs are undertaken. The nature of the work required means that extended track closure periods may be required, which may have a significant impact on mine production.</p> <p>The approach for these bridges will be optioneered review and prioritise the replacement or repair of high-priority timber bridges at sites between Rosewood and Miles that are demonstrating advanced signs of structural deterioration with timber piers in the ground a known failure risk. The plan is to achieve as many repairs / replacements as possible and where practical, replace short-span bridges with culvert structures to reduce costs.</p> |

## 2.2 Maintenance Submission

Table 5 presents the rationale developed in response to the findings made by Arcadis that costs were 'unreasonable' in QR's maintenance expenditure submission in relation to renewals, repairs, turnout maintenance, lubrication and other maintenance costs.

**Table 5 Maintenance Expenditure, Responses**

| Topic          | Arcadis Commentary  | Argument   |
|----------------|---|--|
| <b>Repairs</b> | <p>"In light of all rail replacement in the capital works, Arcadis assess that this amount is too high and that the budget be reduced for these works."</p> | <p>Rail 'repair' includes replacement or refurbishment of sections of track, which enables some maintenance costs to be avoided for the next several years.</p> <p>The 'Repairs' category of maintenance also includes several tasks that will continue to be carried out regardless of rail replacement, including issues such as wheel burn, defective welds, internal rail defects, broken bolts, rail distribution, unloading and flagging, as well as the regular examinations of the line that QR is required to undertake by regulation.</p> <p>Rail wear is a function of tonnage and proportionally increases with tonnage. As a result, rail replacement is not an activity that would significantly reduce maintenance required, considering the increased tonnages expected in DAU3.</p> <p>A detailed analysis of all capital works has been assessed, with several iterations taken following technical discussions between internal stakeholders from QR and external rail engineers in AECOM. The assessment found the most appropriate maintenance avoided percentage of 30% for repairs, due to rail replacement.</p> <p>AECOM's Peer Review<sup>9</sup> of the DAU3 Maintenance Submission also demonstrates the delayed reinstatement of repair costs at a progressive rate. The assessed rate of maintenance instated following the completion of capital works that has been used to calculate repair costs is detailed in the table below.</p> <div style="background-color: black; width: 100%; height: 225px; margin: 10px 0;"></div> <p>The impact of rail replacements is a projected DAU3 maintenance cost avoided <span style="background-color: black; color: black;">[REDACTED]</span></p> |

<sup>9</sup> AECOM, Engineering Review of QR DAU3 Capital Submission, November 2023

| Topic                      | Arcadis Commentary  | Argument  |
|----------------------------|---|---|
| <b>Renewals</b>            | “Insufficient information to understand renewals. Structural renewals are not included in this amount and may be missing in maintenance expenditure.”   | <p>Renewal activities involve the replacement of components or minor assets on a like for like basis. Our review of work order descriptions confirms that the works categorised as ‘Renewals’ are aligned to this definition.</p> <p>Structural renewals are in fact included in these maintenance costs and are the largest portion of the total Renewals cost.</p> <p>Structural renewal associated with telecoms and signalling is not included in this category (it has its own specific cost category).</p> <p>Renewal of bridge components is included in the ‘Other’ category, but these costs are not material. These costs will be avoided if the capital works proceed as planned but would otherwise continue as a maintenance cost.</p> |
| <b>Turnout maintenance</b> | “This figure appears low. We would expect that turnout maintenance would be higher due to their high maintenance requirements. These costs may be embedded elsewhere in maintenance. We do not deem these reasonable as these costs are lower than expected. Insufficient information to provide estimate.” | <p>Turnout maintenance costs include fixed and variable cost items. Variable turnout maintenance costs have been included in the ‘Other’ cost category.</p> <p>Arcadis's assessment of these costs being ‘<i>too low</i>’ may indicate that they only identified the fixed portion of turnout maintenance costs (\$1.06 million in \$FY24).</p> <p>When considering both variable and fixed portions of this category, the total turnout maintenance cost over the DAU3 period is \$5.57 million (\$FY24).</p>  |
| <b>Lubrication</b>         | “We would expect higher lubrication costs, particularly as tonnage increases. Deem this as not reasonable.”   | <p>Lubrication is considered to be primarily a variable cost for all track related activities, as noted in the DAU2 submission<sup>10</sup> which was accepted by the QCA. 50% of lubrication costs are treated as variable and will therefore increase in proportion to tonnage increases.</p> <p>The same assumptions have been made in DAU3, and a similar methodology has been used for all maintenance categories.</p> <p>The response should detail these assumptions and the process followed.</p> <p>We note that there is an error in Section 6.1.8 of the Maintenance submission, which gives a total figure of \$9.1 million. This should be adjusted to \$8.8 million.</p>  |

<sup>10</sup> Draft Access Undertaking 2 (DAU2), Explanatory Document, August 2018

| Topic                                 | Arcadis Commentary  | Argument   |
|---------------------------------------|---|--|
| <p><b>Other maintenance costs</b></p> | <p>“Due to insufficient information, we are unable to deem this as reasonable. Considering the topology such as black soil, Arcadis has partially assessed this as reasonable. However, Arcadis requests further clarification on this item.”</p> | <p>Other maintenance activities described in Section 6.1.8 of the Maintenance Submission, include a collection of several activities considered both variable and fixed, all being low-cost. The variable activities which contribute to the 'Other maintenance' category include:</p> <ul style="list-style-type: none"> <li>• Rail Grinding, which extends the life of the rail by reducing rail wear by optimising wheel rail interface.</li> <li>• Cluster sleeper management between re-sleeping cycles.</li> <li>• Rail stress management and joint maintenance.</li> <li>• Track reconditioning.</li> </ul> <p>Fixed activities, described in Section 6.2.1 of the Maintenance Submission, contributing to the 'Other maintenance' category include Legislative compliance, Carpentry, Top and Line Spot Resurfacing, Security, Audits/Investigation, Plumbing, Vandalism Management, Cleaning, Signage Management, Graffiti Management, Track Geometry Recording, Support, Installation, Flood &amp; Natural Disaster Repair, Project Management, Formation Repairs, Disposal, Painting, 3rd Party Damage Repairs, Rollingstock Support, Construction, Calibration/Testing, Maintenance Ballasting, Property Management, Pest Control, Commissioning, Design, Mechanised Resurfacing, Monitoring Systems and Performance, Estimates, Scheduling, Derailments, Refurbishment and Overhaul.</p> <p>This category does not include Signalling and Telecommunication maintenance activities, which are reflected in their own cost category.</p> |

Queensland Rail spent \$28.9 million (nominal) in FY23 at tonnages of 2.2 mtpa (approximately \$10 million greater than the AU2 allowance). The average maintenance expenditure over DAU3 is \$32.5 million to enable over four times the tonnage throughput. Considering these comparisons to previous access undertaking periods, AECOM consider the maintenance expenditure projected over DAU3 to be within reason.

## 2.3 Operating Costs

Section 2.3.1 presents AECOM's response to commentary on fixed operating costs while Section 2.3.2 presents AECOM's analysis of Queensland Rail's corporate overhead costs.

### 2.3.1 Fixed Operating Costs

Table 6 presents the rationale developed in response to claims made by Arcadis that QR's operating costs are 'unreasonable' in relation to the operating cost allocation for select operating cost types and corporate overhead.

**Table 6 Operating Costs, Responses**

| Topic                        | Arcadis Commentary   | Response   |
|------------------------------|--|--|
| <b>Fixed Operating Costs</b> |  |  |
| Planning & Systems           | "System costs are generally not influenced by having more trains. User licenses for specific software tools might increase when more planning staff is deployed (dependent on contractual conditions). More planning staff required to handle unforeseen circumstances and deal with a more complicated basic timetable / train path allocations." | We assessed QR's allocation of operating cost rates, and find that the allocation methodology used for DAU3 is consistent with the methodology it used in previous access undertakings that was accepted by the QCA.<br><br>The quantum of costs in many of these areas is determined by changes to the statistical allocator, itself based on volume.<br><br>References to the Fixed/Variable split of costs for operating (and maintenance) costs relate to the allocation of the total cost build-up to coal and non-coal traffics i.e. for reference tariff modelling. We find it not appropriate to adjust the existing fixed and variable cost split, considering their original assessment by B&H Strategic Services <sup>11</sup> and approval by the QCA in both AU1 and AU2. |
| Operations Administration    | "Comparable to train control rate and planning/systems rate."  |  |
| Monitoring Systems           | "Analysis become slightly more complicated because of increased interdependencies and data, however no fundamental change in process is expected."   |  |
| Management Support           | "Similar to engineering support, there can be a small portion of variability in project demand."   |  |
| Assurance and Capability     | "Expect a relatively fixed amount of assurance costs. Assurance processes shall not change fundamentally with tonnage changes."  |  |

<sup>11</sup> B&H Strategic Services Pty Ltd, Review of Queensland Rail's DAU 2015, September 2015 (p31-32)

| Topic                     | Arcadis Commentary  | Response   |
|---------------------------|---|--|
| <b>Corporate Overhead</b> | "Unable to ascertain reasonableness with current information. Discussion of 'revised allocator' included in QR DAU3, without provided methodology." | <p>The allocation of corporate overhead costs to the West Moreton System for DAU3 is based on:</p> <ul style="list-style-type: none"> <li>Principles defined in QR's Cost Manual, which has previously been approved by the QCA.</li> <li>An amendment to the Cost Manual, also approved by the QCA in 2021, that provides for 'items in Table C.1 [to be] recalculated on a rolling 3 year basis and reported in QR's annual financial report'.</li> <li>A formula used to derive the West Moreton System corporate overhead allocator, which complies with the QR Costing Manual.</li> <li>The use of FY22 actuals as the base year from which to calculate the allocation, which is consistent with the approach used and accepted in prior Submissions.</li> <li>Cost escalation using a factor of 1.16, which is in line with the target CPI rates as stated in the most current RBA Cost Index tables<sup>12</sup>.</li> </ul> <p>Queensland Rail has maintained its original methodology and approach, applying the principles of the costing manual, and the established practice for determining non-coal contributions. This approach is recognised by the QCA in Section 8.3 of its response, as the approach used for many years.</p> <p>We have reviewed the Costing Model and concluded that the principles have been applied correctly in QR's DAU3 submission.</p> |

### 2.3.2 Benchmarking of Corporate Overhead Allocation

To further support QR's response to the comments regarding corporate overhead, we performed a high-level benchmarking exercise of corporate overhead costs against relevant comparators. The benchmarking figures present each of the scenarios that are considered in the DAU3 submission.

Our methodology is largely consistent with that used by ARUP in its benchmarking of ARTC's submission<sup>13</sup>, however sources data over several years to present a trending comparison over 5-years. It should be recognised that whilst challenges raised by stakeholders on the methodology used are pertinent, this is only to be used as an indicative measure and therefore should only be viewed in this context.

A list of referenced sources that have been used to gather Aurizon and ARTC figures is provided in Section 4.0.

<sup>12</sup> Reserve Bank of Australia, Statement of Monetary Policy, August 2024

<sup>13</sup> ARUP, ACCC ARTC – Hunter Valley Operating cost benchmarking, September 2022

Figure 1 demonstrates the DAU3 Corporate Overhead as a proportion of Total Costs<sup>14</sup> against key comparators. We note that while DAU3 is 4% greater than DAU2 in this metric, it is still consistently lower than the benchmarks and within the thresholds set out by QR's previous DAUs.

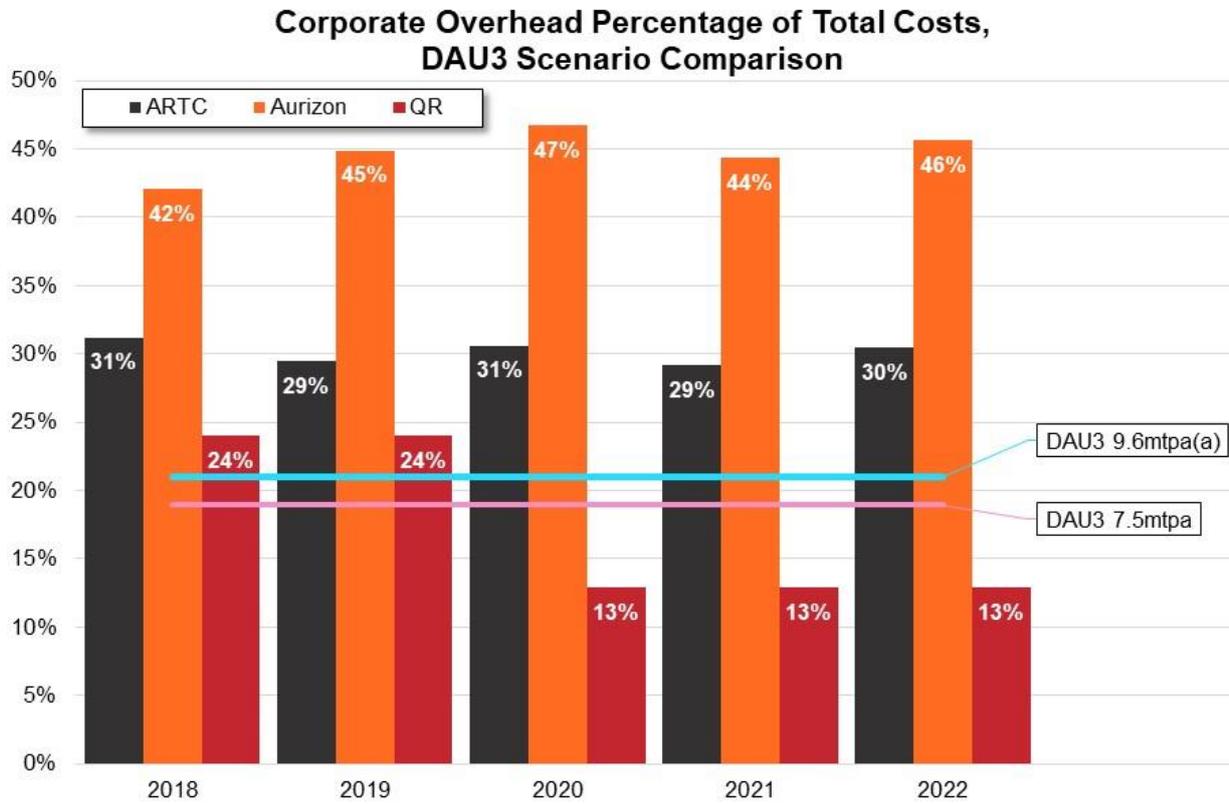


Figure 1 Corporate Overhead Percentage of Total Costs, DAU3 Scenario Comparison

<sup>14</sup> Total costs aligned to the categorisation used in the ARUP Report. Total costs (TC) = Business Unit Management Costs (BMC) + Network Costs (NC)). Where cost types from comparators do not directly align to these categories, the most suitable alignment has been used (i.e. Train Control (QR) = Network Control (Aurizon)).

Figure 2 presents the calculated Corporate Overhead per Gross Tonne Kilometres (GTK), in millions, which shows a reduction in DAU3 from DAU2 by 29% and is within a tolerable range of the values seen for both benchmarks.

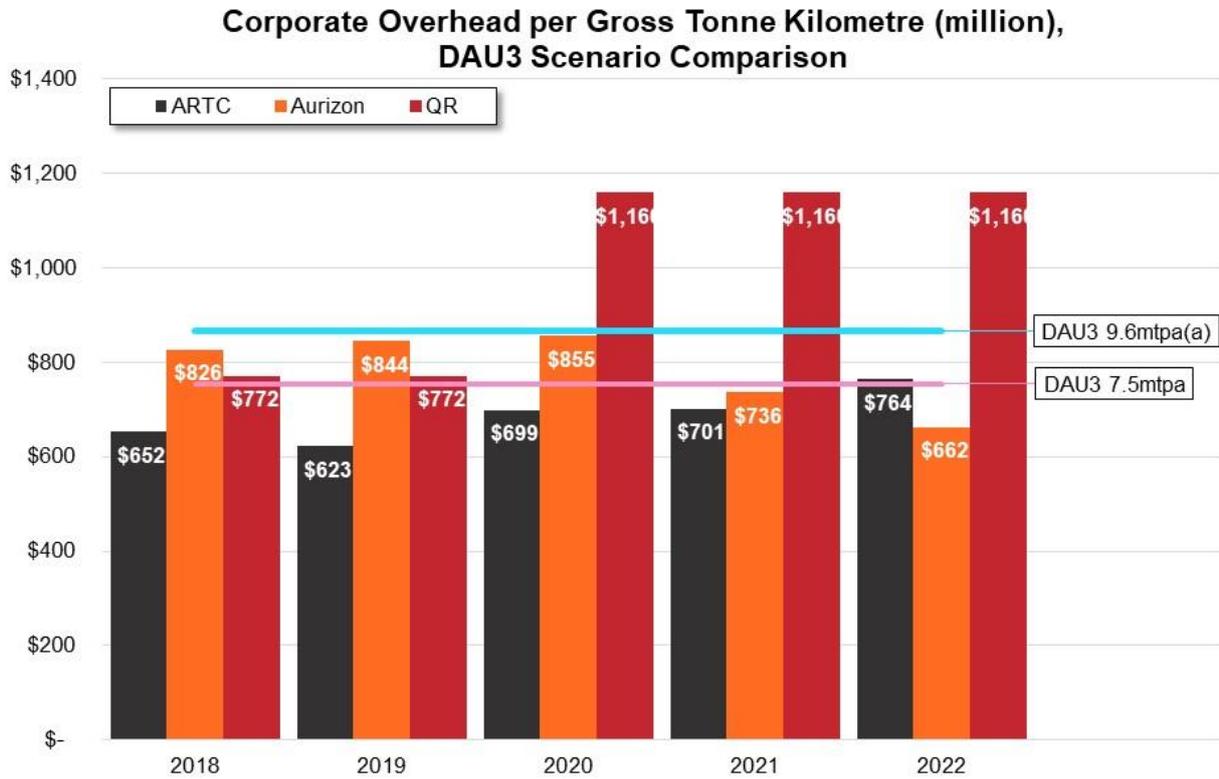


Figure 2 Corporate Overhead per Gross Tonne Kilometre (million), DAU3 Scenario Comparison

Figure 3 presents corporate overhead costs per track kilometre, which shows an efficiency when compared to the comparator organisations, despite the 86% increase in corporate overhead from DAU3 to DAU2 (in real terms). This is consistent with the findings set out by ARUP in its ARTC report. It should be noted that due to the escalation used, the dollar values will not be directly comparable to this report.

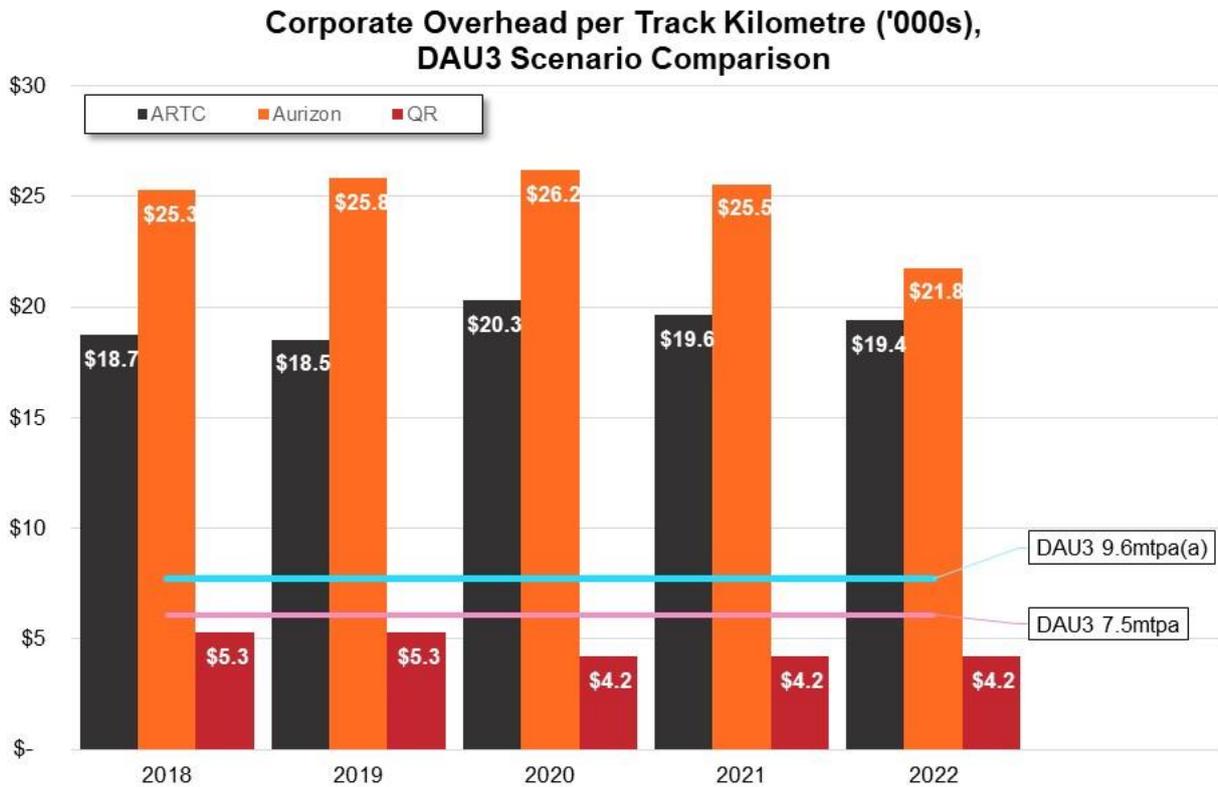


Figure 3 Corporate Overhead per Track Kilometre ('000s), DAU3 Scenario Comparison

## 2.4 Project Delivery

Table 7 defines the argument developed in response to QR’s ability to deliver the works in its DAU3 schedule.

**Table 7 Project Delivery, Response**

| Topic                       | Arcadis Commentary  | Argument  |
|-----------------------------|---|---|
| <b>Delivery Constraints</b> | <p>“A capex program of \$346.9m over five years may be difficult to achieve, should labour constraints and internal approval processes hinder the process.”</p> | <p>QR has responded to the risk of delivery in its DAU3 capital program in Section 12 of its DAU3 Capital submission<sup>15</sup> where several strategies for procurement are highlighted across each capital project. In addition to these statements, QR is reallocating internal resources to the South-East Queensland region.</p> <p>QR retains access to contractors as necessary and ensures that all contracted work is done so in accordance with its 'Our Supplier Code of Conduct' and relevant work, health and safety supplier policies.</p> <p>QR considers delivery approaches in all of its business cases and reduces delivery risk by assessing critical issues related to project delivery at the planning phase.</p> <p>Our engineering review<sup>16</sup> further validated this process having assessed several business cases for QR's capital projects.</p> <p>QR's approval processes ensure that approval is received prior to the scheduled start date of capital projects. Several projects proposed in the DAU3 period have their approval process underway to ensure timely approval.</p> |

<sup>15</sup> DAU3 Capital Expenditure Submission, West Moreton

<sup>16</sup> AECOM, Engineering Review of QR DAU3 Capital Submission, November 2023

### 3.0 Response Summary

The Arcadis review of QR's DAU3 Submission sets out commentary on certain aspects of the submission, requesting further evidence or challenging the underlying premise of the argument.

We have set out proposed responses to this commentary, using quantitative data to substantiate QR's position where possible, and qualitative arguments to support. Table 8 presents a summary of our findings for each area in question from the DAU3 draft decision.

**Table 8 Summary of Findings**

| Question Area   | Findings  |
|---|---|
| Capital expenditure should be reduced and / or reallocated to maintenance in three areas.   | <p>The capital expenditure towards track reconditioning and re-sleeping are scheduled as risk mitigation measures considering the increased tonnages expected on the track in DAU3. Appropriate measures have been taken by QR in its assessment of scope and the prudence of these programs, to prioritise sections of the track most at risk for derailments, as a means to ensure operational capacity for its customers.</p> <p>Bridge pier replacement capital works are planned for their high risk failure modes due to the timber construct and deteriorating condition throughout the track. By replacing the most critical piers only, as is scoped in these works, QR can increase service capacity and axle loads while managing the risks to underground timber.</p> <p><b>No adjustment is required to QR's submission for capital expenditure.</b></p> |
| <p>Opportunities should be identified to improve Operational Capacity by addressing crucial factors like improved headways, increased passing opportunities, or higher line speeds.</p> <p>QR should implement proactive asset management strategies.</p> | <p>The opportunities for maintaining and improving operational capacity are achieved through the completion of proposed works in DAU3. Primarily capital projects that improve the quality and durability of the track, such as:</p> <ul style="list-style-type: none"> <li>• Replacement of 41kg timber interspersed sleepers with a 50kg concrete sleeper.</li> <li>• Replacement of timber bridge piers with a concrete and steel bridge structure.</li> <li>• Renewals and repairs programs that maintain track performance and operability throughout the assets design life.</li> </ul> <p>These works are considered proactive in their scheduled timing and suitable to improve the operational capacity of the track.</p> <p><b>Additional text required by QR in its submission, to highlight the impact of works on operational capacity.</b></p>          |
| Fixed operating costs should be increased in five areas.  | <p>The methodology for calculating fixed and variable operating rates was original assessment by B&amp;H Strategic Services<sup>17</sup> and approved by the QCA in both AU1 and AU2.</p> <p><b>No adjustment is required to QR's submission for the fixed and variable cost split.</b></p>   |

<sup>17</sup> B&H Strategic Services Pty Ltd, Review of Queensland Rail's DAU 2015, September 2015 (p31-32)

| Question Area  | Findings  |
|--|---|
| <p>The allocation of corporate overhead costs (18.6% of forecast operating costs) should be justified.</p> | <p>We find that corporate overhead allocation has been calculated in accordance with the QR Costing Manual, which has been approved by the QCA. The allocation methods defined in the costing manual have been accurately applied to the relevant cost centres and allocated correctly to the West Moreton System. The escalation value applied for DAU3 is suitably in line with RBA indexation rates and considered reasonable.</p> <p>Furthermore, high level benchmarking demonstrates that, despite an increase of 119% compared with DAU2, the DAU3 value is still highly comparable with comparator organisations.</p> <p><b>No adjustment is required to QR's submission for corporate overhead.</b></p>  |
| <p>Maintenance costs should be justified in six areas.</p>   | <p>It is found that an insufficient level of detail explaining the inclusions of each maintenance category is provided in QR's DAU3 submission.</p> <p>Our review of the DAU3 model concludes that the methodology for calculating maintenance costs is reasonable and suitably accounts for maintenance avoided as a result of capital works.</p> <p><b>Additional text required by QR in its submission to better define each maintenance category, including what cost centres they are inclusive of and what works they consider. No adjustment is required to the maintenance costs.</b></p>   |
| <p>Arcadis expressed doubt in QR's ability to deliver the works required.</p>                              | <p>QR has responded to the risk of delivery in its DAU3 capital program in Section 11 of its DAU3 Capital submission, where several strategies for procurement are highlighted across each capital project. In addition to these statements, QR is reallocating internal resources to the South-East Queensland region.</p> <p>We find that the approvals process QR exercise to complete its capital and maintenance programs is appropriate for an organisation of its size, and a reasonable level of preparedness, by initiating several approval processes for DAU3 works currently, makes it capable of delivering upon the full scope of works proposed in DAU3.</p> <p><b>No adjustment is required to QR's submission for delivery constraints and considerations.</b></p> |

## 4.0 References

Table 9 provides a list of all references where data has been sourced to develop the benchmarking calculations in Section 2.3.2.

**Table 9 Benchmarking References**

| Reference  | Link (if publicly available)  | Purpose  |
|--|---|--|
| QR DAU3 Explanatory Document, Nov 2023   | <a href="https://www.qca.org.au/wp-content/uploads/2023/11/queensland-rail-2025-dau-explanatory-document-and-consultant-reports-redacted.pdf">https://www.qca.org.au/wp-content/uploads/2023/11/queensland-rail-2025-dau-explanatory-document-and-consultant-reports-redacted.pdf</a>   | QR, CO and TC for DAU3   |
| System Wide Allocator 2022-23 Proposed Allocation Adjusted                               |   | QR, West Moreton GTK and Track KM for DAU3                     |
| QR DAU2 Explanatory Document, Aug 2018   | <a href="https://www.qca.org.au/wp-content/uploads/2019/05/34093_QR-2020-DAU-Explanatory-Documents-with-volumes-1.pdf">https://www.qca.org.au/wp-content/uploads/2019/05/34093_QR-2020-DAU-Explanatory-Documents-with-volumes-1.pdf</a>   | QR, CO, TC, GTK and Track KM for DAU2                          |
| QR DAU1 Explanatory Document, May 2015   | <a href="https://www.qca.org.au/wp-content/uploads/2019/05/27761_Queensland-Rail-2015-DAU-Submission-Volume-2-and-Appendices-1.pdf">https://www.qca.org.au/wp-content/uploads/2019/05/27761_Queensland-Rail-2015-DAU-Submission-Volume-2-and-Appendices-1.pdf</a>   | QR, CO, TC, GTK and Track KM for DAU1                          |
| Aurizon, Below Rail Financial Statements, FY23   | <a href="https://www.aurizon.com.au/-/media/project/aurizon/files/what-we-do/network/network-downloads/financial-information/aurizon-network-below-rail-financial-statements-fy23.pdf">https://www.aurizon.com.au/-/media/project/aurizon/files/what-we-do/network/network-downloads/financial-information/aurizon-network-below-rail-financial-statements-fy23.pdf</a>                     | Aurizon, CO and TC, 2023, 2022                                 |
| Aurizon, Below Rail Financial Statements, FY21   | <a href="https://www.aurizon.com.au/-/media/project/aurizon/files/what-we-do/network/network-downloads/financial-information/aurizon-network-below-rail-financial-statements-fy21.pdf">https://www.aurizon.com.au/-/media/project/aurizon/files/what-we-do/network/network-downloads/financial-information/aurizon-network-below-rail-financial-statements-fy21.pdf</a>                     | Aurizon, CO and TC, 2021, 2020                                 |
| Aurizon, Below Rail Financial Statements, FY19   | <a href="https://www.aurizon.com.au/-/media/project/aurizon/files/what-we-do/network/network-downloads/financial-information/network-below-rail-financial-statements-fy19-final.pdf">https://www.aurizon.com.au/-/media/project/aurizon/files/what-we-do/network/network-downloads/financial-information/network-below-rail-financial-statements-fy19-final.pdf</a> UT5 Notional Allocation | Aurizon, CO and TC, 2019, 2018                                 |
| Aurizon Network 2017 Access Undertaking, Review of Reference Tariffs FY23, February 2022 | <a href="https://www.qca.org.au/wp-content/uploads/2022/03/aurizon-network-fy23-annual-review-of-reference-tariffs-final-submission-redacted-public.pdf">https://www.qca.org.au/wp-content/uploads/2022/03/aurizon-network-fy23-annual-review-of-reference-tariffs-final-submission-redacted-public.pdf</a>   | Aurizon, GTK 2023  |
| Aurizon Network, Annual Review of Reference Tariffs FY22, Feb 2021                       | <a href="https://www.qca.org.au/wp-content/uploads/2021/03/aurizon-network-annual-review-of-reference-tariffs-2021-22-letter-and-submission-redacted.pdf">https://www.qca.org.au/wp-content/uploads/2021/03/aurizon-network-annual-review-of-reference-tariffs-2021-22-letter-and-submission-redacted.pdf</a>   | Aurizon, GTK 2022  |
| Aurizon Network's 2017 Access Undertaking (UT5), Feb 2019                                | <a href="https://www.qca.org.au/wp-content/uploads/2019/05/31150_2017-Draft-Access-Undertaking-clean-1.pdf">https://www.qca.org.au/wp-content/uploads/2019/05/31150_2017-Draft-Access-Undertaking-clean-1.pdf</a>   | Aurizon, GTK 2021  |
| ARTC, Hunter Valley Coal Network AU, Attachment 1, March 2024                            | <a href="https://www.acc.gov.au/system/files/hvau-22-hv-network-operating-costs.pdf?ref=0&amp;download=y">https://www.acc.gov.au/system/files/hvau-22-hv-network-operating-costs.pdf?ref=0&amp;download=y</a>   | ARTC CO and TC, 2021 and 2022, ARTC GTK 2019, 2020, 2021, 2022 |

| Reference   | Link (if publicly available)  | Purpose                               |
|---|---|---------------------------------------|
| ARUP, ACCC ARTC – Hunter Valley Operating cost benchmarking, September 2022 | <a href="https://www.accc.gov.au/system/files/HVAU%20-%20Arup%20Australia%20report%20-%20Benchmarking%20ARTC%20Hunter%20Valley%20overhead%20costs%20-%202022.pdf?ref=0&amp;download=y">https://www.accc.gov.au/system/files/HVAU%20-%20Arup%20Australia%20report%20-%20Benchmarking%20ARTC%20Hunter%20Valley%20overhead%20costs%20-%202022.pdf?ref=0&amp;download=y</a> | ARTC CO, TC, GTK and Track KM 2018    |
| Reserve Bank of Australia, Statement of Monetary Policy, August 2024        | <a href="https://www.rba.gov.au/statistics/tables/xls/g01hist.xls">https://www.rba.gov.au/statistics/tables/xls/g01hist.xls</a>   | CPI values for inflation calculations |

**Attachment 4: West Moreton System DAU3 Capital Expenditure 2025-26 to  
2029-30 Submission**

# DAU3 Capital Expenditure Submission

West Moreton System



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# Glossary

| Term    | Definition                                       |
|---------|--|
| DAU     | Draft Access Undertaking                         |
| GTK     | Gross Tonne Kilometre                            |
| IDC     | Interest During Construction                     |
| LED     | Light Emitting Diode                             |
| mtpa    | Million tonne per annum                          |
| OTR     | On time running                                  |
| QCA     | Queensland Competition Authority                 |
| RAB     | Regulated Asset Base                             |
| SER/PER | Signalling Equipment Room / Power Equipment Room |
| tal     | Tonne Axle Load                                  |
| WM      | West Moreton                                     |

# Version History

This submission has been developed by Queensland Rail in response to the Draft Decision made by the QCA in June 2024. Table 1 provides a detailed description of the processes and changes that have taken place in light of the recommendations made by the QCA and further developments made by Queensland Rail, as it aims to provide a submission for the DAU3 period that is reasonable in scope, aligns with appropriate industry and organisational standards and proposes prudent capital, maintenance and operational expenditure forecasts.

**Table 1 Queensland Rail's Draft Access Undertaking 3, Version History**

| Submission Date | Version Summary   | Change Description   |
|-----------------|---|--|
| November 2023   |   | The original DAU3 submission made to the QCA in November 2023 was based on forecast tonnages up to 9.6 mtpa by the end of the DAU3 period.   |
| November 2024   | The capital submission Final Draft E.2 (this submission) considers the feedback provided through the QCA's Draft Decision and considers two tonnage scenarios agreed upon with system customers at 9.6 mtpa and 7.5 mtpa. | <p>Changes reflected throughout this submission include the following:</p> <p><b>Collaboration</b></p> <p>A key recommendation made by the QCA in its Draft Decision was the continued collaboration and engagement with Queensland Rail customers to reach agreement across the various aspects of this submission. Section 1.2 of the Explanatory Document details the efforts of Queensland Rail to address this consideration.</p> <p><b>Capital Expenditure</b></p> <p>A second capital expenditure program has been developed to accommodate the forecast tonnages of 7.5 mtpa.</p> <p><b>New Capital Projects</b></p> <p>Since November 2023, four new capital projects have been introduced into the DAU3 capital investment plan developed for tonnage scenario 7.5 mtpa (the original submission remains unchanged). These include two categorised under Rail Systems, Bridge Strike Protection and Level Crossing Protection Upgrades. All new capital projects have included project summaries. Furthermore, the existing project summaries have, where requested by the QCA, a more thorough description provided with the inclusion of a 'Risk of not Proceeding' table section.</p> <p>To support the changes made for this submission, Queensland Rail engaged the engineering consultancy AECOM Australia Pty Ltd (AECOM) to provide a peer assessment of the feedback provided by both the QCA and Arcadis, and make a recommendation for each area that was considered 'not reasonable'. The outcomes of this peer review<sup>1</sup>, have been incorporated throughout this submission.</p> |

<sup>1</sup> AECOM, Response to the QCA and Arcadis Commentary, October 2024

# 1 Overview

## 1.1 Context

Queensland Rail's West Moreton System runs over 322 kilometres (km) between Rosewood and Miles, adjoining the Brisbane Metropolitan System at Rosewood and the Western System at Miles. The system links Brisbane to the west and south-west of Queensland and is a major artery to Darling Downs.

The predominant commodity hauled along the West Moreton System is thermal coal, and the system currently services the Cameby Downs, Wilkie Creek and New Acland Stage 3 mines. The reinstated Wilkie Creek Mine at Macalister commenced railings in July 2023 and New Acland Stage 3 commenced riling in October 2023 out of the Jondaryan loading siding.

The West Moreton System is regulated under the Queensland Competition Authority Act 1997 (**QCA Act**). Under the QCA Act, the services provided using rail infrastructure can be 'declared' by the Queensland Treasurer. Once declared an infrastructure provider is required to provide access to third parties to the declared infrastructure. The majority of Queensland Rail's network is declared, including the West Moreton System.

Once declared, the Queensland Competition Authority (QCA) can require Queensland Rail to submit a 'Draft Access Undertaking' to it for approval, and have it approved by the QCA in accordance with the QCA Act. Queensland Rail may also submit a 'Voluntary Draft Access Undertaking'. Queensland Rail has lodged a Voluntary Draft Access Undertaking (**DAU3**). The QCA has supported this approach<sup>2</sup>. If approved by the QCA, DAU3 will become the Queensland Rail Access Undertaking 3 (**AU3**).

This submission has been developed under the assumption that coal volumes along the West Moreton System are likely to increase significantly over the remainder of Queensland Rail's Access Undertaking 2 (**AU2**) and into the DAU3 period.

Total coal railings in FY23 on the West Moreton System was 2.2 million tonnes (mtpa), mainly from the Cameby Downs mine. The actual tonnage realised on the system in FY23 can be used for comparative purpose against the various scenarios considered in DAU3. Considering the reinstated Wilkie Creek and New Acland Stage 3 mines commencing production, this submission provides the maintenance costs for the two tonnage scenarios presented in Table 2.

Table 2 West Moreton System Coal Tonnages by Financial Year (mtpa)

| Tonnage Scenario       | FY26 | FY27 | FY28 | FY29 | FY30 |
|------------------------|------|------|------|------|------|
| Scenario 1a (9.6 mtpa) | 8.20 | 9.50 | 9.60 | 9.60 | 9.60 |
| Scenario 2 (7.5 mtpa)  | 6.00 | 6.00 | 7.50 | 7.50 | 7.50 |

<sup>2</sup> QCA correspondence to the Queensland Rail CEO dated 21 September 2022. The QCA file reference number 1478389, <http://www.qca.org.au/wp-content/uploads/2022/10/qca-letter-re-queensland-rail-access-undertaking-timeline-21-sep-2022.pdf>.

## 1.2 Proposed DAU3 West Moreton System Capital Expenditure

Queensland Rail has proposed a capital investment plan for the 9.6 mtpa tonnage forecast and 7.5 mtpa tonnage forecast respectively, both considered in this DAU3 submission.

Detailed breakdowns of capital project expenditures are provided in Section 4, with Table 3 presenting total capex by tonnage for each year in DAU3. These are the total costs, excluding Interest During Construction (**IDC**) and including track lowering/ballast undercutting, for all common network assets, before allocation between coal and non-coal services.

Table 3 Proposed total capital expenditure by year (\$m FY24)

| Tonnage Scenario       | FY26   | FY27   | FY28   | FY29   | FY30   | Total          |
|------------------------|--------|--------|--------|--------|--------|----------------|
| Scenario 1a (9.6 mtpa) | \$99.9 | \$98.0 | \$40.6 | \$46.5 | \$42.1 | <b>\$326.9</b> |
| Scenario 2 (7.5 mtpa)  | \$40.9 | \$49.4 | \$67.4 | \$33.2 | \$50.9 | <b>\$241.9</b> |

Queensland Rail has proposed that the capital expenditure projects identified in this submission be included in the capital indicator for DAU3 (as escalated). The efficient actual capital expenditure will be included in the Regulated Asset Base (**RAB**) on an ex-post basis after the QCA has reviewed the projects for prudence of scope, scale and cost.

For the purpose of developing the proposed reference tariffs for DAU3, Queensland Rail has assumed that all of the individual projects (including individual projects that are part of a larger program of works) will be completed within a single year, and as a result, forecast expenditure is capitalised in the year it is spent.

## 1.3 Capital Projects for DAU3 Period

The various capital expenditure amounts have been developed to support the movement of tonnages, as defined in Table 2, to ensure a safe and reliable system is maintained over the DAU3 period. Detailed breakdowns of the capital projects scheduled for both 9.6 mtpa and 7.5 mtpa tonnage forecasts are provided in Section 4. The capital projects proposed are primarily asset renewals.

## 1.4 Track Lowering (Ballast Undercutting)

Queensland Rail's capital expenditure proposal also allows for track lowering (ballast undercutting) costs over the DAU3 period.

Queensland Rail's track lowering maintenance activities are associated with managing excessive ballast depth, which affect track stability and poor vertical alignment. Track lowering includes all works involved in either:

- undercutting of track sections
- lowering of excessively ballasted sections of track.

Undercutting works are performed in the district by the use of an excavator mounted under cutter bar. Track lowering is generally carried out in large sections and is done by removing the track and grading ballast away and then replacing the track. Ballast during track lowering exercises is generally reused, some new ballast is required for undercutting works.

Track lowering is part of the routine maintenance costs for Queensland Rail, required to provide safe and reliable services on the West Moreton System. This routine maintenance is included in the full proposed capital program (Table 4) for the purposes of DAU3.

Table 4 Total proposed DAU3 capital expenditure by project (\$m FY24), excluding IDC

| Tonnage Scenario       | Project Works | Ballast Undercutting | Total          |
|------------------------|---------------|----------------------|----------------|
| Scenario 1a (9.6 mtpa) | \$325.2       | \$1.8                | <b>\$326.9</b> |
| Scenario 2 (7.5 mtpa)  | \$240.2       | \$1.6                | <b>\$241.9</b> |

## 1.5 Comparison to Capital Expenditure in AU2

### 1.5.1 Comparison to AU2 Capital Expenditure, Scenario 1a

Proposed capital expenditure of \$326.9 million (\$FY24) to enable 9.6 mtpa is 127% higher than the capital expenditure allowance for FY21 to FY25 of \$144.3 million (\$FY24). This comparison is shown in Figure 1.

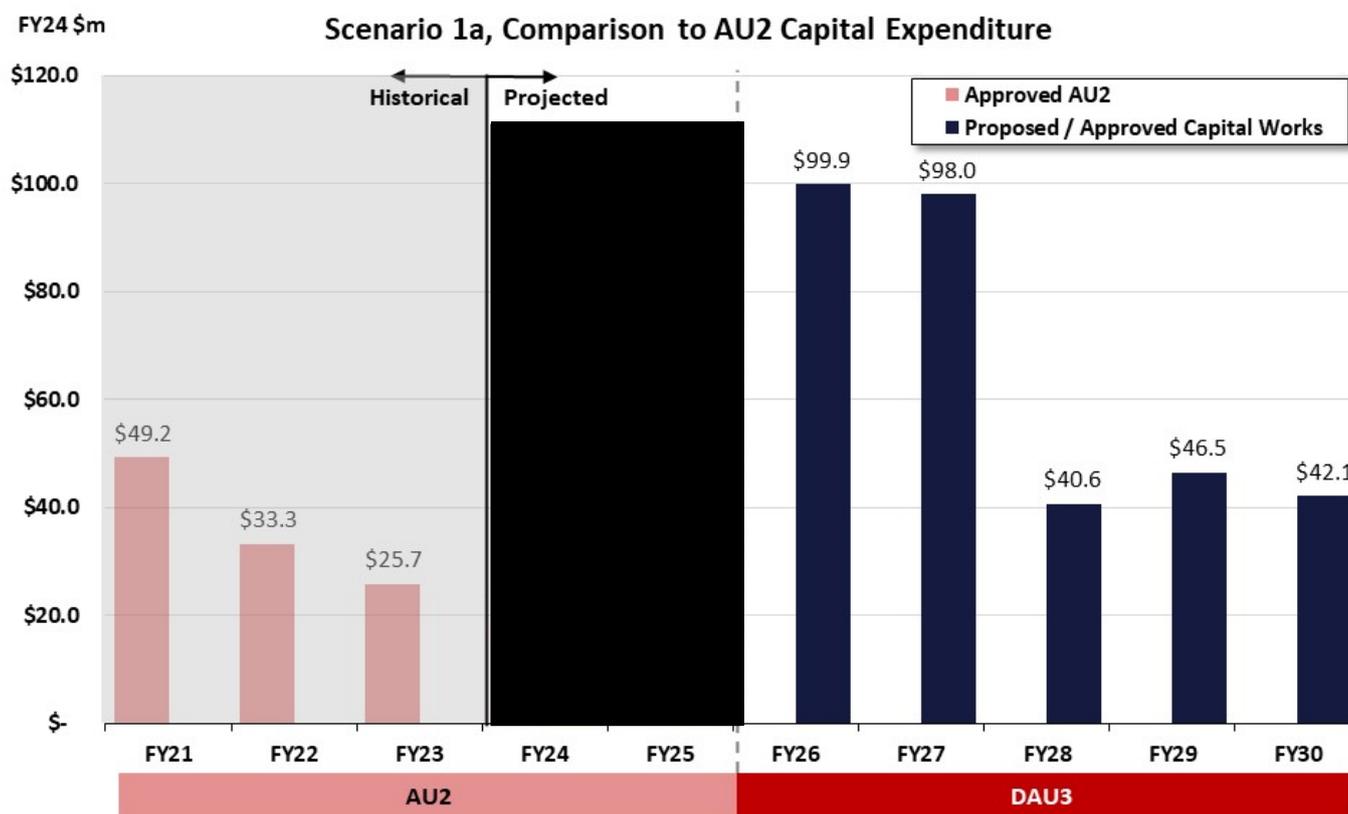


Figure 1 Comparison of Capital Expenditure between AU2 and DAU3, Scenario 1a

### 1.5.2 Comparison to AU2 Capital Expenditure, Scenario 2

Proposed capital expenditure of \$241.9 million (\$FY24) to enable 7.5 mtpa is 68% higher than the capital expenditure allowance for FY21 to FY25 of \$144.3 million (\$FY24). This comparison is shown in Figure 2.

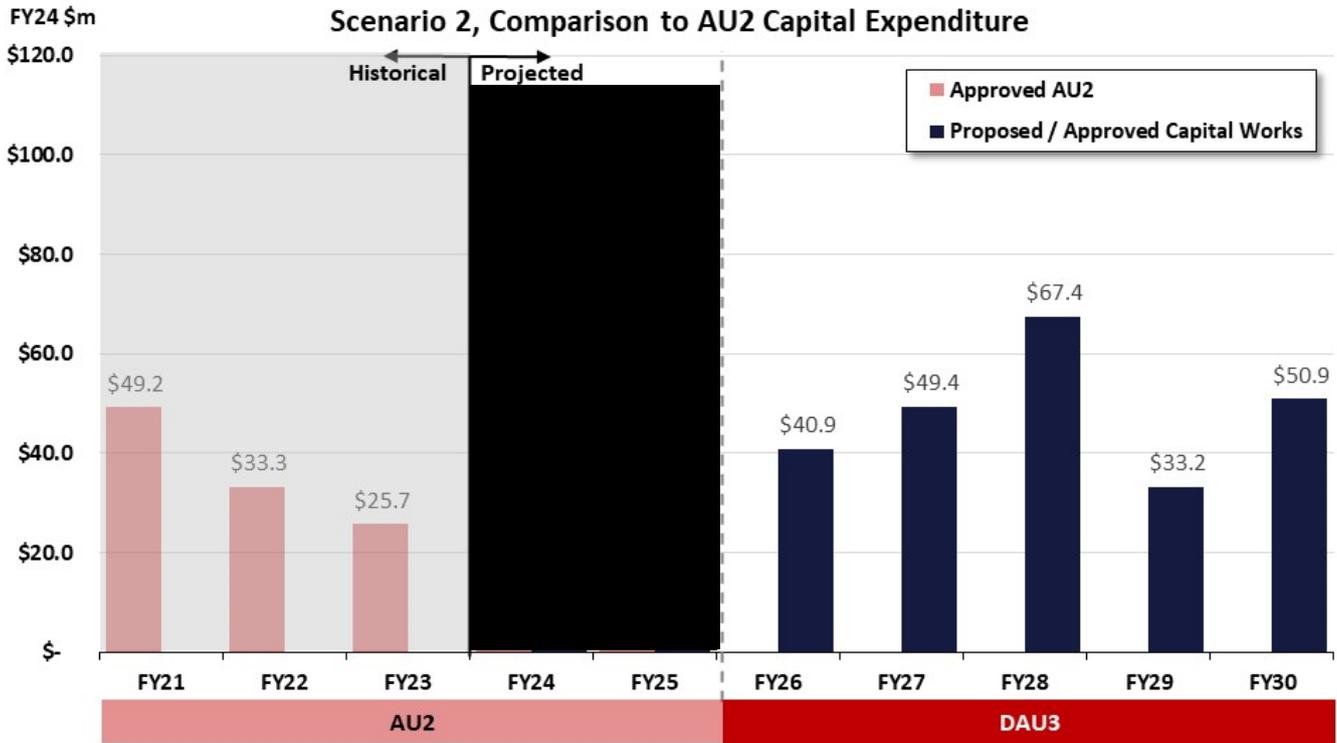


Figure 2 Comparison of Capital Expenditure between AU2 and DAU3, Scenario 2

## 1.6 DAU3 Investment Strategy

Queensland Rail's DAU3 Investment Strategy is to reduce operational risk, reduce maintenance costs and increase confidence of the supply chain to deliver full coal raiing demand.

The investment strategy targets planned capital investment east of Macalister with respect to likely peak system volumes of either 9.6 mtpa or 7.5 mtpa by FY30. The investment strategy considers the timing of projects within the shared corridor as critical in the near term to reduce the risk of taking possessions for track upgrades at a time when maximum railings are required.

While shared corridor works (East of Macalister) are accelerated in the near term, the largest program in the outer years, Track Reconditioning between Macalister and Columboola (B.04798) has also been brought forward for targeted spend within the DAU3 period.

The Macalister to Columboola section of the network is predominately comprised of 41kg/m rail on timber sleepers on non-engineered track formation. This track is susceptible to track misalignment or buckling at high temperatures with the potential consequence of a train derailment. To address the derailment risk, Queensland Rail's control is to slow the trains down and potentially suspend operation on the network as the temperature increases. This action increases above rail transit times and reduces supply chain capacity.

The West Moreton Summer Heat Restrictions apply from mid-November to mid-March and all trains on the Malu (near Jondaryan) to Miles (near Columboola) section are slowed to a maximum of 40kph at temperatures equal or great than 32°C and are being stopped at all temperatures equal or greater than 35°C. In general, train movements during summer are planned to run within the lower temperature window of night and early morning from 1900hrs to 1000hrs from the further western mines.

From 1 October 2022 until 26 September 2023, despite there being overcast weather and raining conditions, heat restrictions were applied in the West Moreton System on 72 days over the summer period. Reducing the maximum track speed from 60kph to 40kph increases the transit time between Macalister and Columboola and return by 8 hours, which increases the overall cycle time to the Port of Brisbane by approximately 30%. This reduces the above rail capacity by a similar amount, which puts overall supply chain capacity at risk during the summer months.

# 2 Background

## 2.1 Overview of System Characteristics and Infrastructure

The West Moreton System is critical to supply chains that export coal and agricultural products from Southwest Queensland through the Port of Brisbane. It is a multi-use system with coal, grain, livestock, and long-distance passenger services utilising paths; however, coal dominates traffic from west of Toowoomba and is a key driver for asset strategies for the system. Figure 3 presents a map of the West Moreton System.

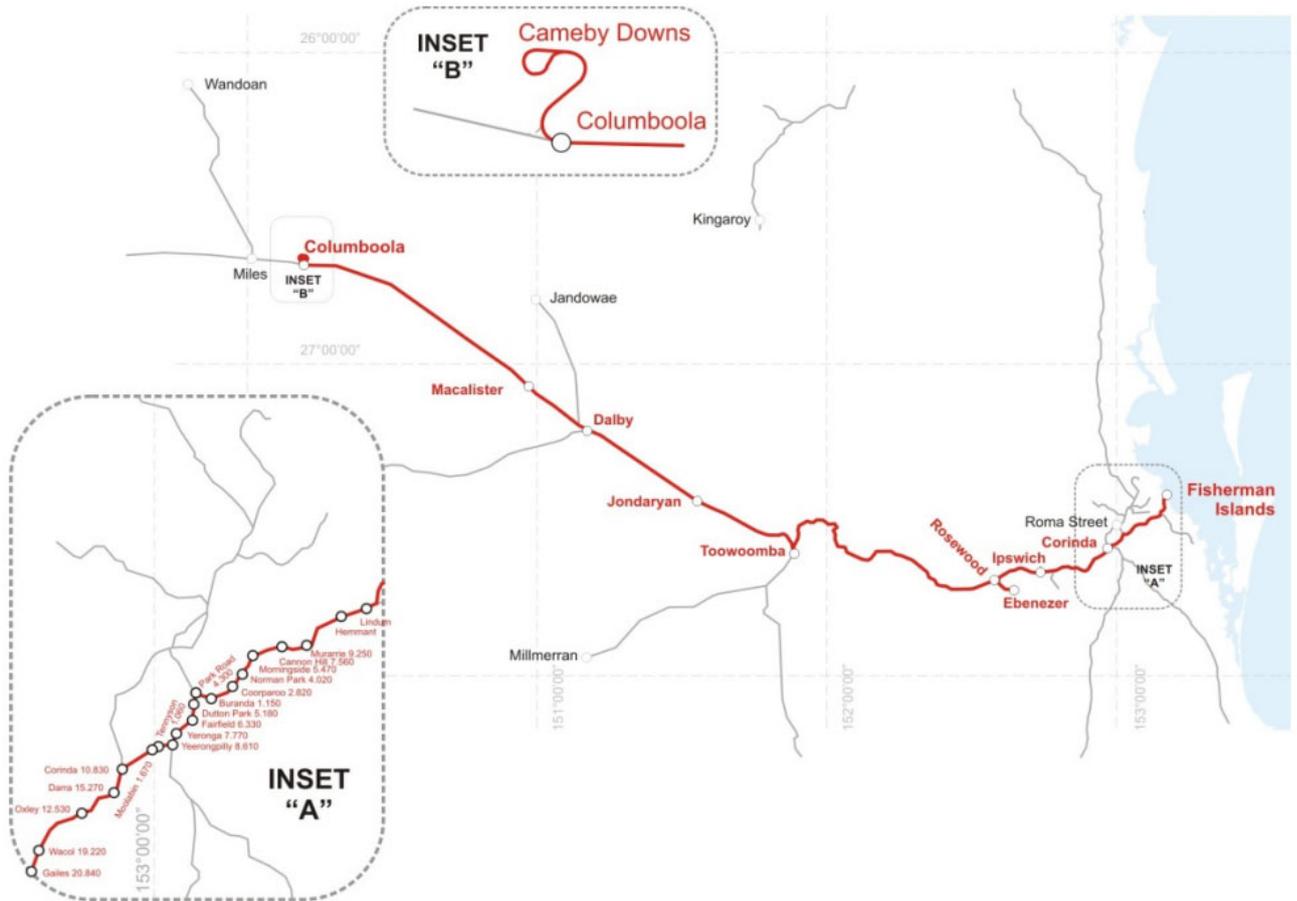


Figure 3 Map of West Moreton System

Table 5 presents some key characteristics of the assets on the West Moreton System.

Table 5 West Moreton System key characteristics

| Item                    | Details   |
|-------------------------|---|
| Length                  | Route Length 322km<br>Track Length 413km narrow gauge |
| Reference Train Length  | 675m  |
| Maximum operating speed | 80km/hr   |

| Item                  | Details  |
|-----------------------|--|
| Track Assets          | 258km of 50kg/m continuously welded rail on single line sections and loaded Down Road Rosewood – Kingsthorpe and Oakey – Jondaryan.<br><br>154km of 41kg/m rail remains on Up Road between Yarongmalu – Helidon, Kingsthorpe –Oakey, Malu – Miles and most passing loops.  |
| Sleeper Type          | 269km of concrete sleepers Down Road and Rosewood - Jondaryan.<br><br>143km of interspersed steel and timber sleepers, typically 1 in 2 pattern, Up Road between Yarongmalu - Helidon and single line Malu - Miles.  |
| Ballast and Formation | Ballast is quality crushed rock. The black soil formation increases ballast fouling causing poor drainage and loss of top and line.  |
| Turnouts              | 60kg/m RBMs on concrete with trailable facing points. Derailment risk, if these heavy trailable facing points TFP's do not reset for next train passage.<br><br>Remaining 41kg/m turnouts on timber remain in yards and loops.   |
| Structures            | Bridges: 127 - 71 timber bridges (2,841m), 24 concrete (893m) and 32 steel (1,122m). Timber bridges originally constructed 1865 and 1880.<br><br>Culverts: 700 - A number are life expired cast in situ drains and deformed corrugated metal pipes.<br><br>Tunnels: 11 - 1860's construction and limit dimensional capacity of freight               |
| Signalling Assets     | RCS and DTC - Signal interlockings at Gatton, Rangeview and Dalby require refurbishment or replacement to provide ongoing reliability and supportability. Signal cabling Grandchester to Laidley requires replacement.<br><br>Level Crossings: Older level crossings require ongoing electrical equipment refurbishment & upgrade of priority sites. |
| Telecommunications    | Direct buried optical cable between Harlaxton and Toowoomba requires replacement.<br><br>The microwave network is end of support life.<br><br>The telecoms rectifier and digital telemetry require upgrade.  |

## 2.2 Traffic Types, Operators and Key Customers

The West Moreton System is a multi-use system, with the following services utilising train paths:

- Coal – Coal is the predominant commodity hauled along the West Moreton System. Aurizon is the primary above rail operator of coal on the system. With the re-instatement of the Wilkie Creek Mine, and the approval of New Acland Stage 3 there are three export coal mines located in the region.
- Grain – Grain trains access the Port of Brisbane through the system from the connecting Glenmorgan Branch at Dalby, and from the South-Western System at Toowoomba.
- Livestock – Seasonal livestock services are provided by Watco out of Morven and connect into the system at Miles for transport through to the Brisbane Metropolitan System.
- Passengers – Queensland Rail's long distance passenger service The Westlander runs twice weekly between Brisbane and Charleville.

Thermal coal dominates traffic from west of Toowoomba and is a key driver for asset strategies for the system. Trains operate up to 15.75 tal with a maximum train length of 675m and a maximum speed of 80km/hr.

### 2.3 Future Usage of the Network

The future rail traffic will drive the long-term strategies for the system. Coal freight forecasts for the system are the highest they have ever been with the reinstated Wilkie Creek and New Acland Stage 3 mines commencing production. Tonnage forecasts considered in this submission account for the following assumption described in Table 6.

**Table 6 Tonnage Scenario Assumptions**

| Tonnage Scenario                                      | Assumption  |
|---|---|
| Scenario 1a (9.6 mtpa)<br>November 2023<br>Submission | Scenario 1 (ramps up to 9.6 mtpa from July 2027).<br>[Redacted]<br>[Redacted]<br>[Redacted]<br>[Redacted]<br>[Redacted]<br>The capital program for this scenario was prepared in 2023 for the original DAU3 submission. |
| Scenario 2 (7.5 mtpa)                                 | Scenario 2 (ramps up to 7.5 mtpa from July 2027).<br>[Redacted]<br>[Redacted]<br>[Redacted]<br>[Redacted]   |

Figure 4 presents a map showing the mines that will be serviced by the West Moreton System over the DAU3 Period.

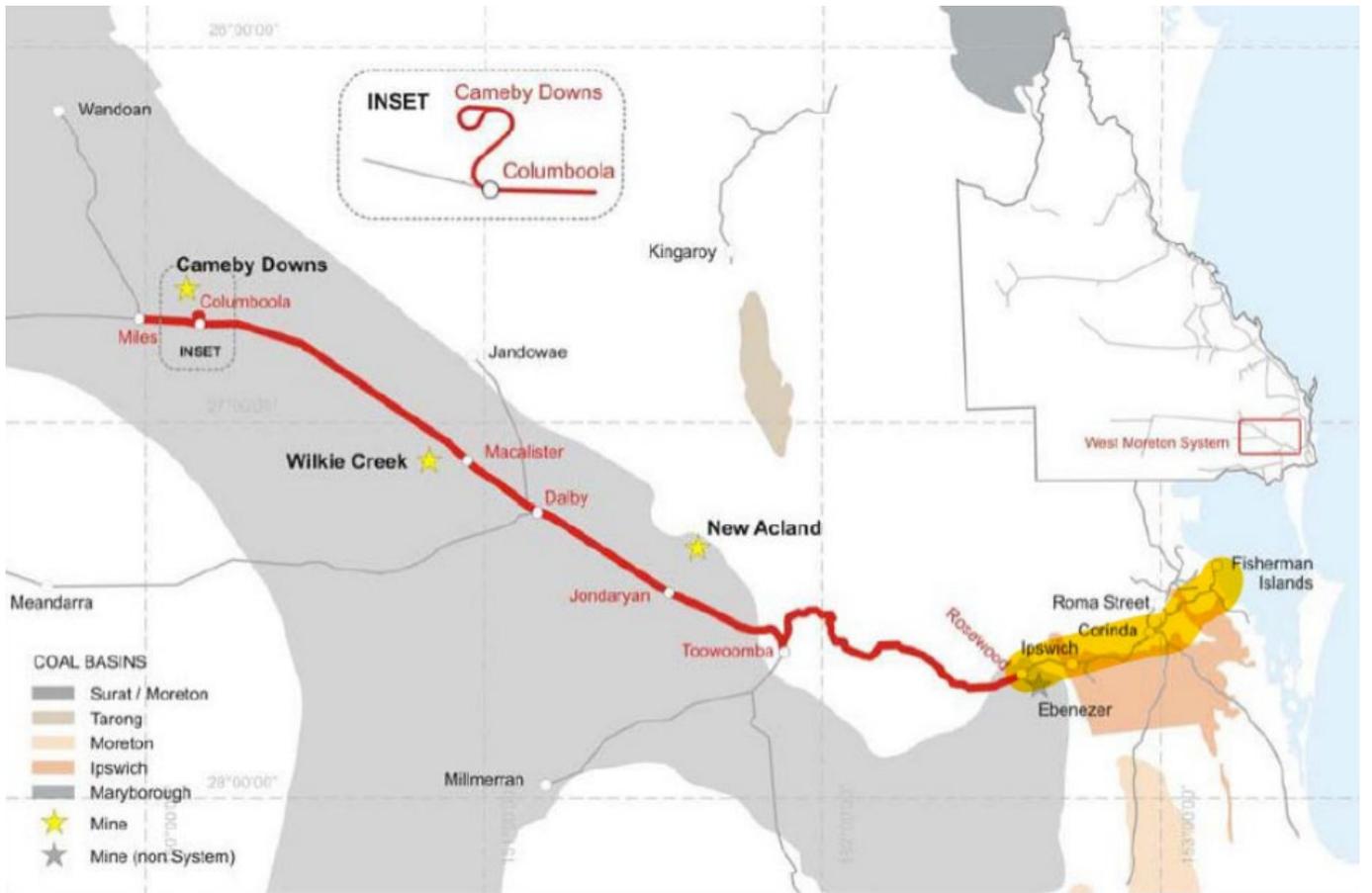


Figure 4 Map of Mines serviced by the West Moreton System

With maximum tonnages up to 9.6 mtpa expected over the DAU3 period, maintaining the system to enable efficient movement of services, minimising closures, and speed restrictions, will be critical.

# 3 Key Drivers for DAU3 Capital Program

## 3.1 History of the West Moreton System and Relationship to Capital Costs

The West Moreton System originally opened in 1865 between Ipswich and Grandchester, catering for passenger, livestock, freight, and primary products. The system began supporting the transport of coal in 1982. Rail export commenced via rail from Macalister in 1994 (closing in 2013), Jondaryan in 2002 and from Columboola in 2010.

The network's historical origins present continuing challenges for its operation. The West Moreton System was initially constructed on black soil plains with no engineered formation; resulting in regular failures requiring reconstruction to ensure suitable track geometry is maintained.

Early track standards have resulted in an alignment that is lower than contemporary standards for stand-alone heavy haul railway built specifically for coal carrying services. As a consequence of the network's age and track standard, the section between Rosewood and Miles in particular requires a higher level of intervention than would be required for a more modern, stand-alone heavy haul railway in order to deliver contracted tonnages safely and reliably.

The age and history of the West Moreton System has an impact on the condition and fitness for purpose of the network. In both AU1 and AU2, track age and condition were considered for both the capital and maintenance programs. Queensland Rail has been slowly improving the quality of the track through the capital program, however there are still issues associated with the age of the network that are affecting the delivery of services.

For the DAU3 period, Queensland Rail has proposed efficient capital costs for the West Moreton System having regard to the age and condition of the network, and the volumes proposed to be hauled over a network that was not originally designed for this purpose.

## 3.2 Access Holder Requirements

Customer requirements from the West Moreton System are primarily driven by:

- Reliability – transit times that allow operators to achieve efficient cycle times
- Availability – minimal unplanned delays and manageable speed restriction impacts
- Affordability – competitive rail supply chain price for services.

Queensland Rail endeavours to minimise below rail transit time for access holders. Access holders also seek:

- a known cap on the number, location, and time interval between track possessions and advanced discussions with customers around future possessions
- best possible response times to any network disruption (including force majeure events)
- some spare capacity for peak production rates, or catch up capacity
- coordinated supply chain shutdowns and track possessions.

Queensland Rail's capital and maintenance programs for DAU3 aim to meet the requirements of access holders by reasonably limiting the number of speed restrictions and section closures and therefore

increase reliability with the aim of an associated throughput improvement which is required to be able to rail increased tonnages.

Queensland Rail has acknowledged the Draft Decision made by the QCA on its original submission, which highlighted the need for further consultation with the system users. This requirement has been satisfactorily responded to by Queensland Rail and detailed in the Explanatory Document<sup>3</sup>.

### **3.3 Condition and Performance of the System**

Queensland Rail's capital program is driven by the current and expected future performance of the assets in the context of increased tonnage over the network.

#### **3.3.1 Condition of the Assets**

Queensland Rail's capital program responds to several factors, including anticipated throughput, the maintenance program, as well as the age, condition, and performance of the system in meeting the requirements of users. Condition of an asset informs the likelihood of failure of the asset and can be indicative of the asset risk.

- Condition 1 – Very Good (teal)
- Condition 2 – Good (blue)
- Condition 3 – Average (orange)
- Condition 4 – Poor (red)
- Condition 5 – Very Poor (dark red)
- Not Assessed (grey)

Figure 5 presents a summary of the condition of the assets in the West Moreton System. The condition assessment used the following ratings:

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<sup>3</sup> Queensland Rail, DAU3 Explanatory Document Collaborative Submission, November 2024

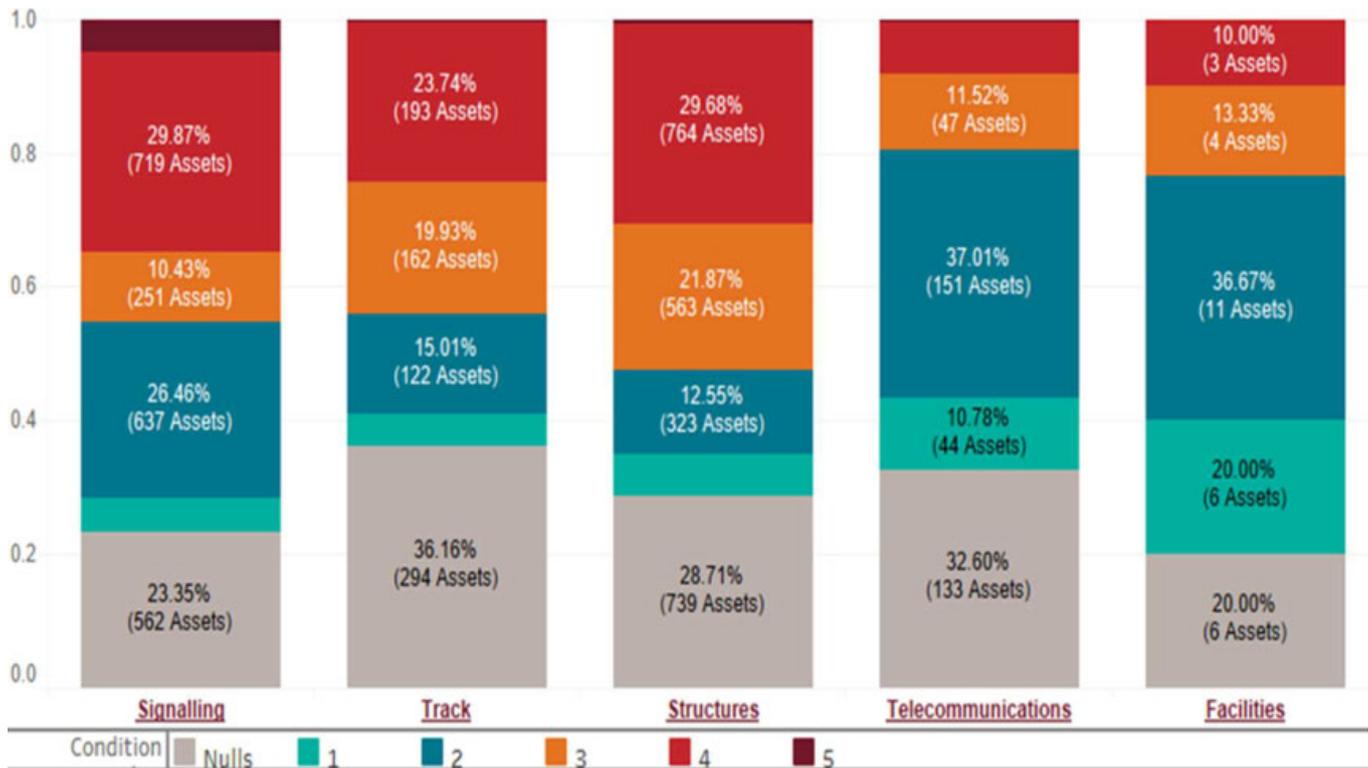


Figure 5 Current Condition of the West Moreton System assets

The following observations can be made from this assessment:

- **Track:** While the graph shows that 23.7% of all track assets are in a poor condition state, this value represents nearly 40% of the assets assessed. This suggests that a significant proportion of track assets are in need of renewal or refurbishment.
- **Structures:** While the graph shows that 29.7% of structures assets are in a poor condition state, this represents nearly half of the total number of structures assets assessed.
- **Signalling:** While the graph shows that 29.9% of signalling assets are in a poor condition state, this represents nearly 40% of the signalling assets assessed. In addition, there is also a proportion of assets in condition state 5 – very poor.
- **Telecommunications and Facilities:** These assets are in a better average condition state than track, structures and signalling assets.

The condition of the track, structures and signalling assets present a risk to maintaining service levels as assets in a poor condition are at higher risk of failure. Asset failure could result in unplanned outages to services which impact reliability and availability of the system. A program of renewals is necessary to prevent further degradation of the assets.

### 3.3.2 Asset Performance

In addition to asset condition, performance of the assets can also be a driver for maintenance costs. Key performance issues are presented in Table 7, as detailed in Queensland Rail’s Service Investment Plan.

Table 7 Performance issues on the West Moreton System

| Issue                | Description  |
|----------------------|--|
| Track Infrastructure | <ul style="list-style-type: none"> <li>• Existing timber and steel structures are limited to 15.75 tal.</li> <li>• Majority of the formation was not engineered and is considered under-strength for 15.75 tal.</li> </ul> |

| Issue              | Description  |
|--------------------|--|
|                    | <ul style="list-style-type: none"> <li>• The Toowoomba Range single line sections limit the number of train paths.</li> <li>• The current axle loads and train lengths limit train payload.</li> <li>• Tunnel clearances are a limiting factor, although a recent project increased the clearance at a number of tunnels to accommodate 9'6" (2.9m) containers through the West Moreton System.</li> <li>• The steep grades of the Toowoomba Range and the Little Liverpool Range and the single line through both of these range alignments causes capacity constraints.</li> </ul>   |
| Range Resilience   | <ul style="list-style-type: none"> <li>• The Toowoomba Range is subject to landslides in extraordinary rain events with major reconstruction repairs to the track required in past years. Rock falls and embankment movement are also common each wet season, and this impacts on services during assessment and repair.</li> <li>• Geotechnical assessments have been undertaken which show that further investment is required to reduce the risk of major landslides. Investment in remediation work at the highest risk sites, plus the installation of monitoring equipment with specialised survey and assessment of other risk sites will provide greater certainty to Queensland Rail's supply chain partners that service disruptions will be minimised.</li> </ul> |
| Speed Restrictions | <ul style="list-style-type: none"> <li>• Temporary and blanket speed restrictions due to poor track alignment (top and line) and track stability of the lightweight track structure during summer months.</li> </ul>   |

Queensland Rail's priority is to address the asset risk and performance issues affecting the network while building resilience to manage future throughput and delivering reliability and availability to customers.

### 3.3.3 Operational Constraints

#### **Speed Restrictions**

During the summer months of high temperatures, hot weather precautions for track stability are observed to reduce the risk of incident in accordance with Safety Management Standard MD-10-143 Hot Weather Precautions for Track Stability, as shown in Table 8.

Table 8 Speed Restrictions

| Temperature                                  | Speed Restriction  |
|--|--|
| Air temperature 38 degrees Celsius and above | <ul style="list-style-type: none"><li>• On a timber sleepered track, restrict all trains to 60km/h</li><li>• On concrete sleepered track, restrict all trains to 120km/h</li></ul> |
| Air temperature 40 degrees Celsius and above | <ul style="list-style-type: none"><li>• On a timber sleepered track, restrict all trains to 40km/h</li><li>• On concrete sleepered track, restrict all trains to 60km/h</li></ul>  |

As demonstrated by the restrictions, transit times have the potential to be much more affected when there is timber sleepered track on the network. With a maximum speed on the West Moreton System of 80km/hr, concrete sleepered track is only affected when the air temperature reaches 40 degrees or above, whereas the timber sleepered track sees reductions if temperatures reach above 38 degrees.

The proposed DAU3 Capital Program includes significant investment in track reconditioning and re-sleepering, including the replacement of timber sleepers with concrete sleepers, in an effort to improve resilience in warmer weather and reduce maintenance costs on the network.

#### **Track Closures**

Track closures can occur for a number of reasons including planned maintenance, reactive maintenance, safety management etc.

Due to the nature of the black soil and sloping terrain, wet weather has the potential to create significant disruption on the network. Geotechnical failures in the Toowoomba Range have resulted in temporary closures of six weeks or more on multiple occasions in the past decade, with the most recent extended closure lasting 19 days after a wet weather event in February/March 2022. The Toowoomba Range Wet Weather Guidelines MD-16-731 detail the track access and rail traffic operations that need to be following in the event of wet weather and storm events. 30mm rainfall events currently require closure of the Toowoomba Range. During the 16-month period beginning January 2020, there were 17 events resulting in the cancellation of 143 services and delay of a further 154 services on the Toowoomba Range for over 100,700 minutes. The average service delay was 11 hours.

Heat restrictions on the light track and black soil sections also require closure periods during summer, in addition to the speed restrictions discussed in the previous section.

The existing sensitivity of the West Moreton System to both heat and wet weather will not be achievable once coal traffic ramps up and reaches peak in October 2026, with the system being less and less able to tolerate unplanned closures without significant disruption. The DAU3 Capital Program has been developed with a view to minimise unplanned closures.

### 3.4 Capacity

The West Moreton System is currently constrained by five aspects:

- All timber and steel structures are limited to 15.75 tal, noting that a network is only as strong as its 'weakest link'.
- Much of the formation material was not engineered and is considered under-strength for 15.75 tal.
- Without additional infrastructure investment, the Toowoomba Range capacity is restricted to 113 return paths per week; and
- Passing loops at Fisherman Islands and Kingsthorpe are 690 metres long, which restricts the maximum length of trains on the system (a coal reference train is 675 meters long).
- The steep grades of the Toowoomba Range and the Little Liverpool Range cause trains to traverse these sections slowly, which combined with single line workings in both locations causes capacity constraints.

### 3.5 Tonnage Forecasts

This section presents the future usage of the networks impact on tonnage forecasts, based on the assumptions defined in Section 2.3.

The expected increase in tonnage means it is essential that Queensland Rail's targeted capital program be implemented to ensure that the network can accommodate the uplift in tonnage. Queensland Rail's capital program has been developed for both tonnage scenarios to enable a safe and efficient system.

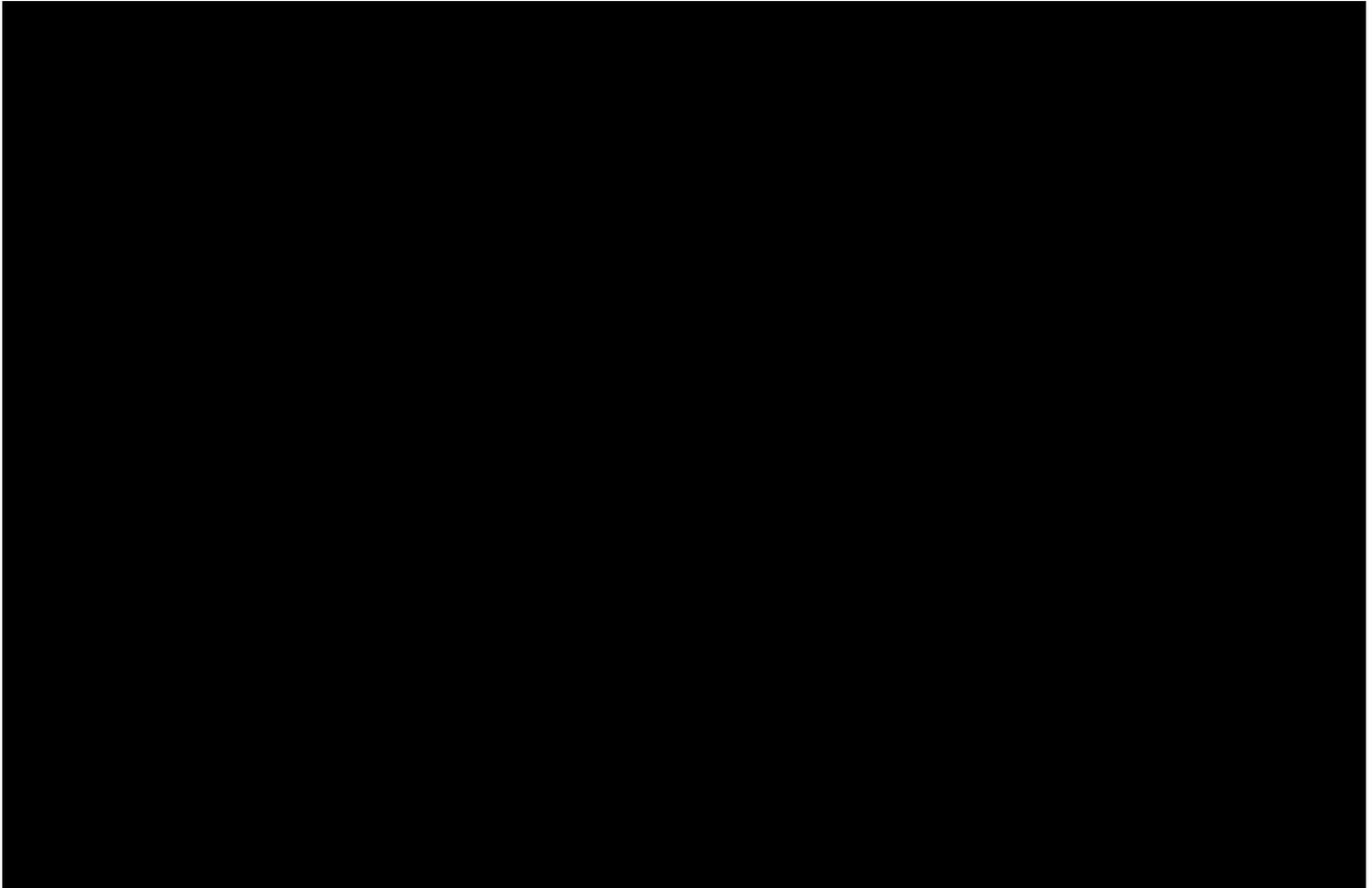
Queensland Rail engaged AECOM to review the reasonableness of the capital program in the context of increased tonnage on the network, also considering the trade-off between capital and maintenance programs (refer Queensland Rail DAU3 Explanatory Document Collaborative Submission<sup>4</sup>).

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<sup>4</sup> Queensland Rail, Draft Access Undertaking 3, Explanatory Document Collaborative Submission, November 2024  
Commercial in Confidence

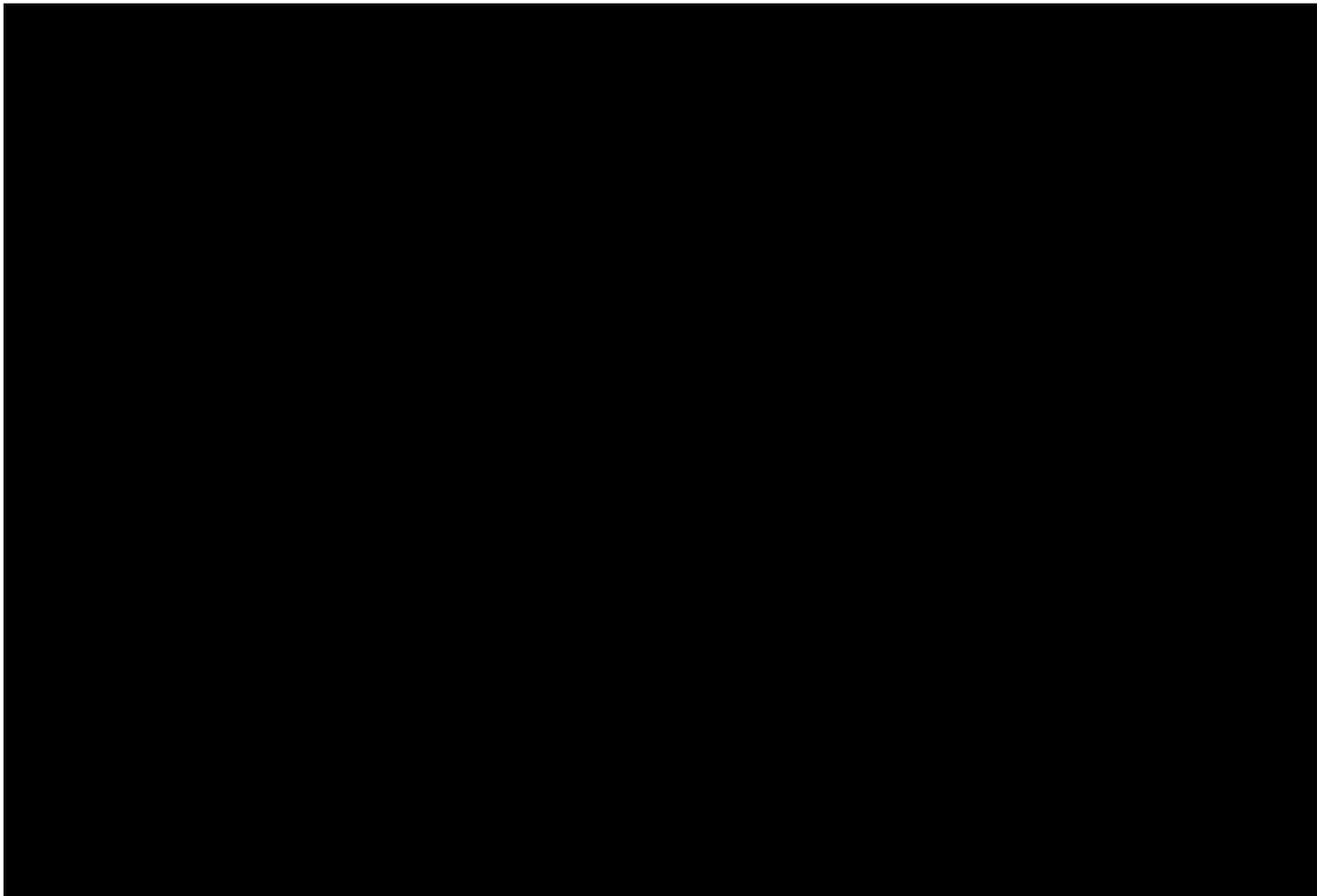
### 3.5.1 Tonnage Forecast, 9.6 mtpa

Figure 6 presents the tonnage forecasts for the remainder of the AU2 Period and the DAU3 Period, as it relates to the Scenario 1a assumptions. Total tonnage on the track by FY30 applying these assumptions is 9.6 mtpa.



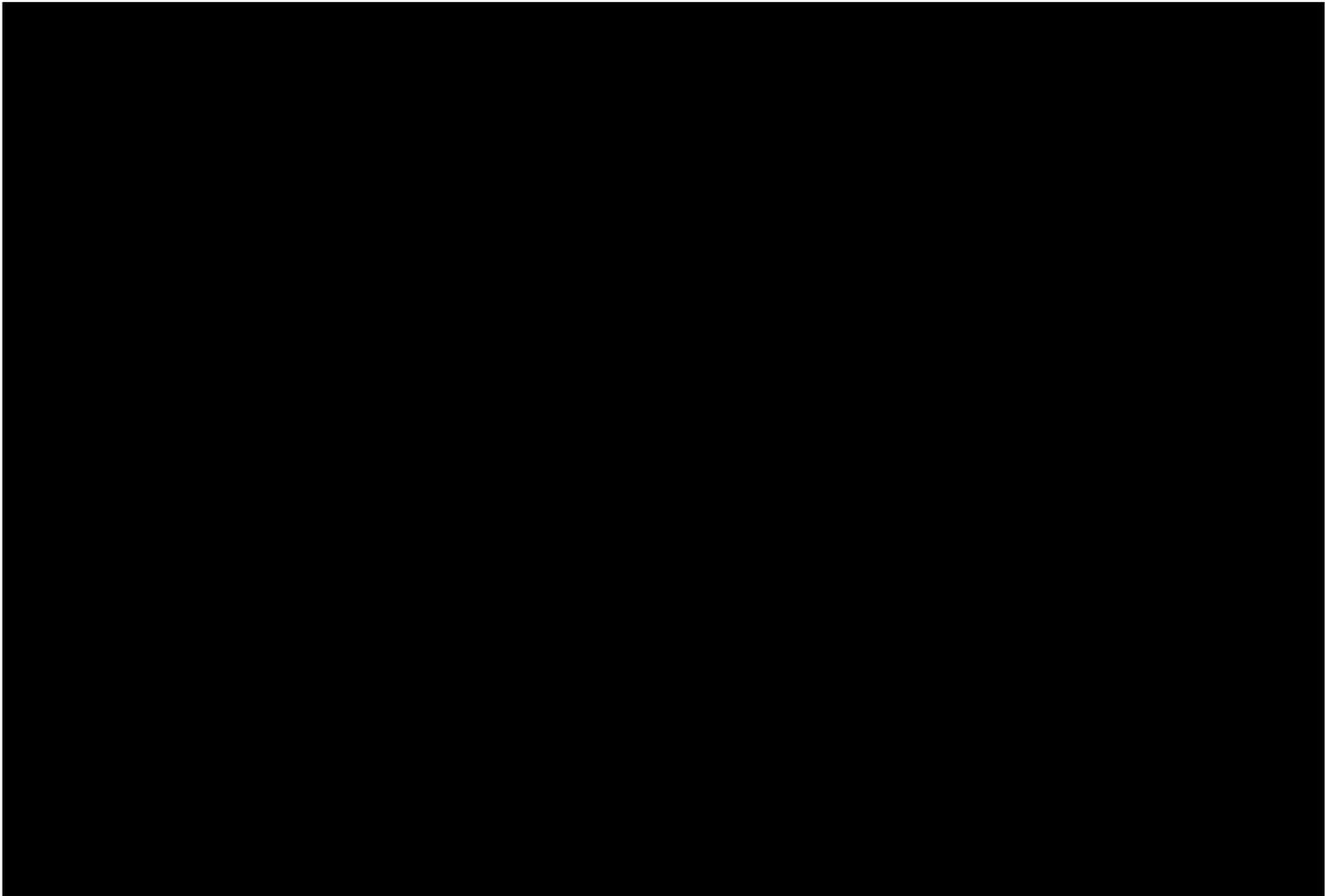
There is a significant increase in the anticipated throughput on the system due to the addition of two new mines in Wilkie Creek and New Acland Stage 3.

These tonnage actuals and projections according to the original November 2023 submission are illustrated by line section in Figure 7.



### 3.5.2 Tonnage Forecast, 7.5 mtpa

Figure 8 presents the tonnage forecasts for the remainder of the AU2 Period and the DAU3 Period, as it relates to the Scenario 2 assumptions. Total tonnage on the track by FY30 in this scenario is 7.5 mtpa.



There is a substantial increase in the anticipated throughput on the system due to [REDACTED]  
[REDACTED]  
[REDACTED]

These tonnage actuals and projections are illustrated by line section in Figure 9.



# 4 DAU3 Proposed Capital Expenditure

## 4.1 Approach to Developing the Capital Program

The capital program and investment strategy are focused on delivering confidence that the increased tonnage, forecast for each scenario in DAU3, can be achieved.

Queensland Rail has taken the following approach with development of the capital program for the DAU3 period:

- Review existing 10-year base capital plan.
- Identify and bring forward those priority works within the previous plan to deliver these before the October 2026 deadline when the network projects increased tonnages. These projects include those that would upgrade the asset to a standard requirement for a coal traffic corridor transporting above a certain tonnage threshold, that is, a 50kg rail on concrete sleepers over engineered formation and concrete structures.
- The key accelerated projects include:
  - Formation strengthening on black soil sections;
  - Toowoomba Range Slope Stabilisation for high-risk embankments;
  - Track reconditioning to 50kg rail on concrete sleepers;
  - Timber bridge and pier eliminations; and
  - Toowoomba Range curve transitions track strengthening.

The priority of these project works is aligned with the need to address track stability, structural integrity, and geotechnical risks inherent to these assets. These programs are targeted at addressing asset failure risks and reducing current operational restrictions that limit the confidence that the required capacity can be maintained.

The acceleration of investment also aligns with the availability of track access for the shutdowns necessary to deliver these major programs, which may not be achievable once coal traffic increases.

The capital program included in this submission includes several key changes since the original submission made to the QCA in November 2023. These include the addition of a sixth major project category for Rail Systems. Rail Systems has been included in this collaborative submission to more accurately categorise two of the four new capital projects that have been introduced to the program, as they relate to system monitoring (B.6927, B.6928), as well as the addition of a bridge strike protection project (B.6800) and level crossing protection upgrades (B.6580).

## 4.2 Capital Expenditure by Year

During the DAU3 period, planned capital expenditure is categorised into six areas:

- Trackwork;
- Civil Works;
- Bridges;
- Signalling;
- Rail Systems; and
- Facilities.

The following sections present planned capital expenditure, excluding ballast undercutting, by project for both tonnage scenarios.

### 4.2.1 Scenario 1a (November 2023 Submission), Capital Expenditure Program

Figure 10 provides a summary of all the proposed capital projects and the distribution over the DAU3 period.

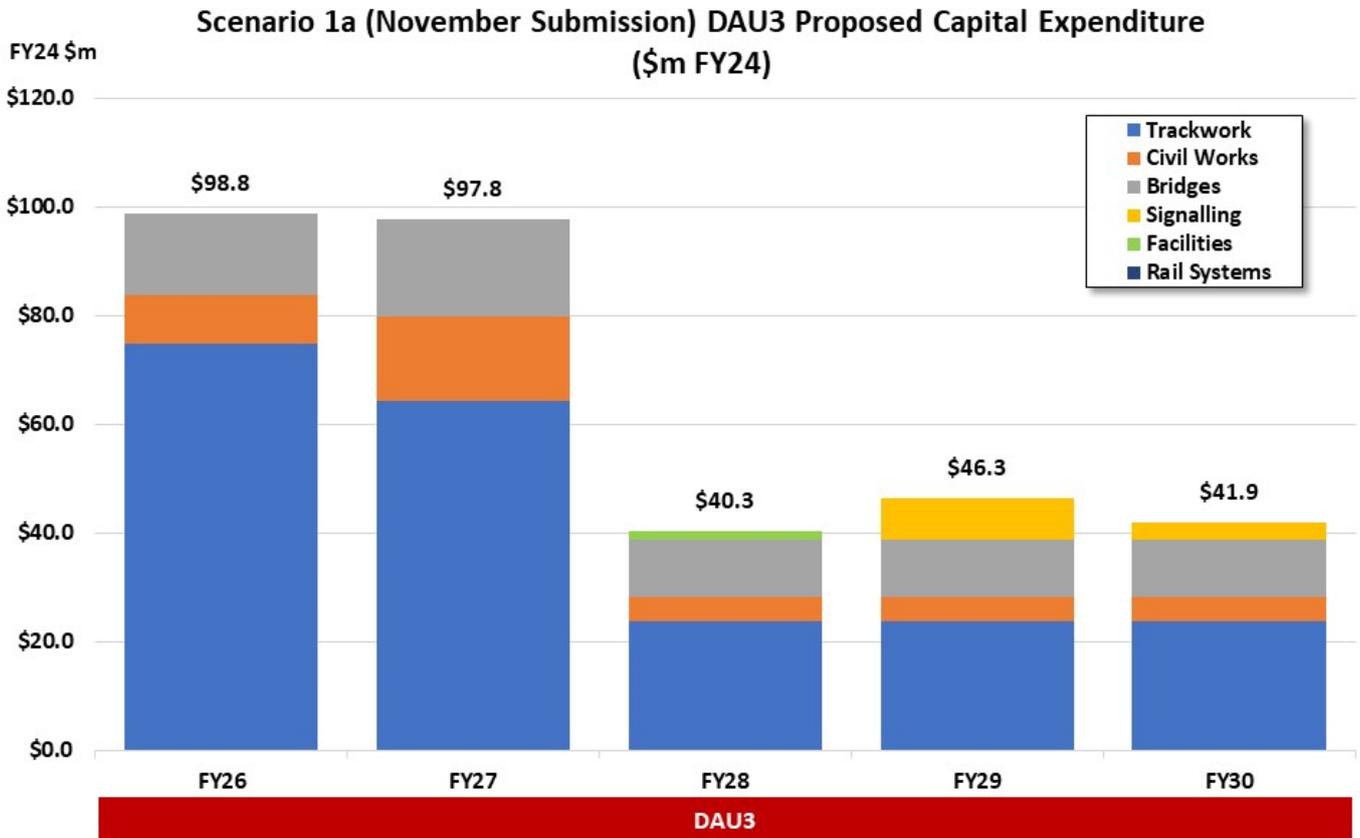


Figure 10 DAU3 Proposed Capital Expenditure (\$m FY24) Scenario 1a

Table 9 provides a summary of capital project expenditure for Scenario 1a over the DAU3 period.

Table 9 Proposed Capital Expenditure by year and project (\$m FY24) Scenario 1a

| Project ID       | Project Name   | FY26 | FY27 | FY28 | FY29 | FY30 | Total |
|------------------|--|------|------|------|------|------|-------|
| <b>Trackwork</b> |  |      |      |      |      |      |       |
| B.06155          | West Moreton Reconditioning Koomi - Dalby                  |      |      |      |      |      |       |
| B.06156          | Formation Strengthening Rosewood-Toowoomba                 |      |      |      |      |      |       |
| B.04546          | West Moreton Formation Strengthening Toowoomba - Jondaryan |      |      |      |      |      |       |
| B.06366          | West Moreton Reconditioning Dalby - Macalister             |      |      |      |      |      |       |
| B.05578          | West Moreton Toowoomba Range Curve Transitions             |      |      |      |      |      |       |

| Project ID         | Project Name  | FY26          | FY27          | FY28          | FY29          | FY30          | Total          |
|--------------------|---|---------------|---------------|---------------|---------------|---------------|----------------|
| B.05945            | West Moreton Re-Sleepering FY26                               |               |               |               |               |               |                |
| B.04798            | Reconditioning Macalister to Columboola                       |               |               |               |               |               |                |
| B.04817            | West Moreton Re-railing                                       |               |               |               |               |               |                |
| B.04898            | West Moreton Level Crossing Transitions (Up Road)             |               |               |               |               |               |                |
| <b>Subtotal</b>    |   | <b>\$74.8</b> | <b>\$64.2</b> | <b>\$23.7</b> | <b>\$23.7</b> | <b>\$23.7</b> | <b>\$210.0</b> |
| <b>Civil Works</b> |   |               |               |               |               |               |                |
| B.06507            | West Moreton Ranges Slope Stabilisation                       |               |               |               |               |               |                |
| B.04823            | West Moreton Culvert Renewals                                 |               |               |               |               |               |                |
| <b>Subtotal</b>    |   | <b>\$9.0</b>  | <b>\$15.6</b> | <b>\$4.5</b>  | <b>\$4.5</b>  | <b>\$4.5</b>  | <b>\$38.1</b>  |
| <b>Bridges</b>     |   |               |               |               |               |               |                |
| B.06162            | West Moreton Bridge/Pier Replacement (Rosewood-Jondaryan)     |               |               |               |               |               |                |
| B.04804            | West Moreton Bridge/Pier Replacement (Jondaryan - Columboola) |               |               |               |               |               |                |
| <b>Subtotal</b>    |   | <b>\$15.0</b> | <b>\$18.0</b> | <b>\$10.5</b> | <b>\$10.5</b> | <b>\$10.5</b> | <b>\$64.5</b>  |
| <b>Signalling</b>  |   |               |               |               |               |               |                |
| B.05592            | Grandchester to Laidley Signal Cable                          |               |               |               |               |               |                |
| B.04763            | Digital Telemetry Rollout - West Moreton                      |               |               |               |               |               |                |
| B.05593            | Rangeview SER/PER Upgrade                                     |               |               |               |               |               |                |
| B.05601            | Signalling LED Upgrade  |               |               |               |               |               |                |
| B.06508            | Dalby Yard and OLCs Re-signalling                             |               |               |               |               |               |                |
| B.04778            | Gatton Interlocking Renewal                                   |               |               |               |               |               |                |
| <b>Subtotal</b>    |   |               |               | <b>\$0.2</b>  | <b>\$7.6</b>  | <b>\$3.3</b>  | <b>\$11.1</b>  |
| <b>Facilities</b>  |   |               |               |               |               |               |                |

| Project ID         | Project Name      | FY26          | FY27          | FY28          | FY29          | FY30          | Total          |
|--------------------|-------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| B.06509            | [REDACTED] Refurb |               |               | \$1.5         |               |               | \$1.5          |
| <b>Subtotal</b>    |                   |               |               | <b>\$1.5</b>  |               |               | <b>\$1.5</b>   |
| <b>Grand Total</b> |                   | <b>\$98.8</b> | <b>\$97.8</b> | <b>\$40.3</b> | <b>\$46.3</b> | <b>\$41.9</b> | <b>\$325.2</b> |

### 4.2.2 Scenario 2, Capital Expenditure Program

Figure 11 provides a summary of all the proposed capital projects and the distribution over the DAU3 period.

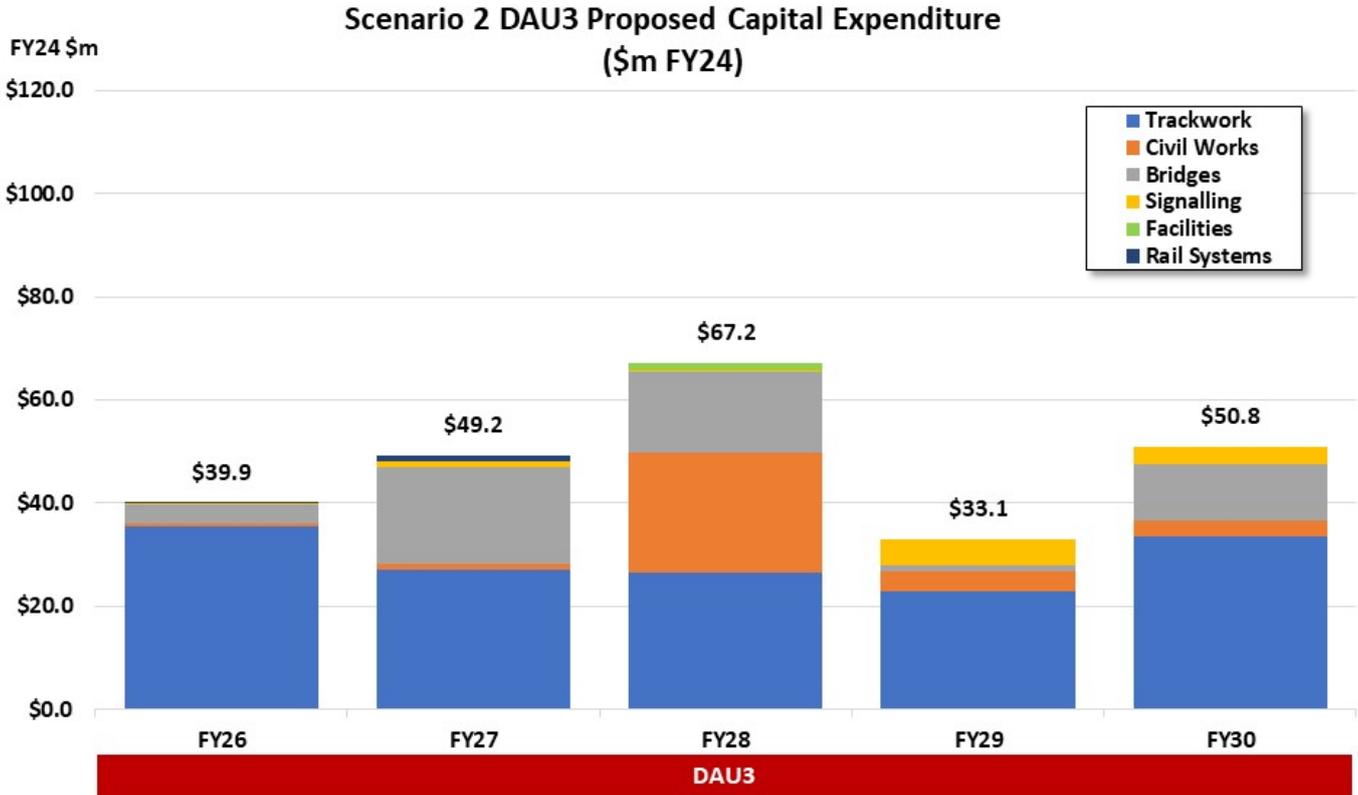


Figure 11 DAU3 Proposed Capital Expenditure (\$m FY24) Scenario 2

Table 10 provides a summary of capital project expenditure for Scenario 2 over the DAU3 period.

Table 10 Proposed Capital Expenditure by year and project (\$m FY24) Scenario 2

| Project ID       | Project Name                            | FY26 | FY27 | FY28 | FY29 | FY30 | DAU3 Total |
|------------------|---|------|------|------|------|------|------------|
| <b>Trackwork</b> |   |      |      |      |      |      |            |
| B.06155          | Wm Reconditioning Koomi - Dalby         |      |      |      |      |      |            |
| B.06366          | WM Reconditioning Dalby - Macalister    |      |      |      |      |      |            |
| B.05578          | WM Toowoomba Range Curve Transitions    |      |      |      |      |      |            |
| B.05945          | West Moreton Resleepering FY26          |      |      |      |      |      |            |
| B.04798          | Reconditioning Macalister to Columboola |      |      |      |      |      |            |
| B.04817          | West Moreton Rerail                     |      |      |      |      |      |            |
| B.04898          | WM Level Crossing Transitions (Up Road) |      |      |      |      |      |            |
| B.06580          | WM LX Protection Upgrades               |      |      |      |      |      |            |

| Project ID          | Project Name  | FY26          | FY27          | FY28          | FY29          | FY30          | DAU3 Total     |
|---------------------|---|---------------|---------------|---------------|---------------|---------------|----------------|
| B.06156             | Formation Strengthening<br>Rosewood – Toowoomba     |               |               |               |               |               |                |
| B.04546             | WM Formation Strengthening<br>Toowoomba – Jondaryan |               |               |               |               |               |                |
| <b>Subtotal</b>     |   | <b>\$35.6</b> | <b>\$27.2</b> | <b>\$26.4</b> | <b>\$23.0</b> | <b>\$33.6</b> | <b>\$145.8</b> |
| <b>Civil Work</b>   |   |               |               |               |               |               |                |
| B.06507             | WM Ranges Slope Stabilisation                       |               |               |               |               |               |                |
| B.04823             | West Moreton Culvert Renewals                       |               |               |               |               |               |                |
| <b>Subtotal</b>     |   | <b>\$0.5</b>  | <b>\$1.2</b>  | <b>\$23.3</b> | <b>\$3.9</b>  | <b>\$3.0</b>  | <b>\$31.8</b>  |
| <b>Bridges</b>      |   |               |               |               |               |               |                |
| B.06162             | WM Bridge/Pier Replacement<br>Rosewood – Toowoomba  |               |               |               |               |               |                |
| B.04804             | WM Final Bridge/Pier<br>Replacement                 |               |               |               |               |               |                |
| B.06800             | WM Bridge Strike Protection<br>Program              |               |               |               |               |               |                |
| <b>Subtotal</b>     |   | <b>\$3.6</b>  | <b>\$18.6</b> | <b>\$15.8</b> | <b>\$1.0</b>  | <b>\$11.0</b> | <b>\$50.0</b>  |
| <b>Signalling</b>   |   |               |               |               |               |               |                |
| B.05592             | Grandchester to Laidley Signal<br>Cable             |               |               |               |               |               |                |
| B.04763             | Digital Telemetry Rollout - West<br>Moreton         |               |               |               |               |               |                |
| B.05593             | Rangeview SER/PER Upgrade                           |               |               |               |               |               |                |
| B.05601             | Signalling LED Upgrade                              |               |               |               |               |               |                |
| B.06508             | Dalby Yard and OLCs Resignalling                    |               |               |               |               |               |                |
| B.04778             | Gatton Interlocking Renewal                         |               |               |               |               |               |                |
| <b>Subtotal</b>     |   | <b>\$0.1</b>  | <b>\$1.1</b>  | <b>\$0.2</b>  | <b>\$5.2</b>  | <b>\$3.3</b>  | <b>\$9.8</b>   |
| <b>Facilities</b>   |   |               |               |               |               |               |                |
| B.06509             | Refurb  |               |               |               |               |               | <b>\$1.5</b>   |
| <b>Subtotal</b>     |   |               |               |               |               |               | <b>\$1.5</b>   |
| <b>Rail Systems</b> |   |               |               |               |               |               |                |
| B.06927             | Toowoomba Range Drones &<br>Sensors                 |               |               |               |               |               |                |
| B.06928             | WM Heat Sensors                                     |               |               |               |               |               |                |

| Project ID         | Project Name | FY26          | FY27          | FY28          | FY29          | FY30          | DAU3 Total     |
|--------------------|--------------|---------------|---------------|---------------|---------------|---------------|----------------|
| <b>Subtotal</b>    |              |               |               |               |               |               | <b>\$1.3</b>   |
| <b>Grand Total</b> |              | <b>\$39.9</b> | <b>\$49.2</b> | <b>\$67.2</b> | <b>\$33.1</b> | <b>\$50.8</b> | <b>\$240.2</b> |

## 5 Track Projects

The following section summarises capital projects categorised within the trackwork project type. Table 11 provides a summary of trackwork projects for both scenarios over the DAU3 period. These projects include:

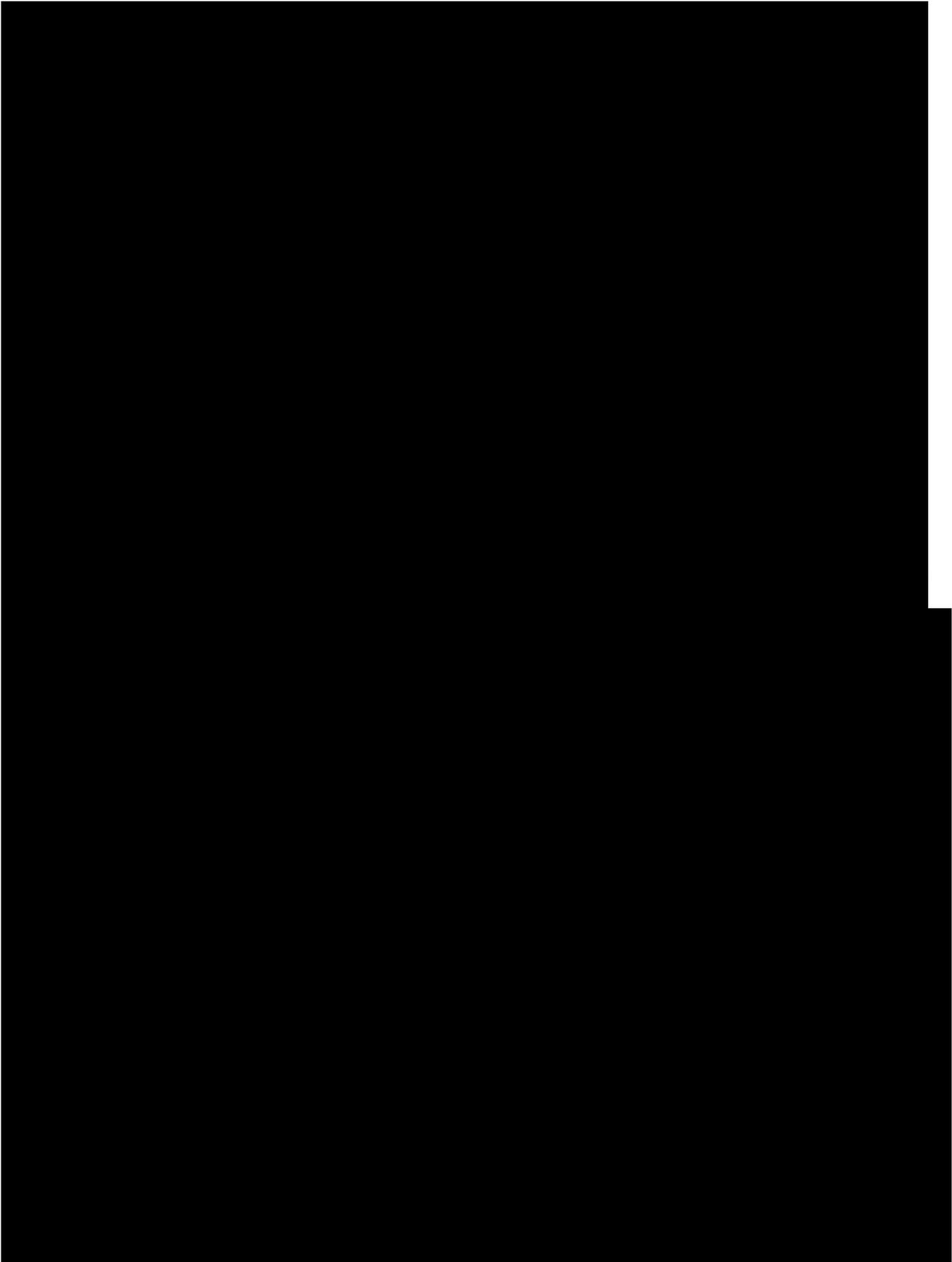
- Reconditioning
- Formation strengthening
- Curve transitions
- Re-sleepering
- Re-railing
- Level Crossing Transitions

Table 11 DAU3 Proposed Capital Expenditure – Track Projects (\$m FY24)

| Track Project Type         | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|----------------------------|------------------------|-----------------------|
| Reconditioning             |                        |                       |
| Formation Strengthening    |                        |                       |
| Curve Transitions          |                        |                       |
| Re-sleepering              |                        |                       |
| Re-railing                 |                        |                       |
| Level Crossing Transitions |                        |                       |
| <b>Total</b>               | <b>\$210.0</b>         | <b>\$145.8</b>        |

Queensland Rail acknowledges the draft decision made by the QCA on its DAU3 November 2023 submission. In response, Queensland Rail has collaboratively engaged its customers to negotiate a preference for forecast tonnages and a reference tariff, to promote efficient investment in, and the safe operation and use of, the West Moreton System. The outcomes of these consultations were for tonnage forecasts of 9.6 mtpa and 7.5 mtpa to proceed as the likely experienced scenarios.

For this reason, Figure 12 and Figure 13 presents the expenditure over DAU3 for track projects for Scenario 1a (9.6 mtpa) and Scenario 2 (7.5 mtpa) respectively. A breakdown of project expenditure by year for each scenario is provided in Section 4.2.



## 5.1 Reconditioning

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for reconditioning is summarised in Table 12, and a project overview is summarised in Table 13.

Table 12 Proposed DAU3 West Moreton capital project costs – Track Reconditioning (\$m FY24)

| Project Name   | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|--|------------------------|-----------------------|
| B.06155 West Moreton Reconditioning Koomi - Dalby      |                        |                       |
| B.06366 West Moreton Reconditioning Dalby - Macalister |                        |                       |
| B.04798 Reconditioning Macalister to Columboola        |                        |                       |
| <b>Total</b>   | <b>\$119.5</b>         | <b>\$64.0</b>         |

Table 13 Proposed DAU3 West Moreton capital project overview – Track Reconditioning

| Project Overview   |   |
|--------------------|---|
| Project Background | <p>The West Moreton System spans 407km of narrow gauge track which consists of 41kg, 50kg and 60kg rail. The 41kg rail is interspersed with timber and steel sleepers. This section has been systematically upgraded, targeting priority sections of track.</p> <p>Track reconditioning works involves the reconstruction of the track and its formation. Frequency of track reconditioning is dependent upon tonnage, typically performed by Queensland Rail with limited use of external contractors.</p> <p>This program of reconditioning has been accelerated within the DAU3 period in preparation for the increased tonnage expected across the system. B.06155 Track reconditioning Koomi to Dalby and B.06366 Track Reconditioning Dalby to Macalister will recondition the remaining 49km of light track structure east of Macalister Mine, comprising 41kg on interspersed steel and timber sleepers over black soil formation, to 50kg rail on concrete sleepers over engineered formation.</p> <p>B.04798 covering the light track between Macalister and Columboola will be reconditioned between 2028 and 2033 after the coal tonnages have peaked, as the tonnage profile is lower for this section of track.</p> |
| Scope              | <ul style="list-style-type: none"> <li>• Track deconstruction</li> <li>• Formation reconstruction from the subgrade</li> <li>• Replacement of fastenings, rail line (41 kg/m to 50 kg/m)</li> <li>• Replacement of timber sleepers with concrete sleepers</li> <li>• Welding and stressing</li> <li>• Tamping and resurfacing</li> <li>• Quality components (NDT of welds, formation compactness, etc.)</li> <li>• Inspections following completion of works, as needed.</li> </ul>   |

| <b>Project Overview</b>        |  |
|--------------------------------|--|
| Project Drivers                | <p>Asset renewal: Required to maintain both service provision and safety standards of the track.</p> <p>Track reconditioning is focused on the area west of Toowoomba where the topography is relatively flat. This enables the increased traffic to be moving at speed, which accelerates the rate of deterioration, particularly of the 41kg rail. The light track sections have an increased risk of derailment due to its reduced stability under the projected tonnages.</p> <p>Operational Efficiency: Possession times available for track reconditioning will reduce as tonnage and the number of train paths increase, so to provide the track capacity needed by Queensland Rail's customers, this activity needs to be completed while spare paths are still available.</p>   |
| Risk of not Proceeding         | <p>These projects will reduce the risk of service disruption and safety risks by improving the network through the replacement of below rail infrastructure that is known to have increasing operational maintenance costs.</p> <p>Not proceeding will lead to areas with poor formation strength and drainage issues to require higher resurfacing efforts to maintain alignment, which results in ballast breakdown, ballast height issues, and contamination. Renewing the formation and ballast reinstates track stability, top and line. Failing formation, poor drainage, high ballast profile or ballast contamination reduce track stability and increase the risk of track buckling. This results in an increasing need for reactive maintenance and repetitive resurfacing.</p>  |
| Project Benefits               | <ul style="list-style-type: none"> <li>• Improvements in the reliability of heavy use sections, reducing the likelihood of derailment.</li> <li>• Improvements in track geometry, stability, and a reduction in significant creep, limiting pull aparts and buckles.</li> <li>• Reduction in future maintenance requirements such as rail repair and rail joint maintenance, reducing labour and improving trackside safety.</li> <li>• Improved safety via replacement with heavier track structure, reducing risk of buckles / misalignment.</li> <li>• Reduced potential for Temporary Speed Restrictions (TSRs) and impacts to operations such as derailment via improved track stability and improved formation strength (eliminated risk of sleeper / rail failure; improved top and line).</li> <li>• Improved track condition and track quality as measured by the Overall Track Condition Index (OTCI).</li> <li>• Track standards compliance via track realignment.</li> </ul> |
| Alternative Options Considered | Options to replace ballast or rail only would only provide limited track stability, alignment improvement and operational maintenance savings.   |
| Relevant Standards             | MD-10-575 Queensland Rail Civil Engineering Track Standards (CETS)   |

## 5.2 Formation Strengthening

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for formation strengthening is summarised in Table 14, and a project overview is summarised in Table 15.

**Table 14 Proposed DAU3 West Moreton capital project costs – Formation Strengthening (\$m FY24)**

| Project Name   | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|--|------------------------|-----------------------|
| B.06156 Formation Strengthening Rosewood-Toowoomba                 |                        |                       |
| B.04546 West Moreton Formation Strengthening Toowoomba - Jondaryan |                        |                       |
| <b>Total</b>   | <b>\$46.8</b>          | <b>\$46.9</b>         |

**Table 15 Proposed DAU3 West Moreton capital project overview – Formation Strengthening**

| Project Overview               |  |
|--------------------------------|--|
| Project Background             | <p>Formation strengthening repairs are an ongoing issue for the West Moreton System due to the dated original construction between 1865 and 1880.</p> <p>The reactive black soil has poor formation strength and drainage issues requiring higher resurfacing efforts to maintain alignment. Renewing the formation and ballast reinstates track stability, top and line.</p> <p>B.06156 Formation Strengthening of the remaining black soil sections on the loaded Down Road between Yarongmalu (76km) and Helidon (114.520). This loaded route was relayed with 50kg rail on concrete sleepers around 15 years ago over the existing black soil formation. This 38km section demonstrates poor track stability and requires significant resurfacing intervention to maintain top and line, particularly during summer and wet seasons. This section will have &gt;10MNT with coal and non-coal traffic east of Toowoomba and is currently limited to 60kph maximum for loaded traffic with hot weather restrictions imposed over summer.</p> |
| Scope                          | Repairs to formation failure, mud holes and ballast pockets along track. The work method requires the track to be removed and an engineering foundation constructed before the track is reinstated.  |
| Project Drivers                | Levels of service: Safety is the primary driver in addition to accommodating tonnage increases by maintaining the track speed, and reducing closures and restrictions due to heat.   |
| Risk of not Proceeding         | Poor formation conditions result in uneven train movement, leading to accelerated deterioration of both the tracks and locomotive components. Such conditions elevate the risk of derailment, underscoring the need for the works to maintain a safe and reliable network.   |
| Project Benefits               | <ul style="list-style-type: none"> <li>• Reduced risk of temporary speed restrictions and unplanned closures due to heat and/or rainfall.</li> <li>• Reduced ballast contamination, reducing the risk of speed restrictions and derailments.</li> <li>• Reduced top and line deterioration, reducing the risk of speed restrictions and derailments.</li> <li>• Reduced need for reactive maintenance and repetitive resurfacing treatment.</li> </ul>   |
| Alternative Options Considered | Track reconditioning is an alternative option; however this activity incurs additional track costs.  |
| Relevant Standards             | MD-10-586 Queensland Rail Civil Engineering Structures Standards (CESS)  |

## 5.3 Curve Transitions

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for curve transitions is summarised in Table 16, and a project overview is summarised in Table 17.

**Table 16 Proposed DAU3 West Moreton capital project costs – Curve Transitions (\$m FY24)**

| Project Name   | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|--|------------------------|-----------------------|
| B.05578 West Moreton Toowoomba Range Curve Transitions |                        |                       |

**Table 17 Proposed DAU3 West Moreton capital project overview – Curve Transitions**

| Project Overview               |   |
|--------------------------------|---|
| Project Background             | <p>On parts of the West Moreton System (Toowoomba Range), there is challenging track geometry with steep grades and sharp curves, presenting derailment risks and high emergency repair considerations.</p> <p>The Toowoomba Range Curve Transitions (B.05578) project is to upgrade the track, formation, and drainage of the worst transition tangents between sharp curves. The scope totals around 7km over the Grandchester Range and between Murphy’s Creek to Toowoomba. Past projects have focused on upgrading the sharpest curves, including recent rail and sleeper renewals to address rail wear and crushed spacers on old style sleepers. Some tangents and transition zones between sharp curves are now exhibiting poor track stability with the forces exerted at these zones and the drainage and formation issues through the cutting to embankment transitions.</p> |
| Scope                          | Recondition track transition on approach to level crossings to improve alignment and stability.   |
| Project Drivers                | Managing safety risks and risks to service.   |
| Risk of not Proceeding         | Continued deterioration of the track along the curve transitions will increase safety risks by reducing track stability and structural integrity. The poor alignment will reduce range speeds and summer access.  |
| Project Benefits               | <ul style="list-style-type: none"> <li>• Improvements to track safety</li> <li>• Improved ride comfort with reduced risk of track buckling at approach</li> </ul>   |
| Alternative Options Considered | These curves have been maintained in the past through repairs and adjustments to address track stress and regular resurfacing to correct alignment but this alternate maintenance approach will not keep track fit for higher tonnage demands into the future.  |
| Relevant Standards             | MD-10-575 Queensland Rail Civil Engineering Track Standards (CETS)  |

## 5.4 Re-sleepering

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for re-sleepering is summarised in Table 18, and a project overview is summarised in Table 19.

Table 18 Proposed DAU3 West Moreton capital project costs – Re-sleepering (\$m FY24)

| Project Name                            | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|---|------------------------|-----------------------|
| B.05945 West Moreton Re-sleepering FY26 |                        |                       |

Table 19 Proposed DAU3 West Moreton capital project overview – Re-sleepering

| Project Overview   |  |
|--------------------|--|
| Project Background | <p>Parts of the West Moreton System are experience track stability issues for light interspersed timber sleeper track structure and defective sleepers.</p> <p>The extent of required sleeper renewals within each cycle is determined by condition testing and analysis of deterioration rates to scope a program of works. Typically, the scope within each cycle will comprise the replacement of a minimum of 25% of the total timber population. This ensures the network performs safely and reliably to a condition that meets engineering standards for a period of three years without further significant maintenance intervention.</p> <p>Current track stability assessments and past derailment events have confirmed that the remaining timber and interspersed steel sleepered sections need to be maintained carefully to remain serviceable.</p> <p>There is only 140km remaining timber and interspersed steel sleepers in West Moreton on the unloaded-UP Road below Helidon and beyond Jondaryan. Ongoing track reconditioning with concrete sleepers will continue to reduce the requirement of mechanised timer re-sleepering.</p> <p>CETS compliance is rigid for operational freight corridors due to the impact that defective timber sleepers have on gauge holding and top alignment capacity in relation to derailment risk.</p> <p>Investigation and experience have identified that deferring a mechanised re-sleepering cycle and managing defective sleepers operational with sleeper cluster management beyond 18 months leads to increased track buckling risk and subsequent derailment risk as the clusters of defective sleepers extend and additional loading is transferred to adjacent sleepers and rail creep cannot be constrained.</p> <p>A mechanised resurfacing run cannot be carried out adequately over sections with greater than 20% ineffective sleepers as the machine will lift the rail of the ineffective sleepers;</p> <p>In the absence of a mechanised resurfacing run, speed restrictions continue to extend as top and line deteriorates and rail joints begin pumping increasing the risk of track buckling</p> <p>As clusters of defective sleepers extend causing excessive rail creep and rail joint pumping, local operational teams cannot meet the increasing demand in maintenance and emergency repairs and derailment risk increase.</p> <p>Managing defective sleepers and the associated maintenance demands, in the absence of a mechanised re-sleepering cycle and resurfacing, can incur operational costs more than twice the original capital re-sleepering investment.</p> |

| Project Overview               |   |
|--------------------------------|---|
| Scope                          | <p>B.05945 West Moreton Resleeping FY26 will replace around 25% of the timber sleeper population remaining with new timber sleepers on the unloaded Up Road between Yarongmalu and Helidon and from Macalister to Columboola Mine.</p> <p>This is a track safety and compliance requirement with the mechanised re-sleeping work carried out in daylight hours between traffic and during available closures over 4 months in 2026 ahead of the tonnage increases</p>   |
| Project Drivers                | <p>Asset renewal to manage safety risks, achieve compliance requirements and deliver service levels.</p> <p>Re-sleeping with new timber sleepers will achieve enhanced lateral, longitudinal, rotational and vertical stability, reducing the risk of gauge widening, rail misalignment and track buckling. Sleeper spacing, spot tamping, and resurfacing will reinstate track stability, load distribution, and top and line, reducing the risk of misalignment and accelerated track deterioration.</p>  |
| Risk of not Proceeding         | If the project is not progressed, Queensland Rail will face non-compliance risks to CETS, and expect to significantly increase maintenance costs.   |
| Project Benefits               | <ul style="list-style-type: none"> <li>Improved defective sleeper percentage. The project will ensure that each of these lines remain compliant with CETS limits for sleeper condition for the next five to six years.</li> <li>Improve track top and line, improvements in Overall Track Condition Index (OTCI).</li> <li>Reduced risk of spread gauge derailment due to clusters of ineffective sleepers. <ul style="list-style-type: none"> <li>Reduced requirement for Temporary Speed Restrictions to manage safety risk on corridors with poor top and line and poor/marginal sleeper condition.</li> </ul> </li> <li>Reduced need for regular spot maintenance/cluster management on these corridors.</li> </ul> |
| Alternative Options Considered | Alternative options include reducing the number of sleepers replaced in the project, which would not fully address the risks, or performing the activity over a longer period of time, which has the potential to increase costs, and Queensland Rail would be exposed to risk for longer. .  |
| Relevant Standards             | <p>All track upgrade work will comply with Queensland Rail safety rules and procedures.</p> <p>MD-10-575 Queensland Rail Civil Engineering Track Standards (CETS)</p>   |

## 5.5 Re-railing

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for re-railing is summarised in Table 20, and a project overview is summarised in Table 21.

Table 20 Proposed DAU3 West Moreton capital project costs – Re-railing (\$m FY24)

| Project Name                | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|-----------------------------|------------------------|-----------------------|
| B.04817 West Moreton Rerail |                        |                       |

Table 21 Proposed DAU3 West Moreton capital project overview – Re-railing

| Project Overview               |  |
|--------------------------------|--|
| Project Background             | Some rail on the West Moreton System is at end of life, and a program for replacement is needed to manage the risk of failure and service disruption on the network.   |
| Scope                          | <ul style="list-style-type: none"> <li>Replacement of end-of-life rail in the West Moreton System. Sections of 41kg/m rail is showing increased susceptibility to rail wear and defect discovery rates. This 41 kg/m rail is to be replaced with 50 kg/m rail.</li> <li>Replacement of end-of-life 50 kg/m rail where the rail wear will result in gauge related defects.</li> </ul> |
| Project Drivers                | Asset renewal: Ability to uphold service requirements under increased tonnages.  |
| Risk of not Proceeding         | If the project is not progressed, Queensland Rail will face non-compliance risks to CETS, and expect to significantly increase maintenance costs or close the track.   |
| Project Benefits               | <ul style="list-style-type: none"> <li>Reduces the likelihood of broken rail derailments</li> <li>Reduced exposure to service defects which require shutdowns to remove defective rail and expensive welding in, and match grinding of, the inserted closure rails</li> <li>Improvements to the safety and reliability of the track</li> </ul>                                       |
| Alternative Options Considered | No alternative options have been considered.   |
| Relevant Standards             | MD-10-575 Queensland Rail Civil Engineering Track Standards (CETS)   |

## 5.6 Level Crossing Transitions

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for level crossing transitions is summarised in Table 22, and a project overview is summarised in Table 23. The level crossing protection upgrades project (B.06580) is recognised to be a new project introduced in this collaborative submission, previously not included in the original submission made in November 2023.

Table 22 Proposed DAU3 West Moreton capital project costs – Level Crossing Transitions (\$m FY24)

| Project Name  | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|---|------------------------|-----------------------|
| B.04898 West Moreton Level Crossing Transitions (Up Road) |                        |                       |
| B.06580 WM Level Crossing Protection Upgrades             |                        |                       |
| <b>Total</b>  | <b>\$3.5</b>           | <b>\$5.1</b>          |

Table 23 Proposed DAU3 West Moreton capital project overview – Level Crossing Transitions

| Project Overview   |   |
|--------------------|---|
| Project Background | The improved track structure at level crossings consists of 50kg/m rail on concrete sleepers. An increase in junction weld failures has been experienced where this improved structure has been implemented in areas of 41kg/m rail on timber sleepers. Increases to tonnages |
| Scope              | To reduce the frequency of failure, it is proposed to extend the concrete sleepers and 50kg/m for a minimum of 20 sleepers past the level crossings.  |

| <b>Project Overview</b>        |  |
|--------------------------------|--|
| Project Drivers                | Asset renewal: manage risk of failure and service disruption under increased tonnages.   |
| Risk of not Proceeding         | The risk of this project not proceeding will impact on track stability and increase speed restrictions along the associated corridor, also creating higher maintenance costs.  |
| Project Benefits               | <ul style="list-style-type: none"> <li>• Reduces the likelihood of broken rail derailments</li> <li>• Track safety and ride comfort improvement with reduced risk of track buckling at approach.</li> <li>• Improvements to the safety and reliability of the track</li> </ul> |
| Alternative Options Considered | No alternative options have been considered.   |
| Relevant Standards             | MD-10-575 Queensland Rail Civil Engineering Track Standards (CETS)   |

# 6 Civil Works Projects

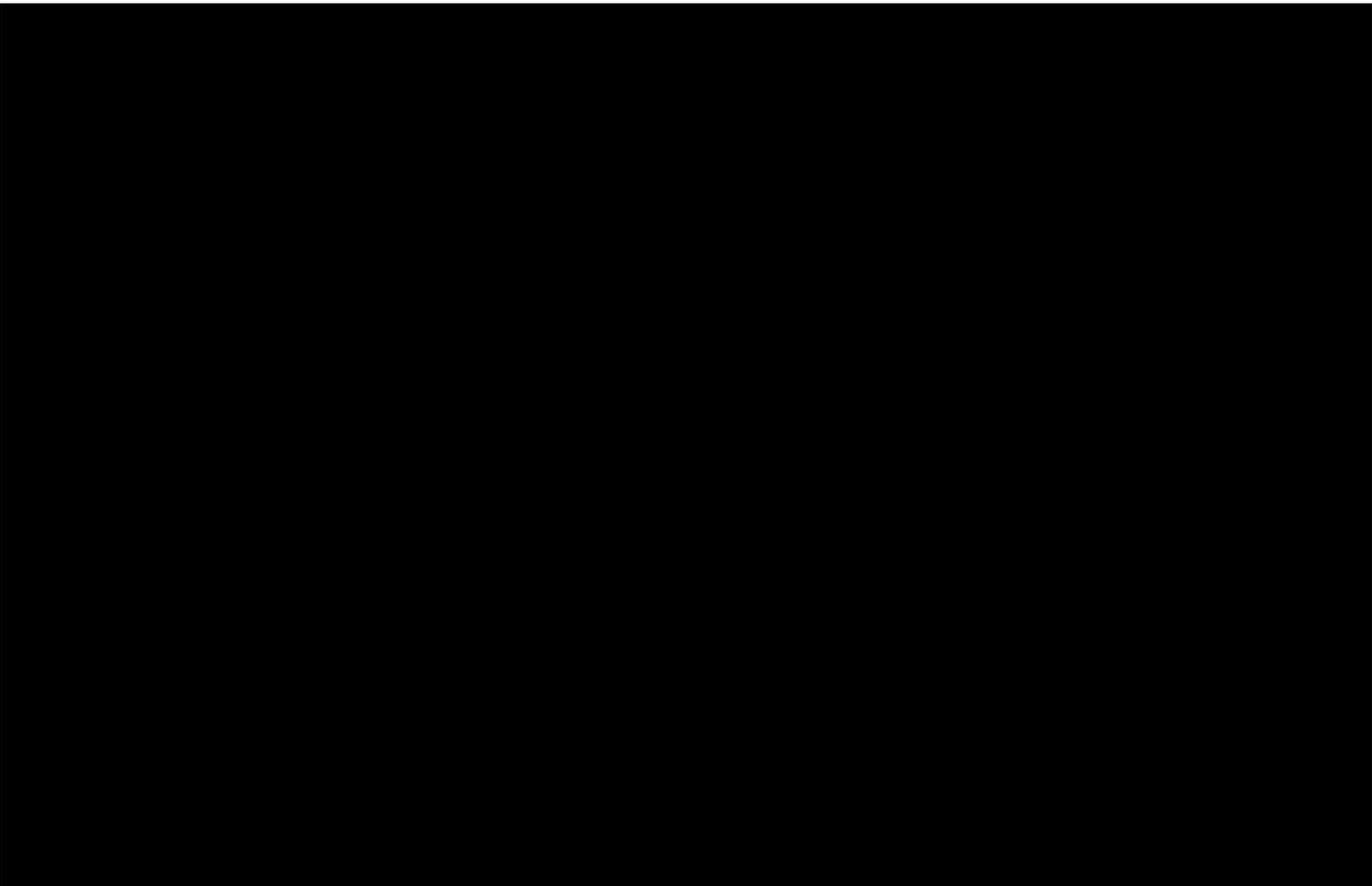
The following section summarises capital projects categorised within the civil works project type. Table 24 provides a summary of civil works projects for both tonnage scenario over the DAU3 period. These projects include:

- Slope Stabilisation
- Culvert Renewals

**Table 24 DAU3 Proposed Capital Expenditure – Civil Works (\$m FY24)**

| Civil Works Project Type | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|--------------------------|------------------------|-----------------------|
| Slope Stabilisation      |                        |                       |
| Culvert Renewals         |                        |                       |
| <b>Total</b>             | <b>\$38.1</b>          | <b>\$31.8</b>         |

Figure 14 and Figure 15 presents the expenditure over DAU3 for civil works projects for Scenario 1a (9.6 mtpa) and Scenario 2 (7.5 mtpa) respectively. A breakdown of project expenditure by year for each scenario is provided in Section 4.2.



## 6.1 Slope Stabilisation

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for slope stabilisation is summarised in Table 25, and a project overview is summarised in Table 26.

Table 25 Proposed DAU3 West Moreton capital project costs – Slope Stabilisation (\$m FY24)

| Project Name                                    | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|---|------------------------|-----------------------|
| B.06507 West Moreton Ranges Slope Stabilisation | █                      | █                     |

Table 26 Proposed DAU3 West Moreton capital project overview – Slope Stabilisation

| Project Overview               |   |
|--------------------------------|---|
| Project Background             | <p>The Toowoomba Range experiences significant issues regarding land instability which impacts various cuttings and embankments, which can impact on the safe operation of the railway. There has been a history of rock falls in the past, and these can result in derailment or wagon discharge if release levers are struck.</p> <p>Queensland Rail has previously engaged a number of geotechnical studies to assess the geotechnical and hydrological risks to the ranges. These have been carried out for this site at the last major failure during the 2011 floods and in the years since.</p> <p>The Rangeview slope remediation project has progressed to development and design in 2024 and detailed geotechnical studies and options analysis will be carried out ahead of future implementation.</p> <p>The slope is currently being monitored with displacement sensors and regularly inspected.</p> <p>The adjacent and newly constructed bypass highway was closed and/ or restricted for a significant period in 2023 due to similar slope movement, so it is unlikely that this legacy constructed embankment with a past history of failure will not require stabilisation works</p> |
| Scope                          | <ul style="list-style-type: none"> <li>• The slope stabilisation project will remediate the highest priority failing embankments, as well as undertaking geotechnical analysis across several high priority embankments, to better inform future investment.</li> <li>• Sites will be monitored to determine the extent of movement change to enable decisions regarding their remediation treatment and timing within future slope stabilisation program stages.</li> </ul>  |
| Project Drivers                | Levels of service: Alignment with Queensland Rails service requirements to improve safety outcomes, sustain on-time operations and reliability and improve customer satisfaction.   |
| Risk of not Proceeding         | This project not proceeding would significantly impact the safety risk and failure of the range bank embankment, causing the system to close for a minimum 2 weeks.   |
| Project Benefits               | <ul style="list-style-type: none"> <li>• Reduction in the risk of derailment</li> <li>• Reduced risk of passenger and staff injuries caused by embankment failures and/or rock falls.</li> <li>• Increased supply chain reliability and confidence in the management of geotechnical risk.</li> </ul>   |
| Alternative Options Considered | <p>Options considered included stabilisation of all identified sites, stabilisation of high-risk sites and monitoring of other sites, or track realignment.</p> <p>Other options considered did not meet business objectives or could not be justified due to the excessive cost.</p>   |
| Relevant Standards             | MD-10-586 Queensland Rail Civil Engineering Structures Standards (CESS)   |

## 6.2 Culvert Renewals

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for culvert renewals is summarised in Table 27, and a project overview is summarised in Table 28.

Table 27 Proposed DAU3 West Moreton capital project costs – Culvert Renewals (\$m FY24)

| Project Name                          | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|---------------------------------------|------------------------|-----------------------|
| B.04823 West Moreton Culvert Renewals |                        |                       |

Table 28 Proposed DAU3 West Moreton capital project overview – Culvert Renewals

| Project Overview               |   |
|--------------------------------|---|
| Project Background             | The deterioration rate of culverts is increasing the requirement for speed restrictions and unplanned closures for repairs which adversely impacts OTR performance.   |
| Scope                          | Replacement of end-of-life culverts along the West Moreton System. Culverts have been identified as requiring replacement as part of regular track inspections. These structures are at increased risk of failure during high rainfall events.  |
| Project Drivers                | Asset renewal: Ability to uphold service expectations and safety requirements.  |
| Risk of not Proceeding         | Not proceeding with this project would lead to the loss of top and line at failing culverts and require speed restrictions.   |
| Project Benefits               | <ul style="list-style-type: none"> <li>Avoid the necessity for temporary support or filling of failing culverts.</li> <li>Improved safety and reliability of the network by reducing risk of derailments and network outages due to culvert collapse.</li> <li>Reduced risk of flood damage to adjacent properties due to blocked or restricted culverts</li> <li>Reduced risk of service delays caused by speed restrictions posed due to culverts failing prior to renewal</li> </ul> |
| Alternative Options Considered | Asset renewal is in line with Queensland Rails Civil Asset Strategy Policy. Alternative design options include: <ul style="list-style-type: none"> <li>Concrete Box Culverts which should be designed in accordance with AS1597.1:2010 and AS1567.2:2013.</li> <li>Concrete Reinforced Pipes which should be designed in accordance with AS3725:2007 and manufactured in accordance with AS4508:2007.</li> </ul>  |
| Relevant Standards             | <ul style="list-style-type: none"> <li>AS1597.1:2010</li> <li>AS1567.2:2013</li> <li>AS3725:2007</li> <li>AS4508:2007</li> </ul>  |
| Procurement Approach           | Work for this project will be undertaken by Queensland Rail, supplemented by external contractors where required.   |

# 7 Bridges Projects

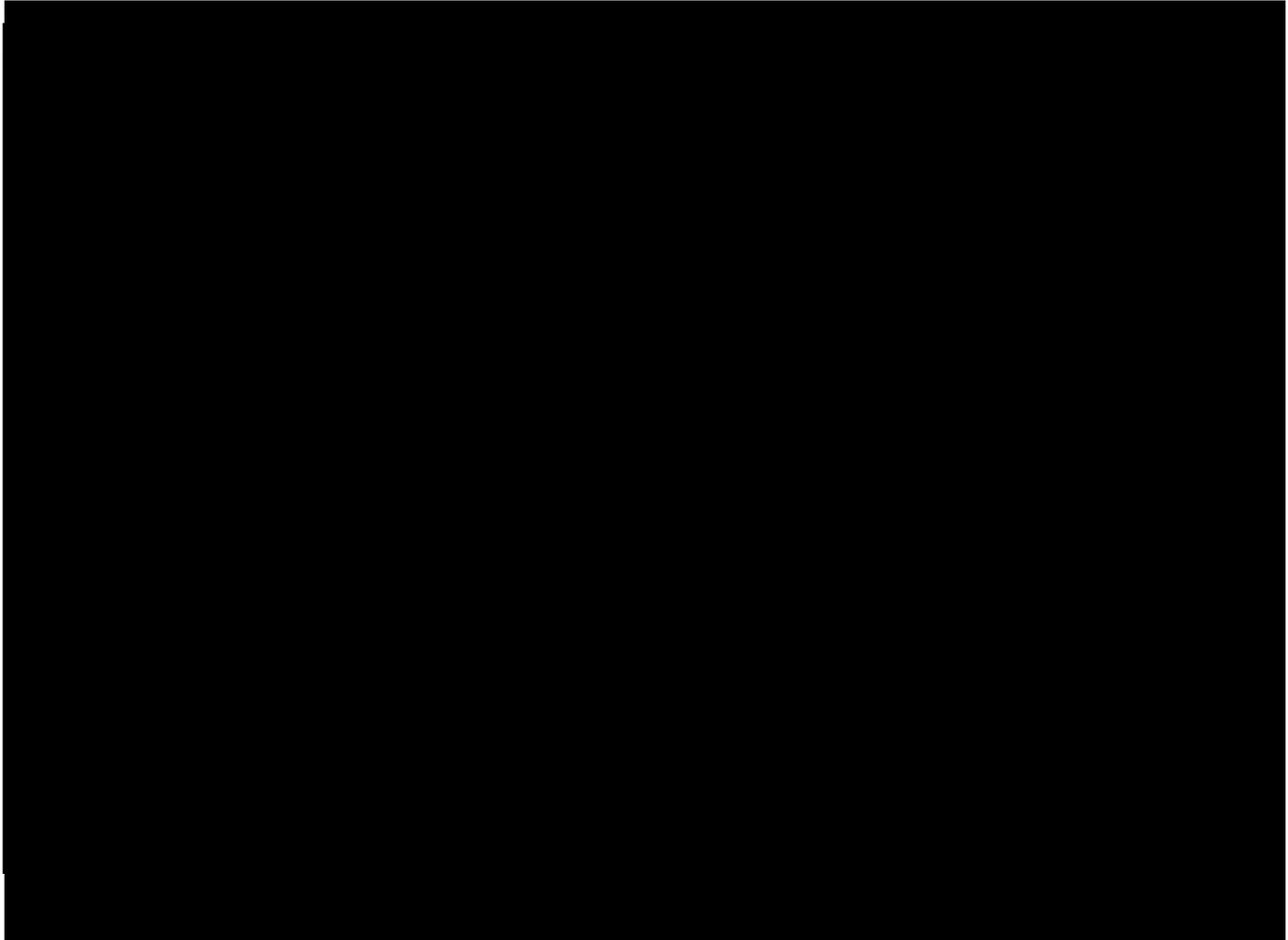
The following section summarises capital projects categorised within the bridges project type. Table 29 provides a summary of bridges projects for both tonnage scenarios over the DAU3 period. These projects include:

- Bridge Pier Replacements
- Bridge Strike Protection

Table 29 DAU3 Proposed Capital Expenditure – Civil Works (\$m FY24)

| Civil Works Project Type | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|--------------------------|------------------------|-----------------------|
| Bridge Pier Replacements |                        |                       |
| Bridge Strike Protection |                        |                       |
| <b>Total</b>             | <b>\$64.5</b>          | <b>\$50.0</b>         |

Figure 16 and Figure 17 presents the expenditure over DAU3 for bridges projects for Scenario 1a (9.6 mtpa) and Scenario 2 (7.5 mtpa) respectively. A breakdown of project expenditure by year for each scenario is provided in Section 4.2.



## 7.1 Bridge Pier Replacements

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for bridge pier replacement is summarised in Table 30, and a project overview is summarised in Table 31.

Table 30 Proposed DAU3 West Moreton capital project costs – Bridge Pier Replacements (\$m FY24)

| Project Name  | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|---|------------------------|-----------------------|
| B.06162 WM Bridge/Pier Replacement (Rosewood-Jondaryan)     |                        |                       |
| B.04804 WM Bridge/Pier Replacement (Jondaryan - Columboola) |                        |                       |
| <b>Total</b>  | <b>\$64.5</b>          | <b>\$45.3</b>         |

Table 31 Proposed DAU3 West Moreton capital project overview – Bridge Pier Replacements

| Project Overview       |  |
|------------------------|--|
| Project Background     | <p>Queensland Rail has over 1,000 timber bridges across Regional Queensland requiring a significant maintenance budget each year. These aging timber bridges have structural elements that have life-expired components including piers and girders.</p> <p>Condition inspections of all timber bridges on the West Moreton System have been carried out by Queensland Rail’s inspectors to identify the existing defects. The inspection data has been used to undertake a comprehensive condition analysis which enabled a replacement priority list to be produced.</p> <p>The condition of these bridges requires intensive maintenance and renewal programs to keep the West Moreton System operational. In recent years an approximate average [REDACTED] has been spent on replacement of aged timber components and top and line issues at these bridges. This maintenance cost is expected to reduce to [REDACTED] (effectively for inspections) as timber bridges are replaced [REDACTED].</p> <p>In many instances speed restrictions have been put in place in order to continue operations across these bridges. These speed restrictions impact on sectional running times. Some bridges are also prone to flooding which further affects the structural integrity of these aging structures. If a bridge were to be damaged by flooding it would close the line for a considerable period while repairs are undertaken.</p> |
| Scope                  | <p>This project proposes to undertake replacement works i.e. bridge pier replacement and full bridge structure replacement on the next tranche of priority timber bridges in the West Moreton System. Defects on these bridges include bridge/rail misalignment, termite damage, cracked girders, perishing girders, loose screws, split spans, rotten transoms and rotten headstocks.</p>   |
| Project Drivers        | <p>Asset renewal to reduce safety risk and risk of service disruption. Experience from past events of piers collapsing due to hidden failures below ground level in other systems would indicate that rail closure following these events will range from two days to three weeks.</p> <p>Where pier deterioration is identified through pile examinations, before failure, the track closure time is likely to be around 24 hours while temporary supports are installed.</p> <p>Following heavy rainfall any track with temporary supports is closed and all temporary supports must be inspected ahead of traffic being reinstated.</p>   |
| Risk of not Proceeding | <p>Not proceeding with this project will lead to increased traffic interruptions and need for speed restrictions, also causing higher maintenance costs.</p>   |

| Project Overview               |   |
|--------------------------------|---|
| Project Benefits               | <ul style="list-style-type: none"> <li>• Reduced maintenance costs</li> <li>• Improved asset reliability</li> <li>• Transit time reliability and improved structural integrity in regard to risk of hidden failure of piers underground.</li> <li>• Lower unplanned closures for emergency inspections and reactive repairs.</li> <li>• Avoids the risk of major operational disruption due to critical structures becoming unserviceable.</li> </ul> |
| Alternative Options Considered | Full replacement of timber bridges as an alternative consideration would require increase initial capital and extensive track closures.   |
| Relevant Standards             | MD-10-586 Queensland Rail Civil Engineering Structures Standards (CESS)   |

## 7.2 Bridge Strike Protection

The bridge strike protection project is a new project introduced for this collaborative submission, not previously included in the original submission made in November 2023. Capital expenditure distribution over the DAU3 period for both tonnage scenarios for bridge strike protection is summarised in Table 32, and a project overview is summarised in Table 33.

Table 32 Proposed DAU3 West Moreton capital project costs – Bridge Strike Protection (\$m FY24)

| Project Name                                | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|---|------------------------|-----------------------|
| B.06800 WM Bridge Strike Protection Program |                        |                       |

Table 33 Proposed DAU3 West Moreton capital project overview – Bridge Strike Protection

| Project Overview   |  |
|--------------------|--|
| Project Background | The purpose of the project is to design and install bridge strike protection barriers on low height rail bridges that are at risk of impact by road traffic passing underneath. Five bridges requiring protection have been identified between Gatton and Toowoomba on the West Moreton System that demonstrate increasing occurrences of strikes. The safety risks and operational impacts that are caused from these events can be severe. |
| Scope              | The project is to address road rail bridge interface high risk locations on the West Moreton System. Pre-concept engagement identifies five priority locations for installation of steel protection beams, as the most effective solution for preventing bridge strikes.   |
| Project Drivers    | Bridge strikes are a risk, with severe consequences such as bridge collapse and subsequent train derailment, with the potential to result in an injury or death. Bridge strikes can result in high repair costs as well as delays and closures while inspections and repairs are carried out.  |

| <b>Project Overview</b>        |  |
|--------------------------------|--|
| Risk of not Proceeding         | Not proceeding with this project will see the continuation of bridge strike occurrences. Impacts to the problem bridges could close the South access to Willowburn Marshalling.  |
| Project Benefits               | <ul style="list-style-type: none"> <li>• Reduction in the number of rail bridge strikes.</li> <li>• Reduction in the impact to operations.</li> <li>• Reduction in rail bridge repairs and call out inspection costs.</li> </ul>   |
| Alternative Options Considered | Queensland Rail considers several alternatives per its business case process, and has selected the most appropriate considering all factors. The alternative technologies considered include height gauge chimes or Queensland Rail's Structure Monitoring and Alerting System (SMAS). |
| Relevant Standards             | MD-10-586 Queensland Rail Civil Engineering Structures Standards (CESS)  |

## 8 Signalling Projects

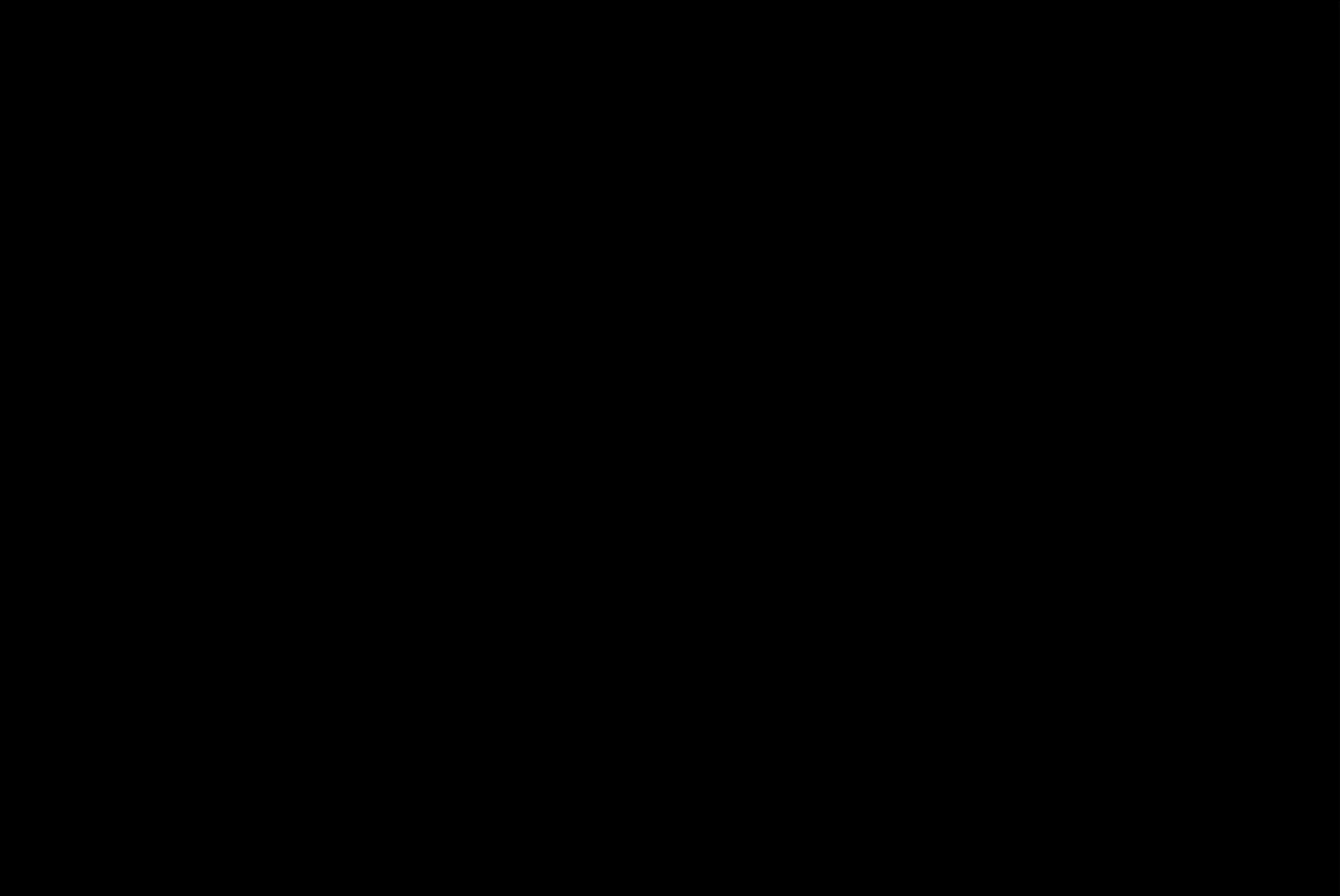
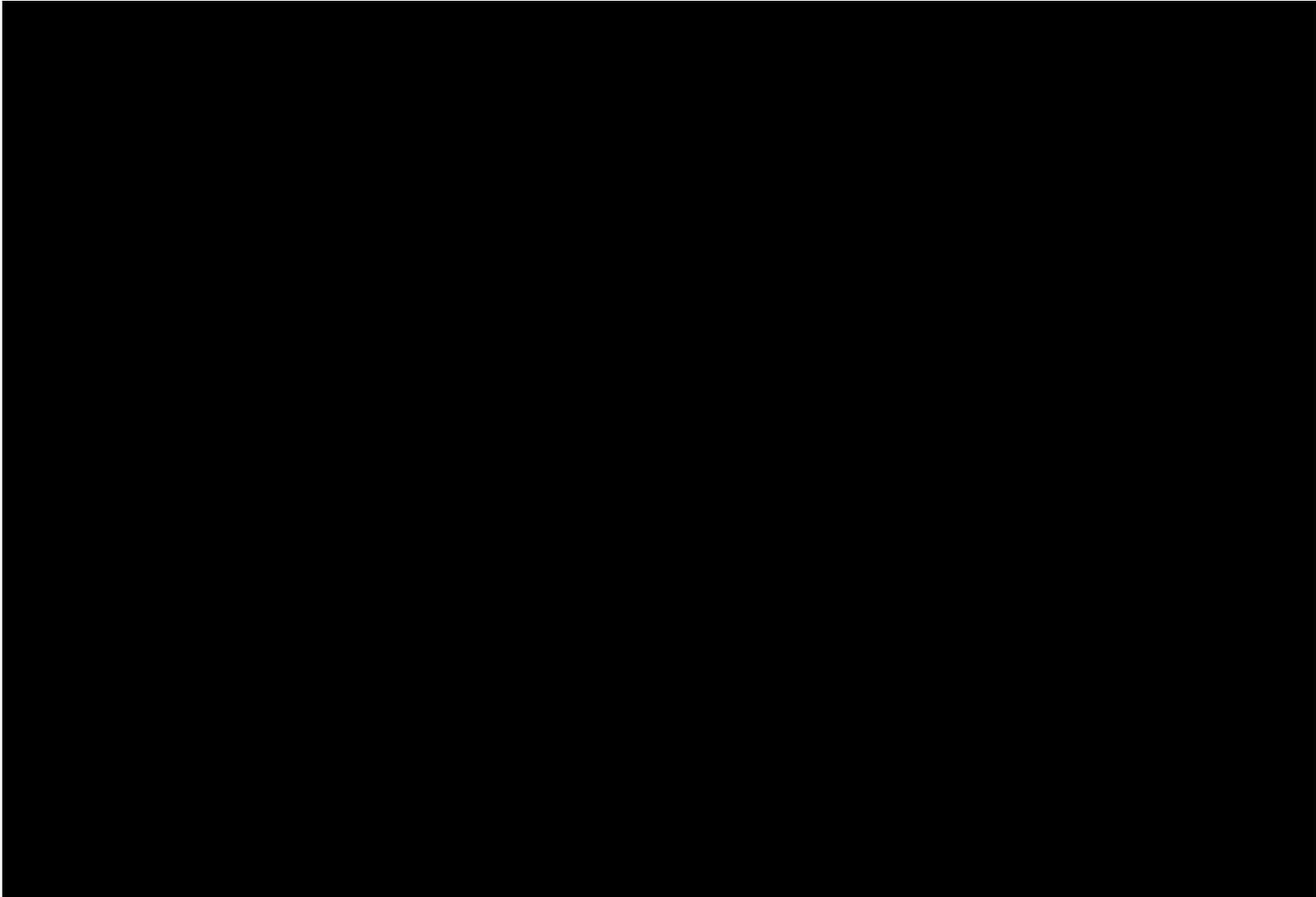
The following section summarises capital projects categorised within the signalling project type. Table 34 provides a summary of signalling projects for both tonnage scenarios over the DAU3 period. These projects include:

- Signalling Cables
- Digital Telemetry
- SER/PER Upgrade
- LED Upgrade
- Re-signalling
- Interlocking Renewal

Table 34 DAU3 Proposed Capital Expenditure - Signalling (\$m FY24)

| Project Name                                     | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|--|------------------------|-----------------------|
| B.05592 Grandchester to Laidley Signal Cable     |                        |                       |
| B.04763 Digital Telemetry Rollout - West Moreton |                        |                       |
| B.05593 Rangeview SER/PER Upgrade                |                        |                       |
| B.05601 Signalling LED Upgrade                   |                        |                       |
| B.06508 Dalby Yard and OLCs Re-signalling        |                        |                       |
| B.04778 Gatton Interlocking Renewal              |                        |                       |
| <b>Total</b>                                     | <b>\$11.1</b>          | <b>\$9.8</b>          |

Figure 18 and Figure 19 presents the expenditure over DAU3 for signalling projects for Scenario 1a (9.6 mtpa) and Scenario 2 (7.5 mtpa) respectively. A breakdown of project expenditure by year for each scenario is provided in Section 4.2.



## 8.1 Signalling Cables

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for the signalling cables project is summarised in Table 35, and a project overview is summarised in Table 36.

Table 35 Proposed DAU3 West Moreton capital project costs – Signalling Cables (\$m FY24)

| Project Name                                 | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|--|------------------------|-----------------------|
| B.05592 Grandchester to Laidley Signal Cable | ■                      | ■                     |

Table 36 Proposed DAU3 West Moreton capital project overview – Signalling Cables

| Project Overview               |  |
|--------------------------------|--|
| Project Background             | Signalling cable between Grandchester and Laidley reaching end of life.  |
| Scope                          | Renewal of this cabling is required before it becomes unserviceable, in order to enable continued operational reliability for West Moreton and the serviceability of the signalling systems.   |
| Project Drivers                | Asset renewal: requirement of continued service delivery.  |
| Risk of not Proceeding         | Reliability and safety considerations for ongoing equipment function will reduce as equipment ages and is no longer supported by manufacturer along with spares availability. May require running to forms or other operational restrictions limiting the number of trains that can be operated over an area with failed equipment that cannot be re-instated. |
| Project Benefits               | <ul style="list-style-type: none"> <li>Improved reliability and maintainability of the signalling infrastructure on the West Moreton System</li> <li>Reduced maintenance interventions and impact on OTR</li> </ul>  |
| Alternative Options Considered | Both alternative technology solutions and construction options will be considered in this project.   |
| Relevant Standards             | MD-13-550 Queensland Rail Signalling and Operational Systems Asset Governance and Assurance Principle (SAGA)   |

## 8.2 Digital Telemetry

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for the digital telemetry project is summarised in Table 37, and a project overview is summarised in Table 38.

Table 37 Proposed DAU3 West Moreton capital project costs – Digital Telemetry (\$m FY24)

| Project Name                                     | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|--|------------------------|-----------------------|
| B.04763 Digital Telemetry Rollout - West Moreton | ■                      | ■                     |

Table 38 Proposed DAU3 West Moreton capital project overview – Digital Telemetry

| Project Overview               |  |
|--------------------------------|--|
| Project Background             | <p>The Universal Traffic Control (UTC) system is used to manage train movements within Queensland Rail's remote controlled signalling territory. For the West Moreton network, UTC is used from Rosewood to Willowburn.</p> <p>The existing telemetry used to provide communications between the UTC system and the signalling system is based on a life-expired analogue based system that requires an upgrade.</p> |
| Scope                          | This project includes development of the core UTC system to support the new telemetry system. It will replace end of life Siemens S2 SOF and Scanner hardware with a digital telemetry product operating over Ethernet/IP.   |
| Project Drivers                | <p>Asset renewal</p> <p>Compliance</p>   |
| Risk of not Proceeding         | Reliability and safety considerations for ongoing equipment function will reduce as equipment ages and is no longer supported by manufacturer along with spares availability. May require running to forms or other operational restrictions limiting the number of trains that can be operated over an area with failed equipment that cannot be re-instated.   |
| Project Benefits               | <ul style="list-style-type: none"> <li>Maintain reliable operations in the remote-controlled signalling territory in the West Moreton System.</li> <li>Replacement assets will have ongoing support from manufacturer for spare replacements.</li> </ul>   |
| Alternative Options Considered | No alternative options have been considered.   |
| Relevant Standards             | MD-15-549 Queensland Rail Telecommunications Maintenance Standard  |

### 8.3 SER/PER Upgrade

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for the SER/PER upgrade project is summarised in Table 39, and a project overview is summarised in Table 40.

Table 39 Proposed DAU3 West Moreton capital project costs – SER/PER Upgrade (\$m FY24)

| Project Name                      | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|-----------------------------------|------------------------|-----------------------|
| B.05593 Rangeview SER/PER Upgrade | ■                      | ■                     |

Table 40 Proposed DAU3 West Moreton capital project overview – SER/PER Upgrade

| Project Overview   |   |
|--------------------|---|
| Project Background | <p>The existing signal and power equipment rooms at Rangeview passing loop are identified as outdated with several assets reaching end-of-life.</p> <p>The replacement building and equipment will be more reliable, have improved access and increased levels of safety for maintenance staff.</p> |

| Project Overview               |  |
|--------------------------------|--|
| Scope                          | This project will replace the existing wooden station building containing vital signalling equipment with a new Signalling Equipment Room (SER) and Power Equipment Room (PER). A new alternator will also be installed with the PER.  |
| Project Drivers                | Asset renewal  |
| Risk of not Proceeding         | Reliability and safety considerations for ongoing equipment function will reduce as equipment ages and is no longer supported by manufacturer along with spares availability. May require running to forms or other operational restrictions limiting the number of trains that can be operated over an area with failed equipment that cannot be re-instated. |
| Project Benefits               | <ul style="list-style-type: none"> <li>• Reduced reactive maintenance</li> <li>• Improved reliability</li> <li>• Reduced system down time</li> <li>• Improvement to safety</li> </ul>  |
| Alternative Options Considered | No alternative options have been considered due to the likelihood of the building being condemned should a 'Do Nothing' strategy be instated.  |
| Relevant Standards             | MD-13-550 Queensland Rail Signalling and Operational Systems Asset Governance and Assurance Principle (SAGA)   |

## 8.4 LED Upgrade

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for the LED upgrade project is summarised in Table 41, and a project overview is summarised in Table 42.

**Table 41 Proposed DAU3 West Moreton capital project costs – LED Upgrade (\$m FY24)**

| Project Name                   | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|--------------------------------|------------------------|-----------------------|
| B.05601 Signalling LED Upgrade | ■                      | ■                     |

**Table 42 Proposed DAU3 West Moreton capital project overview – LED Upgrade**

| Project Overview   |  |
|--------------------|--|
| Project Background | <p>Incandescent lamps have become obsolete and have a number of inherent failure modes that the LED signal module system has designed out.</p> <p>The train driver signal interface relies on the signal aspect indicating a clear and unambiguous indication. LEDs have far greater intensity than incandescent signals and have a greater life expectancy therefore improving signal sighting and driver response.</p> |
| Scope              | This project involves the replacement of incandescent signals with LED signals. Project work includes installing LEDs and necessary location changes including relays.   |
| Project Drivers    | Asset renewal: Improvement to asset performance in line with service requirements.   |

| Project Overview               |  |
|--------------------------------|--|
| Risk of not Proceeding         | Reliability and safety considerations for ongoing equipment function will reduce as equipment ages and is no longer supported by manufacturer along with spares availability. May require running to forms or other operational restrictions limiting the number of trains that can be operated over an area with failed equipment that cannot be re-instated. |
| Project Benefits               | <ul style="list-style-type: none"> <li>• Reduce reactive maintenance</li> <li>• Gain in reliability</li> <li>• Reduced system down time</li> <li>• Improvement for safety driver visibility and LED alarms</li> </ul>  |
| Alternative Options Considered | No alternative options have been considered.   |
| Relevant Standards             | MD-13-550 Queensland Rail Signalling and Operational Systems Asset Governance and Assurance Principle (SAGA)   |

## 8.5 Re-signalling

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for the re-signalling project is summarised in Table 43, and a project overview is summarised in Table 44.

Table 43 Proposed DAU3 West Moreton capital project costs – Re-signalling (\$m FY24)

| Project Name                              | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|---|------------------------|-----------------------|
| B.06508 Dalby Yard and OLCs Re-signalling | ■                      | ■                     |

Table 44 Proposed DAU3 West Moreton capital project overview – Re-signalling

| Project Overview       |  |
|------------------------|--|
| Project Background     | Increased fault, repair, and performance issues are encountered as this equipment exceeds service life. Signalling and communications equipment can become unserviceable once supplier support and spares cease.   |
| Scope                  | Renewal of signalling equipment before it becomes unserviceable will enable continued operational reliability for West Moreton and the serviceability of the signalling systems will be maintained.  |
| Project Drivers        | Asset renewal to manage risk to service disruption.  |
| Risk of not Proceeding | Reliability and safety considerations for ongoing equipment function will reduce as equipment ages and is no longer supported by manufacturer along with spares availability. May require running to forms or other operational restrictions limiting the number of trains that can be operated over an area with failed equipment that cannot be re-instated. |
| Project Benefits       | <ul style="list-style-type: none"> <li>• Upgrade to modern equipment</li> <li>• Reduce reactive maintenance</li> <li>• Gain in reliability</li> <li>• Enables maintainability due to lack of spare parts for existing equipment</li> <li>• Reduced system down time</li> </ul>   |

| Project Overview               |  |
|--------------------------------|--|
| Alternative Options Considered | Due to obsolescence of equipment no other alternatives have been considered.                                 |
| Relevant Standards             | MD-13-550 Queensland Rail Signalling and Operational Systems Asset Governance and Assurance Principle (SAGA) |

## 8.6 Interlocking Renewal

Capital expenditure distribution over the DAU3 period for both tonnage scenarios for the interlocking renewal project is summarised in Table 45, and a project overview is summarised in Table 46.

**Table 45 Proposed DAU3 West Moreton capital project costs – Interlocking Renewal (\$m FY24)**

| Project Name                        | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|-------------------------------------|------------------------|-----------------------|
| B.04778 Gatton Interlocking Renewal |                        |                       |

**Table 46 Proposed DAU3 West Moreton capital project overview – Interlocking Renewal**

| Project Overview               |   |
|--------------------------------|---|
| Project Background             | The signal interlockings are a key component of the RCS system. Relay interlockings have a planned service life of 35 to 45 years. There is potential to extend these interlockings through refurbishment programs. Processor-based interlockings have a planned service life of 10 to 15 years, though a mid-life upgrade can generally be employed to extend this to 25 years.                      |
| Scope                          | This project renews life expired Westrace Mk1 interlockings at Gatton.  |
| Project Drivers                | Asset renewal   |
| Risk of not Proceeding         | Reliability and safety considerations for ongoing equipment function will reduce as equipment ages and is no longer supported by manufacturer along with spares availability. May require running to forms or other operational restrictions limiting the number of trains that can be operated over an area with failed equipment that cannot be re-instated.  |
| Project Benefits               | <ul style="list-style-type: none"> <li>• Maintain network performance and integrity</li> <li>• Enhance reliability</li> <li>• Enhance capacity for future upgrades</li> <li>• Maintain reliability of the signalling system, thereby supporting safe and reliable operations</li> <li>• Reduction in unplanned maintenance interventions and service disruptions due to equipment failure.</li> </ul> |
| Alternative Options Considered | Both alternative technology solutions and construction options will be considered in this project.  |
| Relevant Standards             | MD-13-550 Queensland Rail Signalling and Operational Systems Asset Governance and Assurance Principle (SAGA)  |

## 9 Facilities Projects

The following section summarises capital projects categorised within the facilities project type. A single project, the Chinchilla Maintenance Depot Refurbishment Project, is captured under facilities projects during DAU3. Distribution of costs over the DAU3 period for both tonnage scenarios can be found in Table 47 and a project summary can be found in Table 48.

**Table 47 Proposed DAU3 West Moreton capital project costs – Maintenance Depot Refurbishment (\$m FY24)**

| Project Name                                       | Scenario 1a (9.6 mtpa) | Scenario 2 (7.5 mtpa) |
|--|------------------------|-----------------------|
| B.06509 Chinchilla Maintenance Depot Refurbishment | ■                      | ■                     |

In both scenarios where the facilities project is included in the capital expenditure program, the Chinchilla Maintenance Depot Refurbishment Project cost is scheduled in FY28.

**Table 48 Proposed DAU3 West Moreton capital project overview – Maintenance Depot Refurbishment**

| Project Overview               |   |
|--------------------------------|---|
| Project Background             | Ongoing maintenance of stations and remaining maintenance depots will be refurbished on a condition priority basis. |
| Scope                          | The project involves a refurbishment of the Chinchilla maintenance depot, based on the asset's condition.           |
| Project Drivers                | Asset renewal: Maintain fit for purpose facilities.<br>Compliance: Maintain compliant facilities.                   |
| Risk of not Proceeding         | The maintenance depot facility is no longer fit for purpose and inefficient.  |
| Project Benefits               | Refurbished facilities will require lower levels of repair and maintenance  |
| Alternative Options Considered | Due to deterioration, refurbishment is the only practical option  |
| Relevant Standards             | The National Construction Code 2022 (NCC 2022)  |

# 10 Rail System Projects

The following section summarises capital works categorised under rail systems. The ‘Rail Systems’ project category is a new major category introduced in this collaborative submission, previously not included in the original submission made in November 2023 due to the projects detailed below not included in the capital schedule at the time. All rail system projects in the DAU3 period total \$1.3 million (\$FY24). These projects include:

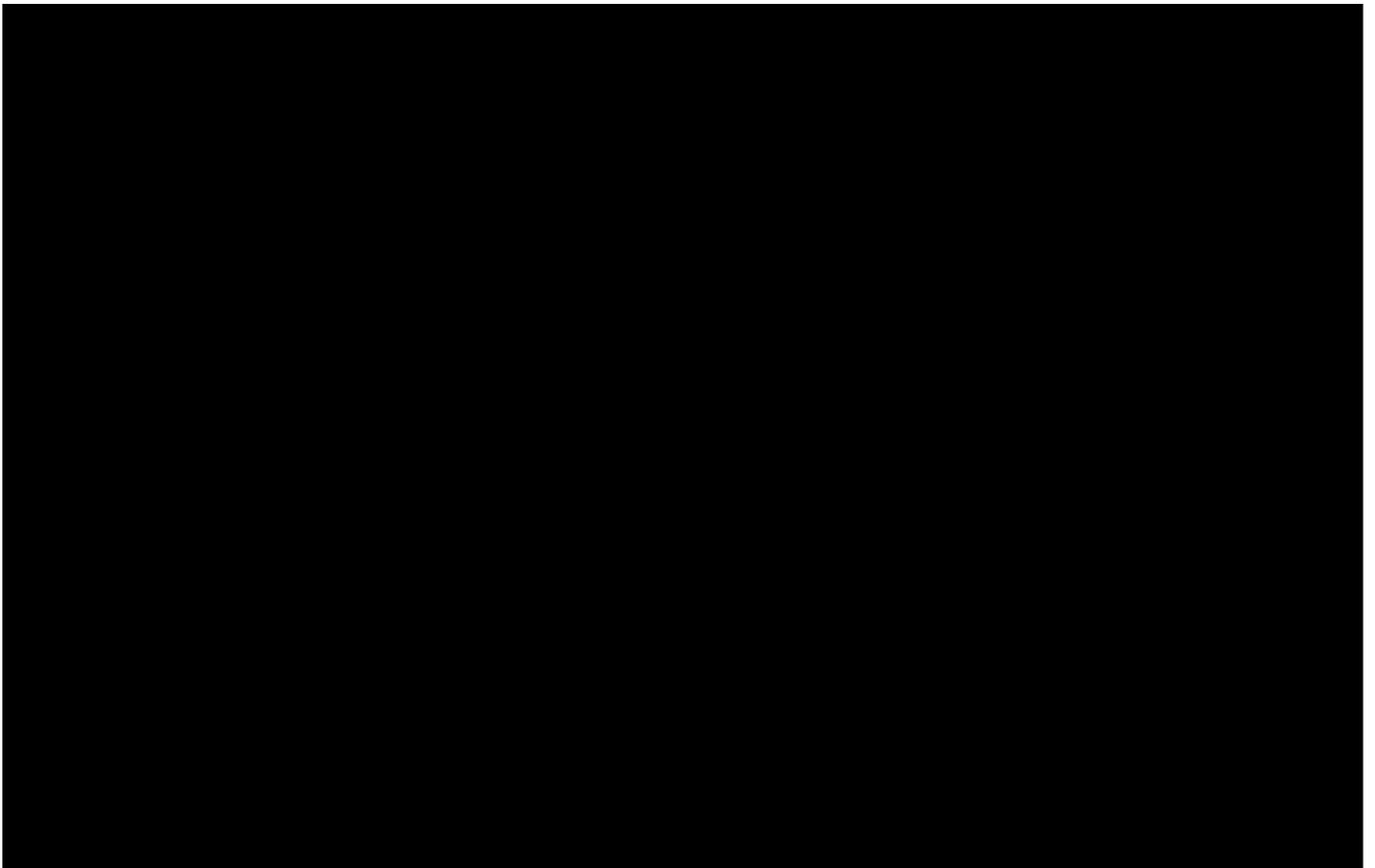
- Toowoomba Range Drones & Sensors
- WM Heat Sensors

Table 49 summarises the capital expenditure distribution for these two projects over the DAU3 period.

**Table 49 DAU3 Proposed Capital Expenditure - Rail Systems (\$m FY24)**

| Project Name                             | FY26         | FY27         | FY28         | FY29         | FY30         | Total DAU3   |
|--|--------------|--------------|--------------|--------------|--------------|--------------|
| B.06927 Toowoomba Range Drones & Sensors |              |              |              |              |              |              |
| B.06928 WM Heat Sensors                  |              |              |              |              |              |              |
| <b>Total</b>                             | <b>\$0.1</b> | <b>\$1.2</b> | <b>\$0.0</b> | <b>\$0.0</b> | <b>\$0.0</b> | <b>\$1.3</b> |

Figure 16 presents the expenditure over DAU3 for rail systems projects.



The scope of the range drone project is summarised in Table 50.

**Table 50 Proposed DAU3 West Moreton capital project overview – Range Drones**

| <b>Project Overview</b>        |  |
|--------------------------------|--|
| Project Background             | This project is planned to address the risk to operational efficiency that is expected with increased tonnages on the line. The use of range drones and sensors will enable a faster response to identified issues, reducing the time to rectify issues along the track.                     |
| Scope                          | This project is scoped to consider use of range drones along several sections of the track, in addition to installing sensors to detect wet weather events that would otherwise require reduced service or temporary closures to the track.  |
| Project Drivers                | Improved operational efficiencies to enable the sustained safe and efficient use and management of the West Moreton System under increased loads.  |
| Risk of not Proceeding         | Lack of visibility for decisions regarding hot-weather and changes following rainfall will restrict decision-making enabling traffic continuity.   |
| Project Benefits               | <ul style="list-style-type: none"> <li>• Early identification of weather restrictions and corrective maintenance</li> <li>• Improved operational efficiencies</li> </ul>   |
| Alternative Options Considered | Alternative technology solutions will be considered in this project.   |
| Relevant Standards             | The project is scoped to comply with Queensland Rail’s organisational standards across environmental and safety considerations, in addition to relevant engineering standards during construction and operation. These will be clarified once the project reaches its detailed design phase. |

The scope of the range drone project is summarised in Table 51.

**Table 51 Proposed DAU3 West Moreton capital project overview – Heat Sensors**

| <b>Project Overview</b> |  |
|-------------------------|--|
| Project Background      | This project is planned to address the risk to operational efficiency that is expected with increased tonnages on the line. The use of heat sensors will efficiently detect issues along the track, increasing response times and possession requirements. |
| Scope                   | The project involves the installation of heat sensors along the West Moreton System. It is not expected to require additional customer engagement, beyond that which is reasonably expected through consultation.  |
| Project Drivers         | Improved operational efficiencies to enable the sustained safe and efficient use and management of the West Moreton System under increased loads.  |
| Risk of not Proceeding  | Lack of visibility for decisions regarding hot-weather and changes following rainfall will restrict decision-making enabling traffic continuity.   |

| <b>Project Overview</b>        |  |
|--------------------------------|--|
| Project Benefits               | <ul style="list-style-type: none"> <li>• Informed decision-making</li> <li>• Ability to maintain acceptable risk levels</li> </ul>   |
| Alternative Options Considered | Both alternative technology solutions and construction options will be considered in this project.   |
| Relevant Standards             | The project is scoped to comply with Queensland Rail's organisational standards across environmental and safety considerations, in addition to relevant engineering standards during construction and operation. These will be clarified once the project reaches its detailed design phase. |

# 11 Volume Risk

To address the risk that the full forecast volume for DAU3 does not eventuate, or remain at the peak of 9.6 mtpa (i.e. because New Acland Stage 3 is not successful in defending the appeal, contracts are not renewed, mines cease to operate or do not achieve planned capacity, unavailability of haulage services or for any other reason), Queensland Rail has included triggers permitting Queensland Rail to seek a reference tariff reset during the term of DAU3 each time a contract is up for renewal if it is not renewed. This reset will provide the QCA with the same powers that they would have under an initial undertaking notice under the QCA Act and is necessary to protect the legitimate interests of all West Moreton System coal stakeholders. This will protect Access Holders', Access Seekers' and Queensland Rail's legitimate business interests.

The reset gives Queensland Rail an opportunity to rebalance its capital and maintenance program to reduce the capital expenditure which would otherwise be brought forward to meet capacity requirements and protects our customers from paying for capacity that is not required.

# 12 Delivery

## 12.1 Procurement Approach

Queensland Rail has established material supply contracts, contractor panel arrangements, and internal resource capability for track construction and formation renewal, which represent a significant proportion of the upgrade program.

The existing track construction resource base will be extended by building additional teams and capacity through engagement of external labour and plant to supplement internal capability. Coordinated material distribution and stockpiling will be arranged ahead of the delivery workforce. Bridge construction and range stabilisation works will be delivered through external contract arrangements.

There are a number of specialised contractors currently undertaking similar projects in West Moreton, and tender arrangements will be targeted to attract current recommended contractors, as well as other suitable companies for the planned project works. Queensland Rail currently provide project management resources to support internal and external delivery of programs and these existing teams will be redirected or supplemented to focus on delivery of the West Moreton accelerated capital program.

## 12.2 Approvals Approach

Queensland Rail considers delivery approaches in all of its business cases and reduces delivery risk by assessing critical issues related to project delivery at the planning phase. The approval processes ensure that approval is received prior to the scheduled start date of capital projects. Several projects proposed in the DAU3 period have their approval process underway to ensure timely approval.

## 12.3 Applicable Standards

- MD-14-781 Project Management Methodology Framework,
- MD-18-191 Procurement Procedure, and
- MD-10-926 Procurement Standard.

## 13 Peer Review

The capital program and expenditure in this document have been subject to internal peer review and have been externally reviewed by AECOM. AECOM have undertaken a detailed assessment of the prudence of scope, standard and cost of DAU3's capital program. AECOM's reports are provided separately for the QCA's consideration<sup>56</sup>.

## 14 Conclusion

This submission has been developed under the circumstances where coal volumes along the West Moreton System are forecast to increase significantly over the remainder of Queensland Rail's Access Undertaking 2 (**AU2**) and into the DAU3 period. The capital programs and investment strategy outlined in this document is focused on delivering confidence that the increased tonnages can be achieved.

For the DAU3 period, Queensland Rail has proposed efficient capital costs for the West Moreton System having regard to the age and condition of the network, and the volumes proposed to be hauled over a network that was not originally designed for this purpose. The capital program and expenditure have been subject to an internal peer review and an external review conducted by AECOM for prudence and efficiency.

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<sup>5</sup> AECOM, Review of Queensland Rail's West Moreton Capital Investment Plan for DAU3, November 2023

<sup>6</sup> AECOM, Review of Queensland Rail's West Moreton Capital Investment Plan for DAU3 - Addendum 1, October 2024

**Attachment 5: AECOM Review of Queensland Rail's Capital Investment Plan  
for DAU3**

# Review of Queensland Rail's West Moreton Capital Investment Plan for DAU3

03-Nov-2023  
West Moreton Line  
Doc No. 60710802\_Peer-Review

# Review of Queensland Rail's West Moreton Capital Investment Plan for DAU3

Client: Queensland Rail

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## Revision History

| Rev | Revision Date | Details                  | Approved                             |             |
|-----|---------------|--------------------------|--------------------------------------|-------------|
|     |               |                          | Name/Position                        | Signature   |
| A   | 13-Oct-2023   | Draft for Review         | Susheel Prabhakar<br>Project Manager | -For Final- |
| B   | 25-Oct-2023   | Updated Draft for Review | Susheel Prabhakar<br>Project Manager | -For Final- |
| 0   | 03-Nov-2023   | Final Report             | Susheel Prabhakar<br>Project Manager |             |
|     |               |                          |                                      |             |

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## Glossary

| Acronym | Description                      |
|---------|----------------------------------|
| QR      | Queensland Rail                  |
| QCA     | Queensland Competition Authority |
| RBDF    | Risk Based Decision Framework    |
| SIP     | Service Investment Plan          |
| DAU     | Draft Access Undertaking         |
| AU      | Access Undertaking               |
| TMR     | Transport and Main Roads         |
| WM      | West Moreton                     |

## Standards, Codes and Regulations

The following standards, codes and regulations have been used in the review.

- Queensland Rail Telecommunications Maintenance Standard (MD-15-549)
- Queensland Rail Civil Engineering Track Standard (MD-10-575)
- Queensland Rail Civil Engineering Structures Standard (MD-10-586)
- Queensland Rail Asset Management Plan (MD-19-222)
- Queensland Rail Civil Engineering Standard Specification Part 6 – Earthwork (2021)
- Transport and Main Roads Geotechnical Design Standard – Minimum Requirements (2020)
- Transport and Main Roads Technical Specification – MRTS03 Drainage Structures, Retaining Structures and Embankment Slope Protections (2021)
- Transport and Main Roads Technical Specification – MRTS04 General Earthworks (2023)
- Transport and Main Roads Technical Specifications – MRTS27 Geotextiles Separation and Filtration (2020)
- Transport and Main Roads Technical Specifications – MRTS58 Geosynthetics for Subgrade and Pavement Reinforcement (2022)

## Executive Summary

Queensland Rail's (QR) regional network facilitates freight and passenger services, subject to third party access regulations under the Queensland Competition Authority (QCA) Act 1997.

An Access Undertaking, authorised by the QCA in accordance with the Act, outlines the guidelines for granting access to QR's rail network. Within this framework, QR is accountable for providing, maintaining, and overseeing access and operations on its rail network and related infrastructure. The current Access Undertaking (AU2), approved by the QCA on 1 July 2020, is in effect until 30 June 2025. QR proposes to replace it with Draft Access Undertaking 3 (DAU3), effective from 1 July 2025 to 30 June 2030.

QR engaged AECOM to review its proposed capital expenditure on the West Moreton (WM) system under DAU3 prior to submission for approval by the QCA. The conditions of QCA's approval are outlined in DAU3, which stipulates that capital expenditure must be prudent in scope, standard and cost.

This document presents AECOM's assessment of QR's WM Capital Investment Plan. We examined the scope, compliance with standards and cost estimate for a sample of 9 projects selected from the 20 included in the plan for DAU3 [REDACTED]. The sample projects were chosen to cover four broad asset categories (Trackwork, Civil Works, Signalling, Bridge) and together account for about 80% of total capital expenditure.

AECOM deployed a specialised team for this review, including rail and geotechnical engineers, coordinated by its Advisory group. This review was conducted as a desktop assessment, with requests for additional documentation, where possible, to clarify issues related to the projects being reviewed. A standardised review template was used by our reviewers to ensure consistency, where the template was closely aligned with the criteria required by DAU3.

The review identified that eight of the nine sample projects satisfy QCA's prudence of works assessment; however, AECOM noted the lack of documentation for project B.04763.

Our review has concluded that the proposed capital expenditure meets the conditions of DAU3, and in our view, QR may proceed with the submission.

## 1.0 Introduction

### 1.1 Background

Queensland Rail's (QR) regional network comprises major rail systems that convey freight and passenger services across the state and are declared for third party access under the Queensland Competition Authority (QCA) Act 1997. An Access Undertaking, approved by the QCA and developed in accordance with the Act, provides a framework for the provision of access to QR's rail network. Under the framework, QR is responsible for providing, maintaining, and managing access to and operations on its rail network and associated infrastructure.

The current Access Undertaking (AU2) was approved by QCA on 1 July 2020 and expires on 30 June 2025. QR will propose to replace AU2 with a Draft Access Undertaking 3 (DAU3) to apply from 1 July 2025 to 30 June 2030.

QR has engaged AECOM to undertake a review of the forecasted capital expenditure on its West Moreton (WM) system for DAU3. It is acknowledged that the capital expenditure will be subject to review by the QCA, who may seek public and/or industry feedback on its draft decision on the DAU3.

### 1.2 Scope of Review

Schedule E of AU2 details the conditions upon which the capital expenditure (CAPEX) proposed by QR should be accepted by the QCA. The scope of the review, therefore, covers a prudence assessment of the CAPEX in relation to its scope, standard and cost based on Schedule E of the Undertaking.

To assess the prudence of QR's DAU3 Capital Expenditure Plan, AECOM has examined a sample of projects from the WM Capital Investment Plan.

### 1.3 Report Structure

The structure of the report is outlined in Table 1

**Table 1 Report Structure**

| Main Report |  |
|-------------|--|
| Section 1   | Introduction                               |
| Section 2   | Queensland Rail's Capital Investment Plan  |
| Section 3   | Assessment Methodology                     |
| Section 4   | Overall Capital Program                    |
| Section 5   | Summary of Assessment of Proposed Projects |
| Section 6   | Conclusion                                 |

## 2.0 Queensland Rail's Capital Investment Plan

### 2.1 Overview

QR's Capital Investment Plan over DAU3 includes 20 projects totalling \$325.2m (\$FY24), [REDACTED]. The projects are categorised into asset types, namely Trackwork, Civil Works, Bridges, Signalling and Facilities. A breakdown of the plan is provided in Table 2.

Table 2 QR's Proposed Capital Projects for DAU3 (\$m FY24)

| Asset Type   | No. of Projects | FY26          | FY27          | FY28          | FY29          | FY30          | Total          |
|--|-----------------|---------------|---------------|---------------|---------------|---------------|----------------|
| <b>Trackwork</b><br>All assets related to track infrastructure, including rail formation, sleepers, ballast, curve transitions and level crossing transitions. | 8               | \$74.8        | \$64.2        | \$23.7        | \$23.7        | \$23.7        | \$210.0        |
| <b>Civil Works</b><br>Works related to slope stabilisation and culverts.   | 3               | \$9.0         | \$15.6        | \$4.5         | \$4.5         | \$4.5         | \$38.1         |
| <b>Bridges</b><br>Works related to the replacement of existing timber bridges, including bridge structures and piers.  | 2               | \$15.0        | \$18.0        | \$10.5        | \$10.5        | \$10.5        | \$64.5         |
| <b>Signalling</b><br>Assets related to track signalling, including associated power equipment, cabling and housings, and level crossing protection.            | 6               | \$0.0         | \$0.0         | \$0.2         | \$7.6         | \$3.3         | \$11.1         |
| <b>Facilities</b><br>Maintenance Depot Refurbishment.  | 1               | \$0.0         | \$0.0         | \$1.5         | \$0.0         | \$0.0         | \$1.5          |
| <b>Total</b>   | <b>20</b>       | <b>\$98.8</b> | <b>\$97.8</b> | <b>\$40.3</b> | <b>\$46.3</b> | <b>\$41.9</b> | <b>\$325.2</b> |

### 2.2 Extent of Review

This review involved a sample of nine projects submitted in the Plan, representing over 79% of the total value of the Plan.

The sample was selected based on the asset type (trackwork, civil works, bridges and signalling) and project size (value). To gain a broader understanding during the assessment, similar projects in each asset type were assessed together. The full list of proposed projects for DAU3 is presented in Table 3, with the projects included in this review highlighted in green.

This report addresses the projects in decreasing order of cost, reporting in the following order:

- Trackwork – track reconditioning and formation strengthening<sup>1</sup>
- Civil works – slope stabilisation
- Bridges – timber bridge pier/structure replacement
- Signalling – digital telemetry

<sup>1</sup> Formation strengthening projects in the WM Capital Investment Plan are categorised into two asset categories. For this assessment, both projects are classified under "Trackwork".

Table 3 QR's Capital Investment Plan during DAU3

| Asset Type   | Project No | Description   | Value of Projects in Claim over DAU3 (\$FY24) | Included in review | % of total Claim |
|--------------|------------|---|---|--------------------|------------------|
| Trackwork    | B.06155    | West Moreton Reconditioning Koomi - Dalby                     | ██████████                                    | Y                  | ██               |
|              | B.06156    | Formation Strengthening Rosewood-Toowoomba                    | ██████████                                    | Y                  | ██               |
|              | B.06366    | West Moreton Reconditioning Dalby - Macalister                | ██████████                                    | Y                  | ██               |
|              | B.05578    | West Moreton Toowoomba Range Curve Transitions                | ██████████                                    |                    |                  |
|              | B.05945    | West Moreton Re-sleeper FY26                                  | ██████████                                    |                    |                  |
|              | B.04798    | Reconditioning Macalister to Columboola                       | ██████████                                    | Y                  | ██               |
|              | B.04817    | West Moreton Re-rail  | ██████████                                    |                    |                  |
|              | B.04898    | West Moreton Level Crossing Transitions (Up Road)             | ██████████                                    |                    |                  |
|              | B.04546    | West Moreton Formation Strengthening Toowoomba - Jondaryan    | ██████████                                    | Y                  | ██               |
| Civil Works  | B.06507    | West Moreton Ranges Slope Stabilisation                       | ██████████                                    | Y                  | ██               |
|              | B.04823    | West Moreton Culvert Renewals                                 | ██████████                                    |                    |                  |
| Bridges      | B.06162    | West Moreton Bridge/Pier Replacement Rosewood-Jondaryan)      | ██████████                                    | Y                  | ██               |
|              | B.04804    | West Moreton Bridge/Pier Replacement (Jondaryan - Columboola) | ██████████                                    | Y                  | ██               |
| Signalling   | B.05592    | Grandchester to Laidley Signal Cable                          | ██████████                                    |                    |                  |
|              | B.04763    | Digital Telemetry Rollout - West Moreton                      | ██████████                                    | Y                  | ██               |
|              | B.05593    | Rangeview SER/PER Upgrade                                     | ██████████                                    |                    |                  |
|              | B.05601    | Signalling LED Upgrade  | ██████████                                    |                    |                  |
|              | B.06508    | Dalby Yard and OLCs Re-signalling                             | ██████████                                    |                    |                  |
|              | B.04778    | Gatton Interlocking Renewal                                   | ██████████                                    |                    |                  |
| Facilities   | B.06509    | ████████████████████<br>Refurb                                | ██████████                                    |                    |                  |
| <b>Total</b> |            |   | <b>\$325,181,384</b>                          |                    | <b>79%</b>       |

## 3.0 Assessment Methodology

### 3.1 Methodology of Assessment

For this assessment of QR's WM Capital Investment Plan, the evaluation of a selected sample of projects was undertaken by a rail engineer in consultation with relevant technical specialists. This review has been a desktop review, with requests for additional documentation, where possible, to clarify issues related to the projects being reviewed.

A high-level outline of the review methodology is presented in Figure 1.

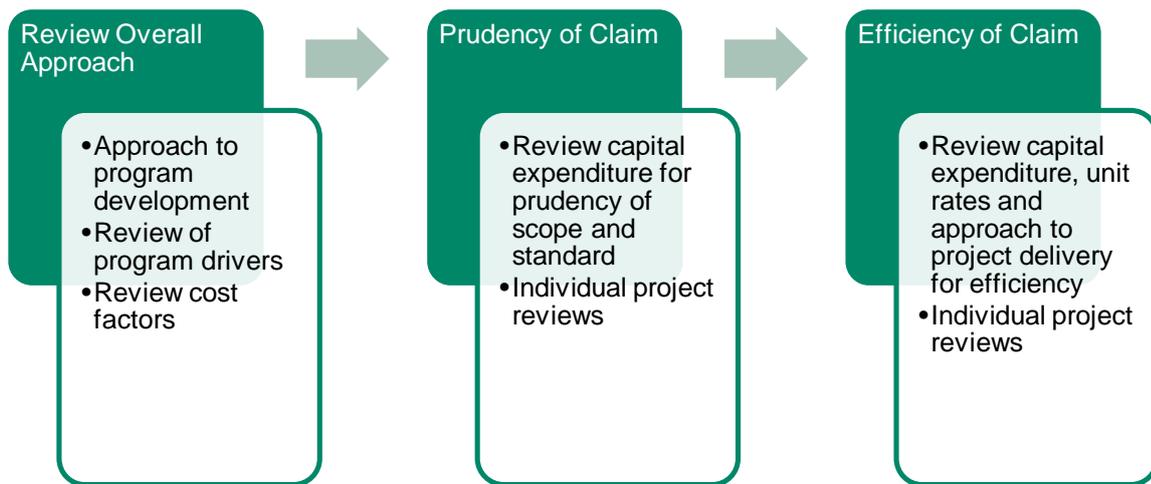


Figure 1 Capital Expenditure Review Methodology

### 3.2 Assessment Format

In order to establish consistency in the technical assessment, a standard project assessment format was developed using the criteria based on Schedule E of the Undertaking, which contains the conditions under which QR's capital expenditure can be accepted into the regulatory asset base. It stands that a preliminary assessment of the proposed projects against these criteria can assist in demonstrating the prudence and efficiency of the forward capital plan.

These criteria are outlined in the sections below. In addition to ensuring a consistent approach to the assessments by all reviewers, the standard assessment format is a key mechanism by which AECOM has demonstrated transparency in its review.

### 3.2.1 Scope

The assessment of prudence of scope of works involves assessing whether the works are reasonably required. The criteria for this assessment are as follows:

- Has consultation with affected Access Holder/s been undertaken?***
  - *Has reasonable consultation been undertaken with any Access Holder who may be adversely affected?*
- Is the project relevant?***
  - *Is the project for a branch line to a mine?*
- Were the works reasonably required and appropriately evaluated?***
  - *Reasonably required to accommodate Access Agreements?*
  - *Reasonably required to accommodate Reasonable Demand?*
  - *Reasonably required considering the asset condition?*
  - *Reasonably required to comply with health, safety and environmental*
  - *Are QR's processes appropriate to evaluate and select the project?*
  - *Was the evaluation of the project subjected to QR's processes?*
  - *Has consultation been undertaken with relevant stakeholders?*

### 3.2.2 Standard

The assessment of prudence of the standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope of the Capital Investment Plan. It further assesses whether the project is not overdesigned such that they are beyond the requirements of that scope. The criteria for this assessment are as follows:

- Were the works:***
  - *Consistent with existing standard and configuration of adjacent or existing infrastructure has been accepted as reasonable?*
- Were the works of a reasonable standard to meet the requirements of the Scope with regards to:***
  - *Requirements of Rolling Stock Operators and compliance with Access Agreements?*
  - *Current and likely future usage levels?*
  - *Rail Industry Safety and Standards Board?*
  - *With regards to the requirements of other relevant Australian design and construction standards.*
  - *QR's design standards contained within its Safety Management System?*
  - *All relevant legislation, including requirements of any authority?*

### 3.2.3 Cost

The assessment of prudence of cost involves assessing whether the costs are reasonable for the scope and standard of work to be done. The criteria for this assessment are as follows:

***Does the project have an approved procurement strategy?***

***Reasonable for the Scope and Standard of works done?***

- *Do the costs align to scale, nature and complexity of the project?*

***Does the project cost estimates demonstrate value for money?***

- *With regards to the circumstances prevailing in the market and locality for engineering, equipment supplies and construction?*
- *With regards to sourcing of labour?*
- *With regards to sourcing of equipment?*
- *Were alternatives considered to minimise whole of life costs?*
- *Is the proposed procurement methodology consistent with approved procurement?*

***Does the capital program/project consider:***

- *Appropriate governance structure for size and nature of project?*
- *Safety during construction and operation?*
- *Environmental approvals and compliance?*
- *Compliance with legal and authority requirements*
- *Minimising disruption to operation of train services during construction?*
- *Were access holder requests appropriately managed?*
- *Minimising whole of life costs, including future maintenance & operating costs?*
- *Minimising total project costs?*

***Does the proposed project estimates and program seem reasonable with regard to the following:***

- *Contingency allowed for?*
- *Project Management Costs?*
- *Risk allowances?*
- *Timing/delivery programs?*

### 3.3 Project Documentation Assessment

Each project has been evaluated for prudence in terms of scope, standard and cost, and recommendations made based on a review of project documentation supplied for QR or the professional judgement of our technical reviewers, where the information available was insufficient. In this context, the use of project documentation is the preferred and best practice, but not the sole, means of evaluating project prudence.

A list of documentation that AECOM would expect to be available to support recommendations of prudence of proposed capital projects is listed in Table 4. AECOM notes that the list provided should be seen as identifying topics that require adequate documentation rather than a requirement for specific documents.

**Table 4 Documents (or equivalent information expected to support a sound recommendation)**

| Prudence of Scope           | Prudence of Standard                    | Prudence of Cost                            |
|-----------------------------|---|---|
| Business Case               | QR Standard Specifications and Drawings | Approved business cases with cost estimates |
| Project Plan                | QR Policy documents                     | Project Management Plan                     |
| Condition assessment report | Business Case                           | Evidence of risk allocations/contingencies  |
| Asset Management Plan       |   | Procurement Policy                          |
| Access Holder Request       |   |   |

AECOM assessed and reported the quality and Range of documentation provided by QR for each project in the review. The criteria for the assessment are outlined summarised in Table 5.

**Table 5 Project Documentation Assessment**

| Quality and Range of documentation | Legend  | Description  |
|------------------------------------|---|--|
| High                               |  | Sufficient documentary evidence to support and demonstrate a recommendation.   |
| Medium                             |  | Incomplete documentation evidence but informal documentation and/or professional judgement support a recommendation. |
| Low                                |  | Limited documentary evidence, but professional judgment supports a recommendation.                                   |

### 3.4 Interpreting this Report

An example of a review summary for a project is provided in Table 6. As demonstrated, prudence of scope, standard and cost are denoted by ticks, and as mentioned in the previous section, the level of documentation quality for the assessment is represented by the colours of the cells.

In the example, the project is found to be:

- Prudent in scope with a high level of documentation quality
- Prudent in standard with a low level of documentation quality
- Prudent in cost with a medium level of documentation quality.
- There are no recommended amendments to the claimed amount.

**Table 6 Review Summary Example**

|                |          |   |                             |     |
|----------------|----------|---|-----------------------------|-----|
| Review Summary | Scope    | ✓ | Capital Expenditure Claim   | █   |
|                | Standard | ✓ | Impact of findings on Claim | \$- |
|                | Cost     | ✓ | <b>Total accepted</b>       | █   |

## 4.0 Overall Capital Program

### 4.1 Approach to Program Development

#### 4.1.1 Drivers

Table 7 presents a summary of the key drivers of the proposed capital program for the DAU3 period.

Table 7 Capital Program Drivers

| Capital Program Drivers            | Description   |
|------------------------------------|---|
| Increased Network Tonnage          | QR are expecting peak tonnage to increase significantly from the commencement of AU2 to DAU3 as a result of two new mines becoming operational – New Acland Stage 3 and Wilkie Creek. The addition of these mines will increase the tonnage on the network to 9.6 mtpa from a current tonnage of 2.5 mtpa.  |
| Network Asset Age and Condition    | Recent condition assessments of the network assets have revealed that, at a minimum, approximately 25% of track, signalling and structures assets are in a poor or very poor condition state, with a proportion of non-assessed assets suggesting that this number may actually be larger. Assets in poor or very poor condition are described as being at or beyond the end of useful life and in need of significant refurbishment or replacement.<br><br>Assets in a poor or very poor condition state can present significant risks to safety and service levels.   |
| Network Capacity                   | The West Moreton System is currently constrained by four aspects: <ul style="list-style-type: none"> <li>• All timber and steel structures are limited to 15.75tal, noting that a network is only as strong as its 'weakest link'.</li> <li>• Much of the formation material was not engineered and is considered under-strength for 15.75tal.</li> <li>• Without additional infrastructure investment, the Toowoomba Range capacity is restricted to 113 return paths per week.</li> <li>• Passing loops at Fisherman Islands and Kingsthorpe are 690 metres long, which restricts the maximum length of trains on the system (a coal reference train is 675 meters long).</li> <li>• The steep grades of the Toowoomba Range and the Little Liverpool Range cause trains to traverse these sections slowly, which, combined with single line workings in both locations, causes capacity constraints.</li> </ul>  |
| Performance against Service Levels | QR notes that their customer requirements for the West Moreton System are driven by reliability, availability and affordability.<br><br>There have been several issues with the delivery of the service standards, notably: <ul style="list-style-type: none"> <li>• <b>Track Closures</b> – track closures on the system have been the result of various issues: <ul style="list-style-type: none"> <li>- Rainfall in the Toowoomba Range – currently, if more than 30mm of rain falls in this area, the track must be closed and assessed for safety</li> <li>- Asset failures have resulted in unplanned closures</li> </ul> </li> <li>• <b>Speed Restrictions</b> – there is a top speed on the network of 80km/h; however, based on the condition of the network, there is a speed restriction on coal loaded trains of 60km/h. In addition, there are restrictions required on the network when the air temperature reaches certain limits. These restrictions are more significant in timber-sleepered areas.</li> </ul> |

| Capital Program Drivers | Description  |
|-------------------------|--|
| Possession Management   | QR must be able to deliver its capital and maintenance programs within the available possession windows. With traffic expected to increase significantly, this requires careful planning to achieve a balance between providing a resilient network capable of accommodating the required tonnages and limiting the planned track closures to reduce service disruption. |
| Maintenance Program     | QR's approach to asset management is reaching a balance of levels of service, management of risk and efficient whole of life costs. Both maintenance and capital expenditure contribute to maintaining the availability and reliability of the network.  |

#### 4.1.2 Approach

QR has developed its capital program in response to the tonnage increases expected on the network over the DAU3 period, with the view that existing issues on the network will need to be resolved prior to the tonnage reaching its peak in order to have the best chance at minimising risk to service levels. With this in mind, QR has proposed an aggressive capital program over the first two years of DAU3, accelerating the delivery of many works, which will strengthen the resilience of the network in preparation for increased tonnages.

The approach QR has taken to developing its capital program is outlined below:

1. Review the existing 10-year base capital plan
1. Identify and bring forward those priority works within the previous plan to deliver these before the network reaches its peak tonnage. These projects include those that would upgrade the asset to a standard requirement for a coal traffic corridor transporting 9.6 mtpa, i.e. a 50kg rail on concrete sleepers over the engineered formation and concrete structures.
2. The key accelerated projects include:
  - a) Formation strengthening on black soil sections
  - b) Toowoomba Range Slope Stabilisation for high-risk embankments
  - c) Track reconditioning to 50kg rail on concrete sleepers
  - d) Timber bridge and pier eliminations
  - e) Toowoomba Range curve transitions track strengthening

The approach appears to be reasonable to accommodate the increased tonnages across the system and manage and mitigate the existing risks to service delivery. It is reasonable to assume that a network with existing issues with speed restrictions and unplanned closures would require additional capital works to improve the standard of the network to both reduce these disruptions and accommodate a significant increase in tonnage.

## 4.2 Procurement

AECOM has reviewed the following QR procurement documentation:

- MD-18-191 Procurement Procedure,
- MD-10-926 Procurement Standard, and
- MD-14-781 Project Management Methodology Framework.

AECOM also reviewed a sample of capital business cases, which include an outline of the approach to project delivery.

QR's procurement approach is based on a number of best practice principles, including a value for money principle. The value for money principle addresses a number of the factors that contribute to

efficiency in costs, including consideration of whole of life costs, management of risks (including safety and environmental), and achievement of outcomes sought.

QR has in place various existing arrangements that have been established through previous sourcing projects, for example, a panel arrangement. QR has stated that *'wherever possible, the goods and services required must be purchased through these arrangements.'* These arrangements can include both panel arrangements with QR or the whole of government panel arrangements.

Where a new contract is required to be let, QR has set thresholds for the minimum number of suppliers invited to tender. These are outlined in Table 8.

**Table 8 Procurement of New Contracts Thresholds**

| Value of Expenditure | Minimum number of suppliers to be invited to respond |
|----------------------|--|
| [REDACTED]           | [REDACTED]   |
| [REDACTED]           | [REDACTED]   |
| [REDACTED]           | [REDACTED]   |

The tiered approach reflects an efficient approach for the following reasons:

- For larger levels of expenditure, a competitive procurement approach with a higher number of suppliers can encourage price competition and help to achieve market rates for QR
- For lower levels of expenditure, the smaller numbers of suppliers help to reduce the cost of procurement. QR's procurement effort is commensurate with the value of expenditure.

**We consider that QR's approach to procurement of projects reflects an efficient approach.**

### 4.3 Delivery

AECOM has reviewed several of QR's business cases to confirm its delivery approach to major capital projects. QR clearly identify the planned delivery methodology within its business cases, and this varies depending on the scope of works required. A review of delivery methods demonstrate the following:

- QR uses internal resources where the internal capability and capacity exists within the organisation
- QR supplement internal resources with external contractors where necessary
- Where external contractors are expected to deliver a significant portion of the work, the procurement process for the contractor is provided within the business case and aligns with the requirements of the Queensland Rail Procurement Procedure.
- QR considers the delivery constraints within its business case and project plans, including possession windows, availability of staff and materials and seasonal weather conditions.

QR consider critical issues relating to delivery at the planning phase, which helps to reduce risk and unforeseen costs in later stages.

#### 4.4 Factors Affecting Costs

QR has used historical actual costs to deliver its capital works to inform the DAU3 capital program expenditure. These costs have been adjusted to reflect inflationary factors extant in the market. The construction industry has experienced significant cost inflation over recent years. Of particular relevance to QR's capital costs are the increases to<sup>2</sup>:

- Materials Costs – materials costs in the construction industry have risen significantly. In the 12-month period leading up to July 2022, the following increases were observed by the Australian Constructors Association:
  - Structural Steel: experienced increases in prices of up to 70%.
  - Rail Steel: experiences price increases of up to 50%
  - Concrete experienced price increases of up to 30-40%
  - Excavator and bulk haulage costs increased by up to 40%
- Labour – labour costs in the construction industry have also risen, although not as significantly as materials prices. In the 12-month period leading up to July 2022, the following increases were observed by the Australian Constructors Association:
  - Skilled tradespeople – costs for skills tradespeople increased by up to 15%
  - General labour – costs for general labour increased by up to 15%

**QR's cost estimates reflect current market conditions.**

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<sup>2</sup> Australian Constructors Association, Construction cost inflation: Ways to address an escalating issue, July 2022

## 5.0 Proposed Projects

This review involved a sample of nine projects submitted in the Plan, representing over 79% of the total value of the Plan.

The sample was selected based on the asset type (trackwork, civil works, bridges and signalling) and project size (value). To gain a broader understanding during the assessment, similar projects in each asset type were assessed together.

### 5.1 West Moreton Reconditioning Projects (B.06155, B.06366 and B.04798)

#### Summary

The projects form part of a broader reconditioning program on the West Moreton system due to the deteriorating condition of the existing track infrastructure. The system is deteriorating at an accelerated rate, which is significantly reducing the asset's life. If the reconditioning works are not completed when required, the risk of failure increases. The works are therefore required to maintain safety and reliability to service existing and future traffic.

The broader program has been developed to recondition all the track infrastructure on the system. The eastern part (east of Jondaryan) has been prioritised due to higher tonnage demands, and the upgrade was completed in 2017. A program was developed to undertake works on the remaining western section, west of Jondaryan, which services coal mines, livestock and agricultural products, and the Westlander passenger service. It is worth noting that some sections of this western section are built on highly reactive soils, which have exacerbated the track performing poorly. This emphasises the need for the reconditioning works. The objective is to recondition the loaded Down Road, identified as the target priority section of the track. The works to renew the [REDACTED] of highest priority sections of the western section commenced in 2020 as part of Project B.05650 and is due to be completed in FY24. Spanning over [REDACTED], these projects represent the ongoing efforts to recondition the western part of the system, upgrading the remaining network between Koomi and Columboola to ensure continued functionality and reliability.

The scope of reconditioning works includes:

- Track deconstruction, including dismantling, relocation and/or scrapping of existing materials,
- Formation reconstruction, including replacement of black soil, 700mm capping layer 4m wide with a layer of geofabric and geogrid,
- Replacement of rail (41 kg/m to 50 kg/m), sleepers (interspersed timber and Steel to concrete) and A Grade ballast,
- Project planning and project documentation,
- Environmental approvals as required, and
- Progress and handover inspections.

|                |          |   |
|----------------|----------|---|
| Review Summary | Scope    | ✓ |
|                | Standard | ✓ |
|                | Cost     | ✓ |

|                            |            |
|----------------------------|------------|
| Capital Expenditure Plan   | [REDACTED] |
| Impact of findings on Plan | \$-        |
| <b>Total accepted</b>      | [REDACTED] |

QR has proposed the following costs for the reconditioning projects in DAU3 (refer to Table 9).

Table 9 QR's Forecasted Expenditure for Reconditioning (\$m FY24)

| Project      | Location                 | Estimated length of track (km) | FY26 | FY27 | FY28 | FY29 | FY30 | Total |
|--------------|--------------------------|--------------------------------|------|------|------|------|------|-------|
| B.06155      | Koomi – Dalby            |                                |      |      |      |      |      |       |
| B.06366      | Dalby – Macalister       |                                |      |      |      |      |      |       |
| B.04798      | Macalister to Columboola |                                |      |      |      |      |      |       |
| <b>Total</b> |                          |                                |      |      |      |      |      |       |

In DAU3, QR proposes to recondition approximately [REDACTED] of track, costing [REDACTED]. Commencing in Koomi, the program will recondition the remaining light track on the western section upon completion of the current Project B.05650 in FY24.

**Assessment of Scope** Track reconditioning involves the replacement of existing assets with an entirely new section of the track. The original infrastructure, which was implemented 20 years ago, consisted of a 41kg/m rail (light) on 1 in 2 interspersed steel and timber sleepers. At that time, this infrastructure was deemed suitable for the service demands in the Jondaryan to Columboola corridor. However, over the years, the service demands in this corridor have increased significantly, especially with the commissioning of a new mine in 2010, which increased the traffic services from Columboola.

The increased traffic and service demands have led to accelerated track deterioration, raising concerns about safety. Between 2018 and 2019, three major derailments occurred on the main line (Rosewood to Toowoomba), causing substantial disruptions to the network's capacity and performance. These incidents prompted QR to undertake a detailed corridor assessment, which identified areas of black soil formation that accelerate alignment deterioration. The existing track structure, in combination with the reactive soil formation, contributes to track instability, particularly during the higher temperatures and heavier rainfall events through Summer.

Overall, it indicated that it is unreasonable to expect the current 41kg/m rail to be serviceable beyond 2032 and concluded that undertaking routine maintenance is inadequate to address the accelerated deterioration. As such, it proposed a major renewal program, including upgrading to a heavier 50kg/m rail to increase track structure strength. The benefits of reconditioning all light tracks are twofold: it ensures the best asset performance and cost-benefit for future traffic levels, and it reduces reactive maintenance works, which reduces unplanned track closures. The investigations and findings were supported by an external reviewer (Rhombert Rail) and are documented in the Far West Moreton Asset Strategy.

The necessity for a comprehensive track reconditioning plan is evident. However, in light of other concurrent projects necessary to maintain the network, QR has developed a Service Investment Plan (SIP) spanning the 10-year period from FY2023/24 to FY2032/33. This plan used a Risk Based Decision Framework (RBDF), which is designed to allocate capital investments based on the criticality and condition of the asset. The outputs are used to inform the prioritisation of options for investment planning, which have determined track renewal as a primary capital investment required to service the increased demands.

These projects represent the three reconditioning projects (Pipeline) in the SIP, aimed at reconditioning the corridor between Koomi and Columboola. They form part of a broader program commenced in 2019 to recondition the western part of the network from Jondaryan to Columboola. The current Project B.05650, approved in the FY24 Investment Plan, is due to finish in FY24. Spanning around 125km, the project's scope is consistent with previous reconditioning projects and has been planned until FY2032/33. It is also noted that the works have been undertaken regularly by QR, which lends to the robustness of the scope.

The timeframe for these projects spans both AU2 and DAU3; however, works are in the AU2 period primarily to prevent any adverse impact on DAU3.

**The scope of works is considered prudent with a medium level of documentation quality, given the findings of the Asset Strategy were developed for the corridor from Jondaryan to Columboola, not specific to these projects.**

**Assessment of Standard** The reconditioning program for this project aligns with the approach taken in previous reconditioning works. The program entails several key components, including upgrading to 50kg/m rails, reconstructing the track formation, upgrading to concrete sleepers, and implementing Grade A ballast.

As mentioned above, the existing track infrastructure was not originally designed to handle the current service demands, which are exerting a load that accelerates rail deterioration. As such, the decision to transition to more robust 50kg/m rails, in accordance with QR's Track Standard Module 7 (MD-10-575), is justified. These rails have greater load-bearing capacity, reducing the risk of excessive wear and deformation. Furthermore, their enhanced structural integrity reduces the likelihood of developing defects that could lead to derailments.

The transition to concrete sleepers aligns with the growing traffic demands. As per QR's Track Standard Module 3 (MD-10-575), concrete sleepers are considered the most superior sleeper type, while the existing interspersed sleepers are ranked as the second least favourable option. Module 3 further specifies to not intersperse timber alternates and/or Steel when constructing a new track. Concrete sleepers can support heavier loads, making them suitable for accommodating the increased tonnage on the network. This upgrade is also consistent with the network's long-term strategy to reduce the need for re-sleepering works, which can disrupt network operations. The asset life of a concrete sleeper exceeds 50 years and further contributes to this strategy. Their resistance to track movements further enhances the safety and efficiency of rail operations.

When upgrading to concrete sleepers, QR's Track Standard Module 4 mandates upgrading the ballast to Grade A. Compared to the existing ballast (Grade B), it distributes rail loads more evenly to the underlying subgrade, a crucial element in supporting increased services and tonnage. This maintains track stability by reducing lateral and longitudinal movements, ensuring precise track alignment and geometry.

According to the SIP, the original network formation was not designed for the current axle loadings and tonnages, resulting in uneven settling and detrimental effects on-track performance. An engineered formation is presented as a solution designed to provide superior stability and load-bearing capacity. The reconstruction efforts will also address areas with highly reactive black soils along the corridor. Given the potentially high costs of repair, an investigation is underway to determine the most practical and cost-effective construction methods.

**The standard of works is reasonable and consistent with previous reconditioning works and is considered prudent. The documentation quality to inform the assessment is high.**

**Assessment of Cost** *Unit Rate*

QR has determined costs for its reconditioning projects based on a unit rate of [REDACTED] of track reconditioned. This rate has been estimated based on historical costs for the same scope and escalated to account for market changes and inflation.

The unit rate includes the removal of existing rail and formation to 700mm deep and the replacement of formation materials 700mm deep, as well as new track.

**We consider that the unit rate estimated for reconditioning is reasonable and consistent with the conditions prevailing in the market.**

*Consideration for whole of life costs*

We have reviewed the B.05650 Reconditioning West Moreton Business Case, which demonstrates a clear consideration for both the capital and operating costs for the project life of 20 years. Contingency has also been included within cost estimates to account for project risks.

**We would expect that similar consideration would be given to future capital projects.**

*Other considerations*

QR's business case demonstrates consideration for different options, with the selected option based on the ability to deliver the expected service standards at the least cost.

Delivery is proposed through internal resources where available, supplemented by external resources. QR procures its external resources through panel arrangements or tender processes in line with its procurement rules.

**We consider that this reflects an efficient approach to delivery.**

## 5.2 Formation Strengthening (B.06156 and B.04546)

### Summary

The projects form part of a broader track renewal program aimed at reconstructing sections of the existing track formation that are causing significant network performance issues. A large portion of the current network was built on undesirable black soil, which has poor load-bearing capacity and drainage problems. These issues have not only reduced operational speeds but also increased the risk of derailment due to accelerated deterioration. Strengthening the track formation is essential to ensure network reliability and safety.

These projects are integral to the broader effort to reconstruct sections of the track that were originally built on black soil. The proposed projects will focus on critical sections between Rosewood and Jondaryan, covering over [REDACTED] of track. The works west of Jondaryan will be addressed as part of proposed track reconditioning projects.

The scope of bridge replacement works includes:

- Temporary removal of track,
- Excavating failed formation,
- Formation reconstruction, including replacement of black soil, 700mm capping layer 4m wide with a layer of geofabric and geogrid, and
- Reinstatement of track.

|                |          |   |                            |            |
|----------------|----------|---|----------------------------|------------|
| Review Summary | Scope    | ✓ | Capital Expenditure Plan   | [REDACTED] |
|                | Standard | ✓ | Impact of findings on Plan | \$-        |
|                | Cost     | ✓ | <b>Total accepted</b>      | [REDACTED] |

QR has proposed the following costs for the formation strengthening projects in DAU3 (refer to Table 10).

Table 10 QR's Forecasted Expenditure for Formation Strengthening in DAU3 (\$m FY24)

| Project      | Location              | Estimated length of track (km) | FY26       | FY27       | FY28       | FY29       | FY30       | Total      |
|--------------|-----------------------|--------------------------------|------------|------------|------------|------------|------------|------------|
| B.06156      | Rosewood – Toowoomba  | [REDACTED]                     | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| B.04546      | Toowoomba – Jondaryan | [REDACTED]                     | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |
| <b>Total</b> |                       | [REDACTED]                     | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] | [REDACTED] |

In DAU3, QR will strengthen track formation considered critical, particularly on highly reactive formation, at a proposed cost of [REDACTED]. The program will undertake works on the remaining high critical sections between Rosewood and Jondaryan.

**Assessment of Scope** Formation strengthening involves the reconstruction of track formation to a new and engineered formation.

As per the SIP, the original formation of the system, constructed between 1865 and 1880, predominately consists of black soil, except for the Range areas, which typically comprise sandstone and rock materials. Highly reactive black soils are undesirable due to poor load-bearing capacity and drainage issues, which have had adverse effects on the network performance.

The SIP further states that the original track was not designed for the current axle loadings or tonnages, compounded by the black soil formation, resulting in alignment issues in various sections of the track. These alignment issues have led to speed restrictions, impacting the system's operational efficiency. For instance, loaded trains are restricted to a maximum of 60kph over the remaining light rack structure, and black soil formation sections are unable to maintain the intended operational speed of 80kph, necessitating a speed restriction to 60kph. These undesirable track conditions have the potential to accelerate the deterioration of both the tracks and locomotive components over time. Consequently, this elevates the risk of derailment, underscoring the need for the works to maintain a safe and reliable network.

These unfavourable circumstances have prompted regular maintenance works on the system. These reactive works are not only costly but also disrupt operational services due to track closures. To minimise these operational impacts, a capital works project focused on strengthening the track formation has been identified as a more long-term effective solution.

Given the major impacts, the capital works have been incorporated into QR's SIP, which allocates investments based on asset criticality and condition. These two projects represent the formation strengthening projects (Pipeline) in the investment plan, aimed at strengthening critical sections between Rosewood and Jondaryan. These form part of a broader track renewal program to upgrade track formation on the network. The scope of works is consistent with the formation reconstruction works involved within the ongoing track reconditioning project (B.05650), approved in the FY24 Investment Plan.

Track formation works become necessary when the track system itself doesn't require a complete upgrade but has already undergone a previous upgrade. This is demonstrated in the proposed project B.06156, which aims to reconstruct track formation between Yarongmalu and Helidon. This section was relayed with a 50kg/m rail with concrete sleepers over the black soil formation around 15 years ago. The project aims to address the remaining 38km of highly reactive soil.

The timeframe for these projects spans both AU2 and DAU3; however, works are in the AU2 period primarily to prevent any adverse impact on DAU3.

**The works are considered prudent with a medium level of documentation, given the limited scope of Project B.04546 relative to Project B.06156.**

**Assessment of Standard** As discussed above, formation strengthening forms part of a broader track renewal program on the network. This broader program was developed to address critical sections, and as a result, separate upgrade efforts such as re-sleepering and re-railing have occurred throughout the network.

Formation strengthening works are necessary when the existing track has already undergone upgrades and requires improvements specifically to the track formation. This aligns with the approach employed for formation works in the ongoing track reconditioning projects, which involve a complete reconstruction of the track infrastructure. These works encompass several key components, including the construction of a 700mm capping layer topped with a layer of geofabric and geogrid.

In accordance with QR's Specifications Standard on Earthworks (QR-CTS-Part 6), capping layers distribute loads to the subgrade at a safe level. Unlike black soil, it is composed of materials with superior load-bearing properties, such as crushed stone, gravel, or specially engineered ballast. These materials have a higher bearing capacity than black soil, which is susceptible to deformation and settlement under heavy loads. Given the expected tonnage increase, the upgrade to a more robust material is considered necessary. Furthermore, its enhanced load-distributing properties reduce stress on the track components on which it is constructed, including rails and ties, thereby decreasing wear and tear. This, in turn, reduces the maintenance works required, aligning with QR's strategic objective to reduce reactive maintenance works.

Geofabric is a permeable textile material made from synthetic fibres. As outlined in TMR's Technical Specification on Geotextile (MRTS27), geofabrics are designed to be placed within the layers of the track formation to prevent mixing, which can lead to deformation and settlement. Moreover, they act as a filter to allow water to pass through without disturbing fine soil particles, thus ensuring proper drainage and stability. Improved drainage mitigates potential track failure during significant rainfall events. Similarly, geogrids are used in the track formation to reinforce the subgrade, as specified in TMR's Technical Specification on Geosynthetics (MRTS58). Geogrids provide tensile strength to distribute loads more effectively and reduce the potential for settlement or deformation of the track structure. It provides the strength to allow interlocking with surrounding soil, rock or earth to function as reinforcement.

**Overall, the standard of formation strengthening works align with the approach in current track renewal projects and is considered prudent. A medium level of documentation quality was used for this assessment, given the absence of specific work locations in Project B.04546.**

**Assessment of Cost** *Unit Rate*

QR has determined costs for its formation strengthening projects based on a unit rate of [REDACTED]. This rate has been estimated based on historical costs for the same scope and escalated to account for market changes and inflation. Formation strengthening works reflect a scope similar to the track reconditioning but without the track materials costs.

The unit rate includes removal and replacement of formation and reinstating the existing rail and sleepers.

**We consider that the unit rate estimated for the scope outlined for formation strengthening is reasonable and consistent with the conditions prevailing in the market.**

*Other considerations*

QR's business case demonstrates consideration for different options, with the selected option based on the ability to deliver the expected service standards at the least cost.

**Delivery is proposed through internal resources where available, supplemented by external resources. We consider that this reflects an efficient approach to delivery.**



**Assessment of Scope** The West Moreton system currently includes ageing timber bridges, some of which are more than a century old. These structures contain components that have reached the end of their service life and are unable to meet the current operational demands of the network.

Consequently, due to the deteriorating condition of these bridges, safety measures, such as speed restrictions, have been implemented. However, these restrictions have negatively impacted the efficiency of sectional running times. This situation fails to meet the expectations of rail operators, who rely on avoiding track speed restrictions to maintain smooth operations. Additionally, several of the timber bridges are vulnerable to flooding, posing a significant operational risk in the event of severe flooding, which would necessitate major disruptions for repair work. The need to replace the existing timber structure is reinforced by QR's Civil Engineering Standard (MD-10-586), which requires all (unless a separate approval is sought) new bridges to be built in durable materials such as concrete or Steel due to rigorous monitoring and maintenance required for timber bridges.

The need for replacement work on these bridges has been acknowledged as a critical asset requirement within the SIP; it has allocated capital investments based on the criticality and condition of the asset. Timber bridge elimination has been determined as a primary investment necessary to maintain operational services and accommodate increased service demands.

The projects have been proposed to replace the remaining timber bridges with concrete structures between Rosewood and Jondaryan. It forms part of an ongoing, broader, long-term strategy to eliminate the bridges reaching the end of their asset life throughout the system with concrete and steel structures that are better suited to current demands. The program was developed by assessing all timber bridges on the system and formulating packages of work that provide cost-effective solutions for addressing the highest priority sites. To ensure an efficient approach, a staged approach was devised, concentrating on structures with limited remaining service life and the highest maintenance costs.

QR's commitment to providing a reliable and safe network is evident in the extensive planning and execution of this ongoing project. It is noted that the current bridge replacement project has been ongoing since 2016 and is due to finish in FY24. It is noted that the works have been undertaken regularly by QR over the years, which lends to the robustness of the scope.

**Overall, the scope of works is considered prudent with a high level of documentation.**

**Assessment of Standard** The program involves the replacement of existing timber bridges with new and resilient concrete structures. This upgrade is essential because the original track infrastructure was not originally designed to meet the current service demands, necessitating a shift to more robust construction material and compliance with modern safety standards.

According to QR's Structures Standard (MD-10-586), concrete structures are more durable than timber structures, which enables them to bear heavier loads. This increased structural integrity can eliminate the need for speed restrictions that are currently imposed due to concerns about the safety and stability of the existing bridges.

As mentioned above, several of the timber bridges are vulnerable to flooding, which poses a significant operational risk in the case of a major rainfall event. Upgrading to concrete structures will improve resilience to flood-related issues. Given their stronger robustness, as stated in QR's Standard, concrete structures can better withstand the forces exerted by flooding, such as the impact of debris carried by floodwater or the hydraulic pressures caused by fast-flowing water. Furthermore, the susceptibility of timber to water absorption can lead to swelling and warping, undermining the loading capacity of the bridge. Concrete, in contrast, is impervious to water, making it less vulnerable to water-related damage, including decay and deterioration.

Moreover, the upgrade to a concrete structure aligns with the network's long-term strategy of reducing disruptions through planned capital works programs. Concrete bridges have a longer service life and require less maintenance than timber bridges. The reduced need for maintenance and repairs will lead to reliable and on-time operations, ensuring that QR meet operational performances.

The replacement to a modern-day concrete structure is consistent with QR's strategy outlined in the Asset Management Plan (MD-19-222). This strategy aims to eliminate timber bridges throughout the system to ensure ongoing safe and reliable operations and to replace sub-optimal, life-expiring assets with infrastructure more suited to the prevailing traffic task.

**The standard of works is reasonable and is considered prudent. The documentation quality to inform the assessment is medium, primarily due to the absence of information regarding the design life of the new concrete bridges.**

**Assessment of Cost** *Unit Rate* An examination of the cost estimates for the replacement of timber bridges and piers suggests an approximate unit rate per m replacement of [REDACTED].

**We consider this unit rate to be reasonable, comparable with similar projects, and consistent with conditions prevailing in the market.**

*Consideration for whole of life costs* This project is a program of works continued on from AU2. We have reviewed the B.05649 Brisbane Renewal West Moreton Business Case, which demonstrates a clear consideration for both the capital and operating costs for the project life and demonstrates value for money through savings in maintenance costs on renewed bridges - maintenance cost reduction from [REDACTED] to [REDACTED] on average. Contingency has also been included within cost estimates to account for project risks.

**We would expect that similar consideration would be given to future capital projects of the same scope.**

*Other considerations* QR's business case demonstrates consideration for different options, with the selected option based on the ability to deliver the expected service standards at the least cost. Further, the business case clearly identifies priority bridges and reflects a prioritisation approach that allows funding to be directed to the most critical assets.

Delivery is proposed through internal resources where available, supplemented by external resources. QR procures its external resources through panel arrangements or tender processes in line with its procurement rules.

**We consider that this reflects an efficient approach to delivery.**

## 5.4 B.06507 WM Ranges Slope Stabilisation

### Summary

The Toowoomba Range rail corridor forms part of the West Moreton system, which carries up to 113 return paths each week. This corridor serves as a major link for coal transport to the Port of Brisbane and supports passenger services running from Brisbane to South-West Queensland via the Westlander service. The Range is situated in a challenging geographical environment characterised by steep natural terrain, and the track is located on numerous cuts and fills.

These unfavourable conditions have led to major service disruptions. A notable instance occurred in 2011 when the track corridor was closed for three months due to a slope failure. The project forms part of a broader remediation program that commenced in 2019 to address slope instability issues to ensure safety and reliability on the network. A site investigation identified seven high critical sites on the Range, and previous projects have addressed the sites on a priority basis; this project aims to stabilise the two remaining risk embankments between Spring Bluff and Harlaxton.

The scope of slope stabilisation works includes:

- Extensive design development and planning process,
- Resolve embankment and large-scale cutting risks,
- Include additional drainage,
- Scour protection,
- Soil nailing and shotcreting
- Monitoring high priority sites.

|                |          |   |
|----------------|----------|---|
| Review Summary | Scope    | ✓ |
|                | Standard | ✓ |
|                | Cost     | ✓ |

|                            |     |
|----------------------------|-----|
| Capital Expenditure Plan   | █   |
| Impact of findings on Plan | \$- |
| <b>Total accepted</b>      | █   |

QR has proposed the following costs for the slope stabilisation projects in DAU3 (refer to Table 12).

**Table 12 QR's Forecasted Expenditure for Slope Stabilisation Works (\$m FY24)**

| Project | Description                   | FY26 | FY27 | FY28 | FY29 | FY30 | Total |
|---------|-------------------------------|------|------|------|------|------|-------|
| B.06507 | WM Ranges Slope Stabilisation | █    | █    | █    | █    | █    | █     |

In DAU3, QR proposes to stabilise the two remaining high critical embankments, costing █. The works are to commence upon completion of the current project (B.06154) in FY24.

**Assessment of Scope** The project objective is to address slope instability issues on the Toowoomba Range to enhance the safety and reliability of the West Moreton system. The unfavourable geographical conditions on the Range have led to temporary track closures in recent years. In 2011 and 2013, the track corridor was closed for 3 months and 6 weeks, respectively, due to slope failures. Most recently, a major wet weather in 2022 resulted in a 19-day closure, underscoring the need for slope stabilisation works.

The instability of the slope has severely disrupted network operations. Between January 2020 and April 2021, a total of 17 events (wet weather, slips and rock falls) resulted in the cancellation of 143 services and delays for an additional 154 on the Range. These significant delays have prompted QR to conduct a comprehensive geotechnical analysis, which identified several high-risk sites prone to large slips or landslides, particularly during a major rainfall event.

The analysis highlighted the importance of extensive slope stabilisation works to improve network reliability and, most importantly, ensure the safety of both railway services and all users of the network. These objectives are consistent with QR's Strategic Plan and Asset Management Plan (MD-19-222). The remediation works were categorised into three stages, with Stage 1 completed in 2020 and Stage 2 scheduled for completion in FY24. It is noted that the project budget of Stage 2 has increased from its initial estimate of [REDACTED] to [REDACTED] due to continued embankment slippage during the project's design and delivery phases. Detailed information on Stage 2 is documented in Toowoomba Range Slope Stability Stage 2 – Business Case.

Commencing in [REDACTED], this project (Stage 3) aims to address the two highest remaining embankments between Spring Bluff and Harlaxton. A notable risk in the project's execution is the possibility of ground conditions being worse than anticipated, requiring a change in methodology and additional costs. Nevertheless, the consequences of not undertaking works are critical to maintain the network's operation. It is also noted that the works have been undertaken previously by QR, which lends to the robustness of the scope.

The timeframe for these projects spans both AU2 and DAU3; however, works are in the AU2 period and the first half of DAU3 primarily to prevent any adverse impact on the remainder of DAU3.

A medium level of documentation has been used for the assessment, primarily because the specific remediation treatment can't be determined until site work and planning commence.

**Overall, the scope of works is considered prudent.**

**Assessment of Standard** This scope of the project is consistent with previous slope stabilisation works, encompassing key components including additional drainage, scour protection, soil nailing and shotcreting and continued monitoring of high priority sites. The current instability issues have adversely affected services and will continue to do so unless the slopes are stabilised. According to the Transport and Main Roads (TMR) Geotechnical Design Standard, which forms part of QR's Specifications Manual as per QR-CTS-Part 6, embankments and their foundations must remain stable and free from movements along any surface over their design life. Recent slope failures demonstrate that the current slopes and embankments do not satisfy this performance standard, necessitating stabilisation works. As such, the decision to undertake these stabilising projects is well-founded.

Providing additional drainage plays a crucial role in improving slope stability. Effective drainage helps manage the flow of water within and around the slope. Excess water can saturate the soil, increasing its weight and reducing its resisting strength, which can lead to landslides. Proper drainage channels water away from the slope, preventing it from deteriorating the slopes' stability. Furthermore, TMR's Technical Specification on General Earthworks (MRTS04) specifies the protection of earthworks by maintaining drainage to ensure runoff of water is safely diverted into the natural water streams away from critical elements. This is because surface runoff, particularly during heavy rainfall, erodes the slope's surface, leading to further instability. Drainage systems, such as ditches and culverts, divert runoff and assist in maintaining slope integrity.

Furthermore, TMR's Technical Specification on Embankment Slope Protections (MRTS03) outlines scour protection, soil nailing and shotcreting as effective measures to enhance slope stability. Scour protection mitigates erosion caused when water flows over or alongside a slope, preventing the loss of slope stability and shape. Scour protection measures, such as riprap or erosion control blankets, create a protective barrier on the slope's surface, maintaining the integrity of the slope by reducing the erosive effects of water. Soil nailing involves the installation of closely spaced, reinforcing elements (nails or bars) into a slope to enhance its structural integrity and resistance to sliding. These reinforcing elements provide additional shear strength to the slope, which increases the frictional resistance of the soils and reduces failure potential and collapsing. Shotcreting, also known as sprayed concrete, forms a durable and highly adhesive surface layer on the slope. It effectively bonds to the soil, provides structural resistance at the nail head and shields it from erosive forces of rainfall and wind, contributing to overall slope stability.

Monitoring of the sites will inform the extent of movement change to guide and inform remediation treatments.

This assessment was completed with a medium level of documentation quality, given the absence of specific remediation treatment that cannot be determined until works commence.

**The standard of works aligns with previous slope stabilisation works and is considered a prudent and essential activity to identify and prioritise remediation.**

**Assessment of Cost** *Unit Rates*

Historical actual costs are a strong indicator of future costs, but with consideration required for the conditions prevailing in the market, specifically the significant increases in construction costs over recent years.

**The works are not typical rail works, and therefore, standard unit rates are not available; however, costs for slope stabilisation have been developed based on historical costs, both internal and delivered by external contractors, and we consider the costs to be reasonable.**

*Consideration for the whole of life costs*

This project is a program of works continued on from AU2. We have reviewed the Toowoomba Range Slope Stability Stage 2 Business Case, which demonstrates a clear consideration for both the capital and operating costs for the project life. Contingency has also been included within cost estimates to account for project risks.

**As this project is a continuation of the program, we would expect that similar consideration would be given to future capital projects of the same scope.**

*Other considerations*

QR's business case demonstrates consideration for different options, with the selected option based on the ability to deliver the expected service standards at the least cost.

Delivery has typically been undertaken through external geotechnical contractors and constructors.

**Procurement is proposed to be through an open tender process, which is reflective of an efficient process.**

## 5.5 B.04763 Digital Telemetry Rollout – West Moreton

### Summary

The digital telemetry systems on the system facilitate the transmission of real-time data, monitoring and control capabilities. These systems use digital technology to collect, transmit and analyse data from various sensors and devices installed on trains, tracks and railway infrastructure.

To maintain a safe and reliable network, it is crucial to maintain telemetry equipment. This project aims to renew telemetry equipment before it becomes unserviceable to address compliance with relevant standards. This includes the renewal of its componentry and power sources, such as batteries. Additionally, it aims to rollout new and improved equipment before the current equipment and its associated componentry required for maintenance become obsolete.

|                |          |   |                            |     |
|----------------|----------|---|----------------------------|-----|
| Review Summary | Scope    | ✓ | Capital Expenditure Plan   | █   |
|                | Standard |   | Impact of findings on Plan | \$- |
|                | Cost     | ✓ | Total accepted             | █   |

QR has proposed the following costs for the rollout of digital telemetry in DAU3 (refer to Table 13).

Table 13 QR's Forecasted Expenditure for Digital Telemetry Rollout (\$m FY24)

| Project | Description                              | FY26 | FY27 | FY28 | FY29 | FY30 | Total |
|---------|--|------|------|------|------|------|-------|
| B.04763 | Digital Telemetry Rollout – West Moreton | █    | █    | █    | █    | █    | █     |

In DAU3, QR proposes to renew and maintain telemetry equipment on the system, costing █. The works are to commence in FY28 and continue beyond the DAU3 period until FY31.

**Assessment of Scope** Digital telemetry systems are essential components of the WM system, providing real-time data and communication capabilities that improve safety, efficiency and reliability. These systems have the capacity to enable predictive maintenance, optimise energy usage, enhance passenger experience, and support overall network management.

It has been identified that the equipment on the system will reach the end of its service life, necessitating maintenance or replacement. Presently, precise information regarding the current lifespan of these assets is lacking. However, the fact that the works are to commence in FY28 suggests that the assets are not currently at the end of the service life. Instead, they are expected to gradually deteriorate and potentially lose their functionality due to the wear and tear associated with regular use, reaching the end of their lifespan in the coming years.

This assessment relies on a limited level of documentation due to the absence of key data. Specifically, the specific telemetry assets, which determine the asset life, have not been identified. Moreover, the maintenance records, which provide details of previous inspections and their impact on its lifespan, have not been provided. It is noted that not all assets reaching the end of the service life need to be replaced. Instead, the functionality and purpose of it should be understood and assessed whether its role can be undertaken by another system. If no alternative exists, it can be made redundant. Should a renewal of equipment and/or system be deemed necessary, a specific maintenance procedure is important to guide the process.

**To maintain network safety and reliability, the project is considered prudent with regard to the Scope.**

**Assessment of Standard** The available information makes it difficult to determine the specific telemetry systems that are to be renewed in the project. Due to this limited information, it is challenging to determine whether these planned works will align with the established standards of adjacent or existing infrastructure within the network.

QR's standard on maintenance of telecommunications equipment (MD-15-549) requires that all installed telecommunications are to be maintained to ensure the functionality provided by the system is maintained throughout its operational life. Furthermore, the standard emphasises that alterations or additions to the telecommunications systems should only occur following authorisation in accordance with the Telecommunications change management process.

**Overall, it is difficult to assess the prudence of standard with the available information.**

**Assessment of Cost** Information to support an assessment of the efficiency of the proposed costs for the Project has been limited.

**We understand that project cost estimates have been developed based on historical actual costs, which is a reasonable approach.**

## 6.0 Conclusion

AECOM was tasked to review QR's proposed capital expenditure on the West Moreton (WM) system under DAU3. The assessment examined Scope, compliance with standards and cost for a sample of nine projects from a total of 20 in DAU3, which accounts for 79% of the total capital expenditure over this period. The review identified that eight of the nine sample projects satisfy QCA's prudence of works assessment, and it found that QR has a prudent and efficient allocation of its resources. Our review has concluded that the proposed capital expenditure meets the conditions of DAU3, and in our view, QR may proceed with the submission.

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**Attachment 6: AECOM Review of Queensland Rail's Capital Investment Plan  
for DAU3 (Addendum)**

# Review of Queensland Rail's West Moreton Capital Investment Plan for DAU3

## Addendum

07-Nov-2024  
West Moreton Line  
Doc No. 1  
**Commercial-in-Confidence**

AECOM

West Moreton Line  
Review of Queensland Rail's West Moreton Capital Investment Plan for DAU3 –  
Addendum  
Commercial-in-Confidence

# Review of Queensland Rail's West Moreton Capital Investment Plan for DAU3

Addendum

Client: Queensland Rail

ABN: 43 812 633 965

Prepared by

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| Rev | Revision Date | Details     | Approved                             |               |
|-----|---------------|-------------|--------------------------------------|---------------|
|     |               |             | Name/Position                        | Signature     |
| A   | 22-Oct-2024   | Addendum    | Rhys Tyler<br>Associate Director     | - For Final - |
| 0   | 07-Nov-2024   | Final Issue | Susheel Prabhakar<br>Project Manager |               |

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## Glossary

| Acronym | Description                      |
|---------|----------------------------------|
| QR      | Queensland Rail                  |
| QCA     | Queensland Competition Authority |
| RBDF    | Risk Based Decision Framework    |
| SIP     | Service Investment Plan          |
| DAU     | Draft Access Undertaking         |
| AU      | Access Undertaking               |
| TMR     | Transport and Main Roads         |
| WM      | West Moreton                     |

## Standards, Codes and Regulations

The following standards, codes and regulations have been used in the review.

- Queensland Rail Telecommunications Maintenance Standard (MD-15-549)
- Queensland Rail Civil Engineering Track Standard (MD-10-575)
- Queensland Rail Civil Engineering Structures Standard (MD-10-586)
- Queensland Rail Asset Management Plan (MD-19-222)
- Queensland Rail Civil Engineering Standard Specification Part 6 – Earthwork (2021)
- Transport and Main Roads Geotechnical Design Standard – Minimum Requirements (2020)
- Transport and Main Roads Technical Specification – MRTS03 Drainage Structures, Retaining Structures and Embankment Slope Protections (2021)
- Transport and Main Roads Technical Specification – MRTS04 General Earthworks (2023)
- Transport and Main Roads Technical Specifications – MRTS27 Geotextiles Separation and Filtration (2020)
- Transport and Main Roads Technical Specifications – MRTS58 Geosynthetics for Subgrade and Pavement Reinforcement (2022)

## Executive Summary

Queensland Rail's (QR) regional network facilitates freight and passenger services, subject to third party access regulations under the Queensland Competition Authority (QCA) Act 1997.

An Access Undertaking, authorised by the QCA in accordance with the Act, outlines the guidelines for granting access to QR's rail network. Within this framework, QR is accountable for providing, maintaining, and overseeing access and operations on its rail network and related infrastructure. The current Access Undertaking (AU2), approved by the QCA on 1 July 2020, is in effect until 30 June 2025. QR proposes to replace it with Draft Access Undertaking 3 (DAU3), effective from 1 July 2025 to 30 June 2030.

QR engaged AECOM to review its proposed capital expenditure on the West Moreton (WM) system over DAU3 prior to submission for approval by the QCA. The conditions of QCA's approval are outlined in DAU3, which stipulates that capital expenditure must be prudent in scope, standard and cost.

This document presents an addendum to AECOM's original assessment of QR's WM Capital Investment Plan<sup>1</sup>, inclusive of four additional capital projects. We examined the scope, compliance with standards and cost estimate for a total of 13 projects in the plan for DAU3 (excluding ballast undercutting).

Additionally, QR's updated DAU3 Submission includes considerations for several tonnage scenarios to account for the uncertainty in mine operations along the West Moreton System. For each scenario, QR have determined the required capital works schedule to ensure a safe and reliable system is maintained in response to forecast tonnages on the line. AECOM has provided in this report its assessment of the rationale where changes to capital project costs and timing are identified between each scenario.

AECOM deployed a specialised team for this review, including rail and geotechnical engineers and quantity surveyors, coordinated by its Advisory group. This review was conducted as a desktop assessment, with requests for additional documentation, where possible, to clarify issues related to the projects being reviewed. A standardised review template was used by AECOM's reviewers to ensure consistency, where the template was closely aligned with the criteria required by DAU3.

This addendum determined that all four projects satisfy QCA's prudence of works assessment; however, AECOM noted the lack of documentation available for projects B.06927, B.06928 and B.06580, due to the early planning stage of these projects.

AECOM's review has concluded that the proposed capital expenditure meets the conditions of DAU3, and in AECOM's assessment, Queensland Rail has prepared a prudent capital submission.

---

<sup>1</sup> AECOM, Review of Queensland Rail's West Moreton Capital Investment Plan for DAU3, November 2023

## 1.0 Introduction

### 1.1 Background

Queensland Rail's (QR) regional network comprises major rail systems that convey freight and passenger services across the state and are declared for third party access under the Queensland Competition Authority (QCA) Act 1997. An Access Undertaking, approved by the QCA and developed in accordance with the Act, provides a framework for the provision of access to QR's rail network. Under the framework, QR is responsible for providing, maintaining, and managing access to and operations on its rail network and associated infrastructure.

The current Access Undertaking (AU2) was approved by QCA on 1 July 2020 and expires on 30 June 2025. QR will propose to replace AU2 with a Draft Access Undertaking 3 (DAU3) to apply from 1 July 2025 to 30 June 2030.

QR has engaged AECOM to undertake a review of the forecasted capital expenditure on its West Moreton (WM) system for DAU3. It is acknowledged that the capital expenditure will be subject to review by the QCA, who may seek public and/or industry feedback on its draft decision on the DAU3.

### 1.2 Scope of Review

Schedule E of AU2 details the conditions upon which the capital expenditure (CAPEX) proposed by QR should be accepted by the QCA. The scope of the review, therefore, covers a prudence assessment of capital projects in relation to its scope, standard and cost based on Schedule E of the Undertaking.

To assess the prudence of QR's DAU3 Capital Expenditure Plan, AECOM has examined a sample of projects from the WM Capital Investment Plan.

The outcomes of the original assessment can be viewed in the November DAU3 Submission<sup>2</sup>. This addendum extends to four new projects introduced into the capital investment plan since the original submission. These new projects include:

- B.06927 Toowoomba Range Drone & Sensors
- B.06928 WM Heat Sensors
- B.06800 WM Bridge Strike Program
- B.06580 WM LX Protection Upgrades

### 1.3 Report Structure

This report is developed as an addendum to the original AECOM Engineering Review issued in support of the November DAU3 Submission. For this reason, the contents of this report largely remain consistent with the original submission, retaining the same approach and methodology to the assessment. The structure of the report is outlined in Table 1.

**Table 1 Report Structure**

| Addendum Report |   |
|-----------------|---|
| Section 1       | Introduction                              |
| Section 2       | Queensland Rail's Capital Investment Plan |
| Section 3       | Assessment Methodology                    |
| Section 4       | Project Assessment                        |
| Section 5       | Conclusion                                |

<sup>2</sup> QR DAU3 Capital Submission, West Moreton System, November 2023

## 2.0 Queensland Rail's Capital Investment Plan

### 2.1 Overview

QR's Capital Investment Plan over DAU3 in the November Submission included 20 projects totalling \$325.2m (FY24), excluding ballast undercutting. The development of QR's updated DAU3 Submission introduces several tonnage scenarios that each propose a capital investment plan appropriate to the tonnages forecast on the track. The updated submission introduced four new projects (■■■■■). The projects are categorised into asset types, namely Trackwork, Civil Works, Bridges, Signalling, Rail Systems and Facilities. A breakdown of the capital projects for each scenario is provided in QR's DAU3 Capital Submission<sup>3</sup>.

### 2.2 Extent of Review

This review involved four projects submitted in the updated Capital Investment Plan. To gain a broader understanding during the assessment, similar projects in each asset type were assessed together. The full list of proposed projects for DAU3 is presented in Table 2, with the projects included in this review highlighted in green and previous reviews highlighted in yellow.

This report addresses the projects in decreasing order of cost.

Table 2 QR's DAU3 Planned Capital Projects

| Asset Type   | Project No | Description  | Value of Projects over DAU3 <sup>4</sup> (\$FY24) | Included in review |
|--------------|------------|--|---|--------------------|
| Rail Systems | B.06927    | Toowoomba Range Drones & Sensors                           | ■■■■■   | New                |
|              | B.06928    | WM Heat Sensors  |   | New                |
| Trackwork    | B.06155    | West Moreton Reconditioning Koomi - Dalby                  |   | Original           |
|              | B.06156    | Formation Strengthening Rosewood-Toowoomba                 |   | Original           |
|              | B.06366    | West Moreton Reconditioning Dalby - Macalister             |   | Original           |
|              | B.05578    | West Moreton Toowoomba Range Curve Transitions             |   |                    |
|              | B.05945    | West Moreton Re-sleeping FY26                              |   |                    |
|              | B.04798    | Reconditioning Macalister to Columboola                    |   | Original           |
|              | B.04817    | West Moreton Re-rail                                       |   |                    |
|              | B.04898    | West Moreton Level Crossing Transitions (Up Road)          |   |                    |
|              | B.04546    | West Moreton Formation Strengthening Toowoomba - Jondaryan |   | Original           |
|              | B.06580    | WM LX Protection Upgrades                                  |   | New                |

<sup>3</sup> QR DAU3 Capital Submission, West Moreton System, November 2023

<sup>4</sup> Table 3 presents all projects planned over DAU3. QR's updated DAU3 Submission presents several scenarios that may or may not include the complete list of capital projects shown in the table. Refer to the Capital Submission for the schedule or works applicable to each scenario.

| Asset Type  | Project No | Description   | Value of Projects over DAU3 <sup>4</sup> (\$FY24) | Included in review |
|-------------|------------|---|---|--------------------|
| Civil Works | B.06507    | West Moreton Ranges Slope Stabilisation                       | [REDACTED]  | Original           |
|             | B.04823    | West Moreton Culvert Renewals                                 |   |                    |
| Bridges     | B.06162    | West Moreton Bridge/Pier Replacement (Rosewood-Jondaryan)     |   | Original           |
|             | B.04804    | West Moreton Bridge/Pier Replacement (Jondaryan - Columboola) |   | Original           |
|             | B.06800    | West Moreton Bridge Strike Protection Program                 |   | New                |
| Signalling  | B.05592    | Grandchester to Laidley Signal Cable                          |   |                    |
|             | B.04763    | Digital Telemetry Rollout - West Moreton                      |   | Original           |
|             | B.05593    | Rangeview SER/PER Upgrade                                     |   |                    |
|             | B.05601    | Signalling LED Upgrade  |   |                    |
|             | B.06508    | Dalby Yard and OLCs Re-signalling                             |   |                    |
|             | B.04778    | Gatton Interlocking Renewal                                   |   |                    |
| Facilities  | B.06509    | [REDACTED] Refurb   |   |                    |

### 3.0 Assessment Methodology

#### 3.1 Methodology of Assessment

For this assessment, the evaluation of four new projects was undertaken by a rail engineer in consultation with relevant technical specialists. This review has been a desktop review, with requests for additional documentation, where possible, to clarify issues related to the projects being reviewed.

A high-level outline of the review methodology is presented in Figure 1.

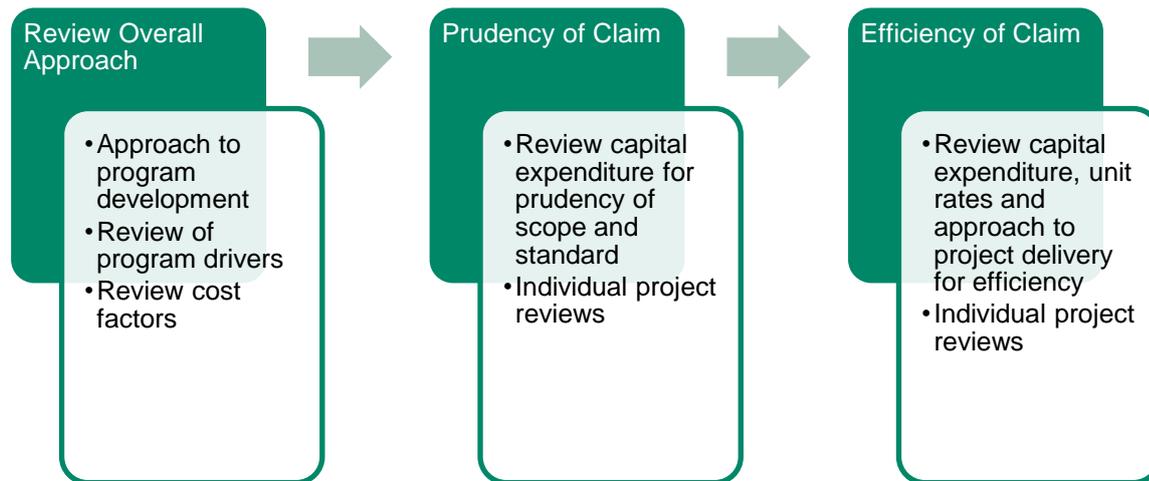


Figure 1 Capital Project Review Methodology

#### 3.2 Assessment Format

In order to establish consistency in the technical assessment, a standard project assessment format was developed using the criteria based on Schedule E of the Undertaking, which contains the conditions under which QR’s capital expenditure can be accepted into the regulatory asset base. It stands that a preliminary assessment of the proposed projects against these criteria can assist in demonstrating the prudence and efficiency of the forward capital plan.

These criteria are outlined in the sections below. In addition to ensuring a consistent approach to the assessments by all reviewers, the standard assessment format is a key mechanism by which AECOM has demonstrated transparency in its review.

### 3.2.1 Scope

The assessment of prudence of scope of works involves assessing whether the works are reasonably required. The criteria for this assessment are as follows:

- Has consultation with affected Access Holder/s been undertaken?***
  - *Has reasonable consultation been undertaken with any Access Holder who may be adversely affected?*
- Is the project relevant?***
  - *Is the project for a branch line to a mine?*
- Were the works reasonably required and appropriately evaluated?***
  - *Reasonably required to accommodate Access Agreements?*
  - *Reasonably required to accommodate Reasonable Demand?*
  - *Reasonably required considering the asset condition?*
  - *Reasonably required to comply with health, safety and environmental*
  - *Are QR's processes appropriate to evaluate and select the project?*
  - *Was the evaluation of the project subjected to QR's processes?*
  - *Has consultation been undertaken with relevant stakeholders?*

### 3.2.2 Standard

The assessment of prudence of the standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope of the Capital Investment Plan. It further assesses whether the project is not overdesigned such that they are beyond the requirements of that scope. The criteria for this assessment are as follows:

- Were the works:***
  - *Consistent with existing standard and configuration of adjacent or existing infrastructure has been accepted as reasonable?*
- Were the works of a reasonable standard to meet the requirements of the Scope with regards to:***
  - *Requirements of Rolling Stock Operators and compliance with Access Agreements?*
  - *Current and likely future usage levels?*
  - *Rail Industry Safety and Standards Board?*
  - *With regards to the requirements of other relevant Australian design and construction standards.*
  - *QR's design standards contained within its Safety Management System?*
  - *All relevant legislation, including requirements of any authority?*

### 3.2.3 Cost

The assessment of prudence of cost involves assessing whether the costs are reasonable for the scope and standard of work to be done. The criteria for this assessment are as follows:

***Does the project have an approved procurement strategy?***

***Reasonable for the Scope and Standard of works done?***

- *Do the costs align to scale, nature and complexity of the project?*

***Does the project cost estimates demonstrate value for money?***

- *With regards to the circumstances prevailing in the market and locality for engineering, equipment supplies and construction?*
- *With regards to sourcing of labour?*
- *With regards to sourcing of equipment?*
- *Were alternatives considered to minimise whole of life costs?*
- *Is the proposed procurement methodology consistent with approved procurement?*

***Does the capital program/project consider:***

- *Appropriate governance structure for size and nature of project?*
- *Safety during construction and operation?*
- *Environmental approvals and compliance?*
- *Compliance with legal and authority requirements*
- *Minimising disruption to operation of train services during construction?*
- *Were access holder requests appropriately managed?*
- *Minimising whole of life costs, including future maintenance & operating costs?*
- *Minimising total project costs?*

***Does the proposed project estimates and program seem reasonable with regard to the following:***

- *Contingency allowed for?*
- *Project Management Costs?*
- *Risk allowances?*
- *Timing/delivery programs?*

### 3.3 Project Documentation Assessment

Each new project has been evaluated for prudence in terms of scope, standard and cost, and recommendations made based on a review of project documentation supplied for QR or the professional judgement of AECOM's technical reviewers, where the information available was insufficient. In this context, the use of project documentation is the preferred and best practice, but not the sole, means of evaluating project prudence.

A list of documentation that AECOM would expect to be available to support recommendations of prudence of proposed capital projects is listed in Table 3. AECOM notes that the list provided should be seen as identifying topics that require adequate documentation rather than a requirement for specific documents.

**Table 3 Documents (or equivalent information expected to support a sound recommendation)**

| Prudence of Scope           | Prudence of Standard                    | Prudence of Cost                            |
|-----------------------------|---|---|
| Business Case               | QR Standard Specifications and Drawings | Approved business cases with cost estimates |
| Project Plan                | QR Policy documents                     | Project Management Plan                     |
| Condition assessment report | Business Case                           | Evidence of risk allocations/contingencies  |
| Asset Management Plan       |   | Procurement Policy                          |
| Access Holder Request       |   |   |

AECOM assessed and reported the quality and range of documentation provided by QR for each project in the review. The criteria for the assessment are outlined summarised in Table 4.

**Table 4 Project Documentation Assessment**

| Quality and Range of documentation | Legend  | Description  |
|------------------------------------|---|--|
| High                               |  | Sufficient documentary evidence to support and demonstrate a recommendation.   |
| Medium                             |  | Incomplete documentation evidence but informal documentation and/or professional judgement support a recommendation. |
| Low                                |  | Limited documentary evidence, but professional judgement supports a recommendation.                                  |

### 3.4 Interpreting this Report

An example of a review summary for a project is provided in Table 5. As demonstrated, prudence of scope, standard and cost are denoted by ticks, and as mentioned in the previous section, the level of documentation quality for the assessment is represented by the colours of the cells.

In the example, the project is found to be:

- Prudent in scope with a high level of documentation quality
- Prudent in standard with a low level of documentation quality
- Prudent in cost with a medium level of documentation quality.
- There are no recommended amendments to the claimed amount.

**Table 5 Review Summary Example**

|                |          |   |                             |   |
|----------------|----------|---|-----------------------------|---|
| Review Summary | Scope    |  | Capital Expenditure Claim   |  |
|                | Standard |  | Impact of findings on Claim | \$-   |
|                | Cost     |  | <b>Total accepted</b>       |  |

## 4.0 Project Assessment

This review involved four new projects submitted in the updated Plan.

### 4.1 WM Bridge Strike Protection Program (B.06800)

#### Summary

The purpose of this project is to design and install bridge strike protection barriers on low-height rail bridges that are at risk of collision by road traffic passing underneath. Five bridges requiring protection have been identified between Gatton and Toowoomba on the West Moreton System.

These bridges are:

- North Street Bridge
- Bridge Street Bridge
- Grantham Rail Bridge (Ditchman Road)
- Lockyer Creek Bridge (Gatton)
- Thomas Road Bridge

The bridges identified evidence increasing occurrences of collisions with 13 incidents recorded between these five sites over 2023-24 alone. Bridge strikes are a risk, with severe consequences such as bridge collapse and subsequent train derailment, with the potential to result in an injury or death.

These strikes can result in high repair costs as well as delays and closures while inspections and repairs are carried out. There are several options to mitigate this risk (including steel barriers, height gauges, monitoring and alerting systems and CCTV). The preferred bridge strike protection is to construct a physical protection beam at high-risk sites with low clearance.

|                |          |   |                            |     |
|----------------|----------|---|----------------------------|-----|
| Review Summary | Scope    | ✓ | Capital Expenditure Plan   | █   |
|                | Standard | ✓ | Impact of Findings on Plan | \$- |
|                | Cost     |   | <b>Total accepted</b>      | █   |

QR has proposed the following cost schedule for the bridge strike protection upgrades in DAU3 (refer to Table 6).

Table 6 QR's Forecasted Expenditure for Project B.06800 (\$m FY24)

| Project | Location/s       | Asset Type | FY26 | FY27 | FY28 | FY29 | FY30 | Total |
|---------|------------------|------------|------|------|------|------|------|-------|
| B.06800 | Gatton-Toowoomba | Bridges    | █    |      |      |      |      |       |

**Assessment of Scope** The works are reasonably required to respond to increased and ongoing occurrences of bridge collisions due to over height vehicles passing underneath. The risk of collisions is critical to the safety of both the public and track users, should the event result in train derailment, damage or collapse to the bridge structure.

Access Agreements and user requirements consider a safe and operable rail system to accommodate tonnage expectations. This project, while not directly related to the track, is intended to improve the safe operability of the track and prevent closures in response to significant risk events occurring as a result of vehicle strike to rail bridges. The project is unrelated to specific customers and does not require possession of the line.

QR considers several alternatives per its business case process, and has selected the most appropriate approach considering all factors. This process is reasonable and has historically been recognised and accepted by the QCA.

While the project is in its Planning Phase, no community consultation has occurred to date. The current business case does recognise the necessary consultations with various stakeholders and community that will be required should the funding request be approved to advance the planning stage of this project.

The project is driven from an evidenced increase in bridge strike collisions over recent years, which pose significant risk to the safety of human life and the operational efficiencies for Queensland Rail customers. **Considering the project drivers and possible alternative solutions, the scope of this project is considered prudent.**

**Assessment of Standard** The project is currently in the early planning stage and as such, delivery design and materials is not yet scoped to a particular standard. It is expected that the end solution be similar to previous bridge protection solutions that are undertaken to relevant standards including ensuring the Queensland Rail operates SFAIRP in accordance with the RSNL.

The project is considered reasonable in response to the risk of bridge strikes, and with consideration for frequency of these events occurring and future risk levels.

**With respect to the stage of development the project is currently in, and assuming Queensland Rail processes ought to be adhered to, The standard in requirements for this project and its scope is deemed prudent.**

**Assessment of Cost** With the scope yet to be fully defined and optioneering still underway in the projects planning phase, an assessment of cost prudence is unable to be made by AECOM.

**The available high-level budget estimate used to forecast potential repair costs are considered within reason.**



**Assessment of Standard** This project is scoped to install signalling equipment that is compliant with the current AS/NZ 3000:2018 and General Signalling Specifications. Queensland Rail recognise engaging its Safety advisor and including the activities in the workplace health and safety management plan.

Access holders are reasonably engaged in the planning process for this project and works are to be planned for delivery during scheduled downtime for minimal possession requirements.

Considering the projects acknowledgement of adhering to safety standards and business safety processes, it is deduced that the project complies with all legislative requirements from related Authority. Skilled project managers and internal processes, such as the business case process, are used as reasonable controls to ensure compliance with the requirements of Authorities.

**While there is a low quality of documentation currently available, due to the early stage of planning, assurance has been provided through consultation with Queensland Rail technical staff to satisfy a prudent assessment of standard.**

**Assessment of Cost** Due to the project still being in its planning stage with no costs developed, an assessment of cost prudence is not able to be made.





**Assessment of Standard** The project will be research and development (R&D) and will likely involve 'Type Approval' of a new product. This will not impact the track structure. While the project is not required under customer Access Agreements, the improved response times expected will reduce possession and interruption to rolling stock operators.

The benefits of this project are expected to be conducive to the increasing future usage levels of the track by reducing response times to wet weather events along the Toowoomba Range Slopes.

With considerations for the minimal information available around the scope and standard of this project, it has been assumed this project will be carried out in accordance with Queensland Rail's organisational standards. **As such, the project has been considered prudent in standard.**

**Assessment of Cost** **Due to the project still being in its planning stage with no costs developed, an assessment of cost prudence is not able to be made.**

## 5.0 Conclusion

AECOM was tasked to review Queensland Rail's proposed capital expenditure on the West Moreton (WM) system under DAU3. The assessment examined Scope, compliance with standards and cost for a sample of nine projects in the November DAU3 Submission, and an additional four new projects in this addendum.

This report identified that all new projects satisfy QCA's prudence of works assessment, and it found that QR has a prudent and efficient allocation of its resources to deliver the proposed schedule. All projects reviewed in this addendum are in the early planning stages and it is expected for the detailed scoping and cost projections to be made available as these projects progress.

AECOM's review has concluded that the proposed capital expenditure meets the conditions of DAU3, and in AECOM's assessment, Queensland Rail has prepared a prudent capital submission.

**Attachment 7: West Moreton System DAU3 Maintenance Expenditure 2025-26 to 2029-303 Submission**

# DAU3 Maintenance Expenditure Submission

West Moreton



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# Glossary

| Term    | Definition                                       |
|---------|--|
| DAU     | Draft Access Undertaking                         |
| GTK     | Gross Tonne Kilometre                            |
| IDC     | Interest During Construction                     |
| LED     | Light Emitting Diode                             |
| mtpa    | Million tonne per annum                          |
| OTR     | On time running                                  |
| QCA     | Queensland Competition Authority                 |
| RAB     | Regulated Asset Base                             |
| SER/PER | Signalling Equipment Room / Power Equipment Room |
| TAL     | Tonne Axle Load                                  |
| WM      | West Moreton                                     |

# Version History

This submission has been developed by Queensland Rail in response to the Draft Decision made by the QCA in June 2024. Table 1 provides a detailed description of the processes and changes that have taken place in light of the recommendations made by the QCA and further developments made by Queensland Rail, as it aims to provide a submission for the DAU3 period that is reasonable in scope, aligns with appropriate industry and organisational standards and proposes prudent capital, maintenance and operational expenditure forecasts.

**Table 1 Queensland Rail's Draft Access Undertaking 3, Version History**

| Submission Date | Version Summary   | Change Description  |
|-----------------|---|---|
| November 2023   | The original DAU3 submission made to the QCA in November 2023 was based on forecast tonnage up to 9.6 mtpa by the end of the DAU3 period.   |   |
| November 2024   | The maintenance submission Final Draft D.2 (this submission) considers the feedback provided through the QCA's Draft Decision and considers two tonnage scenarios agreed upon with system customers at 9.6 mtpa and 7.5 mtpa. | <p>Changes reflected throughout this submission include the following:</p> <p><b>Collaboration</b></p> <p>A key recommendation made by the QCA in its Draft Decision was the continued collaboration and engagement with Queensland Rail customers to reach agreement across the various aspects of this submission. Section 1.2 of the Collaborative Submission details the efforts of Queensland Rail to address this consideration.</p> <p><b>Capital Expenditure</b></p> <p>A second capital expenditure program has been developed to accommodate the forecast tonnage of 7.5 mtpa. Each capital program impacts the maintenance expenditure forecasts respectively and is provided in this submission.</p> <p><b>Maintenance Expenditure</b></p> <p>The maintenance cost forecasts have been developed to consider the forecast tonnage of 7.5 mtpa. Feedback received on the original submission also raised uncertainties around the cost categories which are included in the forecast maintenance expenditure. This submission more clearly describes all cost categories included in the West Moreton Systems maintenance cost calculations (Section 6).</p> <p>To support the changes made for this submission, Queensland Rail engaged the engineering consultancy AECOM Australia Pty Ltd (AECOM) to provide a peer assessment of the feedback provided by both the QCA and Arcadis, and make a recommendation for each area that was considered 'not reasonable'. The outcomes of this peer review<sup>1</sup>, have been incorporated throughout this submission.</p> |

<sup>1</sup> AECOM, Response to the QCA and Arcadis Commentary, October 2024

# 1 Overview

## 1.1 Context

Queensland Rail's West Moreton system runs over 322 kilometres (km) between Rosewood and Miles, adjoining south-east Queensland at Rosewood and the far west section of the Western System at Miles. The system links Brisbane to the west and south-west of Queensland and is a major artery to Darling Downs.

The predominant commodity hauled along the West Moreton System is thermal coal, and the system currently services the Cameby Downs, Wilkie Creek and New Acland (Stage 3) mines. The reinstated Wilkie Creek Mine at Macalister commenced railings in July 2023 and New Acland Stage 3 commenced riling in October 2023 out of the Jondaryan siding.

The West Moreton System is regulated under the Queensland Competition Authority Act 1997 (**QCA Act**). Under the QCA Act, the services provided using rail infrastructure can be 'declared' by the Queensland Treasurer. Once declared an infrastructure provider is required to provide access to third parties to the declared infrastructure. The majority of Queensland Rail's network is declared, including the West Moreton System.

Once declared, the QCA can require Queensland Rail to submit a 'Draft Access Undertaking' to it for approval, and have it approved by the QCA in accordance with the QCA Act. Queensland Rail may also submit a 'Voluntary Draft Access Undertaking'. Queensland Rail has lodged a Voluntary Draft Access Undertaking (**DAU3**). The QCA has supported this approach<sup>2</sup>.

Total coal railings in FY23 on the West Moreton System was 2.2 million tonnes per annum (mtpa), mainly from the Cameby Downs mine. The actual tonnage realised on the system in FY23 can be used for comparative purpose against the two scenarios considered in DAU3. Considering the reinstated Wilkie Creek and New Acland Stage 3 mines commencing production, this submission provides the maintenance costs for both tonnage scenarios of 9.6 mtpa and 7.5 mtpa, presented in Table 2.

Table 2 West Moreton System Coal Tonnages by Financial Year (mtpa)

| Tonnage Scenario       | FY26 | FY27 | FY28 | FY29 | FY30 |
|------------------------|------|------|------|------|------|
| Scenario 1a (9.6 mtpa) | 8.20 | 9.50 | 9.60 | 9.60 | 9.60 |
| Scenario 2 (7.5 mtpa)  | 6.00 | 6.00 | 7.50 | 7.50 | 7.50 |

<sup>2</sup> QCA correspondence to the Queensland Rail CEO dated 21 September 2022. The QCA file reference number 1478389, <http://www.qca.org.au/wp-content/uploads/2022/10/qca-letter-re-queensland-rail-access-undertaking-timeline-21-sep-2022.pdf>.

## 1.2 Proposed DAU3 West Moreton System Maintenance Costs

Queensland Rail is proposing the maintenance cost allowances for FY26 to FY30 (the DAU3 period), presented in Table 3, to support proposed tonnages by FY30. A total DAU3 maintenance expenditure of \$162.6 million (\$FY24) supports movement of 9.6 mtpa by FY30, whilst a total of \$133.2 million (\$FY24) supports the movement of 7.5 mtpa.

Table 3 West Moreton System maintenance costs - DAU3 (\$m FY24)

| Tonnage Scenario       | FY26   | FY27   | FY28   | FY29   | FY30   | Total DAU3     |
|------------------------|--------|--------|--------|--------|--------|----------------|
| Scenario 1a (9.6 mtpa) | \$31.1 | \$33.1 | \$33.1 | \$32.8 | \$32.5 | <b>\$162.6</b> |
| Scenario 2 (7.5 mtpa)  | \$25.0 | \$25.3 | \$28.0 | \$27.7 | \$27.2 | <b>\$133.2</b> |

A breakdown of maintenance costs for each section of track is provided in Section 6.5.

# 2 Background

## 2.1 Overview of System Characteristics and Infrastructure

The West Moreton System is critical to supply chains that export coal and agricultural products from Western and South Western Queensland through the Port of Brisbane. It is a multi-use system with coal, grain, livestock, and long-distance passenger services utilising paths; however, coal is the predominant product and is a key driver for asset strategies for the system. Figure 1 presents a map of the West Moreton System.

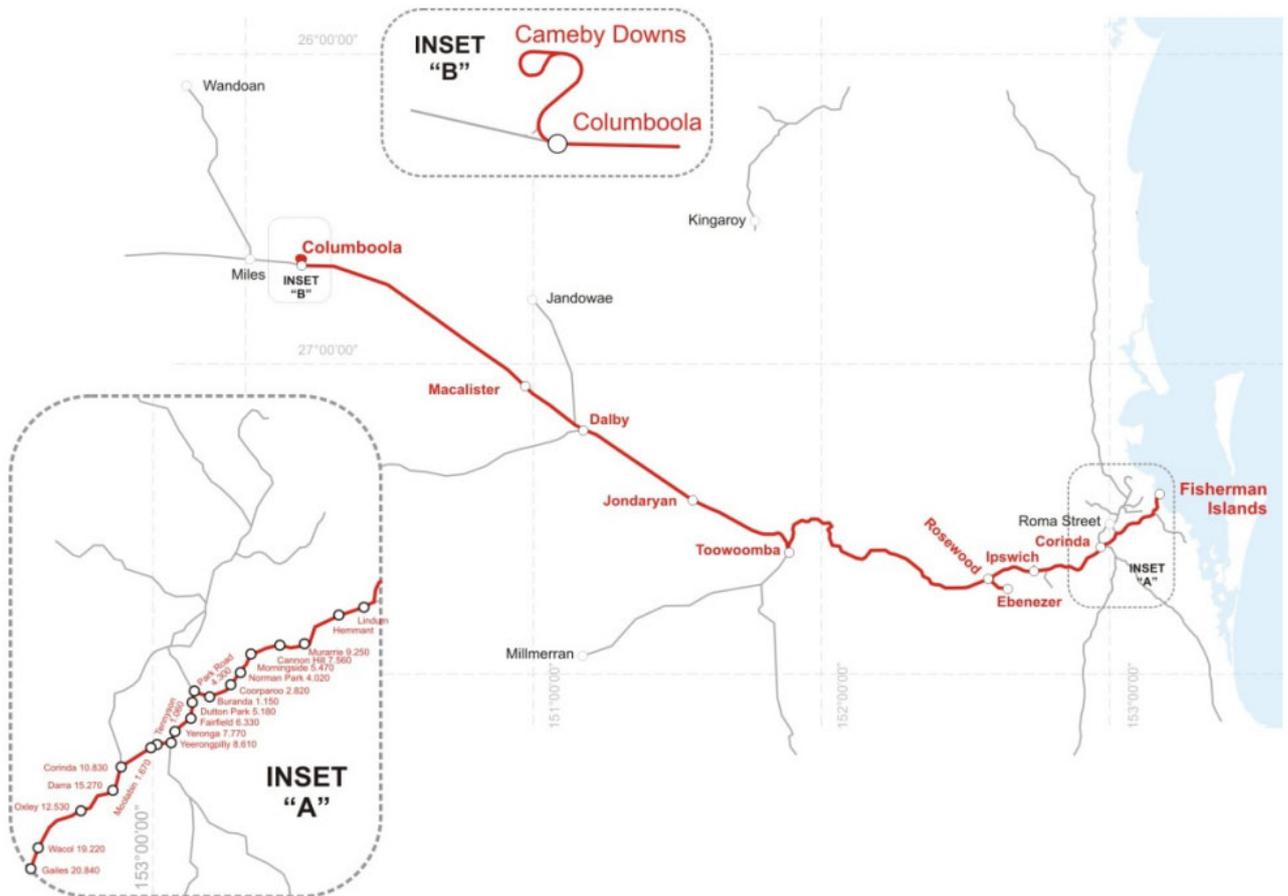


Figure 1 Map of West Moreton System

Table 4 presents some key characteristics of the assets on the West Moreton System<sup>3</sup>.

Table 4 West Moreton System key characteristics

| Item                    | Details   |
|-------------------------|---|
| Length                  | Route Length 322km<br>Track Length 413km narrow gauge |
| Reference Train Length  | 675m  |
| Maximum operating speed | 80km/hr   |

<sup>3</sup> Queensland Rail Service Investment Plan FY24

| Item                  | Details  |
|-----------------------|--|
| Track Assets          | 258km of 50kg/m continuously welded rail on single line sections and loaded Down Road Rosewood – Kingsthorpe and Oakey – Jondaryan.<br>154km of 41kg/m rail remains on Up Road between Yarongmalu – Helidon, Kingsthorpe –Oakey, Malu – Miles and most passing loops.  |
| Sleeper Type          | 269km of concrete sleepers Down Road and Rosewood - Jondaryan.<br>143km of interspersed steel and timber sleepers, typically 1 in 2 pattern, Up Road between Yarongmalu - Helidon and single line Malu - Miles.  |
| Ballast and Formation | Ballast is quality crushed rock. The black soil formation increases ballast fouling causing poor drainage and loss of top and line.  |
| Turnouts              | 60kg/m RBMs on concrete with trailable facing points. Derailment risk, if these heavy trailable facing points TFP's do not reset for next train passage.<br>Remaining 41kg/m turnouts on timber remain in yards and loops.   |
| Structures            | Bridges: 127 - 71 timber bridges (2,841m), 24 concrete (893m) and 32 steel (1,122m).<br>Timber bridges originally constructed 1865 and 1880.<br>Culverts: 700 - A number are life expired cast in situ drains and deformed corrugated metal pipes.<br>Tunnels: 11 - 1860's construction and limit dimensional capacity of freight                  |
| Signalling Assets     | RCS and DTC - Signal interlockings at Gatton, Rangeview and Dalby require refurbishment or replacement to provide ongoing reliability and supportability. Signal cabling Grandchester to Laidley requires replacement.<br>Level Crossings: Older level crossings require ongoing electrical equipment refurbishment and upgrade of priority sites. |
| Telecommunications    | Direct buried optical cable between Harlaxton and Toowoomba requires replacement.<br>The microwave network is end of support life.<br>The telecoms rectifier and digital telemetry require upgrade.  |

## 2.2 Traffic Types, Operators and Key Customers

The West Moreton System is a multi-use system, with the following services utilising train paths:

- Coal – coal is the predominant commodity hauled along the West Moreton System. Aurizon is the primary coal operator on the system. With the re-instatement of the Wilkie Creek Mine, and the approval of New Acland Stage 3 there are three export coal mines located in the region.
- Grain – grain trains access the Port of Brisbane through the system from the connecting Glenmorgan Branch at Dalby, and from the South-Western line at Toowoomba.
- Livestock – seasonal livestock services are provided by Watco out of Morven and connect into the system at Miles for transport through to South-East Queensland.
- Passengers – Queensland Rail's long distance passenger service The Westlander runs twice weekly between Brisbane and Charleville.

Thermal coal dominates traffic from west of Toowoomba and is a key driver for asset strategies for the system. Trains operate up to 15.75 tal with a maximum train length of 675m and a maximum speed of 80km/hr.

## 2.3 Future Usage of the Network

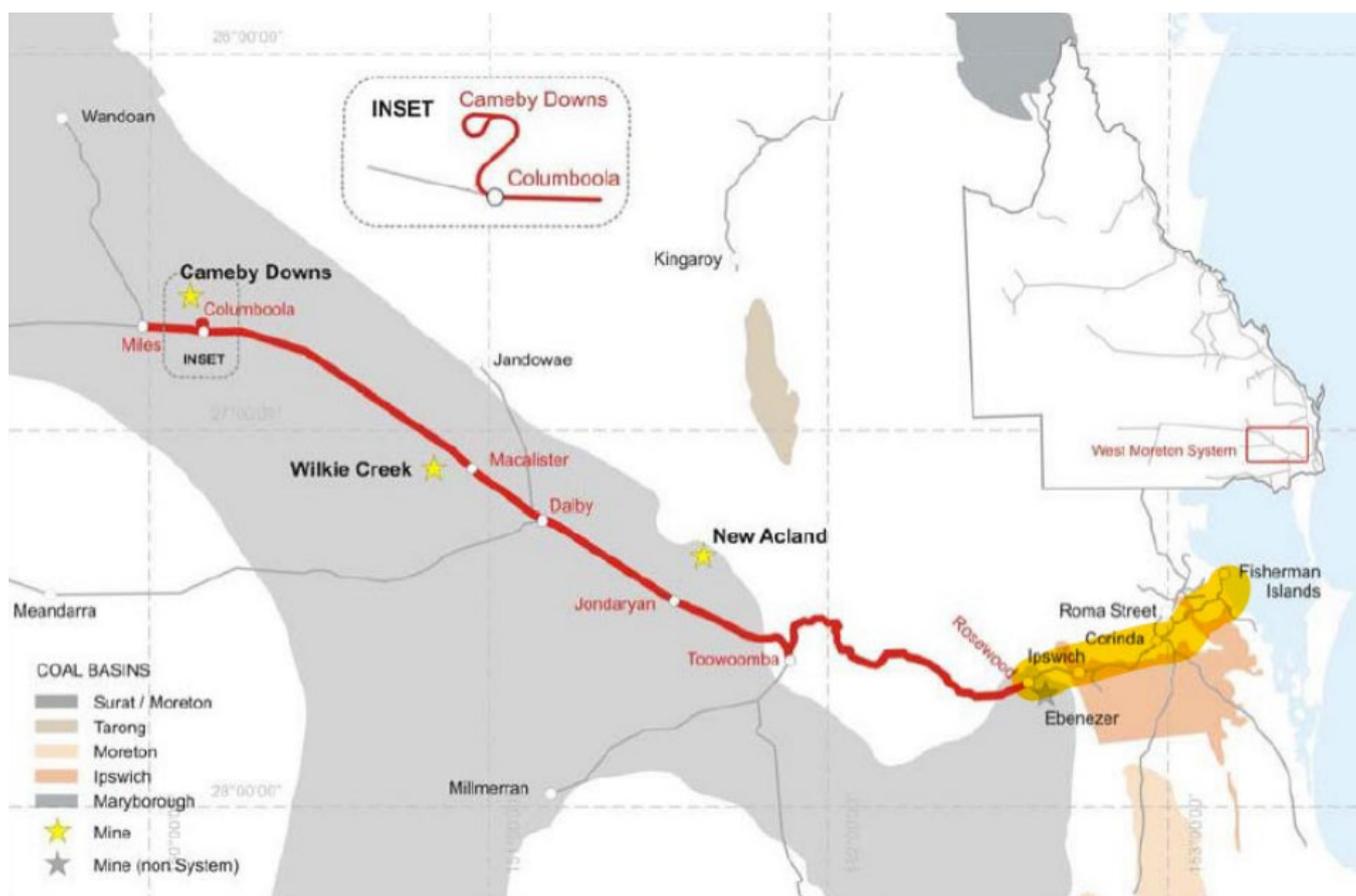
The future rail traffic will drive the long-term strategies for the system. Coal freight forecasts for the system are the highest they have ever been with the reinstated Wilkie Creek and New Acland Stage 3

mines commencing production. The two tonnage forecasts considered in this submission account for the following assumption described in Table 5.

**Table 5 Tonnage Scenario Assumptions**

| Tonnage Scenario       | Assumption  |
|------------------------|---|
| Scenario 1a (9.6 mtpa) | Scenario 1 (ramps up to 9.6 mtpa from July 2027).<br><div style="background-color: black; height: 15px; width: 100%;"></div> <div style="background-color: black; height: 15px; width: 15%;"></div> <div style="background-color: black; height: 15px; width: 85%;"></div> <div style="background-color: black; height: 15px; width: 55%;"></div> <p>The capital program for this scenario was prepared in 2023 for DAU3 draft.</p> |
| Scenario 2 (7.5 mtpa)  | Scenario 2 (ramps up to 7.5 mtpa from July 2027).<br>Assumes Wilkie Creek mine does not recommence operation.<br><div style="background-color: black; height: 15px; width: 100%;"></div> <div style="background-color: black; height: 15px; width: 85%;"></div> <div style="background-color: black; height: 15px; width: 55%;"></div>  |

Figure 2 presents a map showing the mines that will be serviced by the West Moreton System over the DAU3 Period.



**Figure 2 Map of Mines serviced by the West Moreton System**

With maximum tonnage up to 9.6 mtpa expected over the DAU3 period, maintaining the system to enable efficient movement of services, minimising closures and speed restrictions, will be critical.

# 3 Maintenance Strategy

## 3.1 Customer Driven Maintenance Approach

Queensland Rail's network maintenance approach serves as a fundamental element of the overall asset management strategy to enable efficient movements across the system and deliver a standard of service that is expected by its customers.

Customer requirements from the West Moreton System are primarily driven by:

- Reliability – transit times that allow operators to achieve efficient cycle times;
- Availability – availability of train paths, minimal unplanned delays and manageable speed restriction impacts; and
- Affordability – competitive rail supply chain price for services.

The first two drivers reflect a standard of service expected by customers. Both reliability and availability can be impacted if the network is not effectively maintained. This could be through speed restrictions, or disruptions to network availability due to incidents, inclement weather, or unplanned possessions, all of which could impact an operator's ability to achieve efficient cycle times.

Planned possessions to undertake maintenance and capital works can also impact on service quality and paths availability, and it is important that possession management forms part of the overall maintenance strategy, particularly as available train paths reduce with the expected uplift in throughput. Queensland Rail is committed to reducing possession impacts where possible, while also noting that increased throughput will increase wear and tear on the network, and therefore increase the maintenance required.

The final driver, affordability, demonstrates that a balance needs to be met between costs and service performance, while also managing risks. Queensland Rail has developed a maintenance program which responds to customer requirements while also considering the costs of the program.

## 3.2 Balancing Performance, Risk and Cost

A core objective of asset management is reaching a balance of levels of service, management of risk and efficient whole of life costs. Both maintenance and capital expenditure contribute to maintaining the availability and reliability of the network and need to be considered together to identify efficient costs of doing so.

Key considerations for maintenance of the West Moreton System over DAU3 in achieving this balance include:

- The projected increase in tonnage up to 9.6 mtpa over the period will increase wear on the track and therefore increase the level of maintenance required on the network to minimise speed restrictions and closures. Conversely, this will likely also decrease the amount of time available to deliver planned maintenance and capital works.
- A higher level of maintenance may also increase the possession time required to undertake the works, potentially acting as a limit to the paths available and therefore the tonnage that the line can carry. If the maintenance is not carried out, the line is at increasing risk of events occurring that require reactive (unplanned) maintenance, which would impact customer service by reducing availability and result in higher costs.

- Queensland Rail has proposed a capital program which responds to the specific requirements of the network and addresses existing issues on the system as well as the need to strengthen the system in anticipation of the increased throughput. Queensland Rail's proposed maintenance costs have considered the reduction in maintenance that will result from the proposed capital program, noting that upgraded or recently refurbished track is unlikely to require extensive maintenance in the period following the upgrade.

Queensland Rail has proposed a maintenance expenditure program that seeks to maximise supply chain efficiency and deliver safety, reliability, and availability to its users.

### **3.3 Maintenance Planning**

Queensland Rail developed forecasts of expected works required based on several factors, including condition of the network, expected throughput and available possession time. The annual System Maintenance Plan forecasts work to be undertaken each year, while the asset management plan considers a 10-year time horizon.

Queensland Rail's revised AU2 Maintenance Strategy, which covers the lead up to the DAU3 period, will be the subject of a future Draft Amending Access Undertaking 2 (DAU2) submission.

### **3.4 Asset Monitoring and Analysis**

Asset monitoring and analysis is an important part of maintenance planning and delivery. Asset monitoring technology and the associated analytical tools are becoming increasingly sophisticated; delivering more accurate and robust data that is then directly fed into the maintenance planning process. More accurate monitoring of potential defects enables a more proactive maintenance program, which should also generate efficiencies over the longer term. In 2014 Queensland Rail implemented an Enterprise Asset Management System which enables Queensland Rail to better understand and monitor the actual condition and degradation of the network, which in turn informs Queensland Rail's prioritisation approach for works.

# 4 Key Drivers for DAU3 Maintenance Costs

## 4.1 The Original Purpose of the West Moreton System

The West Moreton System originally opened in 1865 between Ipswich and Grandchester, catering for passenger, livestock, freight, and primary products. The system began supporting the transport of coal in 1982. Rail export commenced via rail from Macalister in 1994 (closing in 2013), Jondaryan in 2002 and from Columboola in 2010.

The network's historical origins present continuing challenges for its operation. The West Moreton System was initially constructed on black soil plains with no engineered formation; resulting in regular failures requiring reconstruction to ensure suitable track geometry is maintained.

Early track standards have resulted in an alignment that is lower than contemporary standards for stand-alone heavy haul railway built specifically for coal carrying services. As a consequence of the network's age and track standard, the section between Rosewood and Miles in particular requires a higher level of intervention than would be required for a more modern, stand-alone heavy haul railway in order to safely and reliably deliver contracted tonnages.

The age and history of the West Moreton System has an impact on the condition and fitness for purpose of the network. In both AU1 and AU2, track age and condition were considered for both the capital and maintenance programs. Queensland Rail has been slowly improving the quality of the track through the capital program, however there are still issues associated with the age of the network that are affecting the delivery of services.

For the DAU3 period, Queensland Rail has proposed what it considers to be efficient maintenance costs for the West Moreton System having regard to the age and condition of the network, and the tonnage proposed to be hauled over a network that was not originally designed for this purpose.

## 4.2 Current Condition and Performance

### 4.2.1 Condition of the Assets

Queensland Rail's proposed maintenance costs respond to several factors, including anticipated throughput, capital program and the age, condition, and performance of the system in meeting the requirements of users.

Condition of an asset informs the likelihood of failure of the asset and can be indicative of the asset risk. Figure 3 presents a summary of the condition of the assets in the West Moreton System. The condition assessment used the following ratings:

- Condition 1 – Very Good (teal)
- Condition 2 – Good (blue)
- Condition 3 – Average (orange)
- Condition 4 – Poor (red)
- Condition 5 – Very Poor (dark red)
- Not Assessed (grey)

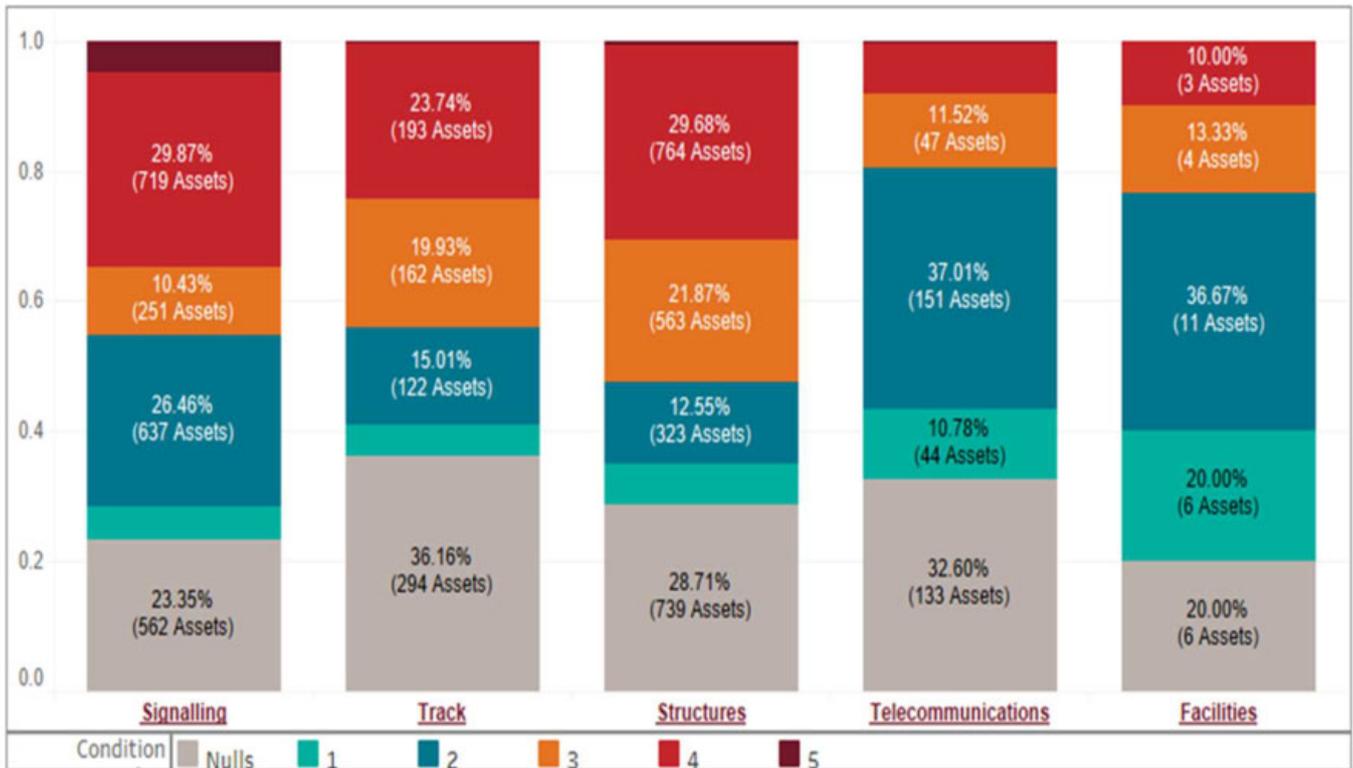


Figure 3: Current Condition of the West Moreton System assets (Service Investment Plan)

The following observations can be made from this assessment:

- **Track:** While the graph shows that 23.7% of all track assets are in a poor condition state, this value represents nearly 40% of the assets assessed. This suggests that a significant proportion of track assets are in need of renewal or refurbishment.
- **Structures:** While the graph shows that 29.7% of structures assets are in a poor condition state, this represents nearly half of the total number of structures assets assessed.
- **Signalling:** While the graph shows that 29.9% of signalling assets are in a poor condition state, this represents nearly 40% of the signalling assets assessed. In addition, there is also a proportion of assets in condition state 5 – very poor.
- **Telecommunications and Facilities:** these assets are in a better average condition state than track, structures and signalling assets.

The condition of the track, structures and signalling assets present a risk to maintaining service levels as assets in a poor condition are at higher risk of failure. Asset failure could result in unplanned outages to services which impact reliability and availability of the system.

#### 4.2.2 Overall Track Condition Index

The overall track condition index (OTCI) represents the track condition that impacts on train performance (speed). Significant attention is applied to maintaining top and line beyond that required to meet OTCI thresholds for the West Moreton System to reduce the dynamic loading deterioration over the light track structure and black soil formation.

Table 6 presents the current OTCI ratings for the different corridors within the West Moreton System<sup>4</sup>.

**Table 6 OTCI Current Ratings**

| System                 | Lower Threshold | Upper Threshold | Current Rating |
|------------------------|-----------------|-----------------|----------------|
| Rosewood to Toowoomba  | 61              | 64              | 28             |
| Toowoomba to Jondaryan | 50              | 54              | 26             |
| Jondaryan to Dalby     | 50              | 54              | 24             |
| Dalby to Macalister    | 52              | 56              | 26             |
| Macalister to Miles    | 52              | 56              | 26             |

**Legend:**

- On or Better than target (Below / = Lower Threshold)
- Breached Target (Above Upper Threshold)
- Near Target (Between Lower and Upper Thresholds)

Queensland Rail's OTCI ratings are comparable with the average ratings for Aurizon Network over FY21 and FY22<sup>5</sup>.

**Table 7 Aurizon Network OTCI ratings**

| System          | FY22 | FY21 |
|-----------------|------|------|
| Blackwater      | 21.5 | 23.9 |
| Goonyella       | 21.0 | 22.3 |
| Moura           | 25.0 | 26.6 |
| Newlands / GAPE | 18.3 | 20.0 |

OTCI is a metric for the overall condition of the track across the system, and therefore does not reflect all variations within a system.

#### 4.2.3 Asset Performance

In addition to asset condition, performance of the assets can also be a driver for maintenance costs. Key performance issues are presented in Table 8, as detailed in Queensland Rail's Service Investment Plan.

**Table 8 Performance issues on the West Moreton System**

| Issue                | Description  |
|----------------------|--|
| Track Infrastructure | <ul style="list-style-type: none"> <li>● Existing timber and steel structures are limited to 15.75 TAL</li> <li>● Majority of the formation was not engineered and is considered under-strength for 15.75 tal</li> <li>● The Toowoomba Range single line sections limit the number of train paths</li> <li>● The current axle loads and train lengths limit train payload</li> </ul> |

<sup>4</sup> Queensland Rail Service Investment Plan FY24

<sup>5</sup> Aurizon Network FY22 Maintenance Submission

| Issue              | Description  |
|--------------------|--|
|                    | <ul style="list-style-type: none"> <li>• Tunnel clearances are a limiting factor, although a recent project increased the clearance at several tunnels to accommodate 9'6" (2.9m) containers through the West Moreton System.</li> <li>• The steep grades of the Toowoomba Range and the Little Liverpool Range and the single line through both of these range alignments causes capacity constraints.</li> </ul>   |
| Range Resilience   | <ul style="list-style-type: none"> <li>• The Toowoomba Range is subject to landslides in extraordinary rain events with major reconstruction repairs to the track required in past years. Rock falls and embankment movement are also common each wet season, and this impacts on services during assessment and repair.</li> <li>• Geotechnical assessments have been undertaken which show that further investment is required to reduce the risk of major landslides. Investment in remediation work at the highest risk sites, plus the installation of monitoring equipment with specialised survey and assessment of other risk sites will provide greater certainty to Queensland Rail's supply chain partners that service disruptions will be minimised.</li> </ul> |
| Speed Restrictions | <ul style="list-style-type: none"> <li>• Temporary and blanket speed restrictions due to poor track alignment (top and line) and track stability of the lightweight track structure during summer months.</li> </ul>   |

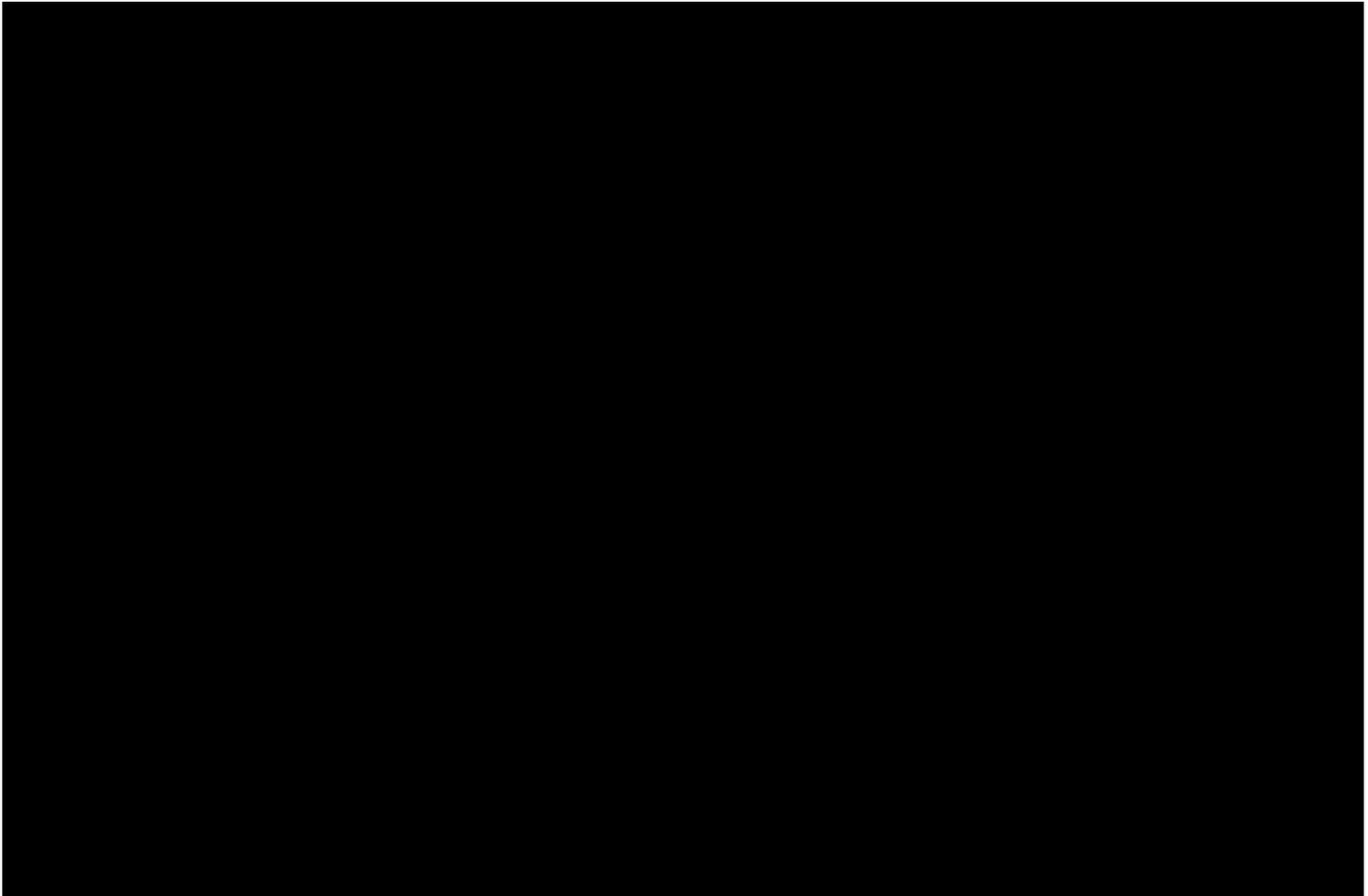
Queensland Rail's priority is to address the asset risk and performance issues affecting the network while building resilience to manage future throughput and delivering reliability and availability to customers.

### 4.3 Tonnage Forecasts

This section presents the future usage of the networks impact on tonnage forecasts, based on the assumptions defined in Section 2.3.

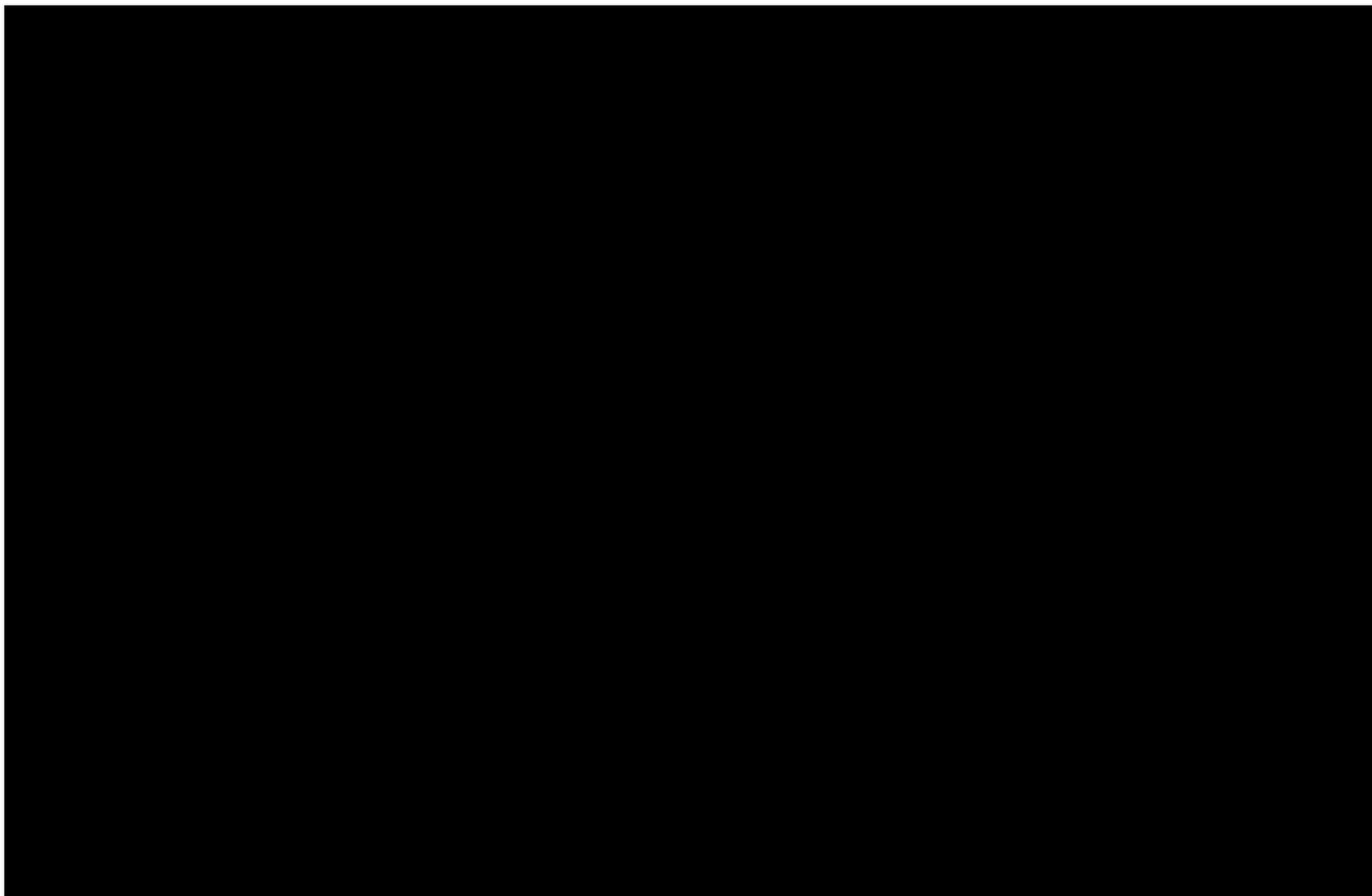
#### 4.3.1 Tonnage Forecast, 9.6 mtpa

Figure 4 presents the tonnage forecasts for the remainder of the AU2 Period and the DAU3 Period, as it relates to the Scenario 1a assumptions. Total tonnage on the track by FY30 applying these assumptions is 9.6 mtpa.



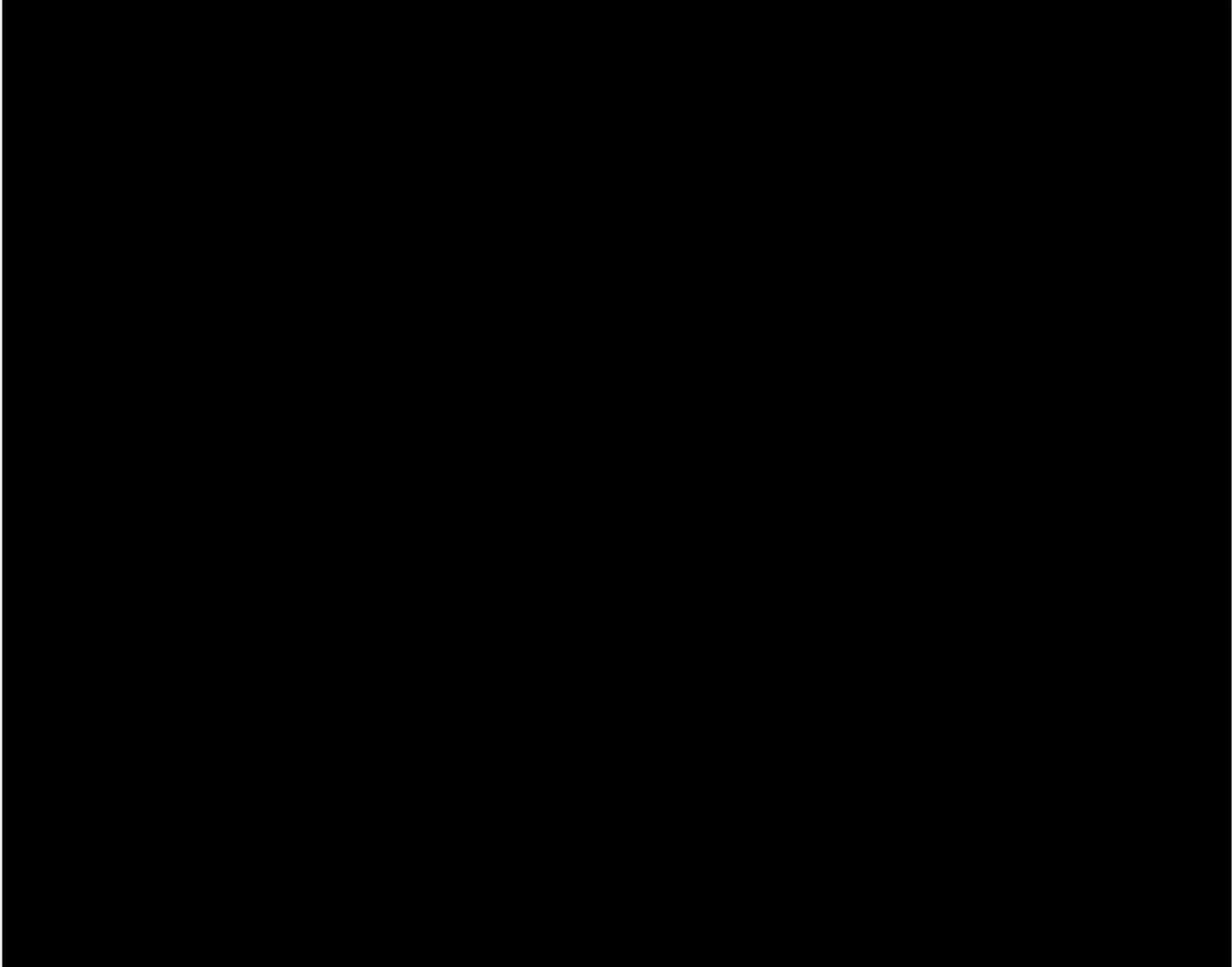
There is a significant increase in the anticipated throughput on the system due to the addition of two new mines in Wilkie Creek and New Acland Stage 3.

These tonnage actuals and projections according to the original November 2023 submission are illustrated by line section in Figure 5.

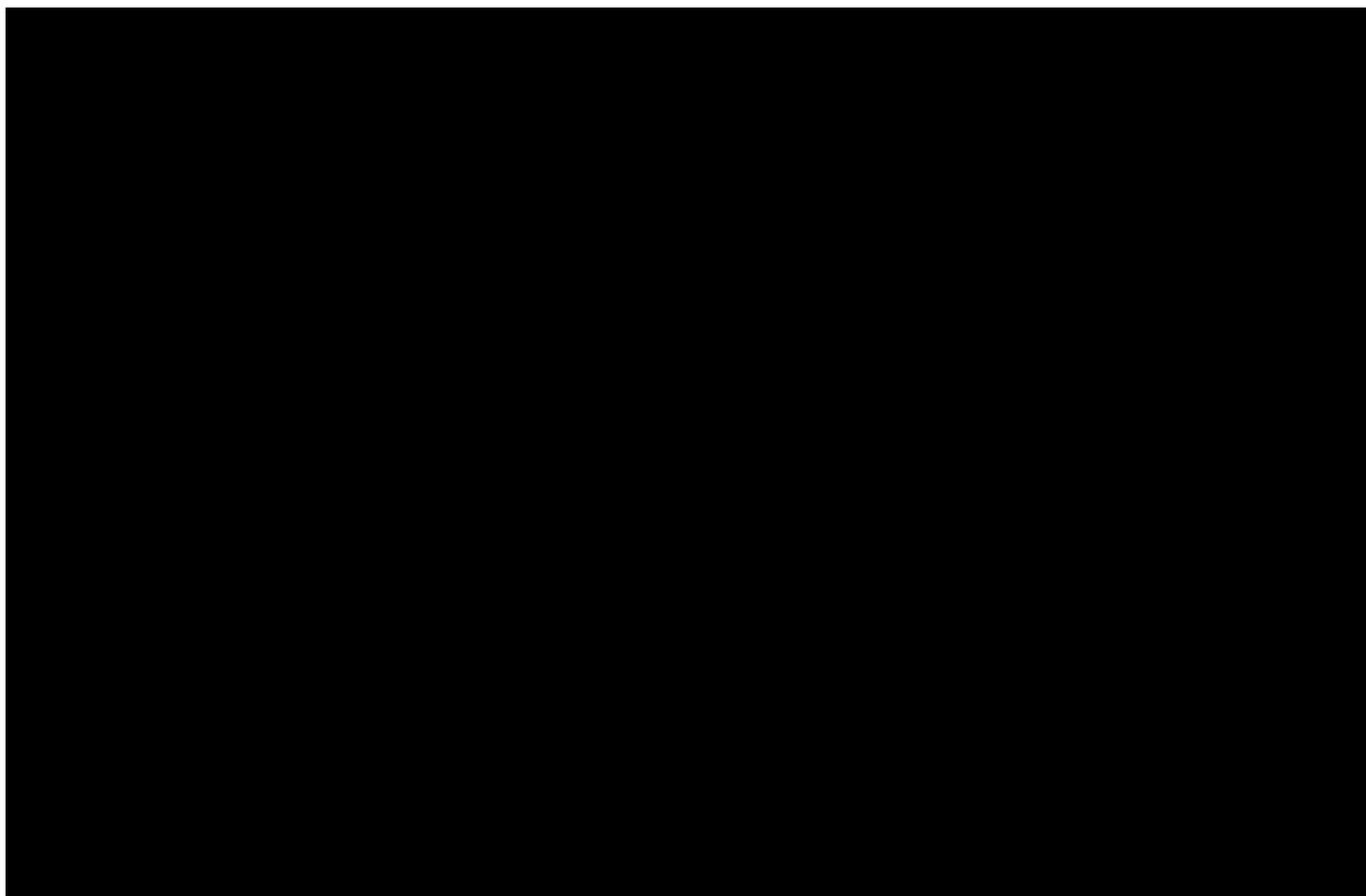


### 4.3.2 Tonnage Forecast, 7.5 mtpa

Figure 6 presents the tonnage forecasts for the remainder of the AU2 Period and the DAU3 Period, as it relates to the Scenario 2 assumptions. Total tonnage on the track by FY30 in this scenario is 7.5 mtpa.



These tonnage actuals and projections are illustrated by line section in Figure 7.

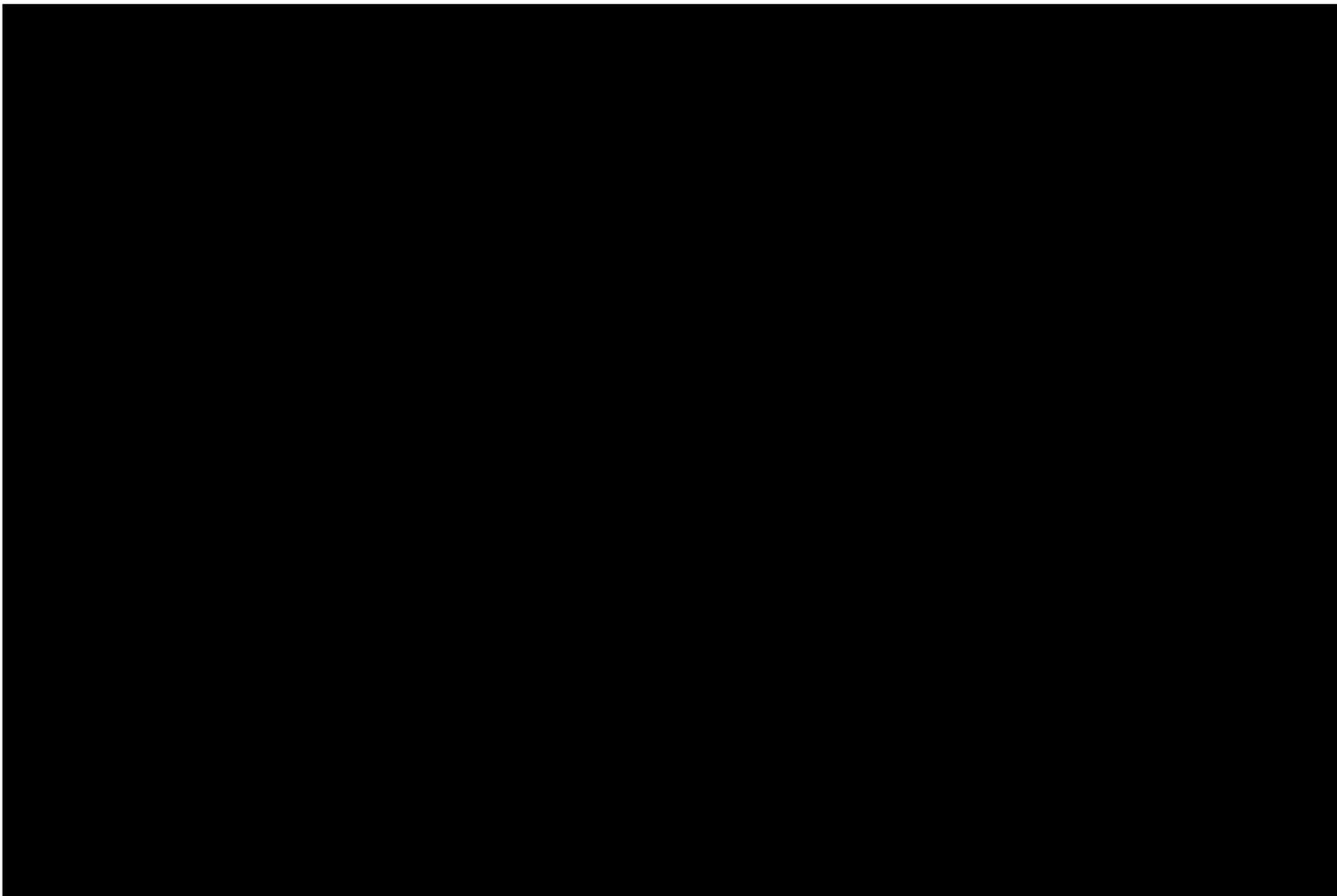


#### **4.4 Possession Availability**

As a result of increasing tonnage on the West Moreton system, the time available for track possession to undertake works are projected to decrease, most significantly for the Jondaryan to Rosewood corridor. Possession availability across both scenarios is presented in hours per annum (Hours pa).

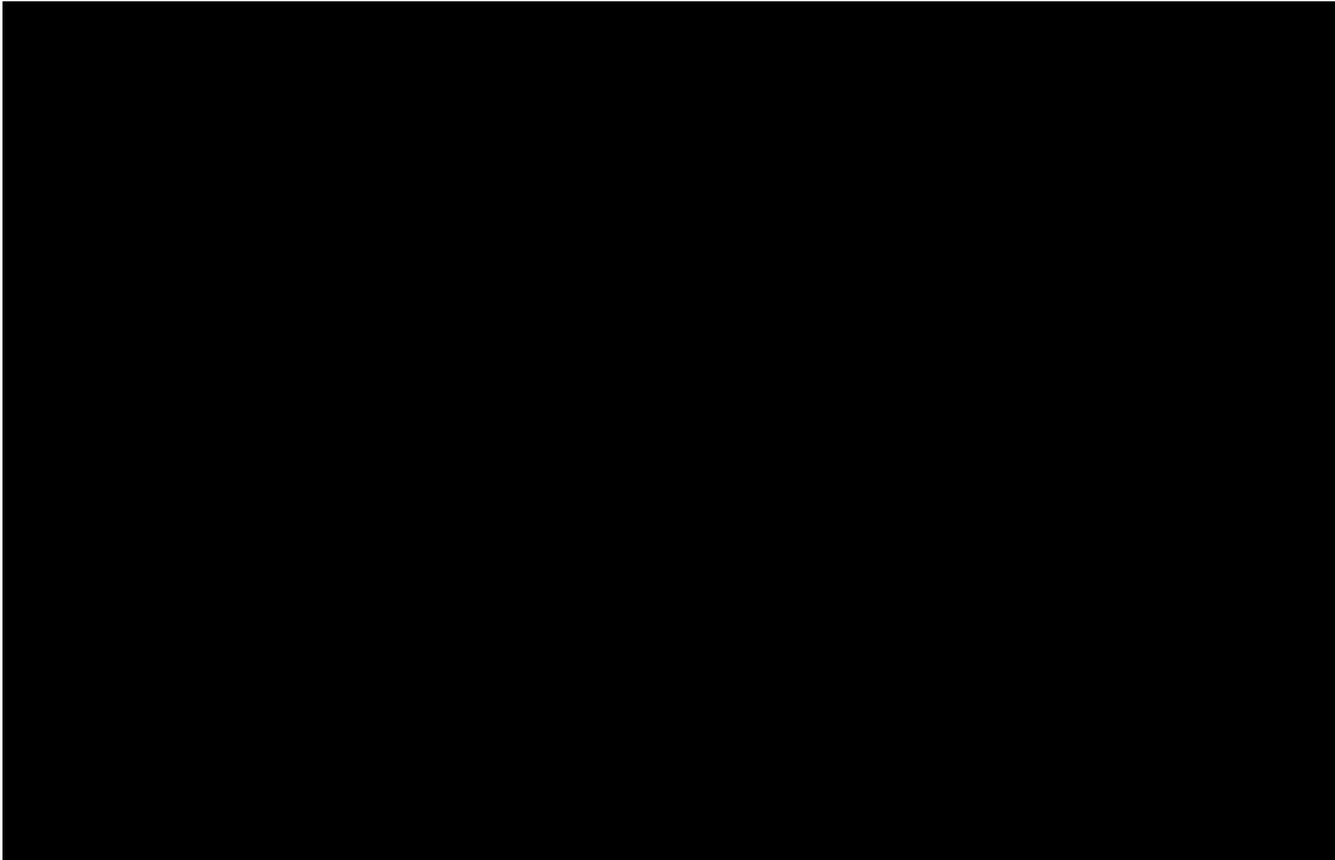
#### 4.4.1 Available Possession, 9.6 mtpa

Possession availability for the tonnage forecast of 9.6 mtpa according to the original November 2023 DAU3 submission is shown in Figure 8.



#### 4.4.2 Available Possession, 7.5 mtpa

Possession availability for the tonnage forecast of 7.5 mtpa is shown in Figure 9.



#### 4.5 Fixed vs Variable Costs

Maintenance activities are defined as Fixed where the amount of work (and therefore cost) required does not vary according to the number of trains on the line or the tonnage carried.

The maintenance activities defined as 'Variable' are considered to increase as the number of trains or the tonnage carried increases. AU3 is expected to involve an increasing demand for coal transportation, so the definition and rate of increase of these variable activities is crucial to establishing reliable cost projections associated with the higher tonnage.

Queensland Rail's categorisation of maintenance activities differs slightly from the list developed for AU2: two forms of Inspection are not considered Variable (the work involved is not proportional to tonnage transported) and have therefore been redefined as 'Fixed').

Fixed maintenance costs are due to activities that are considered to be independent of the number of trains or the tonnage carried (and are therefore not variable). All but one of these activities involve assets that are not part of the track – the *Assets Comp Insp/Svc activity* is fixed but requires track blocking to be carried out, so it has been included in possession calculations.

These activities cost an average of \$9.5 million per annum over the past three years, as indicated in Table 9.

Table 9 Fixed Costs incurred during FY21-23 (\$m FY24)

| Fixed Maintenance Activity       | FY21         | FY22         | FY23          | Avg FY21-23  |
|----------------------------------|--------------|--------------|---------------|--------------|
| Asset Compliance Insp/Svc        |              |              |               |              |
| Repairs                          |              |              |               |              |
| Fire & Vegetation Management     |              |              |               |              |
| Renewals                         |              |              |               |              |
| Asset Inspections Non-Compliance |              |              |               |              |
| Consulting/Technical Advice      |              |              |               |              |
| Lubrication                      |              |              |               |              |
| Earthworks - Non-Formation       |              |              |               |              |
| Turnout Maintenance              |              |              |               |              |
| Electrical                       |              |              |               |              |
| Signalling                       |              |              |               |              |
| Telecoms                         |              |              |               |              |
| Other                            |              |              |               |              |
| <b>Total Fixed Costs</b>         | <b>\$9.7</b> | <b>\$7.3</b> | <b>\$11.6</b> | <b>\$9.5</b> |

These fixed costs can be allocated to the line sections used in this analysis as indicated in Table 10.

Table 10 Fixed costs incurred during FY21-23 by line section (\$m FY24)

| Fixed Maintenance Activity | FY21         | FY22         | FY23          | Avg FY21-23  |
|----------------------------|--------------|--------------|---------------|--------------|
| Miles - Macalister         | \$2.6        | \$1.5        | \$2.6         | \$2.2        |
| Macalister - Jondaryan     | \$1.8        | \$1.3        | \$2.1         | \$1.8        |
| Jondaryan - Rosewood       | \$5.3        | \$4.5        | \$6.8         | \$5.5        |
| <b>Total</b>               | <b>\$9.7</b> | <b>\$7.3</b> | <b>\$11.6</b> | <b>\$9.5</b> |

Track inspection (primarily 'Assets Comp Insp/Svc') requires the track to be blocked for safety reasons, so this activity has been included in the calculation of possession time to enable track-related maintenance work to be completed. Since this activity is classified as a 'fixed cost', its value has been kept separate from the variable maintenance analysis.

Variable maintenance activities are considered to vary according to the mass of trains using the track, and since the system carries a 'standard' (reference) coal train (with a consistent mass), these activities can be considered to vary with total tonnage carried. These activities cost an average of \$13.7 million per annum during the FY21-23 period as indicated in Table 11.

**Table 11 Variable costs incurred during FY21-23 by line section (\$m FY24)**

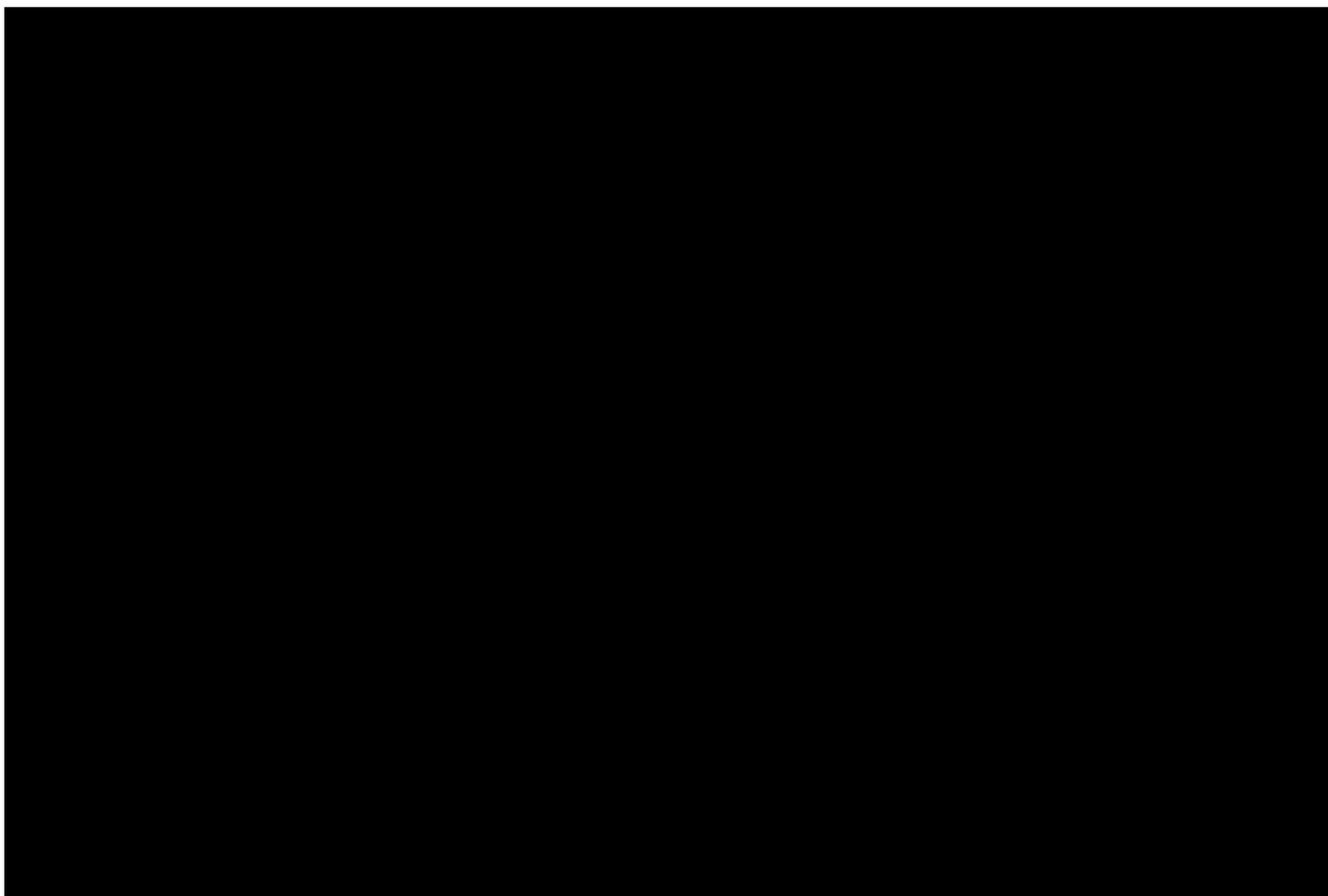
| Variable Maintenance Activity | FY21          | FY22          | FY23          | Avg FY21-23   |
|-------------------------------|---------------|---------------|---------------|---------------|
| Mechanised Resurfacing        |               |               |               |               |
| Rail Stress Adjustment        |               |               |               |               |
| Repairs                       |               |               |               |               |
| Sleeper Management            |               |               |               |               |
| Maintenance Ballasting        |               |               |               |               |
| Rail Joint Management         |               |               |               |               |
| Top & Line Spot Resurfacing   |               |               |               |               |
| Other                         |               |               |               |               |
| <b>Total</b>                  | <b>\$16.0</b> | <b>\$13.0</b> | <b>\$12.2</b> | <b>\$13.7</b> |
| <b>Net Tonnes</b>             | <b>4.1M</b>   | <b>2.8M</b>   | <b>2.3M</b>   |               |

These variable costs are allocated to each line section as indicated in Table 12.

**Table 12 Variable costs incurred during FY21-23 by line section (\$m FY24)**

| Variable Maintenance Activity | FY21          | FY22          | FY23          | Avg FY21-23   | Avg Tonnes |
|-------------------------------|---------------|---------------|---------------|---------------|------------|
| Miles - Macalister            | \$4.9         | \$2.8         | \$5.8         | \$4.5         | 2.12       |
| Macalister - Jondaryan        | \$4.9         | \$3.0         | \$1.7         | \$3.2         | 2.12       |
| Jondaryan - Rosewood          | \$6.2         | \$7.2         | \$4.7         | \$6.0         | 3.08       |
| <b>Total</b>                  | <b>\$16.0</b> | <b>\$13.0</b> | <b>\$12.2</b> | <b>\$13.7</b> |            |

There is significant variability in maintenance costs by line segment, as shown by Figure 10, which also shows the current posted maximum speeds by line segment (for the Rosewood – Jondaryan section of the line).



It is expected that variable costs will generally be higher for curved line segments and for sections at a gradient. Figure 10 uses the speed restrictions to indicate the location of these segments (noting that there are other reasons for speed restrictions, so there can also be restrictions posted on straight flat sections of track). It should also be noted that Queensland Rail is well aware of the significance of these sections and has been actively managing its track in those locations.

There is a delay between the impact of the coal trains on any segment of track and the notification of maintenance required, and a further delay until the works required are funded and able to be delivered. The annual tonnage carried during the FY21-23 period varied by year (this topic is addressed in Section 4.3). Queensland Rail considers that the historical variable costs are a reliable indicator of future costs, once adjusted for tonnage and one-off costs.

## 4.6 Factors that Influence Track Degradation and the Need for Maintenance

Wear and degradation of the track as a result of usage is mainly caused by three factors, which are cumulative where they apply (a tight curve on a steep gradient would be affected by all three factors) and impact variable maintenance. These factors are summarised in Table 13.

Table 13 Key drivers of variable maintenance on rail lines

| Factor  | Commentary  | Conclusion   |
|---|---|--|
| <p><b>Compression due to the movement of trains on the track.</b></p>   | <p>Compression damage is considered to vary with train mass, and there are standard approaches to estimating the impact of each train on the rail and formation. The mass of a coal train is significantly greater than a passenger train, so the impact of the latter can be assumed to be immaterial.</p> <p>In practice, the coal freight trains running on the line are assumed to be fully loaded and therefore have a standard mass (2,008 tonnes net or 2,835 tonnes gross). The trains must comply with posted speed restrictions, so it can also be assumed that they all travel at the same speed on any given section of track.</p> <p>These assumptions mean that damage to the track increases in line with the number of coal trains using it (each train causes the same damage). The damage and the cost of maintaining the track is can therefore be estimated by establishing the damage and maintenance cost associated with one train and multiplying that by the number of (fully-loaded) trains running on the track.</p> | <p>The impact of a single 'standard' train can be determined by examination of Queensland Rail's historical costs associated with straight, flat sections of track. The total impact increases with the number of 'standard' trains, so total costs will be proportional to the tonnage carried.</p> |
| <p><b>Centrifugal force caused by trains moving on a curve (which is generally mitigated by canting the track).</b></p> | <p><i>Centrifugal force = <math>mv^2/r</math></i><br/>(m = mass of the train, v = velocity, r = radius).</p> <p>The centrifugal force and therefore the wear or degradation of the track on a curved segment is inversely proportional to the curve radius and increases at the square of the train's velocity. The force (and wear) on a curve of 200m radius with a posted maximum speed of 40km/hr is the force on a curve of 400m radius with a posted maximum speed of 70km/hr (the speed is the dominant factor).</p> <p>For a given curve and for fully-loaded 'standard' trains complying with the posted maximum speed rating, the degradation caused by each train will be the same.</p> <p>The maximum allowed speed of a coal train on this line is 80km/hr, so flat canted curves with radius of 600m or greater (which generally have a speed restriction of 80km/hr) do not require deceleration.</p>  | <p>Degradation and maintenance costs on curves are higher on curved segments for the 'standard' train. The total impact increases with the number of 'standard' trains, so total costs will be proportional to the tonnage carried.</p>  |

| Factor  | Commentary   | Conclusion   |
|---|--|--|
| <p><b>Acceleration (braking) of trains travelling on track at a gradient (or on sections which require changes in train speed).</b></p> | <p>Acceleration (braking) forces increase as the track gradient increases.<br/> <i>Braking force = <math>mg \sin(\theta)</math></i><br/>           (m = mass of the train, g = gravity, <math>\theta</math> = angle of slope).</p> <p>For a 'standard' train, the impact varies with the sin() of the slope. The force (and wear) on a gradient of 1 in 80 is the force on a gradient of 1 in 120.</p> <p>Queensland Rail has imposed gradient-based speed restrictions on track segments where the gradient exceeds 1 in 120, so braking is required on steeper slopes and track degradation (formation damage) will occur at increasing rates as the gradient increases.</p> | <p>Degradation and maintenance costs are higher on steeper segments for the 'standard' train. The total impact increases with the number of 'standard' trains, so total costs will be proportional to the tonnage carried.</p> |

These factors affect each line differently, depending on its physical characteristics. A line that has a substantial steep section will incur track degradation at a higher rate than other lines. Attempts to benchmark freight lines without accounting for these physical differences are therefore unreliable.

Evidence shows that the rate of track degradation increases the longer the track segments affected are left in use before remediation works are carried out<sup>6</sup>. This is a maintenance planning (and funding) issue, but cost projections made based on tonnage increases would have to be increased further if maintenance backlogs are allowed to occur.

## 4.7 Capital Program

In addition to the condition and performance of the system and the expected throughput increases, some categories of maintenance cost may reduce or be avoided for a period of time as a result of investments included in the proposed DAU3 Capital Program.

Section 5.1 demonstrates how Queensland Rail has considered the impact of the capital program on the maintenance activities and costs. Possession may be required to undertake some of these investments, and this issue has been addressed in Section 6.4.

<sup>6</sup> Prescott and Andrews, 2013.

# 5 DAU3 Maintenance Costs Development

## 5.1 Overall Approach to developing Maintenance Costs

The approach taken in projecting the DAU3 maintenance costs takes the following key steps:

1. **Tonnage forecast:** Multipliers are developed in line with expected tonnage increases. These multipliers serve the purpose of adjusting variable costs in direct proportion to the increase in loads. A more detailed description of tonnage increases can be found in Section 4.3. The multipliers, as presented in Table 15, are derived in proportion to the projected gross tonnage (FY24 to FY30) and the average gross tonnage observed between FY21 and FY23, as indicated in Table 14. This approach is consistent across both tonnage forecasts.

Table 14 Projected Gross Tonnage (9.6 mtpa example)

| Gross Tonnage (mtpa)   |      |      |      |      |      |      |      |      |      |      |
|------------------------|------|------|------|------|------|------|------|------|------|------|
| Corridor               | FY21 | FY22 | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 | FY29 | FY30 |
| Miles - Macalister     |      |      |      |      |      |      |      |      |      |      |
| Macalister - Jondaryan |      |      |      |      |      |      |      |      |      |      |
| Jondaryan - Rosewood   |      |      |      |      |      |      |      |      |      |      |

Table 15 Gross Tonnage Multipliers for Variable Maintenance Escalation (9.6 mtpa example)

| Gross Tonnage (mtpa)   |           | Multipliers |      |      |      |      |      |      |  |
|------------------------|-----------|-------------|------|------|------|------|------|------|--|
| Corridor               | FY21-FY23 | FY24        | FY25 | FY26 | FY27 | FY28 | FY29 | FY30 |  |
| Miles - Macalister     |           |             |      |      |      |      |      |      |  |
| Macalister - Jondaryan |           |             |      |      |      |      |      |      |  |
| Jondaryan - Rosewood   |           |             |      |      |      |      |      |      |  |

2. **Classification:** Maintenance work orders, covering FY21 to FY23, are categorised into fixed and variable classifications and by rail corridor. This is summarised in Section 4.5.
3. **Fixed Costs:** Historical fixed costs are a strong indicator of the future fixed costs required, and so historical costs from FY21 to F23 have been used to derive a representative base year of fixed costs for the DAU3 period. The data shows differences year by year as Queensland Rail planned specific forms of maintenance to make efficient use of its resources and take advantage of weather conditions during the three-year period shown. The following approach was taken to develop a base year for fixed maintenance costs for DAU3:

- a. Non-recurring costs were identified and removed from the historical costs between FY21-23. These included flood and natural disaster repair costs over the period, amounting to approximately \$5.5m.
  - b. An average of the three past years was used to establish a base year (excluding non-recurring costs), noting that the need for maintenance may be identified a year or more after the original cause of the damage.
4. **Variable Costs:** To establish a base year before escalation for tonnage, the following process was undertaken:
- a. Variable costs were reviewed for non-recurring costs and non-recurring costs were identified and removed. These included anomalous costs incurred for sleeper management and Mechanised Resleepering.
  - b. An average of the remaining costs from the past three years was calculated by line section, to establish a base cost for each line section.
  - c. The base cost is escalated for each year over DAU3 using the relevant scenario multipliers determined in step 1.
5. **Maintenance Avoided due to Capital Works:** Calculate the extent and value of maintenance avoided by the past and planned capital works program.

The approach taken to project variable maintenance costs involved:

- a. Establish the geometry of the line, labelling all segments with curve radius and / or gradient where they exist, and note the speed restrictions allocated to each segment.
- b. Associate historical maintenance activity and costs with each segment, and note the tonnage transported over the periods covered by the data. The track possessions needed to carry out the maintenance works have also been determined and associated with each segment.
- c. Derive a standard 'maintenance cost avoided' unit rate by segment type, per standard fully-loaded coal train, utilising the percentage maintenance avoided assumptions outlined in Section 5.2.
- d. Allocate the cost avoided to sections of track where capital works has occurred.

## 5.2 Maintenance Planning Assumptions

Queensland Rail's maintenance data generally includes chainage documented in a text field. This data has been extracted from the records to enable costs to be allocated to the line segments. Each line segment has been defined with a start and an end chainage, so all maintenance costs have been allocated using the chainage data extracted to the relevant segments to establish the recent history of maintenance works by each segment type (curve radius and gradient band). There are maintenance costs that could not be allocated to specific segments, and these have been added to multiple segments based on descriptive information provided.

As the duration for various maintenance activities and requirements, considering the track blocking and possessions required to enable the track-related maintenance is very specific to the job and location, a set of assumptions have been developed related to crew size, rates of doing work and duration and length of planned capital works to estimate the length of possession needed to carry out track-related maintenance. These assumptions are presented in Table 16 and Table 17 and remain consistent across both tonnage scenarios.

It is assumed that a proportion of costs related to variable maintenance can be avoided as a result of capital works. This reduction is expected for the first 5-6 years after the completed capital works, in line with the maintenance avoided percentages presented in Table 18. For the majority of capital works, the maintenance costs are expected to return 6 years after the completed capital works. However, it has been assumed that Resleepering results in a permanent avoidance in maintenance due to the replacement of 41kg rail on timber / steel sleepers with 50kg rail on concrete sleepers. After 5-6 years, the maintenance avoided due to capital works reduces and maintenance costs gradually returns to its original value before the capital works took place, as shown in Table 19.

**Table 16 Employment Assumptions**

| Employment Assumptions           |  |
|----------------------------------|--|
| Total Crew Members               |  |
| Hrs per day                      |  |
| Days per year                    |  |
| Average Crew size                |  |
| % Working in field               |  |
| % Training                       |  |
| % Administrative Duties          |  |
| <b>Labour hours per employee</b> |  |

**Table 17 Future Capital Works Assumptions**

| Project No, | \$m/km | Days/km |
|-------------|--------|---------|
| B.05651     |        |         |
| B.05650     |        |         |
| B.06159     |        |         |
| B.06155     |        |         |
| B.06156     |        |         |
| B.06366     |        |         |
| B.05578     |        |         |
| B.05945     |        |         |
| B.04798     |        |         |
| B.04817     |        |         |

**Table 18 Percentage of Variable maintenance Avoided Due to Capital Works**

|                      |                             | % Maintenance works avoided      |                         |                              |                            |             |        |              |
|----------------------|-----------------------------|----------------------------------|-------------------------|------------------------------|----------------------------|-------------|--------|--------------|
|                      |                             | Future Capital Works             |                         |                              |                            |             |        |              |
| Maintenance Activity | Past Capital Works          | Recondition of Curve Transitions | Formation Strengthening | Gauge issue and range rerail | Level Crossing Transitions | Recondition | Rerail | Resleepering |
|                      | Lubrication                 |                                  |                         |                              |                            |             |        |              |
|                      | Maintenance Ballasting      |                                  |                         |                              |                            |             |        |              |
|                      | Mechanised Resleepering     |                                  |                         |                              |                            |             |        |              |
|                      | Mechanised Resurfacing      |                                  |                         |                              |                            |             |        |              |
|                      | Rail Grinding               |                                  |                         |                              |                            |             |        |              |
|                      | Rail Joint Management       |                                  |                         |                              |                            |             |        |              |
|                      | Rail Stress Adjustment      |                                  |                         |                              |                            |             |        |              |
|                      | Renewals                    |                                  |                         |                              |                            |             |        |              |
|                      | Repairs                     |                                  |                         |                              |                            |             |        |              |
|                      | Sleeper Management          |                                  |                         |                              |                            |             |        |              |
|                      | Top & Line Spot Resurfacing |                                  |                         |                              |                            |             |        |              |
|                      | Turnout Maintenance         |                                  |                         |                              |                            |             |        |              |

Table 19 Reduction in Maintenance Avoided Post Capital Works<sup>7</sup>

| Years post capital works | Capital Works |                         |
|--------------------------|---------------|-------------------------|
|                          | Resleepering  | All Other Capital Works |
| 0                        |               |                         |
| 1                        |               |                         |
| 2                        |               |                         |
| 3                        |               |                         |
| 4                        |               |                         |
| 5                        |               |                         |
| 6                        |               |                         |
| 7                        |               |                         |
| 8                        |               |                         |
| 9                        |               |                         |
| 10                       |               |                         |
| 11                       |               |                         |
| 12                       |               |                         |

<sup>7</sup> In this table, a 100% value indicates a complete restoration to the initial maintenance cost before the capital works took place

# 6 DAU3 Maintenance Costs

Section 6.5 sets out in detail Queensland Rail’s proposed maintenance costs for the DAU3 period to deliver a reliable and safe network for both increased tonnage forecast scenarios, which assumes the opening and operation of the New Acland mine, the New Wilkie Creek mine and/or the Cameby Downs mine.

The maintenance costs forecasts are for the movement of all coal and non-coal (including passenger) services on the network between Rosewood and Miles.

## 6.1 Variable Maintenance

As mentioned in Section 4.3, the maintenance activities defined as variable are considered to increase as the number of trains or the tonnage carried increases. The activities considered to contribute towards variable maintenance are:

- Lubrication
- Maintenance Ballasting
- Mechanised Resleepering
- Mechanised Resurfacing
- Rail Grinding
- Rail Joint Management
- Rail Stress Adjustment
- Renewals
- Repairs
- Sleeper Management
- Top & Line Spot Resurfacing
- Turnout Maintenance

Several of the categories listed above incur insignificant costs over FY21-FY23, and as a result are grouped together as ‘Other’, for presentation purposes. These categories include, Lubrication, Mechanised Resleepering, Rail Grinding and Renewals. The following sections define the type of works which make up each of the variable maintenance categories.

### 6.1.1 Lubrication

Involves the lubrication of track on straights and curves, maintenance and filling of any lubrication systems or devices.

Lubrication costs make up an insignificant proportion of total maintenance expenditure, and as a result is categorised under ‘Other’ to improve the presentation of figures in Section 6.5. Lubrication is considered to be primarily a variable cost for all track related activities, as noted in the DAU2 submission<sup>8</sup>. An estimated 50% of lubrication costs are treated as variable and will therefore increase in proportion to tonnage increases. This same assumption remains consistent in DAU3.

### 6.1.2 Maintenance Ballasting

This activity involves the purchase, freight and running out of ballast for restoration of ballast profile only. The majority of maintenance ballast costs are associated with the deploying of ballast trains. Ballast maintenance is tonnage dependent with costs adjusted from the FY23 actual tonnage (2.2 mtpa) to reflect the tonnage forecasts proposed in DAU3. Capital works reduce the costs associated with Ballast maintenance, in line with percentage reductions shown in Table 18 and Table 19.

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<sup>8</sup> Draft Access Undertaking 2 (DAU2), Explanatory Document, August 2018

### **6.1.3 Mechanised Resleeping**

Replacement of any sleepers including turnout ties in a pattern or at random by a specialised re-sleeping team that uses purpose designed machines to achieve high production rates. Includes resleeping components and fastenings, sleepers.

Mechanised Resleeping costs make up an insignificant proportion of total maintenance expenditure, and as a result is categorised under 'Other' to improve the presentation of figures in Section 6.5.

### **6.1.4 Mechanised Resurfacing**

Mechanised resurfacing is a standard railway maintenance function applied to keep track within design geometry parameters. It assures correct levelling and lining, which keeps vertical and lateral forces and accelerations within acceptable limits by shifting the track into the correct position.

Mechanised resurfacing is performed at intervals depending on numerous conditions, including speed, tonnage, and deterioration rate of the track to name a few. The task is completed using self-propelled on-track machines that are able to lift and line the track to a pre-determined level and compact the ballast under the rail seat to support the new track position.

Scope of the resurfacing products has been forecast based on the historical performance of the asset whilst taking into account new capital investments that will reduce the maintenance demand over the duration of the DAU2. The scope for mechanised resurfacing is generally driven by:

- gross tonnes across the track
- the standard of track construction (e.g. rail size, sleeper type, etc.)
- the current condition of the track and formation components
- the historical performance of the infrastructure in service
- weather events (i.e. high rain fall).

The planning of track maintenance works, particularly to maintain track geometry, requires considerable skill and experience to achieve cost-effective outcomes. Long term resurfacing programs have been developed based on fixed protocols to minimise changes.

Mechanised resurfacing is considered tonnage dependent with costs adjusted from the 2.2 mtpa cost estimates to reflect the two tonnage scenarios. Capital works reduce the costs associated with Mechanised resurfacing, in line with percentage reductions shown in Table 18 and Table 19.

### **6.1.5 Rail Grinding**

For mainline, rail grinding involves a high production process of establishment and maintenance of rail head profile on mainline track. Conducted by mechanised rail grinders and any associated work (e.g. removal of lubricators). For turnouts, it involves a high production process of establishment and maintenance of rail head profile on turnouts. Conducted by mechanised rail grinders.

Rail Grinding costs make up an insignificant proportion of total maintenance expenditure, and as a result is categorised under 'Other' to improve the presentation of figures in Section 6.5.

### **6.1.6 Rail Joint Management**

Rail joint management includes all activities associated with the maintenance of a rail joint. This encompasses welding of joints, bolt and fish plate maintenance, glue joint maintenance, joint lifting, top and lining joints. This product takes into account the cost associated with the works currently being done and planned for welding of 220m lengths through the timber and steel sleeper sections.

Rail joint management is tonnage dependent with costs adjusted from the 2.2 mtpa cost estimates to reflect the two tonnage scenarios. Capital works reduce the costs associated with rail joint management, in line with percentage reductions shown in Table 18 and Table 19.

### **6.1.7 Rail Stress Adjustment**

This activity includes tasks such as rail stress testing, creep marker monitoring, and the complete process of rail stress adjustment, for example additional rail and anchors. Due to the nature of the task, track closure is necessary to carry out the works. The costs included in this product include restressing of sections where track works and modifications have occurred.

Rail Stress Adjustment is considered tonnage dependent with costs adjusted from the 2.2 mtpa cost estimates to reflect the two tonnage scenarios. Capital works reduce the costs associated with Rail stress adjustment, in line with percentage reductions shown in Table 18 and Table 19.

### **6.1.8 Renewals**

Renewal activities involve the replacement of components or minor assets on a like for like basis. Our review of work order descriptions confirms that the works categorised as 'Renewals' are aligned to this definition.

Structural renewals are in fact included in these maintenance costs and are the largest portion of the total renewals cost. Structural renewal associated with telecoms and signalling is not included in this category (it has its own specific cost category).

Renewal of bridge components is included in the 'Other' category, but these costs are not material. These costs will be avoided if the capital works proceed as planned but would otherwise continue as a maintenance cost. Renewals costs make up an insignificant proportion of total maintenance expenditure, and as a result is categorised under 'Other' to improve the presentation of figures in Section 6.5.

### **6.1.9 Repairs**

Rail 'repair' includes replacement or refurbishment of sections of track, which enables some maintenance costs to be avoided for the next several years.

The 'Repairs' category of maintenance also includes several tasks that will continue to be carried out regardless of rail replacement, including issues such as wheel burn, defective welds, internal rail defects, broken bolts, rail distribution, unloading and flagging, as well as the regular examinations of the line that Queensland Rail is required to undertake by regulation. Rail wear is a function of tonnage and proportionally increases with tonnage. As a result, rail replacement is not an activity that would significantly reduce maintenance required, considering the increased tonnage expected in DAU3.

Rail repair is tonnage dependent with costs adjusted from the 2.2 mtpa (FY23 actual tonnage) cost estimates to reflect the two tonnage scenarios. Capital works reduce the costs associated with rail repair, in line with percentage reductions shown in Table 18 and Table 19.

#### **6.1.10 Sleeper Management**

In the interspersed timber and steel sections of track the sleeper management task encompasses activities such as spot insertion of sleepers, reboring, regauging, plating, respacing, and fastener installation by local track teams.

Due to the nature of the task, track closures are necessary to carry out the works. In the concrete sleeper sections of track, particularly in tight radius curves, the sleeper management task includes replacing worn and crushed rail seat pads, gauge foot spacers and clip fastenings to maintain gauge and toe load. Heavy duty spacers have been developed to reduce crushing, and options have been developed to facilitate adjusting gauge in as rail wears in 3mm increments.

Sleeper management is tonnage dependent with costs adjusted from the 2.2 mtpa cost estimates to reflect the two tonnage scenarios. Capital works reduce the costs associated with sleeper management, in line with percentage reductions shown in Table 18 and Table 19.

#### **6.1.11 Top & Line Spot Resurfacing**

Top and line spot resurfacing encompasses all activities associated with restoring top and line to track using manual or mechanically assisted processes. It involves restoring top and line on bridge ends, open track, using manual processes or small spot tampering machinery (e.g. modified bobcat, portable tamper, mini excavator etc.). Top and line resurfacing excludes activities undertaken by major production resurfacing machines.

Top and line resurfacing is tonnage dependent with costs adjusted from the 2.2 mtpa cost estimates to reflect the two tonnage scenarios. Capital works reduce the costs associated with Top and line resurfacing, in line with percentage reductions shown in Table 18 and Table 19.

#### **6.1.12 Turnout Maintenance**

Any maintenance associated with turnout where activities include the repair or replacement of components such as switches, vees, guard rails, associated jewellery including bolts, chair lubrication, spot tie replacement (manual), maintenance welding.

Turnout maintenance costs include fixed and variable cost items. Variable turnout maintenance costs have been included in the 'Other' cost category. The variable portion of Turnout Maintenance costs make up an insignificant proportion of total maintenance expenditure, and as a result is categorised under 'Other' to improve the presentation of figures in Section 6.5.

## **6.2 Variable Maintenance Cost Summary**

### **6.2.1 Variable Maintenance Costs for Tonnage Scenario 1a**

Queensland Rail has determined total variable maintenance costs over DAU3 of \$114.9 million (FY24) for track related works for the 9.6 mtpa tonnage Scenario 1a. This makes up roughly 71% of the total

maintenance costs proposed for the DAU3 period. Track maintenance costs for the entire network under this scenario is shown in Table 20 and Table 21.

**Table 20 Forecast variable maintenance costs, by activity (\$m FY24), Scenario 1a**

| Variable Maintenance Activity | FY26          | FY27          | FY28          | FY29          | FY30          | Total DAU3     |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Lubrication                   |               |               |               |               |               |                |
| Maintenance Ballasting        |               |               |               |               |               |                |
| Mechanised Resleepering       |               |               |               |               |               |                |
| Mechanised Resurfacing        |               |               |               |               |               |                |
| Rail Grinding                 |               |               |               |               |               |                |
| Rail Joint Management         |               |               |               |               |               |                |
| Rail Stress Adjustment        |               |               |               |               |               |                |
| Renewals                      |               |               |               |               |               |                |
| Repairs                       |               |               |               |               |               |                |
| Sleeper Management            |               |               |               |               |               |                |
| Top & Line Spot Resurfacing   |               |               |               |               |               |                |
| Turnout Maintenance           |               |               |               |               |               |                |
| <b>Total</b>                  | <b>\$21.6</b> | <b>\$23.6</b> | <b>\$23.6</b> | <b>\$23.3</b> | <b>\$22.9</b> | <b>\$114.9</b> |

**Table 21 Forecast variable maintenance costs, by corridor (\$m FY24), Scenario 1a**

| Corridor               | FY26          | FY27          | FY28          | FY29          | FY30          | Total DAU3     |
|------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Miles - Macalister     | \$3.3         | \$3.7         | \$3.3         | \$3.0         | \$2.7         | <b>\$15.9</b>  |
| Macalister - Jondaryan | \$4.3         | \$3.8         | \$4.0         | \$4.0         | \$4.0         | <b>\$20.0</b>  |
| Jondaryan - Rosewood   | \$14.0        | \$16.1        | \$16.3        | \$16.3        | \$16.3        | <b>\$79.0</b>  |
| <b>Total</b>           | <b>\$21.6</b> | <b>\$23.6</b> | <b>\$23.6</b> | <b>\$23.3</b> | <b>\$22.9</b> | <b>\$114.9</b> |

Figure 11 presents the variable maintenance avoided due to the planned Capital Works schedule associated with Scenario 1a. Total variable maintenance avoided over DAU3 based on 9.6 mtpa tonnage forecasts, is \$36.9 million (FY24).

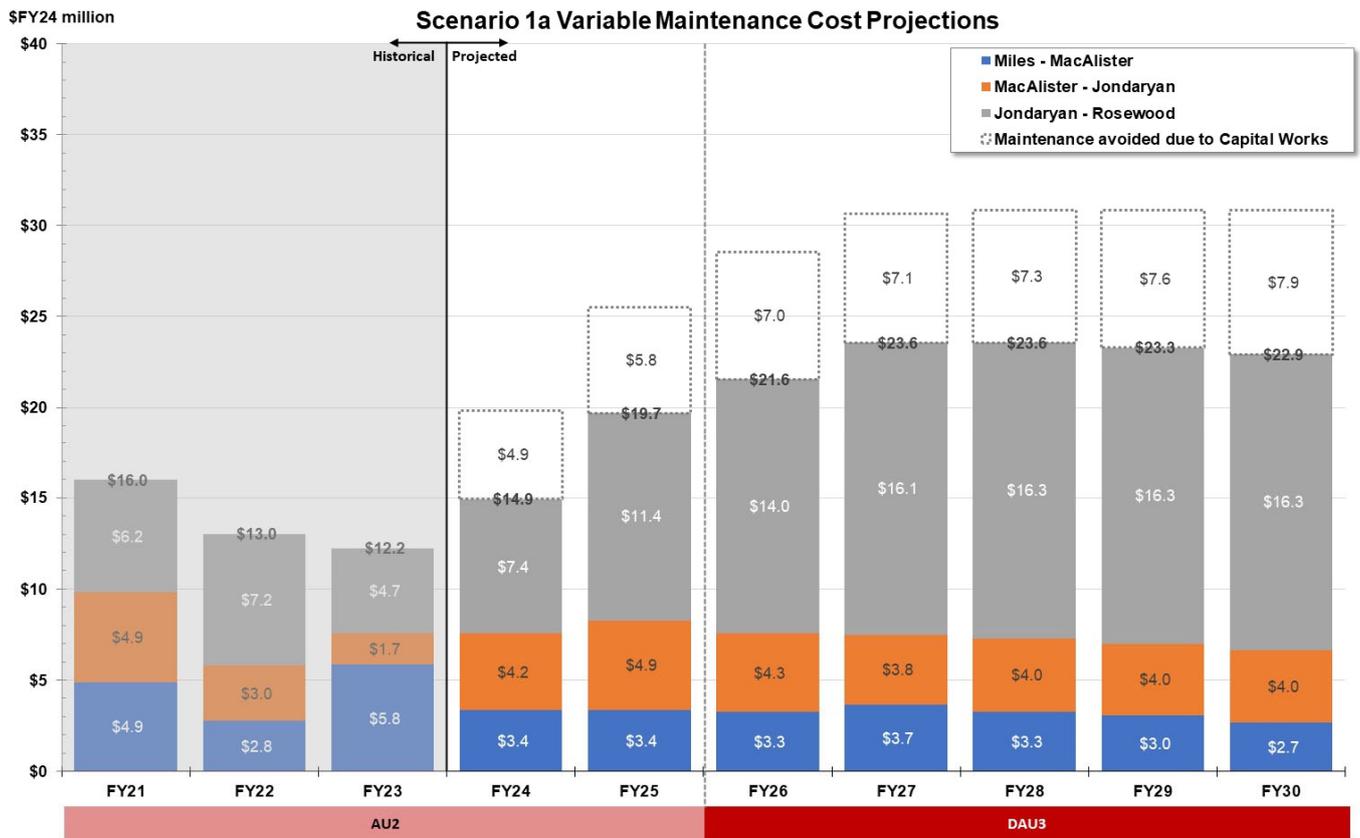


Figure 11 Forecast variable maintenance costs, by corridor (\$m FY24), Scenario 1a

## 6.2.2 Variable Maintenance Costs for Tonnage Scenario 2

Queensland Rail has determined total variable maintenance costs over DAU3 of \$85.6 million (FY24) for track related works for the 7.5 mtpa tonnage Scenario 2. This makes up roughly 64% of the total maintenance costs proposed for the DAU3 period. Track maintenance costs for the entire network under this scenario is shown in Table 22 and Table 23.

Table 22 Forecast variable maintenance costs, by activity (\$m FY24), Scenario 2

| Variable Maintenance Activity | FY26          | FY27          | FY28          | FY29          | FY30          | Total DAU3    |
|-------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Lubrication                   |               |               |               |               |               |               |
| Maintenance Ballasting        |               |               |               |               |               |               |
| Mechanised Resleepering       |               |               |               |               |               |               |
| Mechanised Resurfacing        |               |               |               |               |               |               |
| Rail Grinding                 |               |               |               |               |               |               |
| Rail Joint Management         |               |               |               |               |               |               |
| Rail Stress Adjustment        |               |               |               |               |               |               |
| Renewals                      |               |               |               |               |               |               |
| Repairs                       |               |               |               |               |               |               |
| Sleeper Management            |               |               |               |               |               |               |
| Top & Line Spot Resurfacing   |               |               |               |               |               |               |
| Turnout Maintenance           |               |               |               |               |               |               |
| <b>Total</b>                  | <b>\$15.5</b> | <b>\$15.7</b> | <b>\$18.4</b> | <b>\$18.2</b> | <b>\$17.7</b> | <b>\$85.6</b> |

Table 23 Forecast variable maintenance costs, by corridor (\$m FY24), Scenario 2

| Corridor               | FY26          | FY27          | FY28          | FY29          | FY30          | Total DAU3    |
|------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Miles - Macalister     | \$3.3         | \$3.7         | \$3.7         | \$3.8         | \$3.7         | <b>\$18.3</b> |
| Macalister - Jondaryan | \$2.2         | \$2.2         | \$2.3         | \$2.0         | \$1.7         | <b>\$10.4</b> |
| Jondaryan - Rosewood   | \$9.9         | \$9.8         | \$12.4        | \$12.3        | \$12.3        | <b>\$56.8</b> |
| <b>Total</b>           | <b>\$15.5</b> | <b>\$15.7</b> | <b>\$18.4</b> | <b>\$18.2</b> | <b>\$17.7</b> | <b>\$85.6</b> |

Figure 12 presents the variable maintenance avoided due to the planned Capital Works schedule associated with Scenario 2. Total variable maintenance avoided over DAU3 based on 7.5 mtpa tonnage forecasts, is \$26.9 million (FY24).

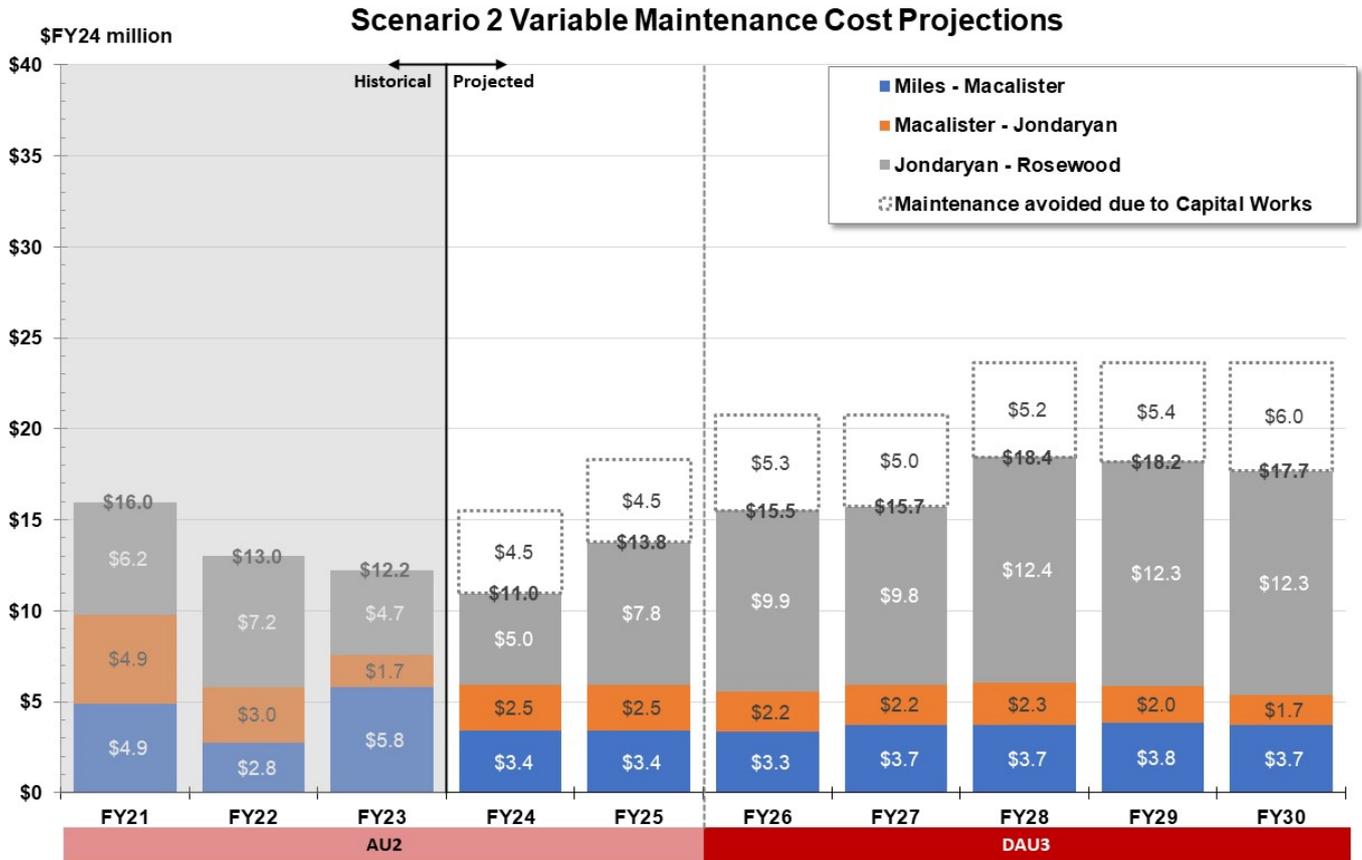


Figure 12 Forecast variable maintenance costs, by corridor (\$m FY24), Scenario 2

### 6.3 Fixed Maintenance

A summary of the fixed maintenance activities that Queensland Rail do not consider to vary with tonnage is presented in Table 24.

Table 24 Summary of Fixed Maintenance Activities

| Fixed Maintenance Activity   | Description of Activity  |
|------------------------------|--|
| Signalling                   | Activities included under signalling maintenance are those that relate to the overall performance of the signalling infrastructure. These activities ensure that the signalling system is maintained to a safe and appropriate operating level.<br><br>Queensland Rail does not consider this activity to vary with tonnage, and therefore the cost for signalling maintenance has remained stable over the DAU3 Period. |
| Assets Comp Insp/Svc         | Inspections and testing of buildings and associated assets as required by statutory authorities or Queensland Rail standard/policy. This includes plumbing, electrical, fire, asbestos, height, pole, and confined space compliance.   |
| Fire & Vegetation Management | Fire and vegetation management activities involve the control of vegetation by chemical and mechanical means; burn offs to eliminate vegetation interference with train running and track maintenance. This includes the following processes: vegetation control around bridges, slashing, brush cutting, hi rail and manual   |

| Fixed Maintenance Activity       | Description of Activity  |
|----------------------------------|--|
|                                  | <p>herbicide treatment, tree surgery, fire and vegetation management, fire breaks, burning off, tree planting, firefighting, and pest management plans. This activity does not typically require track closures.</p> <p>Queensland Rail does not consider this activity to vary with tonnage, and therefore the cost for signalling maintenance has remained stable over the DAU3 Period.</p>  |
| Repairs                          | This includes repairs to tunnel, timber bridges, steel bridges, concrete bridges, and other civil and structural assets.   |
| Renewals                         | Long term or one-off maintenance programs/upgrades.  |
| Asset Inspections Non-Compliance | All inspections of track. CETS inspections such as engineering inspections, road patrols, engine inspections, turnout, walking, track stability, track clearance, level crossings, hot weather, yard inspections, trackmaster audits, construction audits, ZET.  |
| Consulting/Technical Advice      | This relates to the provision of specialist advice, implementation of systems (e.g. SAMS), coordinating warranty type work, design, providing technical advice or specific business improvement initiatives to satisfy customer requirements.  |
| Telecoms                         | Upgrades and improvements to the assets supporting the telecommunications function on the network.   |
| Other                            | <p>Other includes all other maintenance which does not form a significant proportion of total costs.</p> <p>Fixed activities contributing to the 'Other maintenance' category include Legislative compliance, Carpentry, Top and Line Spot Resurfacing, Security, Audits/Investigation, Plumbing, Vandalism Management, Cleaning, Signage Management, Graffiti Management, Track Geometry Recording, Support, Installation, Flood &amp; Natural Disaster Repair, Project Management, Formation Repairs, Disposal, Painting, 3rd Party Damage Repairs, Rollingstock Support, Construction, Calibration/Testing, Maintenance Ballasting, Property Management, Pest Control, Commissioning, Design, Mechanised Resurfacing, Monitoring Systems and Performance, Estimates, Scheduling, Derailments, Refurbishment and Overhaul.</p> <p>This category does not include Signalling and Telecommunication maintenance activities, which are reflected in their own cost category</p> |
| Earthworks – Non-Formation       | Includes all non-formation related earthworks and drainage construction and maintenance. Involves access roads, disposal of surplus materials, walkways, cleaning out, reshaping surface drains, reshaping cess drains, widening cuttings, building up embankment  |
| Turnout Maintenance              | Any maintenance associated with turnout where activities include the repair or replacement of components such as switches, vees, guard rails, associated jewellery including bolts, chair lubrication, spot tie replacement (manual), maintenance welding.   |
| Electrical                       | All activities associated with maintenance of the electrical assets, such as cabling, feeder stations, and the overhead network.   |
| Lubrication                      | All activities associated with rail lubrication. Involves the lubrication of track on straights and curves, maintenance and filling of any lubrication systems or devices.   |

### 6.3.1 Fixed Maintenance Cost Summary

Table 25 presents a summary of the forecast fixed maintenance costs over the DAU3 period by maintenance type. Table 26 and Figure 13 provides these by corridor. Fixed maintenance is considered to be unaffected by changes in tonnage, and as such remains constant across both scenarios.

Table 25 Forecast fixed maintenance costs, by activity (\$m FY24)

| Fixed Maintenance Activity       | FY26         | FY27         | FY28         | FY29         | FY30         | Total DAU3    |
|----------------------------------|--------------|--------------|--------------|--------------|--------------|---------------|
| Assets Comp Insp/Svc             |              |              |              |              |              |               |
| Repairs                          |              |              |              |              |              |               |
| Fire & Vegetation Management     |              |              |              |              |              |               |
| Renewals                         |              |              |              |              |              |               |
| Asset Inspections Non Compliance |              |              |              |              |              |               |
| Consulting/Technical Advice      |              |              |              |              |              |               |
| Lubrication                      |              |              |              |              |              |               |
| Earthworks - Non-Formation       |              |              |              |              |              |               |
| Turnout Maintenance              |              |              |              |              |              |               |
| Electrical                       |              |              |              |              |              |               |
| Signalling                       |              |              |              |              |              |               |
| Telecoms                         |              |              |              |              |              |               |
| Other                            |              |              |              |              |              |               |
| <b>Total Fixed Costs</b>         | <b>\$9.5</b> | <b>\$9.5</b> | <b>\$9.5</b> | <b>\$9.5</b> | <b>\$9.5</b> | <b>\$47.7</b> |

Table 26 Forecast fixed maintenance costs, by corridor (\$m FY24)

| Corridor               | FY26         | FY27         | FY28         | FY29         | FY30         | Total DAU3    |
|------------------------|--------------|--------------|--------------|--------------|--------------|---------------|
| Miles - Macalister     | \$2.2        | \$2.2        | \$2.2        | \$2.2        | \$2.2        | <b>\$11.1</b> |
| Macalister - Jondaryan | \$1.8        | \$1.8        | \$1.8        | \$1.8        | \$1.8        | <b>\$8.8</b>  |
| Jondaryan - Rosewood   | \$5.5        | \$5.5        | \$5.5        | \$5.5        | \$5.5        | <b>\$27.7</b> |
| <b>Total</b>           | <b>\$9.5</b> | <b>\$9.5</b> | <b>\$9.5</b> | <b>\$9.5</b> | <b>\$9.5</b> | <b>\$47.7</b> |

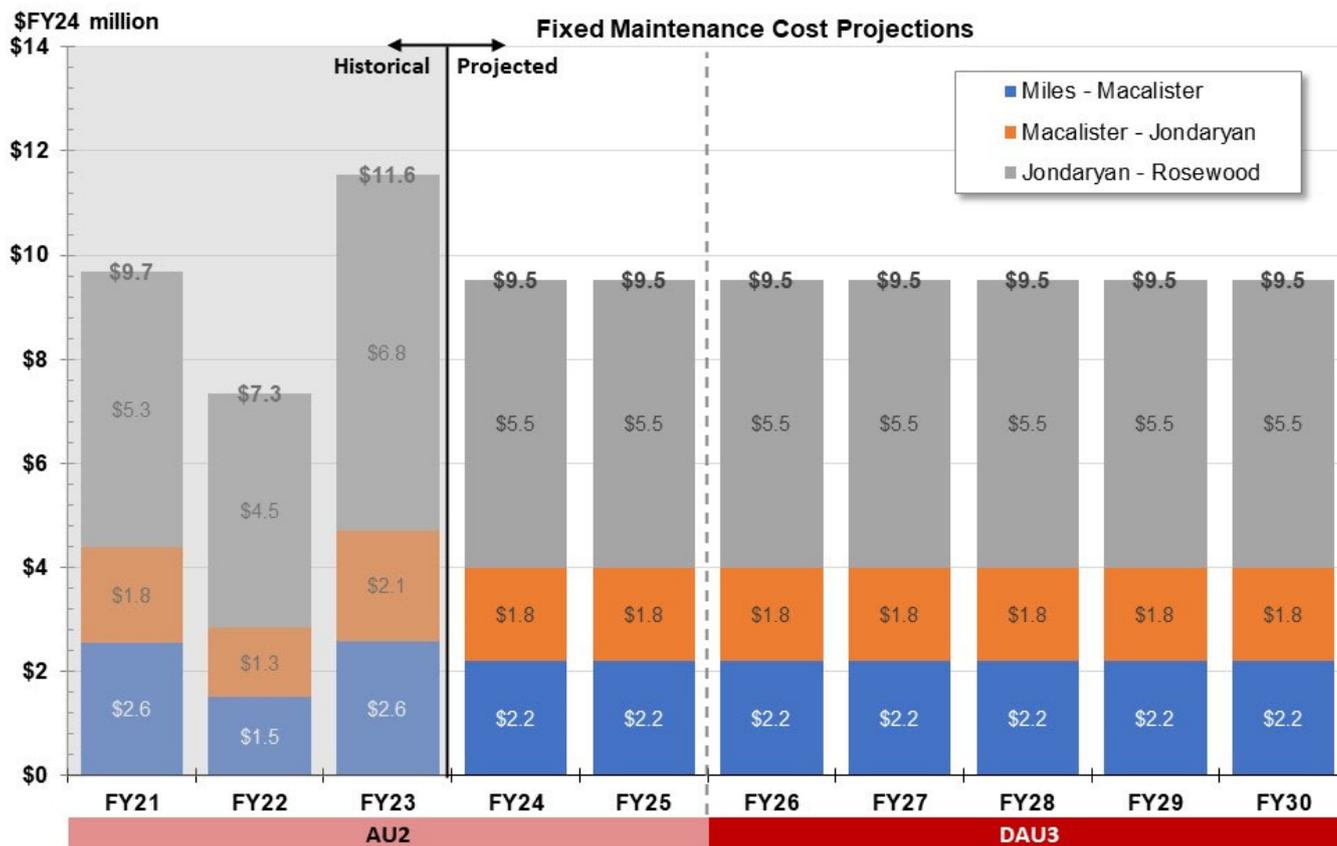


Figure 13 Forecast fixed maintenance costs, by corridor (\$m FY24)

## 6.4 Impact of Possession Availability on Maintenance

As indicated in Section 4.4, the availability of track possession is a key driver for the number of crew members or teams deployed during a track closure to complete track works. This also has implications on the amount of variable maintenance that can be completed.

The approach taken for future track possession looks at the billed hours for track specific maintenance, maintenance which would result in track possession, and creates assumptions related to crew size and rates of doing work to estimate the length of possession needed to carry out track-related maintenance.

Track Possession assessment follows the following approach:

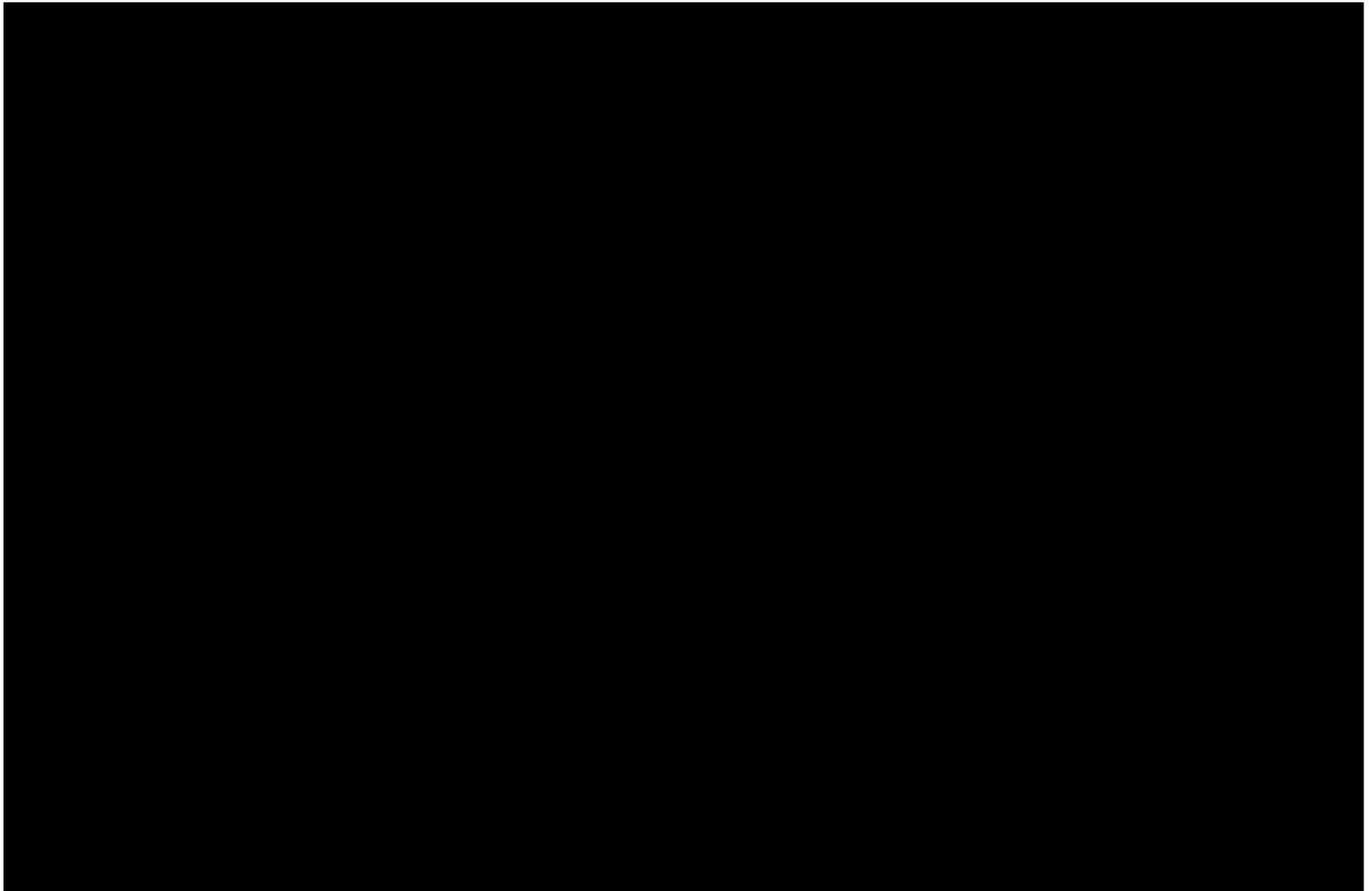
- 1. Billed Hours:** Calculate Billed hours for each line, escalate in line over the DAU3 period and account for maintenance avoided. Utilise approach and assumptions for maintenance and maintenance avoided set out in Section 4.7.
- 2. Vary Crew member number/teams deployed:** Based on the standard employment assumptions detailed in Section 4.7, the analysis calculates the track possession duration for two scenarios: one with a constant (unchanged) number of crew members and the other with the minimum number of crew members required to fit within the possession window.

### 6.4.1 Billed Hours

Analysis of historical employee billed hours, between FY21-FY23 indicates an increase over the DAU3 period. With focus on Jondaryan to Rosewood, due to the line being most impacted by the expected increased tonnage.

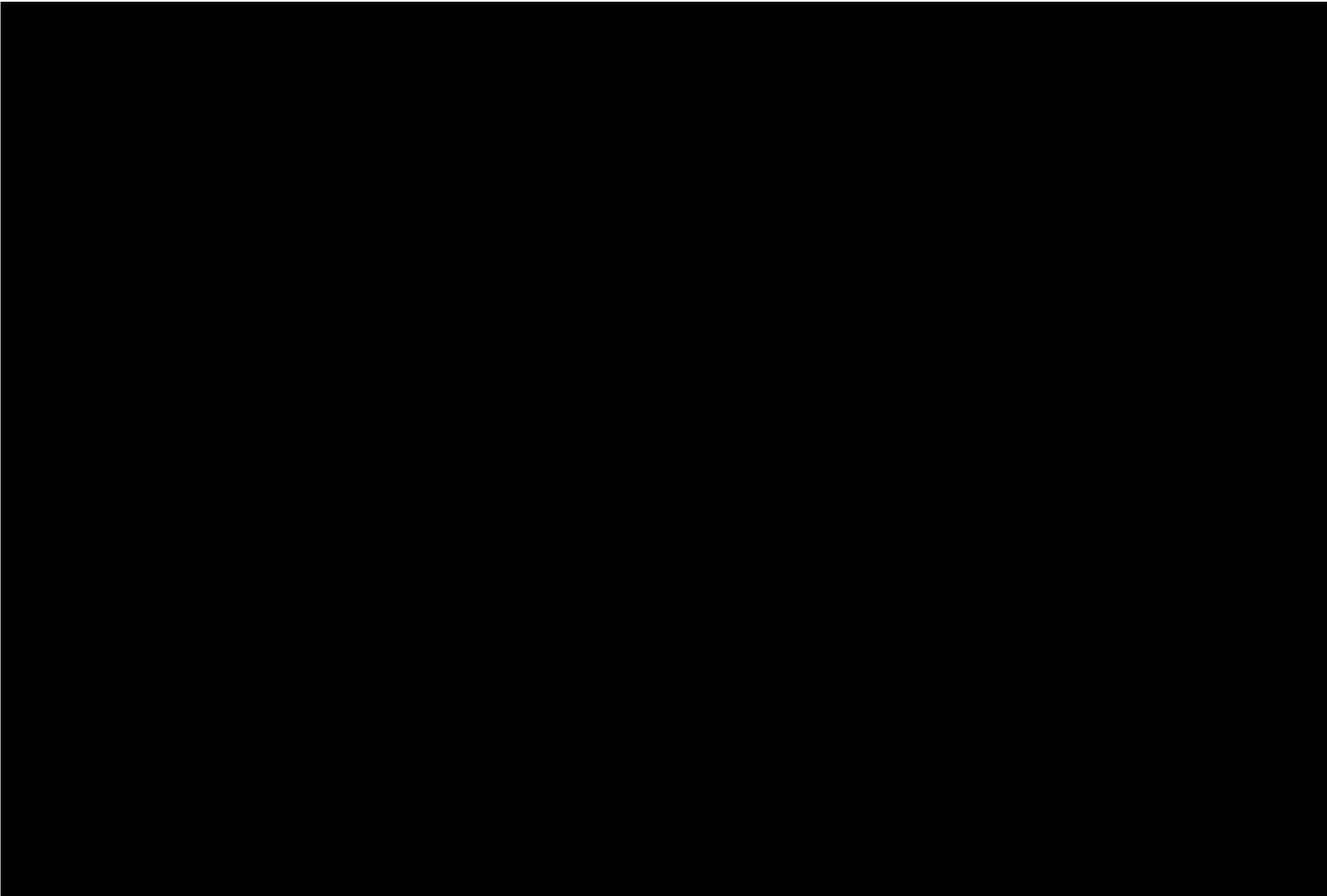
Each tonnage scenario considers a schedule of capital projects<sup>9</sup> scaled to the load on the track, which impacts required and avoided maintenance. The figures below (Figure 14, Figure 15) demonstrate the total employee billed hours projected over DAU3 for Jondaryan to Rosewood.

As discussed in Section 4.7, capital works results in a portion of variable maintenance to be avoided. This is represented in Section 6.4.2, reducing overall maintenance required.



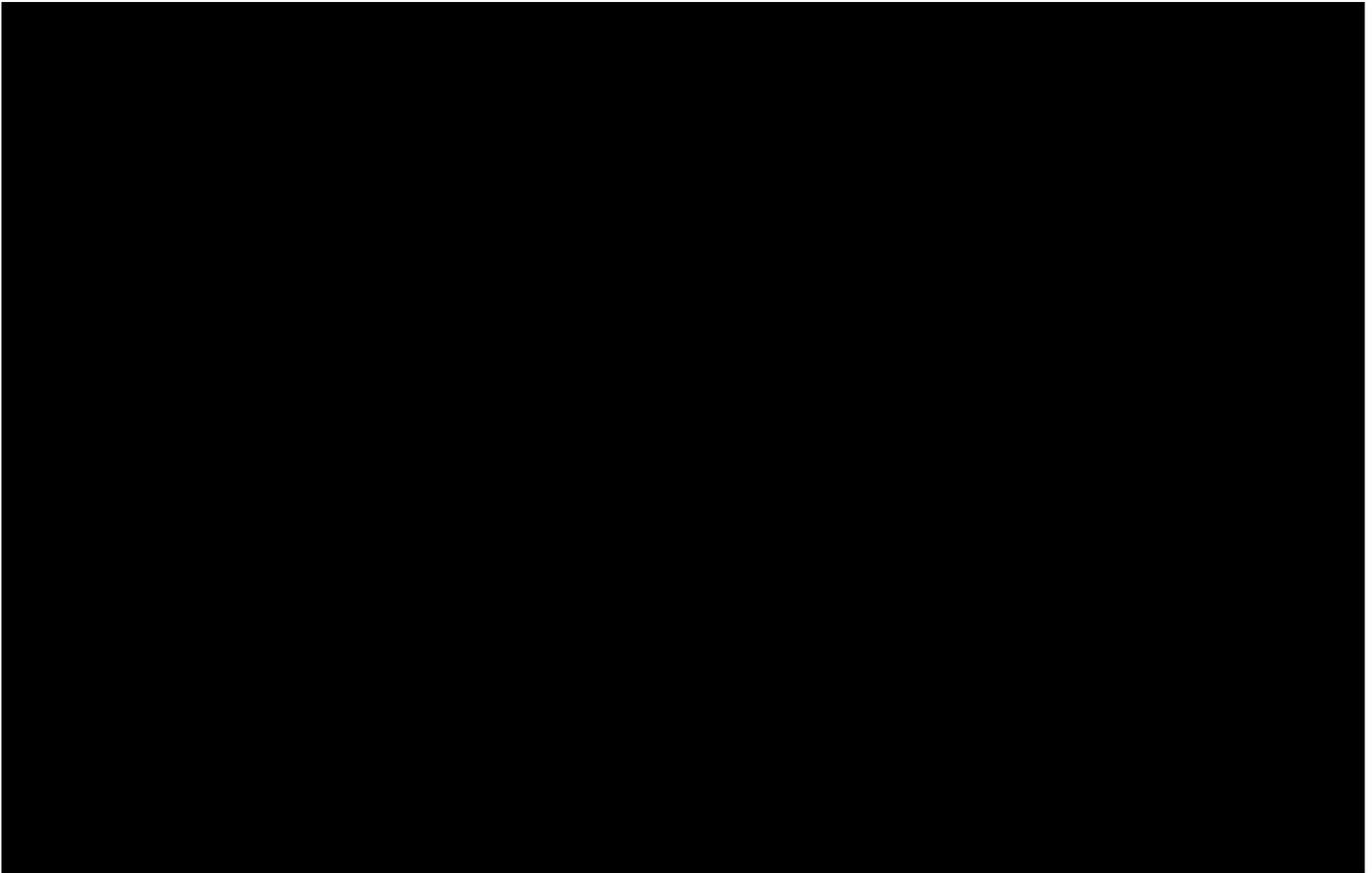
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<sup>9</sup> Queensland Rail, DAU3 Capital Submission, West Moreton System, November 2023

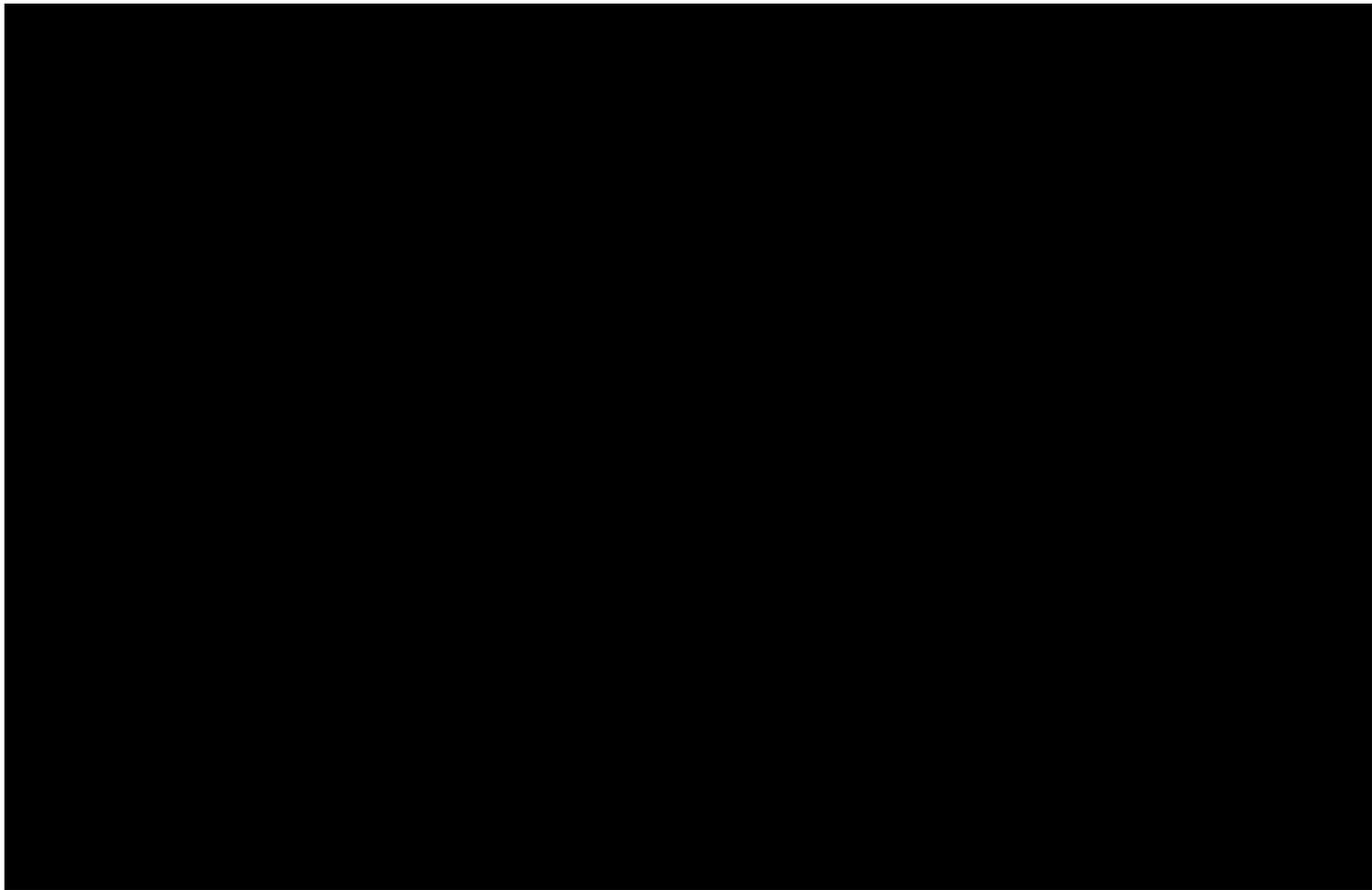


## 6.4.2 Varying Crew Members Deployed, Scenario 1a

Assuming six crew members deployed during any one closure, the possession required surpasses the possession window available considering 9.6 mtpa tonnage in Scenario 1a, shown in Figure 16. The possession window available is described in further detail in Section 4.4.



Assuming a constant crew size as shown in Figure 16, the possession avoided, as a result of capital works scheduled in DAU3 Scenario 1a, will be insufficient to offset this shortfall, and by itself, will not allow for the required track possession to fit within the possession window available. Therefore, Queensland Rail will be required to increase the crew size or the number of crews deployed (and associated equipment and tools) to complete the required track works to fit within possession window. This outcome is shown in Figure 17 for Scenario 1a.



A minimum crew size [REDACTED] is estimated to complete required works, considering the available possession under Scenario 1a tonnage assumptions.

### 6.4.3 Varying Crew Members Deployed, Scenario 2

Assuming six crew members deployed during any one closure, the possession required surpasses the possession window available considering 7.5 mtpa tonnage in Scenario 2, shown in Figure 18. The possession window available is described in further detail in Section 4.4.

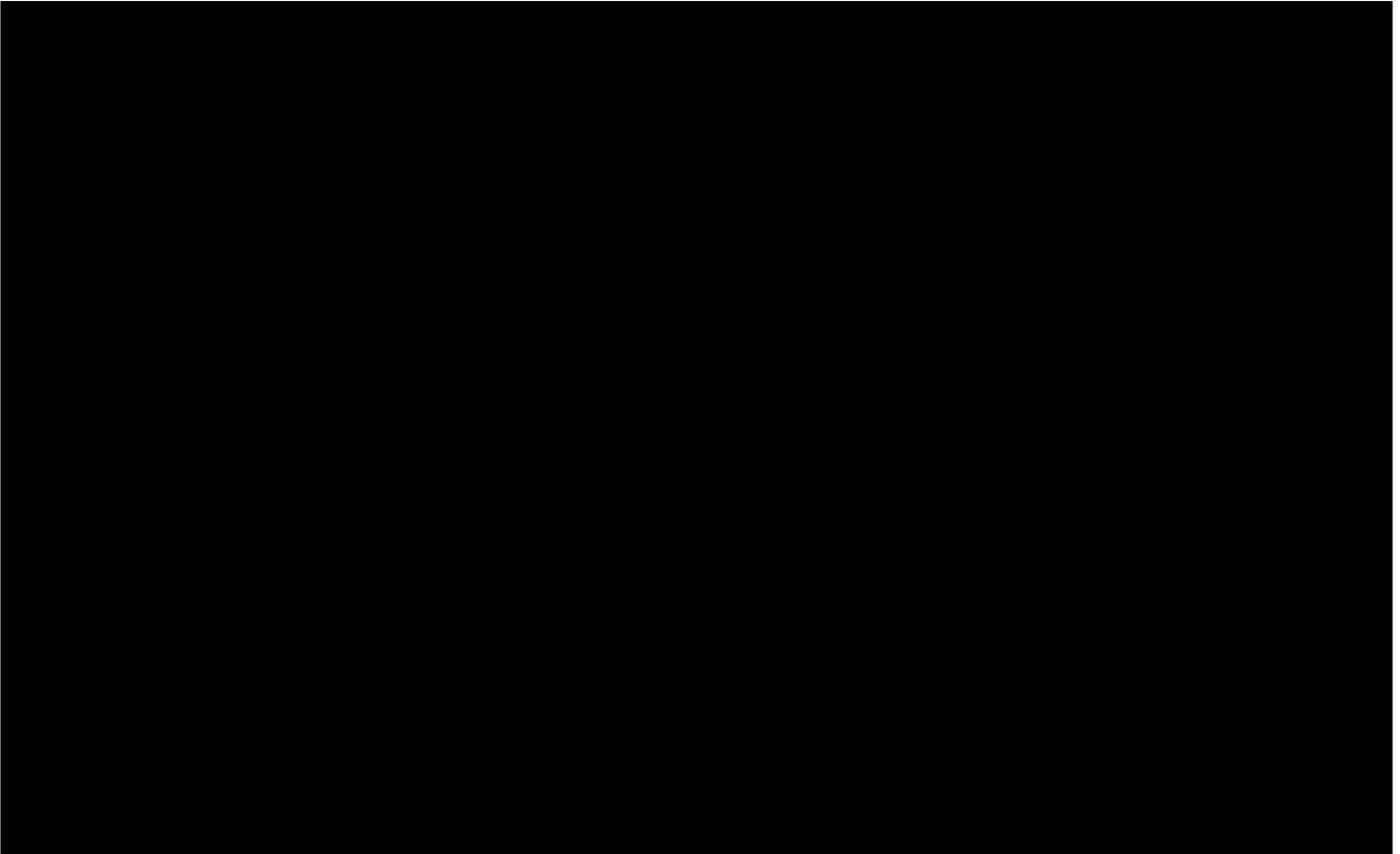
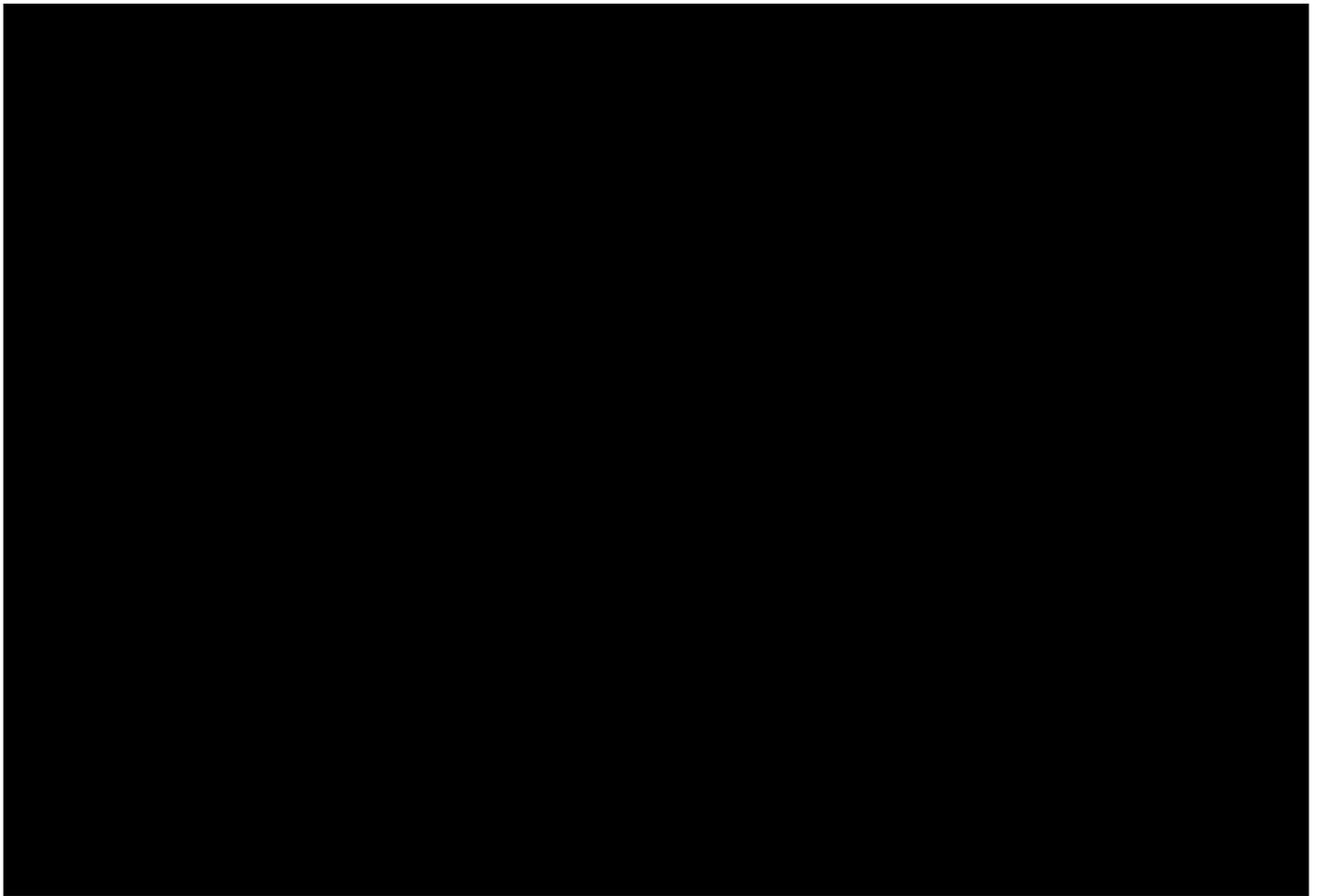


Figure 18 Possession required assuming constant number of crew members deployed, Jondaryan - Rosewood (hrs p.a.) Scenario 2

Assuming a constant crew size as shown in Figure 18, the possession avoided, as a result of capital works scheduled in DAU3 Scenario 2, will be insufficient to offset this shortfall, and by itself, will not allow for the required track possession to fit within the possession window available. Therefore, Queensland Rail will be required to increase the crew size or the number of crews deployed (and associated equipment and tools) to complete the required track works to fit within possession window. This outcome is shown in Figure 19 for Scenario 2.



A minimum crew size [REDACTED] is estimated to complete required works, considering the available possession under Scenario 2 tonnage assumptions.

## 6.5 Total Maintenance Costs

Total maintenance costs considering both variable and fixed maintenance are presented in this section for each tonnage scenario.

### 6.5.1 Total Maintenance Costs, Scenario 1a

Queensland Rail proposes a maintenance cost of \$162.6 million (FY24) over the DAU3 period, to support the movement of an expected maximum tonnage of 9.6 mtpa across the network (Table 27). These costs have been developed using the approach described in Section 5.

Table 27 West Moreton coal maintenance costs by cost type - DAU3 (\$m FY24) – 9.6 mtpa Scenario 1a

| Cost Type      | FY26          | FY27          | FY28          | FY29          | FY30          | Total DAU3     |
|----------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Variable Costs | \$21.6        | \$23.6        | \$23.6        | \$23.3        | \$22.9        | <b>\$114.9</b> |
| Fixed Costs    | \$9.5         | \$9.5         | \$9.5         | \$9.5         | \$9.5         | <b>\$47.7</b>  |
| <b>Total</b>   | <b>\$31.1</b> | <b>\$33.1</b> | <b>\$33.1</b> | <b>\$32.8</b> | <b>\$32.5</b> | <b>\$162.6</b> |

Figure 20 presents the total maintenance costs for Scenario 1a by cost type, illustrating the portion of maintenance avoided due to the capital works schedule corresponding with this scenario.

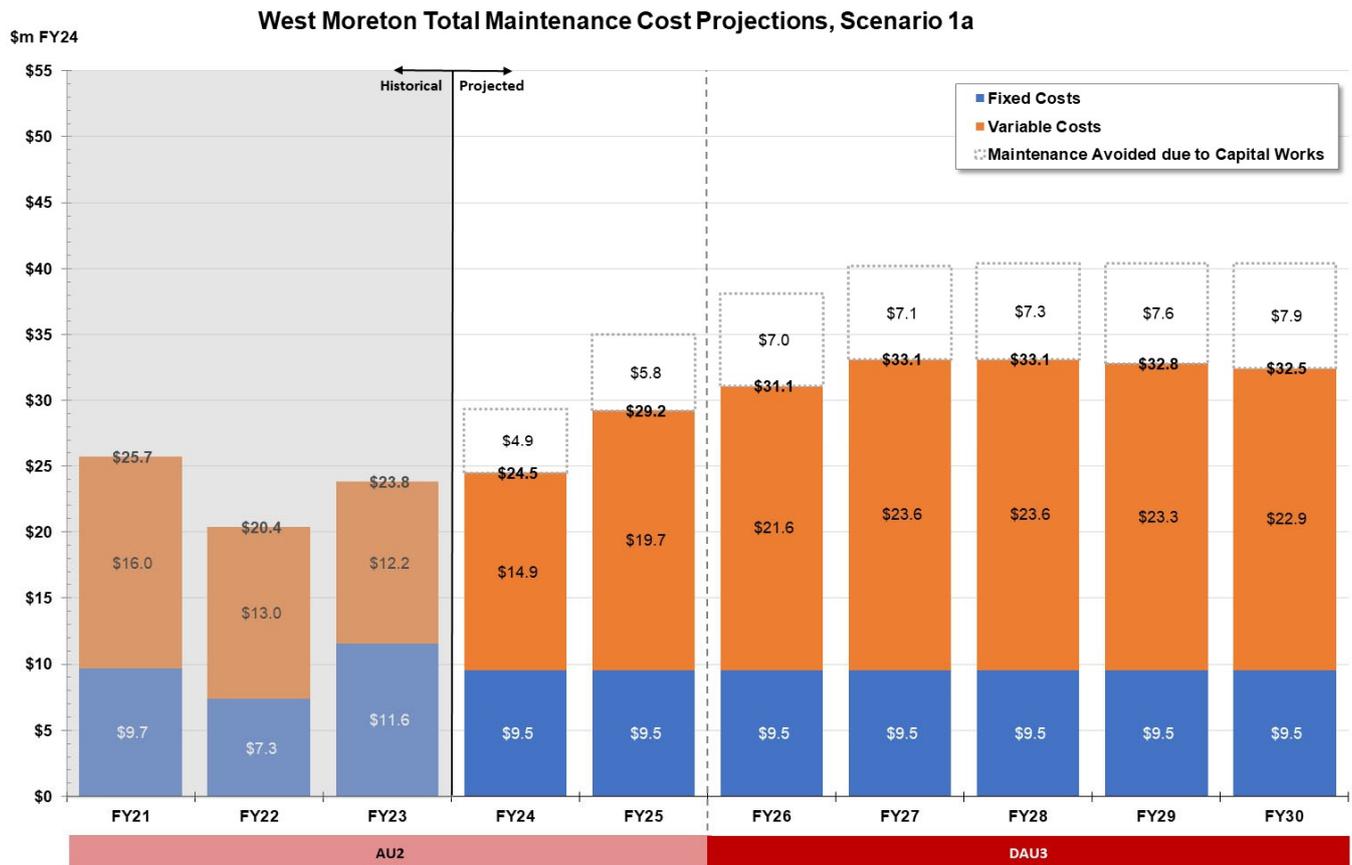


Figure 20 West Moreton coal maintenance costs by cost type - DAU3 (\$m FY24) – 9.6 mtpa Scenario 1a

Table 28 presents the breakdown of total maintenance costs for Scenario 1a by Queensland Rail cost categories, including:

- Facilities/Other/Asset Management

- Trackside System
- Structures
- Track (exc. Mechanised Resleepering)

Table 28 West Moreton coal maintenance costs by Queensland Rail Cost Category - DAU3 (\$m FY24) – 9.6 mtpa Scenario 1a

| Queensland Rail Cost Category        | FY26          | FY27          | FY28          | FY29          | FY30          | Total DAU3     |
|--------------------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Facilities/Other/Asset Management    |               |               |               |               |               |                |
| Trackside System                     |               |               |               |               |               |                |
| Structures                           |               |               |               |               |               |                |
| Track (exc. Mechanised Resleepering) |               |               |               |               |               |                |
| <b>Total</b>                         | <b>\$31.1</b> | <b>\$33.1</b> | <b>\$33.1</b> | <b>\$32.8</b> | <b>\$32.5</b> | <b>\$162.6</b> |

Table 29 West Moreton coal maintenance costs by corridor - DAU3 (\$m FY24) – 9.6 mtpa Scenario 1a

| Corridor               | FY26          | FY27          | FY28          | FY29          | FY30          | Total DAU3     |
|------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Miles - Macalister     | \$5.5         | \$5.9         | \$5.5         | \$5.3         | \$4.9         | <b>\$27.0</b>  |
| Macalister - Jondaryan | \$6.0         | \$5.6         | \$5.7         | \$5.7         | \$5.7         | <b>\$28.8</b>  |
| Jondaryan - Rosewood   | \$19.6        | \$21.7        | \$21.9        | \$21.8        | \$21.8        | <b>\$106.7</b> |
| <b>Total</b>           | <b>\$31.1</b> | <b>\$33.1</b> | <b>\$33.1</b> | <b>\$32.8</b> | <b>\$32.5</b> | <b>\$162.6</b> |

Figure 21 presents the total maintenance costs by corridor.

### West Moreton Total Maintenance Cost Projections, Scenario 1a

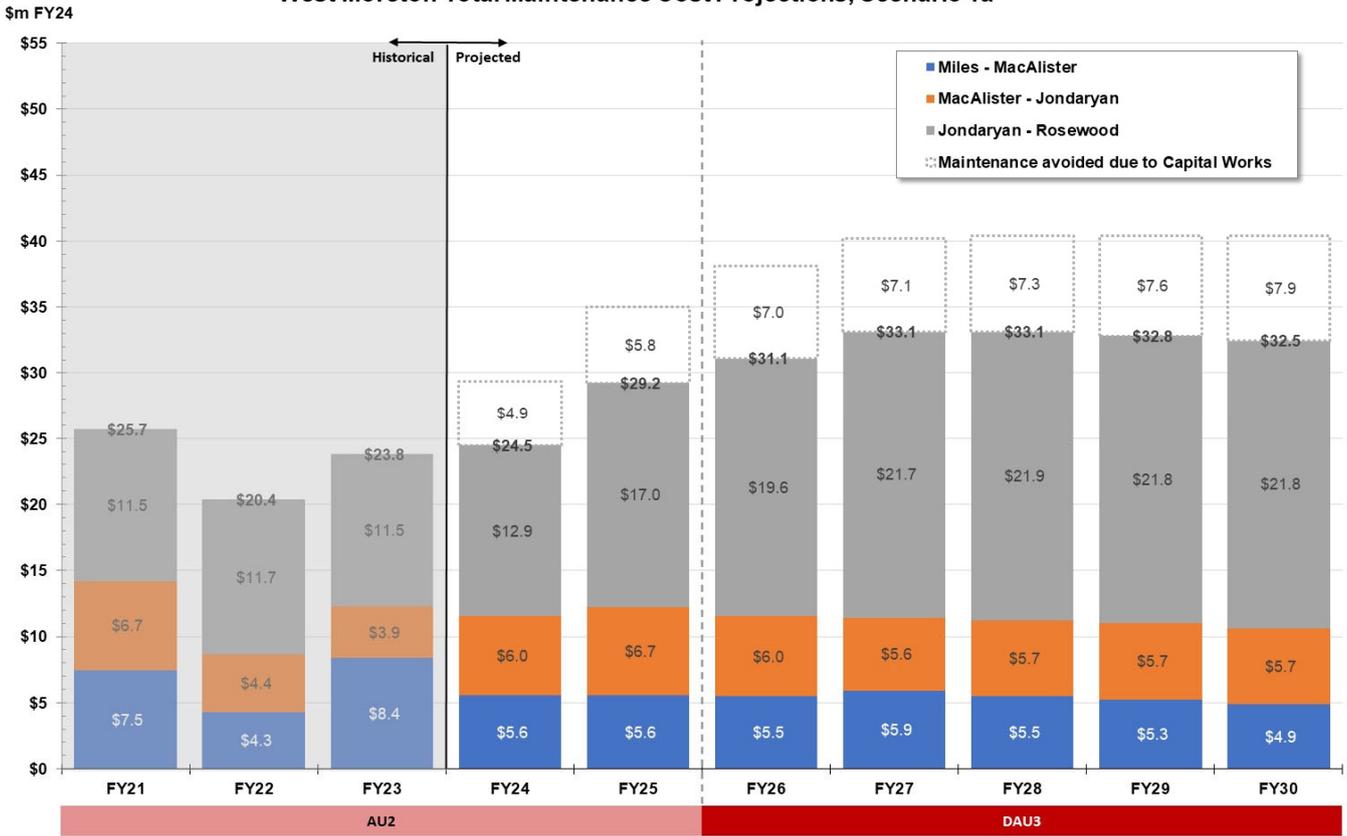


Figure 21 West Moreton coal maintenance costs (inc. fixed and variable) by corridor - DAU3 (\$m FY24) – 9.6 mtpa Scenario 1a

### 6.5.2 Total Maintenance Costs, Scenario 2

Queensland Rail proposes a maintenance cost of \$133.2 million (FY24) over the DAU3 period, to support the movement of an expected maximum of 7.5 mtpa across the network (Table 30). These costs have been developed using the approach described in Section 5.

Table 30 West Moreton coal maintenance costs by cost type - DAU3 (\$m FY24) – 7.5 mtpa Scenario 2

| Cost Type      | FY26          | FY27          | FY28          | FY29          | FY30          | Total DAU3     |
|----------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Variable Costs | \$15.5        | \$15.7        | \$18.4        | \$18.2        | \$17.7        | <b>\$85.6</b>  |
| Fixed Costs    | \$9.5         | \$9.5         | \$9.5         | \$9.5         | \$9.5         | <b>\$47.7</b>  |
| <b>Total</b>   | <b>\$25.0</b> | <b>\$25.3</b> | <b>\$28.0</b> | <b>\$27.7</b> | <b>\$27.2</b> | <b>\$133.2</b> |

Figure 22 presents the total maintenance costs for Scenario 2 by cost type, illustrating the portion of maintenance avoided due to the capital works schedule corresponding with this scenario.

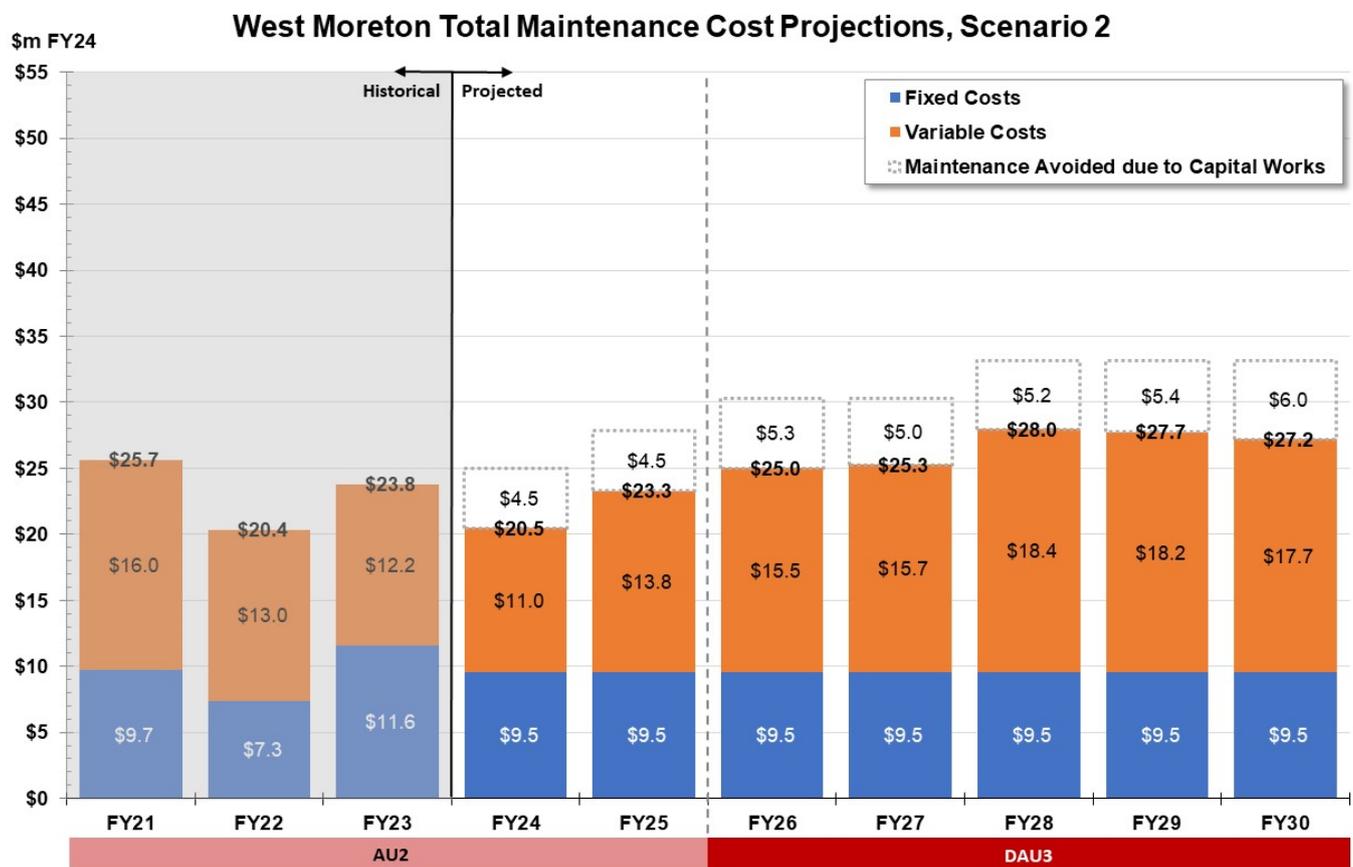


Figure 22 West Moreton coal maintenance costs by cost type - DAU3 (\$m FY24) – 7.5 mtpa Scenario 2

Table 31 presents the breakdown of total maintenance costs for Scenario 2 by Queensland Rail’s cost categories.

Table 31 West Moreton coal maintenance costs by Queensland Rail Cost Category - DAU3 (\$m FY24) – 7.5 mtpa Scenario 2

| Queensland Rail Cost Category        | FY26          | FY27          | FY28          | FY29          | FY30          | Total DAU3     |
|--------------------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Facilities/Other/Asset Management    |               |               |               |               |               |                |
| Trackside System                     |               |               |               |               |               |                |
| Structures                           |               |               |               |               |               |                |
| Track (exc. Mechanised Resleepering) |               |               |               |               |               |                |
| <b>Total</b>                         | <b>\$25.0</b> | <b>\$25.3</b> | <b>\$28.0</b> | <b>\$27.7</b> | <b>\$27.2</b> | <b>\$133.2</b> |

Table 32 West Moreton coal maintenance costs by corridor - DAU3 (\$m FY24) – 7.5 mtpa Scenario 2

| Corridor               | FY26          | FY27          | FY28          | FY29          | FY30          | Total DAU3     |
|------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
| Miles - Macalister     | \$5.6         | \$5.9         | \$5.9         | \$6.1         | \$5.9         | <b>\$29.4</b>  |
| Macalister - Jondaryan | \$4.0         | \$4.0         | \$4.1         | \$3.8         | \$3.4         | <b>\$19.3</b>  |
| Jondaryan - Rosewood   | \$15.5        | \$15.3        | \$18.0        | \$17.9        | \$17.9        | <b>\$84.5</b>  |
| <b>Total</b>           | <b>\$25.0</b> | <b>\$25.3</b> | <b>\$28.0</b> | <b>\$27.7</b> | <b>\$27.2</b> | <b>\$133.2</b> |

Figure 23 presents the total maintenance costs by corridor.

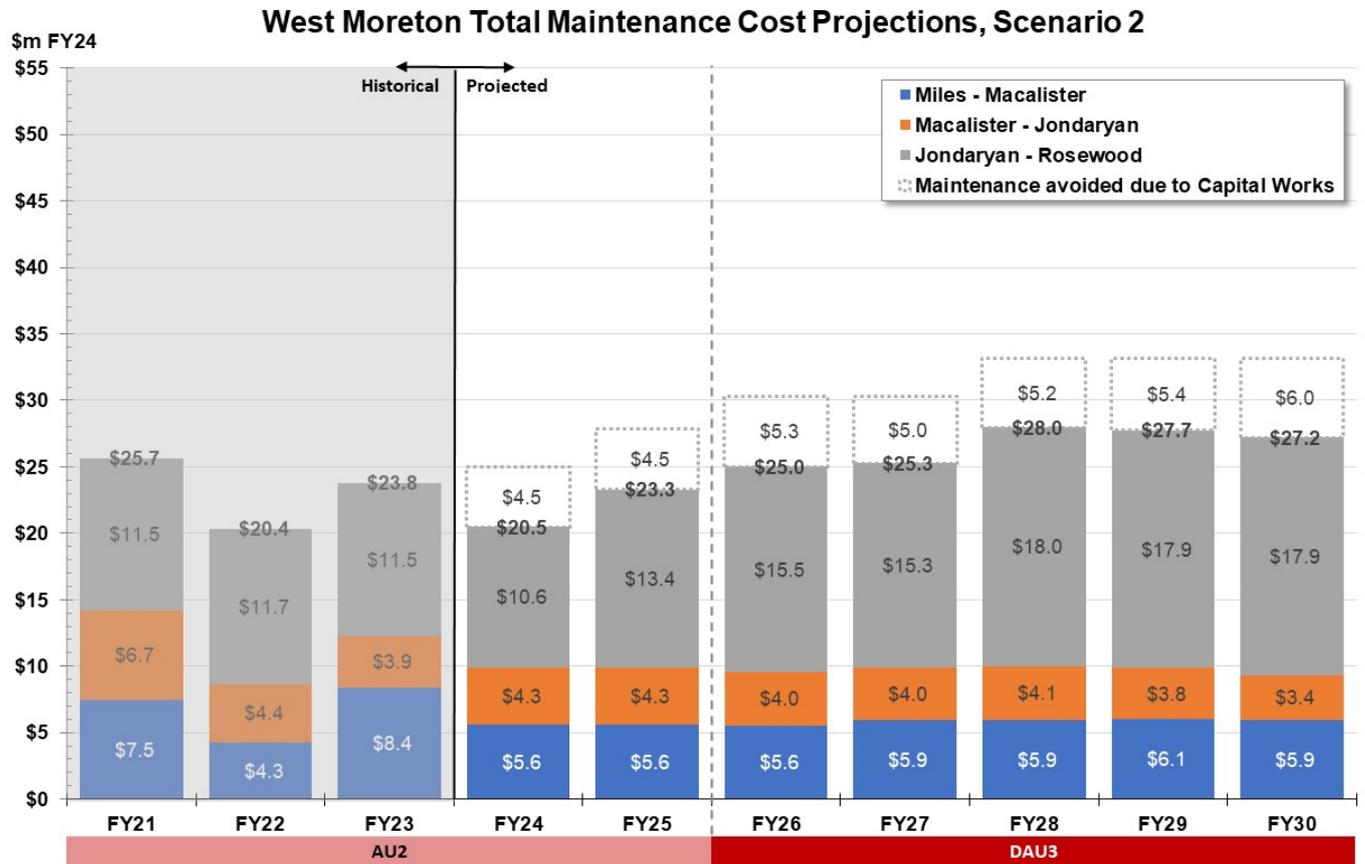


Figure 23 West Moreton coal maintenance costs (inc. fixed and variable) by corridor - DAU3 (\$m FY24) – 7.5 mtpa Scenario 2

## 7 Peer Review

The maintenance activities and costs in this document have been subject to internal peer review and have been externally reviewed by AECOM. AECOM's report<sup>10</sup> has been provided separately for the QCA's consideration.

## 8 Conclusion

This submission has been developed under the circumstances where coal volumes along the West Moreton System are forecast to increase significantly (up to 9.6 mtpa) over the remainder of Queensland Rail's Access Undertaking 2 (**AU2**) and into the DAU3 period (FY26-FY30). Queensland Rail's proposed maintenance costs for the DAU3 period to deliver a reliable and safe network, assuming tonnage forecasts at 9.6 mtpa and 7.5 mtpa, due to the potential opening and operation of the New Acland mine, the New Wilkie Creek mine and the Cameby Downs mine.

Consideration has been given to potential maintenance cost reductions, stemming from the avoidance of maintenance requirements as a result of the planned capital program.

For the DAU3 period, Queensland Rail has proposed efficient maintenance costs for the West Moreton System having regard to the age and condition of the network, and the volumes proposed to be hauled over a network that was not originally designed for this purpose.

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<sup>10</sup> AECOM Engineering Review of Queensland Rail DAU3 Maintenance Submission\_Final\_v0

## Attachment 8: Loss Capitalisation Repayment Options

