

Aurizon Network

Annual Maintenance Cost Report - FY2020

September 2020



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Executive Summary

Aurizon Network is focused on delivering a prudent and effective maintenance program that is fit for purpose and promotes the economically efficient operation of the Central Queensland Coal Network (**CQCN**).

For the Financial Year ended 30 June 2020 (**FY2020**), Aurizon Network has undertaken Maintenance Work in a manner that is consistent with:

- > the Approved Maintenance Approach¹;
- > the System Operating Parameters;
- > the Maintenance Objectives, including:
 - seeking to ensure that Committed Capacity is delivered;
 - balancing cost, reliability and performance of the Rail Infrastructure; and
 - coordinating outages with other Supply Chain Participants wherever reasonably possible with a view of maximising throughout.

On 21 February 2020, the Queensland Competition Authority (**QCA**) approved Aurizon Network's Consolidation Draft Amending Access Undertaking (**DAAU**) which, in the context of FY2020, included the final:

- > Allowable Revenues;
- > Reference Tariffs; and
- > Direct Maintenance Cost allowance for each system.

The QCA-approved Allowable Revenues and Reference Tariffs for FY2020 are outlined in Schedule F of Aurizon Network's 2017 Access Undertaking (**UT5**).

It should also be noted that FY2020 is the first year in which mechanised ballast undercutting renewal costs are treated as capital expenditure for regulatory purposes. With the exception of:

- > plant depreciation costs, which will continue to be recovered through the Direct Maintenance Cost allowance; and
- > return on plant, which is recovered through the Indirect Maintenance Cost allowance;

mechanised ballast undercutting renewal costs will be submitted to the QCA for review and approval as part of the annual capital expenditure claim process. This process is outlined in UT5, Schedule E. For further information on Aurizon Network's Ballast Undercutting program, please refer to Aurizon Network's FY2020 Capital Expenditure claim.

¹ There is no Approved Maintenance Strategy and Budget for FY2020. Consequently, the Approved Maintenance Approach reflects the operational paradigm considered and ultimately approved by the QCA in its Final Decision on Aurizon Network's 2017 Access Undertaking.

Maintenance Cost Performance

During FY2020, Aurizon Network incurred Direct Maintenance Costs of \$148.9 million, representing an under-spend of \$4.1 million (2.7%) against a total Direct Maintenance Cost allowance of \$153.0 million.

This outcome was primarily due to the following activities:

- > \$2.5 million under-spend in Structures and Facilities maintenance; and
- > a \$4.3 million reduction in ballast undercutting plant depreciation charges, a result primarily attributable to the delayed commissioning of the RM902.

Variations across all other maintenance activities are not considered material in the context of the overall allowance.

The contribution of each maintenance activity to total direct maintenance costs is outlined below.

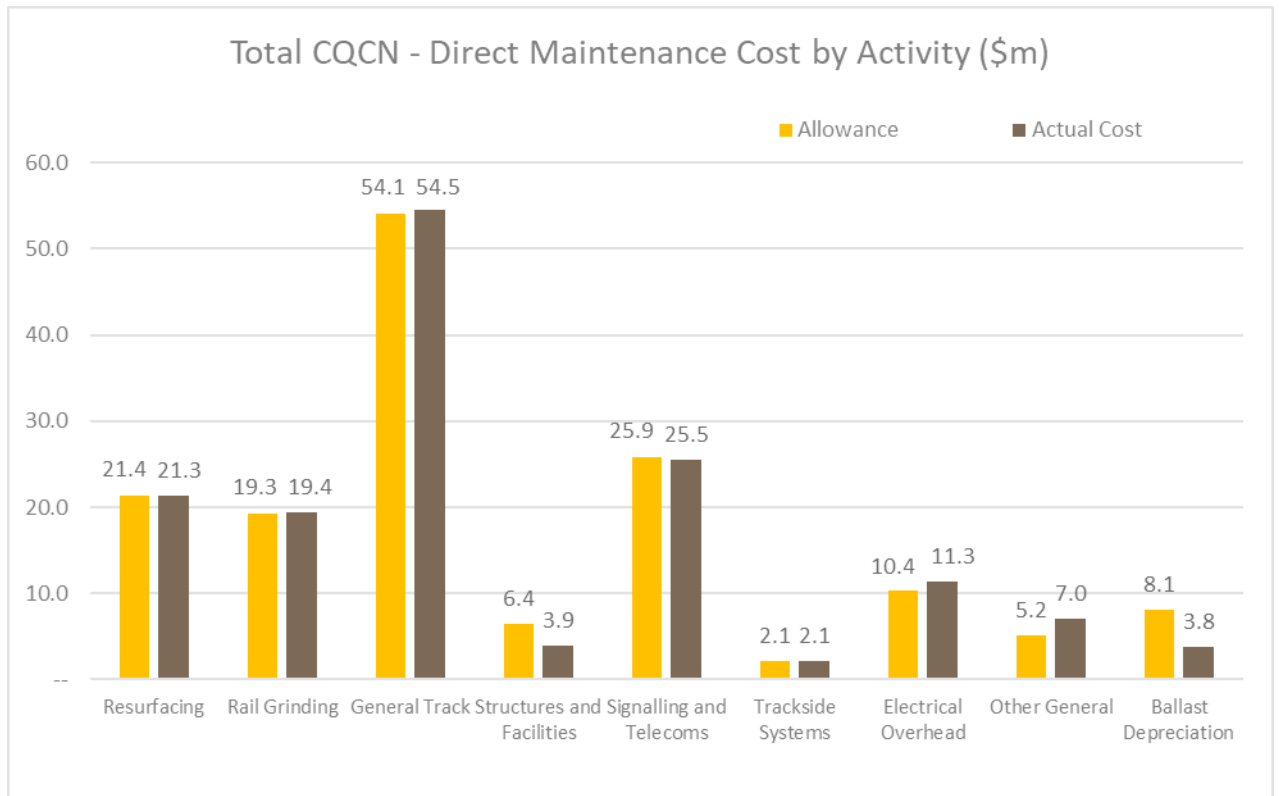


Figure 1: Direct Maintenance Costs by Activity

During FY2020, Aurizon Network:

- > exceeded total CQCN scope targets for both mainline and turnout Resurfacing; and
- > exceeded total CQCN scope targets for mainline and turnout Ballast Undercutting.

Aurizon Network did not achieve the regulatory scope targets for mainline and turnout Rail Grinding. This outcome was attributable to timing differences between development of the scope for the UT5 submission and scope execution.

Reconciliation of actual Direct Maintenance Costs incurred and the Direct Maintenance Cost allowance

In accordance with clause 7A.11.5(b)(ii) of UT5, the QCA must:

“for each Coal System for the Year ending 30 June 2020 approve the lower of:

(A) the actual Direct Maintenance Costs incurred by Aurizon Network with respect to the Coal System during the Year; and

(B) the Direct Maintenance Cost allowance for the Coal System provided for in the QCA’s 2018 Decision.”

This application of this clause provides for a reconciliation² of Direct Maintenance Costs “...where the actual maintenance costs are lower than the Maintenance Indicator for that Year...”

On 4 September 2020, Aurizon Network submitted a Draft Amending Access Undertaking, which included an amendment to clause 7A.11.5(b)(ii) (**Maintenance DAAU**). This amendment was submitted with the support of the Queensland Resources Council and would require the QCA to refer to the more recent Direct Maintenance Cost allowances that it approved in its Consolidation DAAU Decision³, rather than the outdated “QCA’s 2018 Decision”.

Using the Direct Maintenance Cost allowances provided for in the QCA Consolidation DAAU Decision, Aurizon Network has calculated the FY2020 direct maintenance cost reconciliation for each Coal System by applying the lower of:

- > the actual Direct Maintenance Costs incurred; and
- > the Direct Maintenance Cost allowance.

The required adjustment for each Coal System is summarised in the table below. Please note that an adjustment to Allowable Revenues is only required where actual Direct Maintenance Costs incurred are lower than the Direct Maintenance Costs allowance.

System	Direct Maintenance Cost allowance	Actual Direct Maintenance Cost Incurred	Adjustment Required
Blackwater	64.5	64.5	(0.06)
Goonyella	62.2	58.7	(3.5)
Moura	11.6	12.2	--
Newlands	3.2	3.0	(0.2)
GAPE	11.4	10.6	(0.8)
TOTAL CQCN	153.0	148.9	(4.6)

Table 1: FY20 Direct Maintenance Cost Adjustment

Table 1 provides for a reduction in Allowable Revenues for Blackwater, Goonyella, Newlands and GAPE. These amounts will be included in Aurizon Network’s Revenue Adjustment Amounts submission, which will be submitted to the QCA by 31 October 2020 and require the QCA’s approval of the Maintenance DAAU.

² Via the Revenue Adjustment Amounts (Revenue Cap) submission. Specifically, Schedule F, Clause 4.3(c)(ii)(A).

³ QCA, Decision Notice, Aurizon Network’s Consolidation DAAU – Decision, 21 February 2020.

Overview of Report

Background

Aurizon Network is the access provider of a declared service for the purposes of Queensland's third-party access regime, established under Part 5 of the *Queensland Competition Authority Act 1997 (QCA Act)*. The declared service is defined under s.250 of the QCA Act as “the use of a coal system for providing transportation by rail”.

The Rail Infrastructure required to provide the declared service is collectively referred to as the CQCN and forms the basis of a Regulated Asset Base (**RAB**). The CQCN is comprised of approximately 2,670 kilometres (**km**) of track (1,945 km of which is electrified) that links over forty (40) mines to five (5) coal export terminals.

Aurizon Network’s asset management regime strives to create value for all supply chain participants by emphasizing long-term, sustainable asset management practices. These practices:

- > are delivered by Aurizon Network having regard to Maintenance Objectives, which include:
 - seeking to ensure that Committed Capacity is delivered;
 - appropriately balancing cost, reliability and performance (in the long and short term) of the Rail Infrastructure; and
 - coordinating outages with other Supply Chain Participants wherever reasonably possible with a view to maximising throughput;
- > are delivered in accordance with standards and processes that are appropriate for a narrow gauge, heavy haul railway;
- > promote the resilience of Rail Infrastructure to the climatic extremes prevalent in Central Queensland; and
- > are reviewed and refined to provide the appropriate balance between safety, asset availability and the efficient whole-of-life costs for the CQCN.

Maintenance tasks and the corresponding level of expenditure cannot be considered independently of the other factors, such as:

- > the level of investment in CQCN Rail Infrastructure;
- > the way in which the CQCN is operated; and
- > climatic / geographic factors, which can be highly variable.

Regulatory requirements and assumptions

This report provides transparency around Aurizon Network’s maintenance performance by comparing FY2020 scope delivered and costs incurred to the Direct Maintenance Cost allowance approved by the QCA and currently reflected in Allowable Revenues and Reference Tariffs for each Coal System.

Furthermore, it provides transparency in relation to the adjustments that will be applied to be included in the FY2020 Revenue Adjustment Amounts for the purpose of UT5, Schedule F, cl. 4.3(c)(ii)(A), and therefore, Allowable Revenues and Reference Tariffs for FY2023.

Please note that this report is provided voluntarily by Aurizon Network and is not an obligation under UT5. It is provided as a means of completing the transition of Aurizon Network’s maintenance reporting

obligations, the nature of which changed with the QCA's final approval of the UT5 DAAU on 21 February 2020.

This information is provided for the four (4) coal systems in the CQCN; Blackwater, Goonyella, Moura and Newlands.

While UT5 contains individual Reference Tariffs and Allowable Revenues for the Goonyella to Abbot Point Expansion (GAPE), GAPE is not a geographically distinct coal system. Rather, it is an expansion tariff required to facilitate the pricing arrangements attributable to GAPE Train Services. The scope of the GAPE project included significant infrastructure upgrades in the Newlands system, which are utilised by all GAPE and Newlands Train Services. Similarly, all GAPE Train Services utilise existing Newlands system infrastructure. As a result, Newlands and GAPE are treated as a single system for this report.

Structure of Report

Aurizon Network has prepared this FY2020 report to the level of detail outlined in the previous form of the Access Undertaking, i.e. the Access Undertaking approved by the QCA on 21 February 2019. Aurizon Network has done so because this previous form of the Access Undertaking applied during FY2020 and was the basis of the quarterly maintenance reports that were published for Q1 and Q2 of FY2020.

Section 1 outlines Aurizon Network's safety performance during FY2020 and identifies the number of derailments where the cost of recovery exceeded AU\$100,000;

Section 2 details Aurizon Network's maintenance expenditure and scope delivered during FY2020;

Appendix A provides the Below Rail Transit Times (**BRTT**) and the Overall Track Condition Index (**OTCI**) for FY2020.

Aurizon Network confirms that this report contains no confidential information and may be considered a public document.

Aurizon Network notes the requirement under clause 7A.11.5 of UT5 to submit an annual Maintenance Costs Claim for QCA approval. Aurizon Network is currently working with the Rail Industry Group to develop a periodic reporting framework, which may ultimately determine the level of information included in the Maintenance Costs Claim for FY2021 onwards.

1. Safety

Safety through our 'We know safe, we choose safe' program is one of Aurizon Network's core values. Aurizon Network aspires to be world class in safety and is set to deliver tangible benefits through the next generation of its safety journey through its Safety in Action framework.

Injury Reporting Metrics

Aurizon Network's strong safety performance directly benefits the coal supply chain by:

- > reducing the number of unplanned system interruptions; and
- > allowing Aurizon Network to maximise productive time within maintenance track possessions.

This ultimately promotes greater network reliability through a more effective and productive asset maintenance regime.

Aurizon's primary injury reporting metrics include the:

- > Total Recordable Injury Frequency Rate (**TRIFR**), which measures the number of incidents per million person-hours worked; and
- > Lost Time Injury Frequency Rate (**LTIFR**), which measures the number of lost time injuries occurring in a workplace per million hours worked.

Figure 2 below illustrates both the TRIFR and LTIFR for Aurizon staff since June 2017.

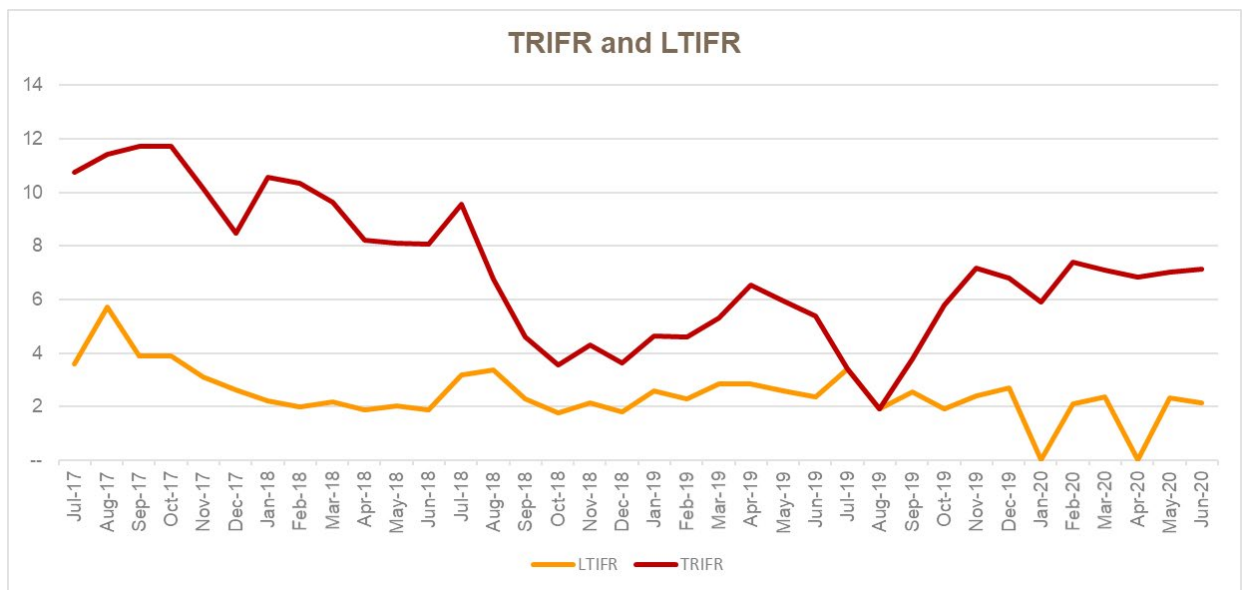


Figure 2: TRIFR and LTIFR

Derailments Exceeding \$100,000

A Derailment is an event where one or more rollingstock wheels leave the rail or track during railway operations.

Table 1 below lists the number of derailments where the cost to Aurizon Network of recovery from the derailment exceeded AUD\$100,000⁴.

Derailment Incident	Date	Location	Cost (\$)
	19/04/2019	Callemondah Yard	158,104
DR08779	3/09/2019	Tikardi	627,909
DR00709	19/01/2020	Middlemount Junction	1,572,531
DR01080	28/01/2020	Balook	203,402
DR01170	30/01/2020	Callemondah Yard	110,653

Table 1: Derailment Incidents and costs exceeding \$100,000

It should be noted that during FY2020, Aurizon Network incurred financial 'settlement' costs in relation to a derailment in Callemondah Yard, which occurred during FY2019. This is also been included in the above table for completeness.

Major Reportable Safety Incidents

Figure 3 below presents the number of major reportable safety incidents reported to the Safety Regulator during FY2020. It includes three (3) derailments with a cost of recovery exceeding \$100,000, which are already reported in **Table 1** above.

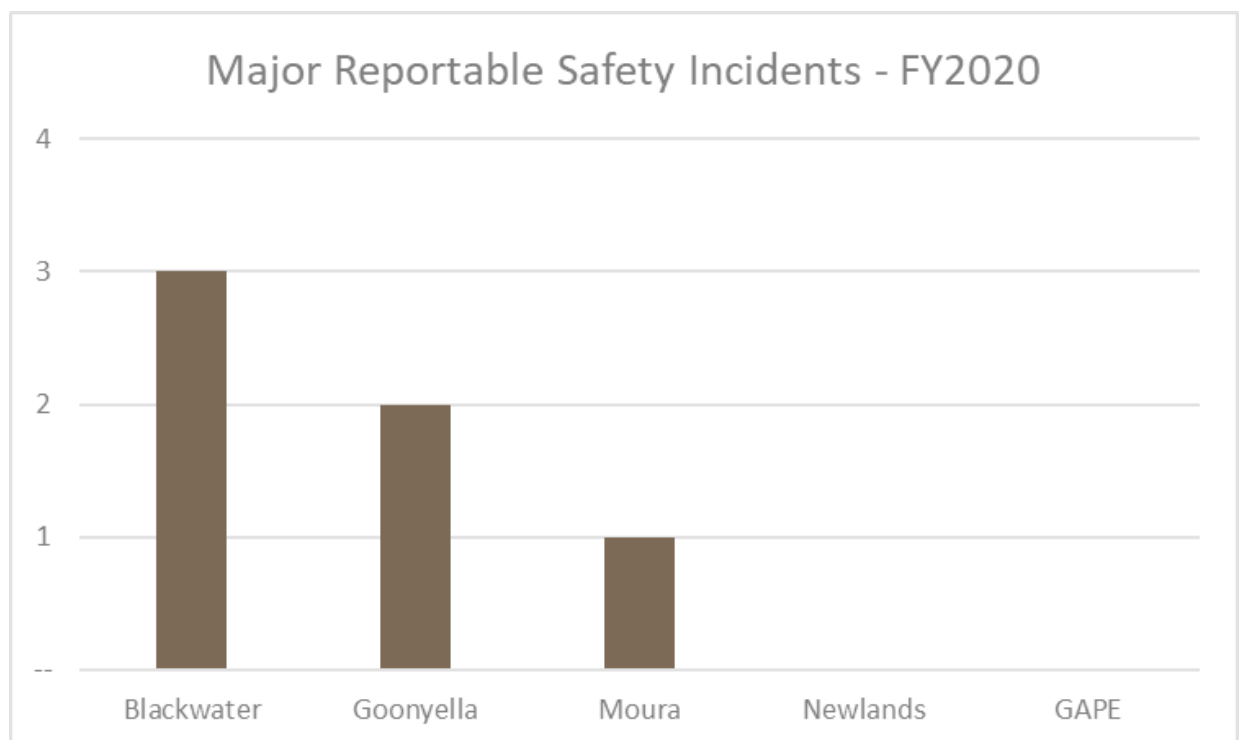


Figure 3: Number of major reportable safety incidents reported to the Safety Regulator

⁴ As required by clause 10.3.3 (vi) of the 2016 Access Undertaking.

2. Maintenance Expenditure and Scope

This section outlines Aurizon Network's actual maintenance performance for FY2020 in terms of actual Direct Maintenance Cost incurred for CQCN maintenance activities and scope delivered for mechanised maintenance activities.

This report compares Aurizon Network's actual maintenance cost and scope to the QCA-approved forecasts and provides commentary on material variations.

Volumes

Net Tonnes Railed compared to Draft Decision

During FY2020 Aurizon Network's operational performance remained strong despite challenges presented by bushfires, wet weather and the COVID19 pandemic. Highlights include:

- > The supply chain delivered the third highest volumes on record in the CQCN of 226.9 million tonnes (**mt**) with new monthly CQCN records achieved in July and December. Volumes during FY20 were impacted by isolated customer demand and production issues along with additional reactive maintenance requirements particularly in the second half of FY20;
- > Total System Availability declined marginally from 83.8% to 83.3%;
- > Cancellations due to the Network rail infrastructure increased from 1.8% to 2.5% partly reflecting additional reactive maintenance requirements, primarily in Blackwater and Goonyella; and
- > Cycle velocity improved from 23.1km/h to 23.3km/h.

The QCA-approved volume forecast for the CQCN in FY2020 was 240.0 mt; 13.1 mt higher than actual railings for the year. A comparison of actual volumes railed in each system and the regulatory volume forecasts for FY2020 is outlined below.

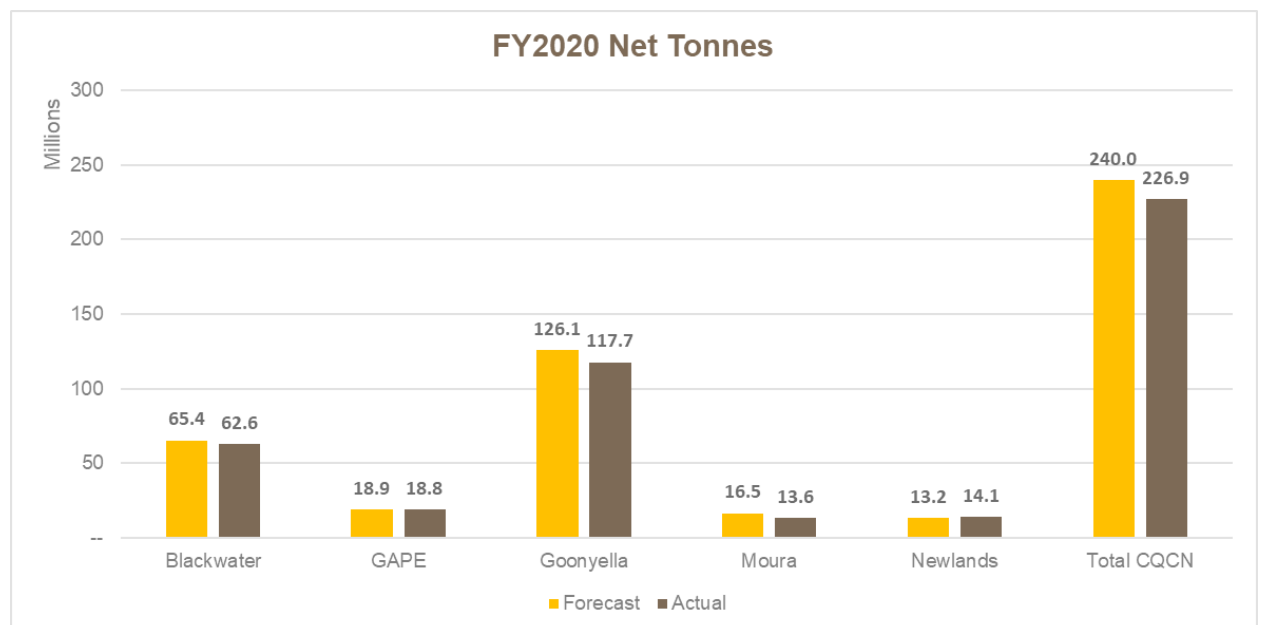


Figure 4: CQCN - Total Net Tonnes

CQCN Maintenance Costs

UT5 provides a Direct Maintenance Cost allowance for FY2020 of \$153.0 million; an amount included within the QCA-approved Allowable Revenues for the year and recovered through Reference Tariffs. During the year, Aurizon Network incurred actual Direct Maintenance Costs of \$148.9 million. This represents an under-spend of \$4.1 million (2.7%) against the Direct Maintenance Cost allowance.

Maintenance Costs by Activity

The contribution of each maintenance activity to total direct maintenance costs is outlined in **Figure 5** below.

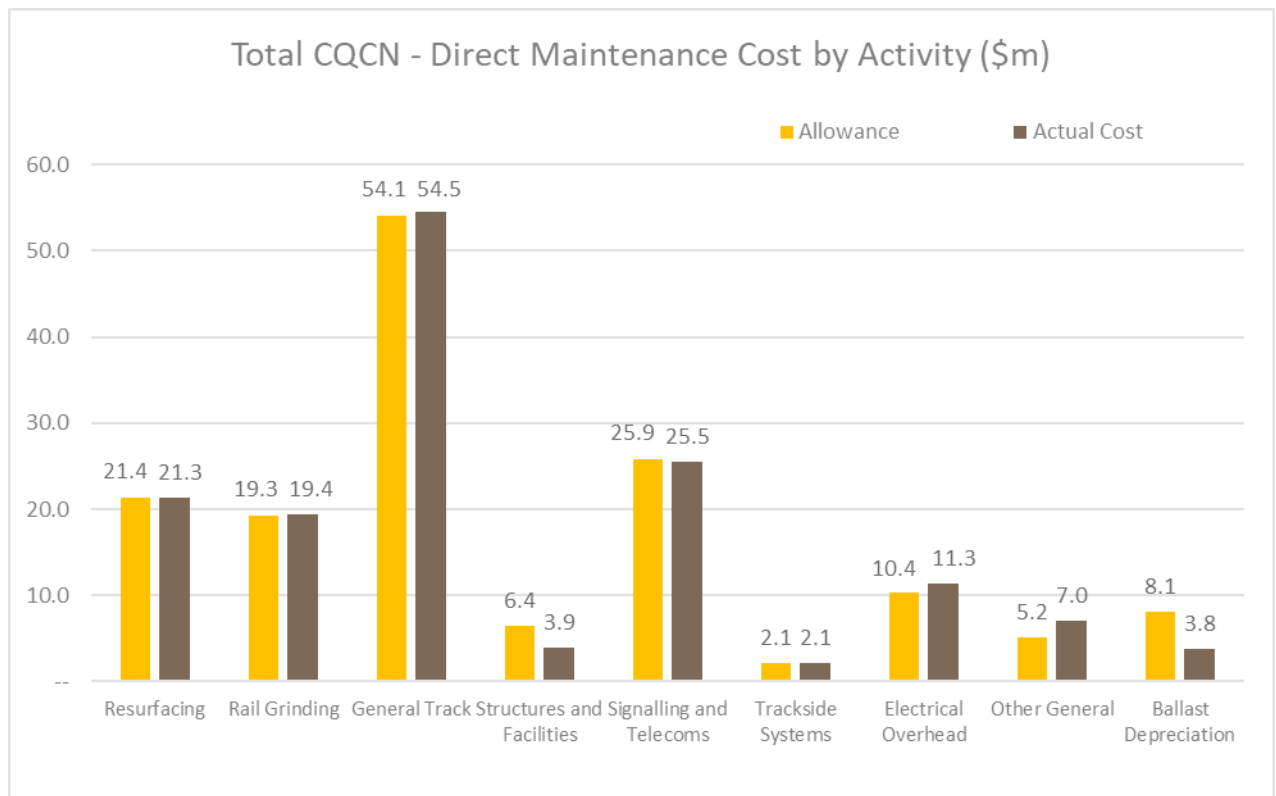


Figure 5: Direct Maintenance Costs by Activity

Note: The 'Other General' category in Figure 5 relates to support activities for maintenance including asset & inventory management, planning and administration.

As illustrated in figure 5, the cost of two activities varied by +/- \$2 million relative to the Allowance:

- > Structures and Facilities maintenance; and
- > Ballast Depreciation.

The variance in Structures and Facilities maintenance was primarily attributable to cost savings achieved through a review and reprioritisation of tasks and activities. Where possible, similar works in each system were bundled together to support competitive tendering processes with contractors and achieve cost savings. Some lower priority scope was deferred to future years.

The variance in ballast depreciation is due to the delayed commencement of Aurizon Network's high production ballast undercutter.

Maintenance Costs by Coal System

During the regulatory period, Aurizon Network considers multiple sources of information when developing the detailed maintenance program for execution. This includes:

- > Qualitative information, including specific advice from Aurizon Network’s Reliability and Performance Engineering Team, Civil and Electrical Infrastructure Superintendent’s and Track Inspectors, who together, have substantive site-specific experience through managing track infrastructure within their respective defined geographical zones. This advice provides evidence of degradation at specific locations throughout the network; and
- > Quantitative data, sourced from data sets including (but not limited to):
 - Track Geometry (sourced from the track recording vehicle);
 - Resurfacing history; and
 - Ground Penetrating Radar measurements.

The executable asset maintenance plans are ultimately based on the needs of the network infrastructure. It is therefore reasonable to expect that variances will exist at a system level between the forecasts set during the development of the Access Undertaking and the actual cost and scope delivered during the relevant year.

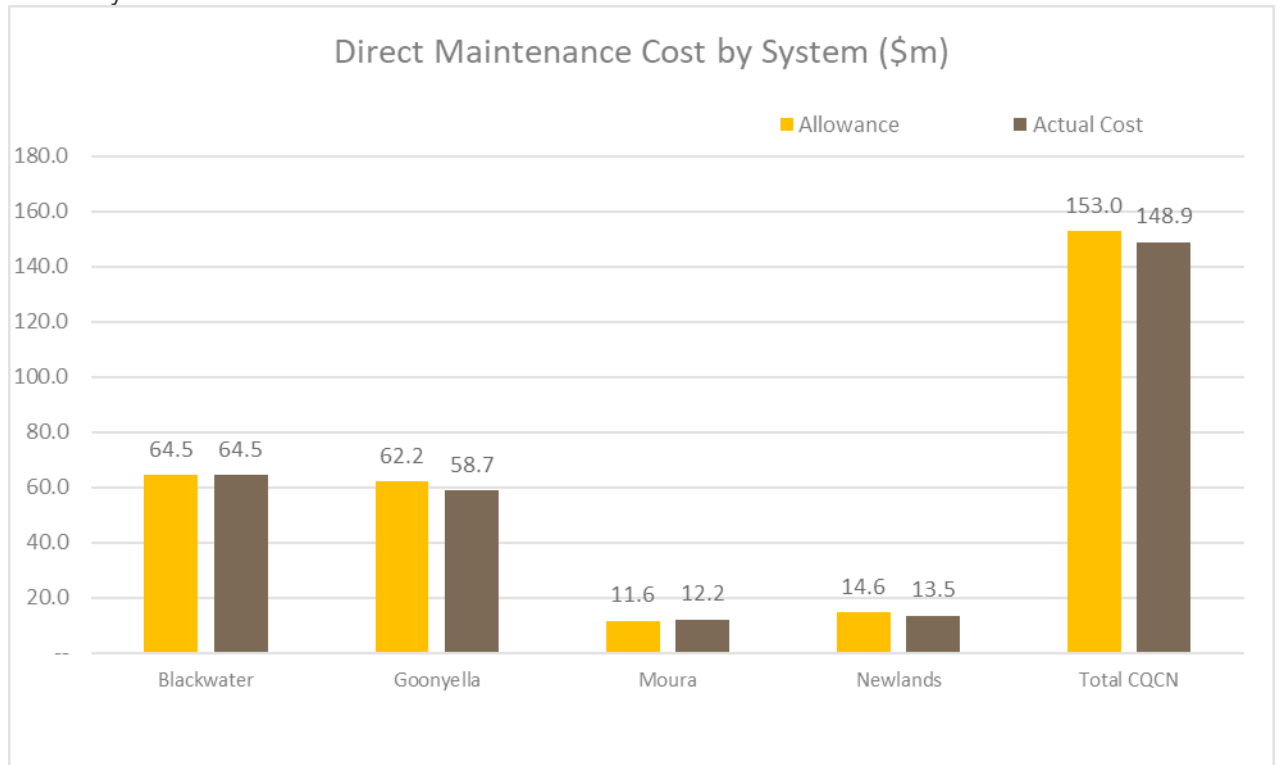


Figure 6 shows the FY2020 direct maintenance cost by coal system.

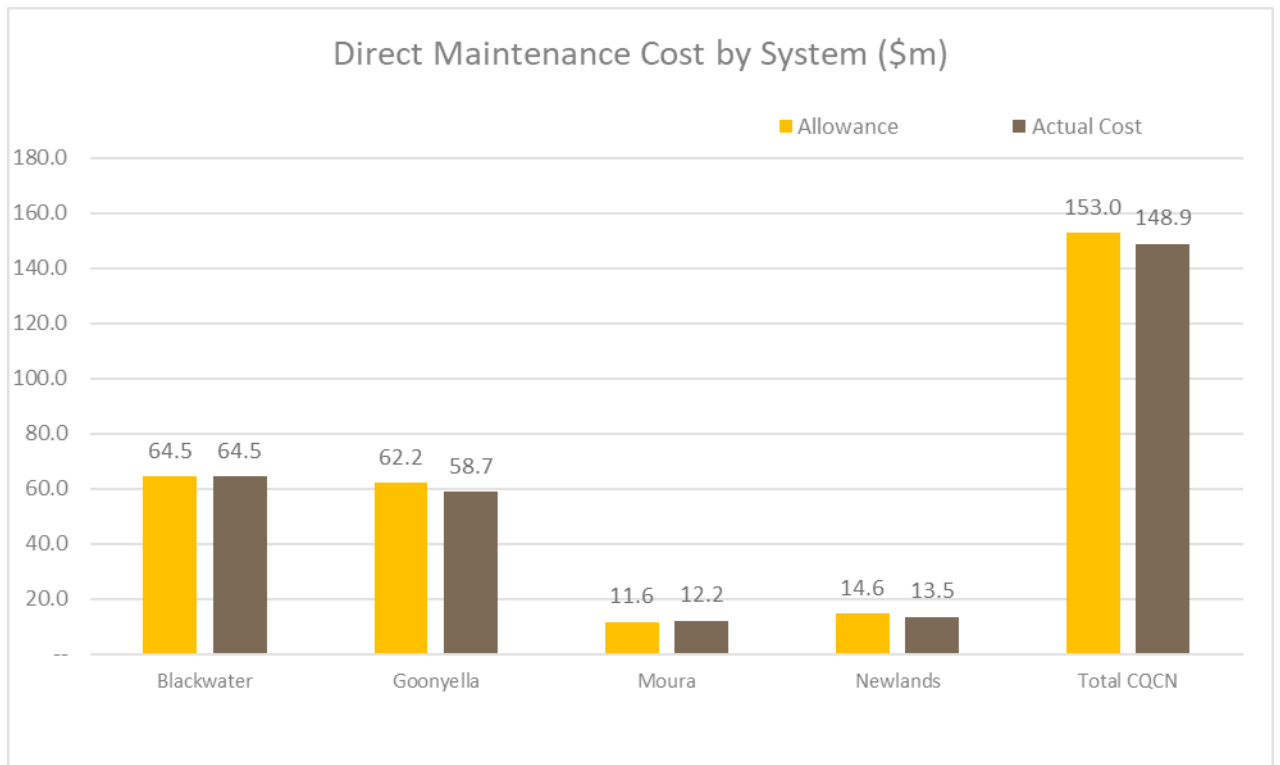


Figure 6: Direct Maintenance Costs by System

On a system basis, Aurizon Network’s actual Direct Maintenance Costs incurred were materially in line with the QCA-approved Direct Maintenance Cost allowance for the year; the exception being an underspend in Goonyella of \$3.5 million.

It should be noted that a number of individual maintenance activities contributed to the Goonyella system underspend. Nevertheless, no individual activity had a variance that exceeded the \$2 million materiality threshold.

Maintenance Costs by Activity by System

Direct maintenance costs by activity for each Coal System are as follows.

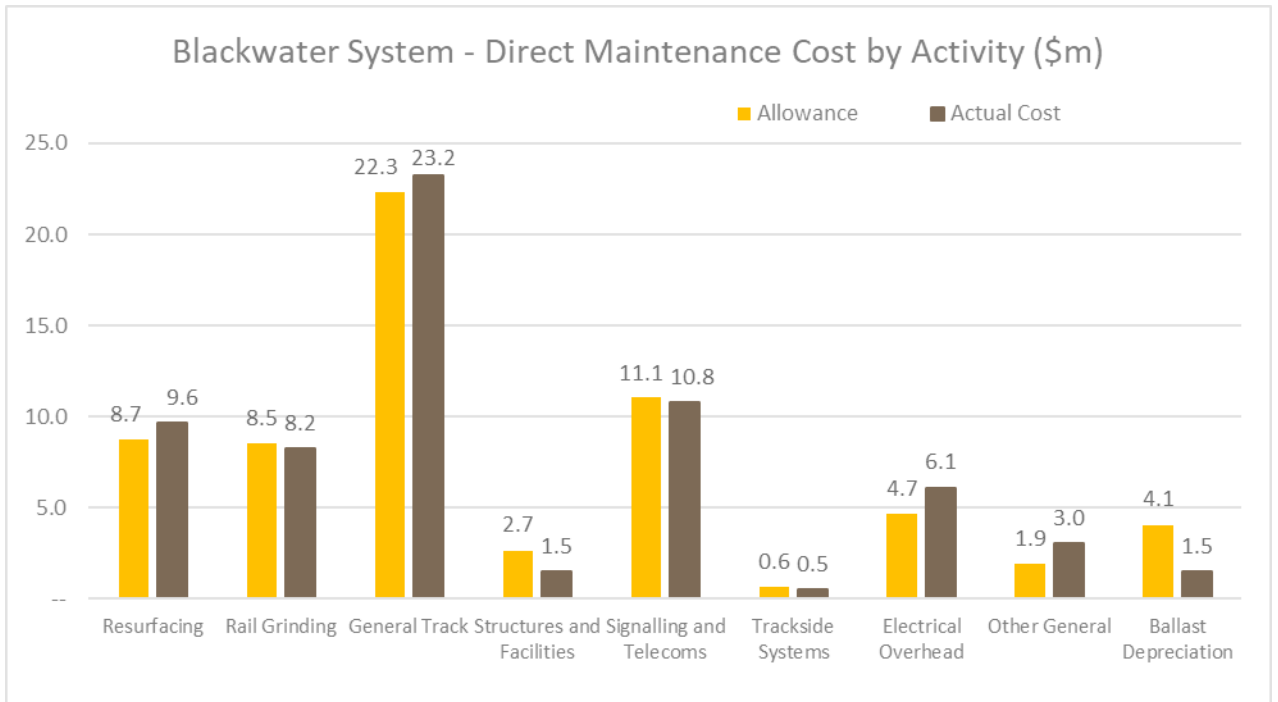


Figure 7: Blackwater System - Direct Maintenance Costs

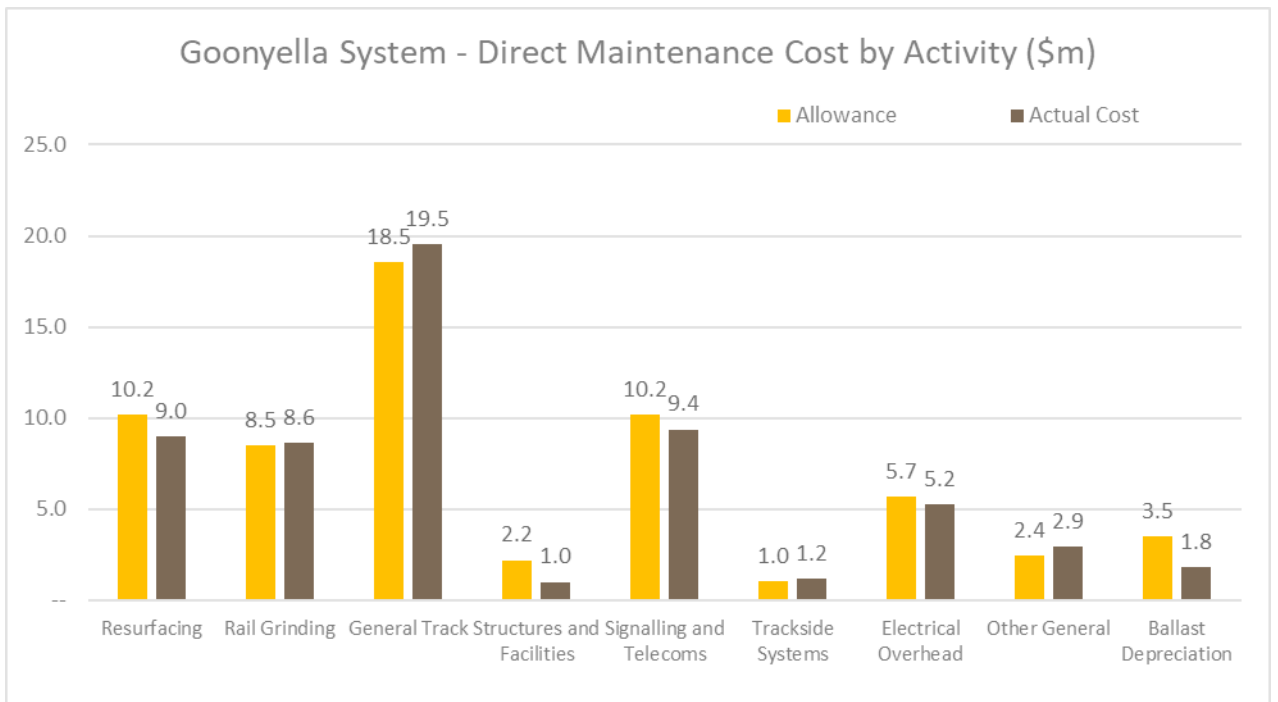


Figure 8: Goonyella System - Direct Maintenance Costs

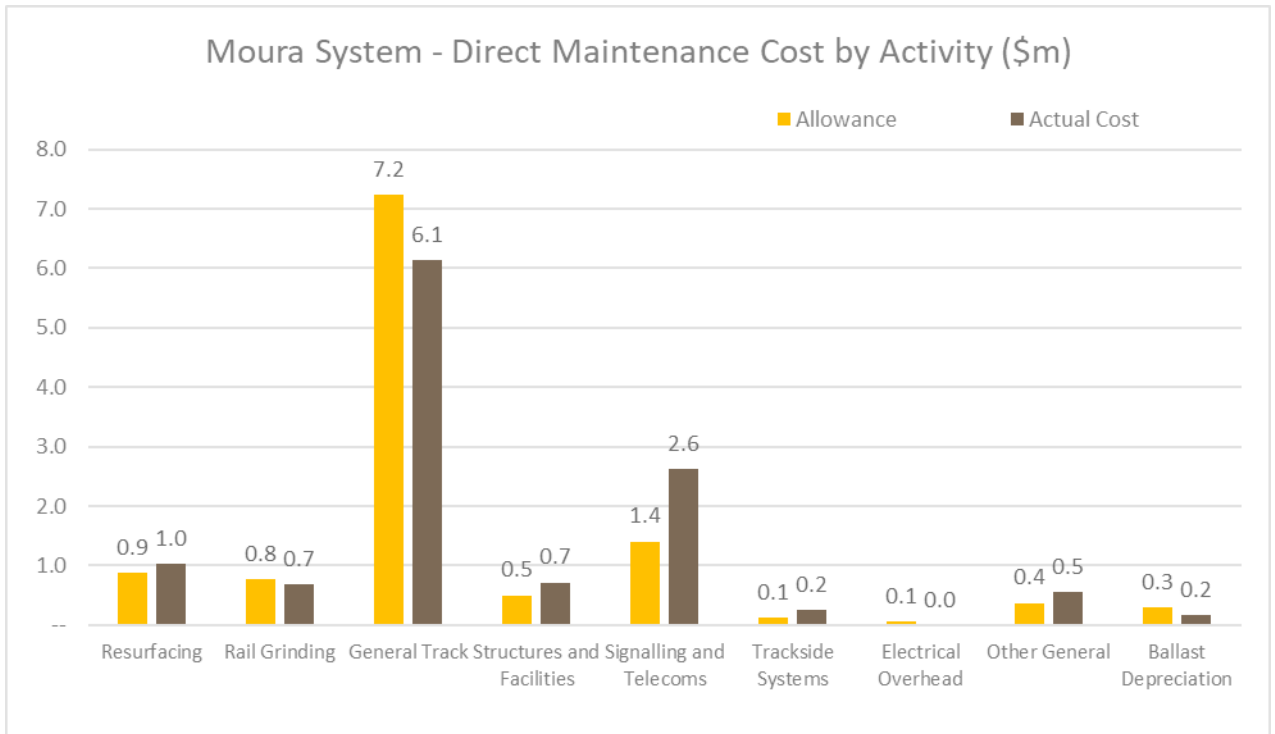


Figure 9: Moura System - Direct Maintenance Costs

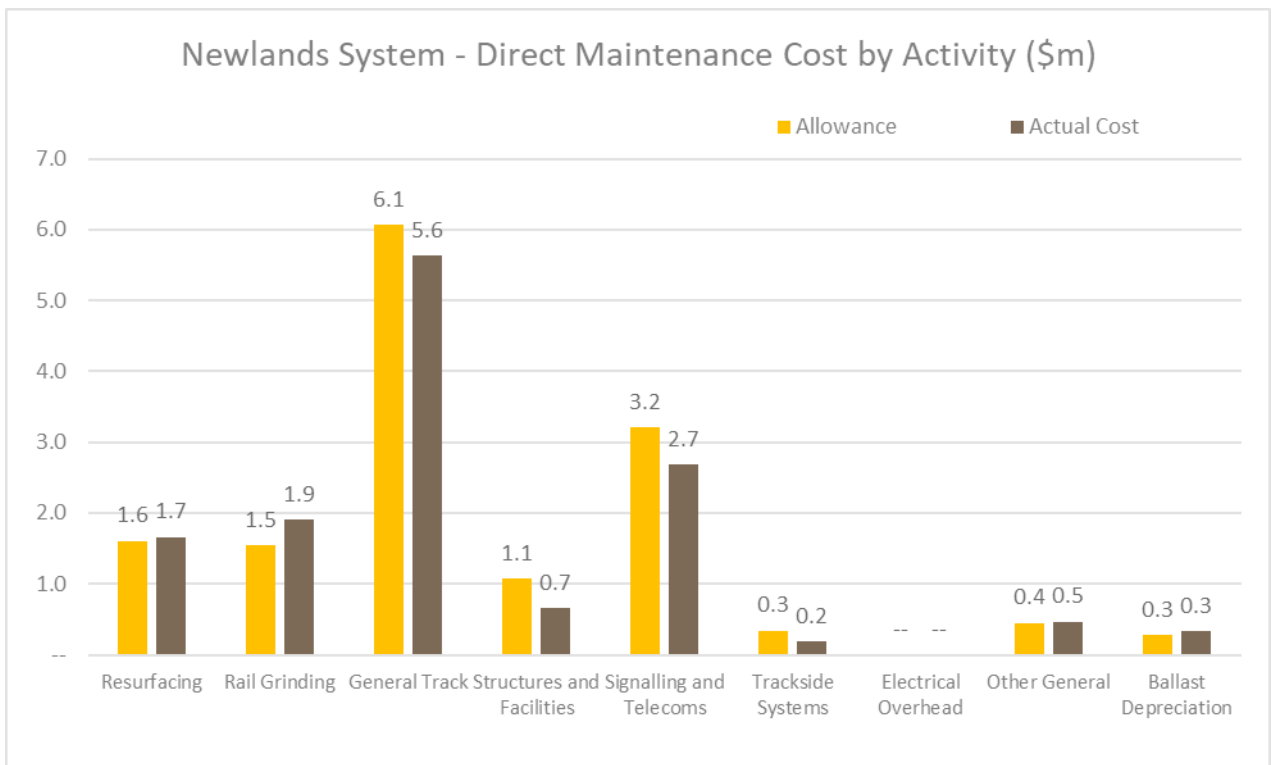


Figure 10: Newlands System - Direct Maintenance Costs

Mechanised Maintenance Scope

Rail Grinding – forecast vs actual scope

For FY2020, UT5 provided for:

- > a mainline rail grinding scope of 4,139 km; and
- > a turnout grinding scope of 780 turnouts.

By comparison, Aurizon Network delivered:

- > 3,688 km of mainline rail grinding, an 11% decrease relative to the UT5 scope; and
- > 726 turnouts, a 7% decrease.

The forecast rail grinding scope is set having regard to volumes expected to be railed across the Rail Infrastructure in the relevant year. It should be noted that for FY2020, the UT5 forecast rail grinding scope was based on the original FY2020 volume forecast of 248.2 million tonnes.⁵ During the year, 226.9 million tonnes were railed, resulting in an overall reduction in the amount of rail grinding required. Furthermore, actual rail grinding production in FY2020 was impacted by the heightened fire risk that was prevalent over the Queensland summer.

During the regulatory period, Aurizon Network analyses multiple sources of information when refining the strategic maintenance plan into a detailed program for execution. Aurizon Network's Asset Managers analyse qualitative and quantitative data sources to assess the needs of the network infrastructure. This is then ranked and prioritised based on the condition and criticality of the asset. The scope delivered in each year is an output of this condition and criticality exercise, taking account of any logistical constraints

A comparison of mainline and turnout scope for each coal system is outlined in **Figure 11** and **Figure 12**.

⁵ Noting that CQCN volume forecasts were subsequently reduced from 248.2 to 240.0 million tonnes through Aurizon Network's Consolidation DAAU. The Consolidation DAAU was approved by the QCA on 21 February 2020.

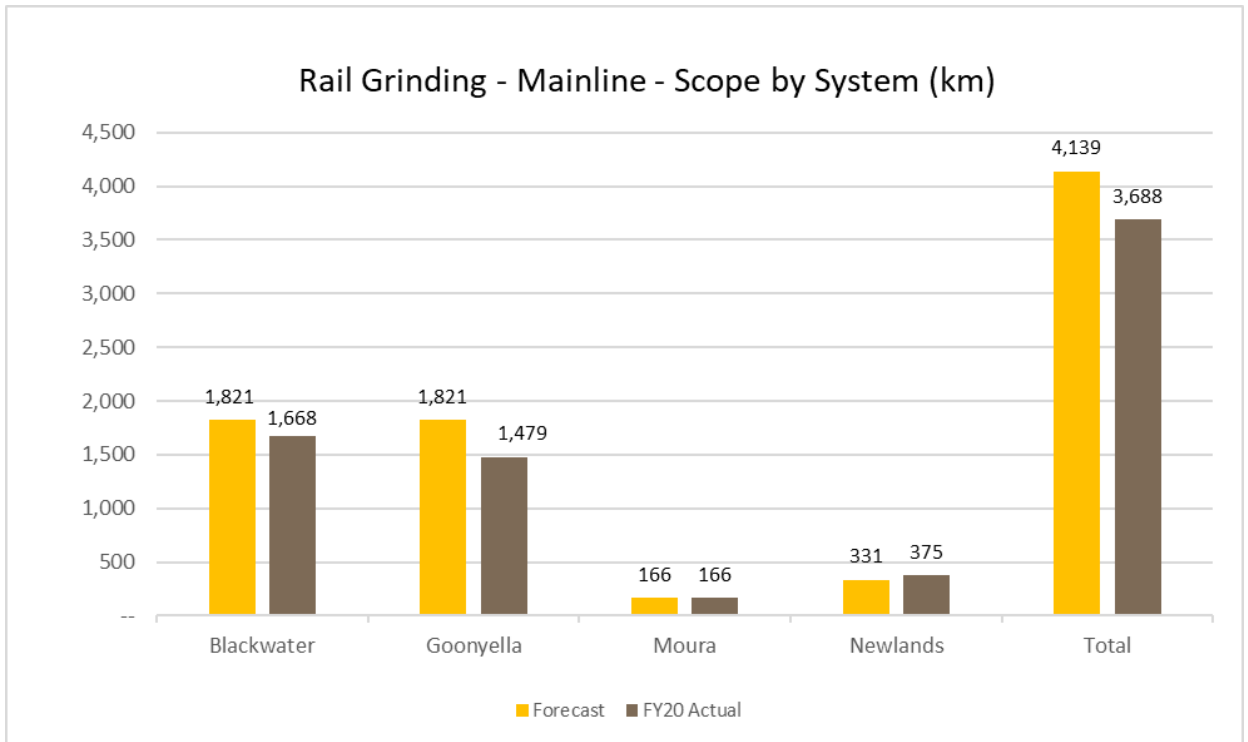


Figure 11: Scope of Mainline Rail Grinding completed by System

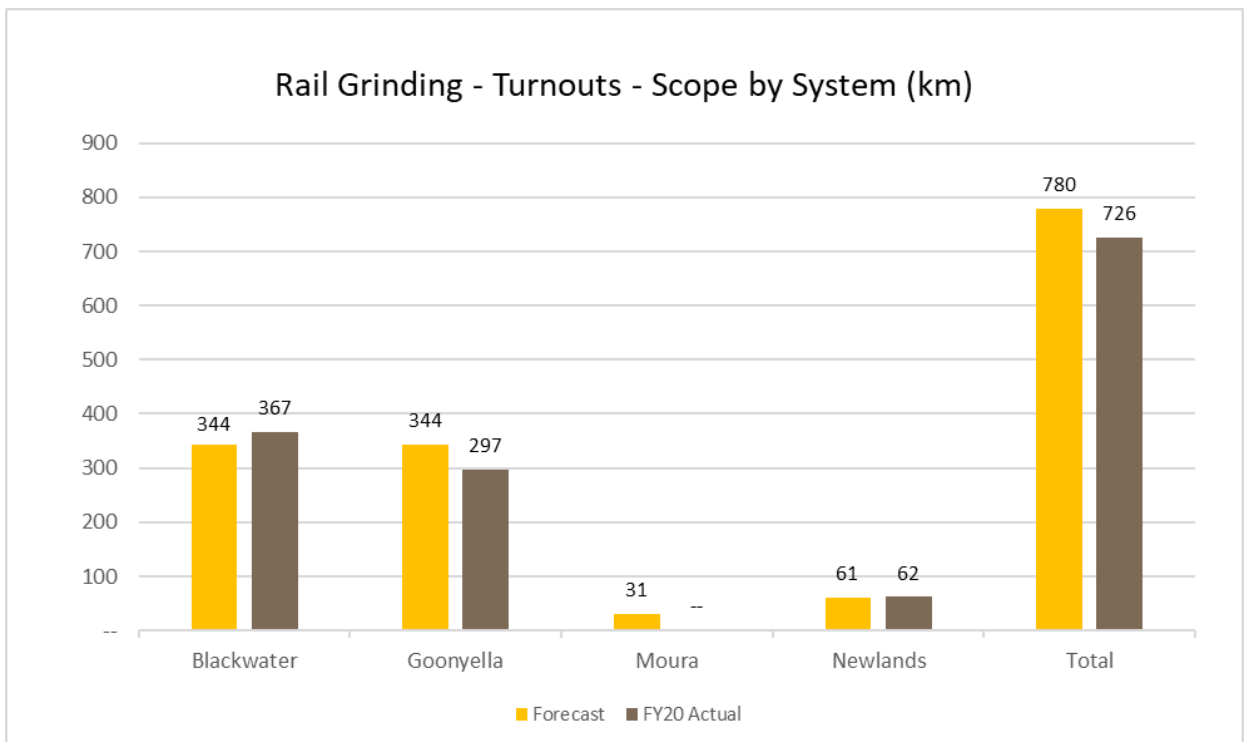


Figure 12: Scope of Turnout Rail Grinding completed by System

The distribution of forecast scope between systems (as outlined in UT5) was developed well in advance of the year. Consequently, scope forecasts between systems represent Aurizon Network’s best estimate of where production was expected to be required at that point in time.

During FY2020, mainline rail grinding production in the:

- > Blackwater system was 153km below forecast;

- > Goonyella system was 342km below forecast;
- > Moura system was in line with forecast; and
- > Newlands system was 44km higher than forecast.

During FY2020, turnout rail grinding production in the:

- > Blackwater system was 23 turnouts greater than forecast;
- > Goonyella system was 47 turnouts lower than forecast;
- > Moura system was 31 turnouts lower than forecast; and
- > Newlands system was 1 turnout greater than forecast.

Resurfacing - forecast vs actual scope

For FY2020, UT5 provided for:

- > a mainline resurfacing scope of 2,184 km; and
- > a turnout resurfacing scope of 393 turnouts.

By comparison, Aurizon Network delivered:

- > 2,267 km of mainline resurfacing, a 4% increase relative to the UT5 scope; and
- > 406 turnouts, a 3% increase.

A comparison of mainline and turnout scope for each coal system is outlined in **Figure 13** and **Figure 14**.

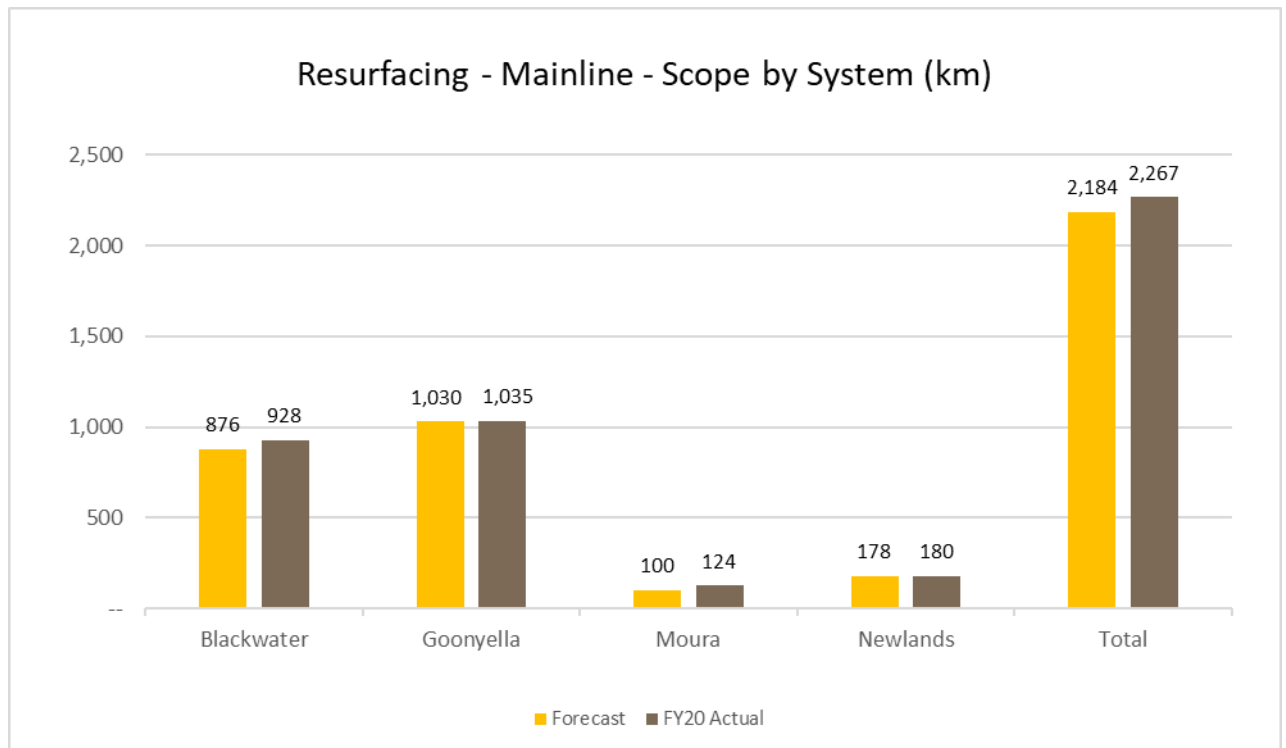


Figure 13: Scope of Mainline Resurfacing completed by System

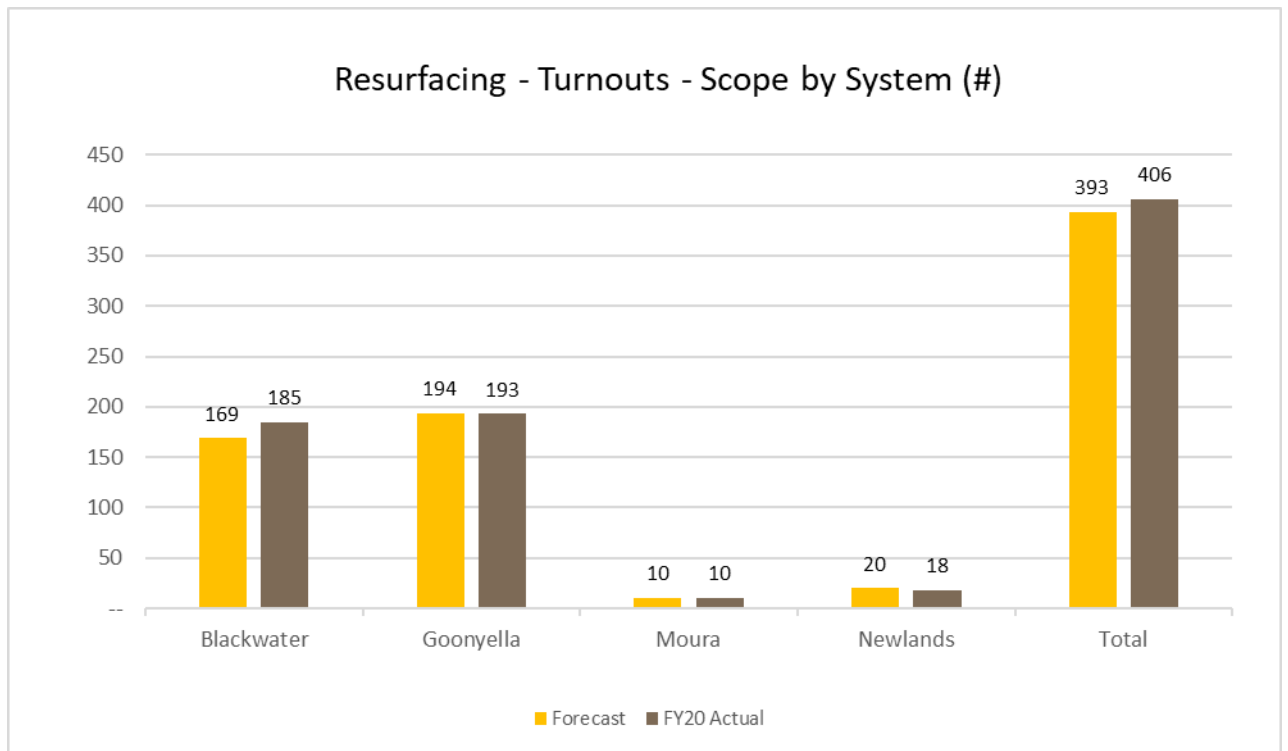


Figure 14: Scope of Turnout Resurfacing completed by System

The distribution of forecast scope between systems was developed well in advance of Aurizon Network’s UT5 submission. Consequently, with a planning horizon of 4-years, scope forecasts between systems represent Aurizon Network’s best estimate of where network possessions, and subsequently, production would be at that point in time.

During FY2020, mainline resurfacing production in the:

- > Blackwater system was 52 km greater than forecast;
- > Goonyella system was 5 km greater than forecast;
- > Moura system was 24 km greater than forecast; and
- > Newlands system was 2 km greater than forecast.

During FY2020, turnout resurfacing production in the:

- > Blackwater system was 16 turnouts higher than forecast;
- > Goonyella system was 1 turnout lower than forecast;
- > Moura system was in line with forecast; and
- > Newlands system was 2 turnouts lower than forecast.

During FY2020, heavy rainfall resulted in several unanticipated defects and the consequential imposition of temporary speed restrictions – particularly in the Blackwater and Moura systems. The remediation of these defects was the key driver of the scope variation, particularly with respect to mainline resurfacing.

Appendix A: OTCI and BRTT

This appendix provides information relating to the overall condition of track as well as the below-rail transit time in each rail system in the CQCN over FY2020.

Overall Track Condition Index (OTCI)

The OTCI provides an indicator of overall track quality for each Coal System by measuring track geometry variation over time. The index is calculated from data captured by track recording vehicles and is used by Aurizon Network to monitor trends in track condition.

An OTCI that is trending downwards is indicative of improving track quality. Conversely, an OTCI that is trending upwards may indicate that the track condition is either deteriorating or is being managed in a way that is 'fit for purpose' as determined by the Rail Infrastructure Manager.

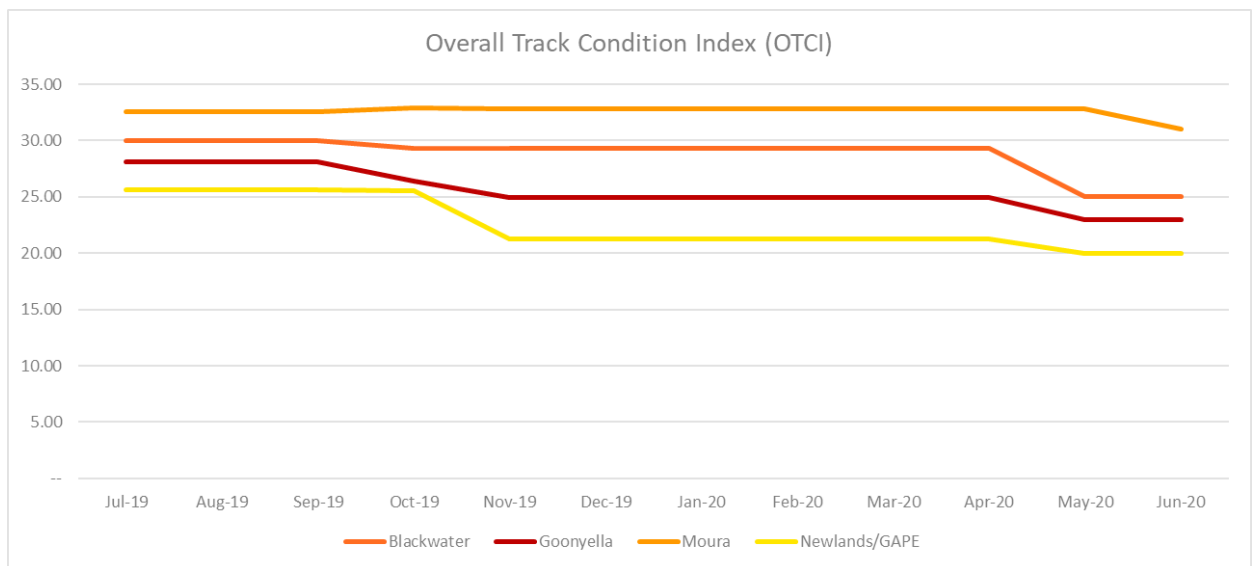


Figure 15: OTCI – All Systems

Below Rail Transit Time (BRTT)

BRTT provides an indicator of operational performance of each Coal System. The BRTT takes the following factors into consideration:

- > Section Running Times;
- > Delays from scheduled train path in the daily train plan that can be directly attributed to Aurizon Network but excludes:
 - Cancellations;
 - delays resulting from compliance with a passenger priority obligation; and
 - delays resulting from a force majeure event.
- > Time taken in crossing other trains; and
- > Delays due to operational constraints:
 - directly caused by the activities of Aurizon Network in maintaining the CQCN; or
 - due to a fault or deficiency in the CQCN provided such delays are not contributed to by a railway operator or force majeure events.

The BRTT for each system is outlined below.

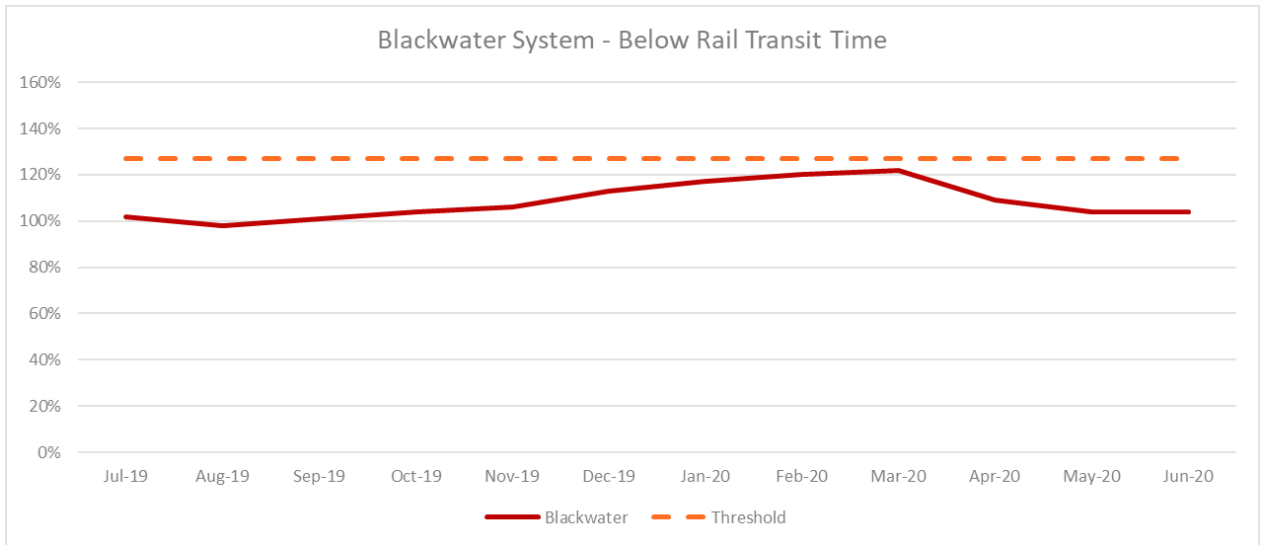


Figure 16: Blackwater System BRTT

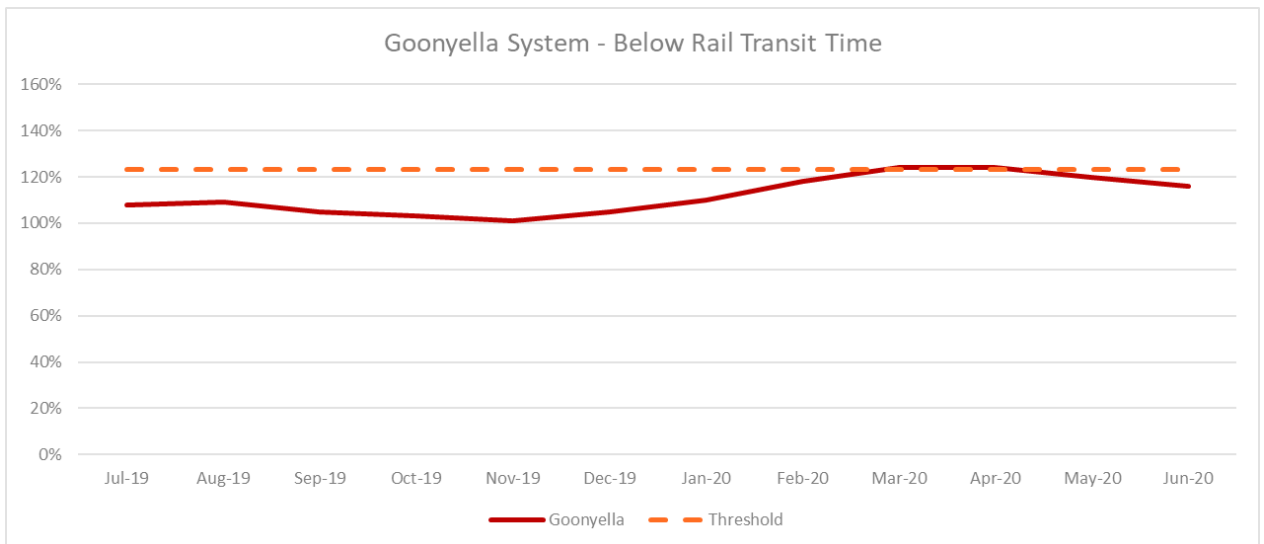


Figure 17: Goonyella System BRTT

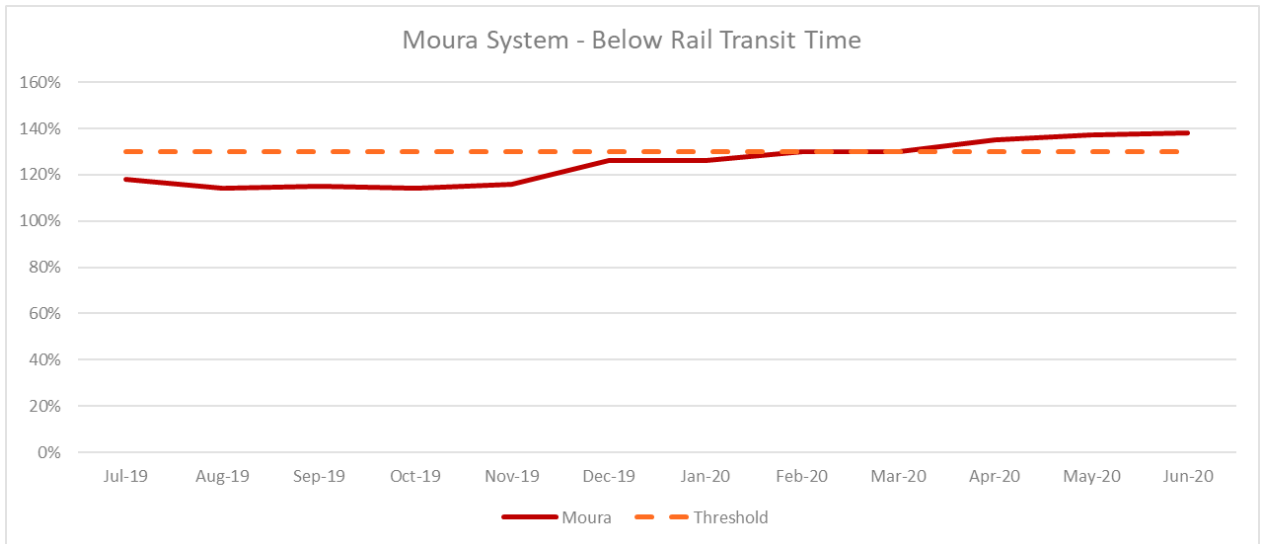


Figure 18: Moura System BRTT

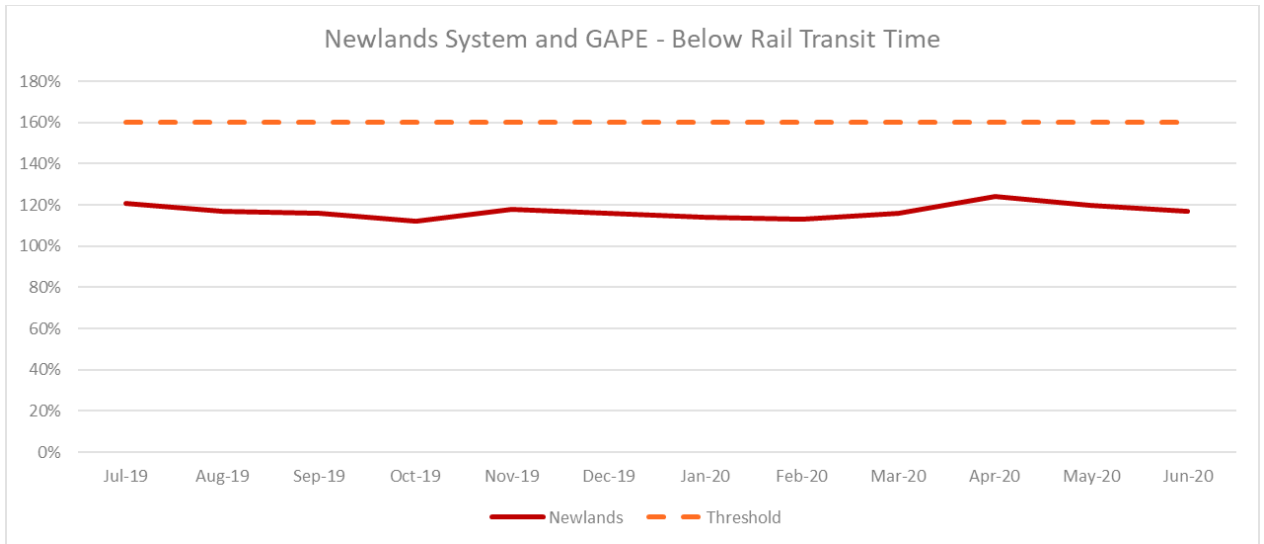


Figure 19: Newlands System and GAPE BRTT