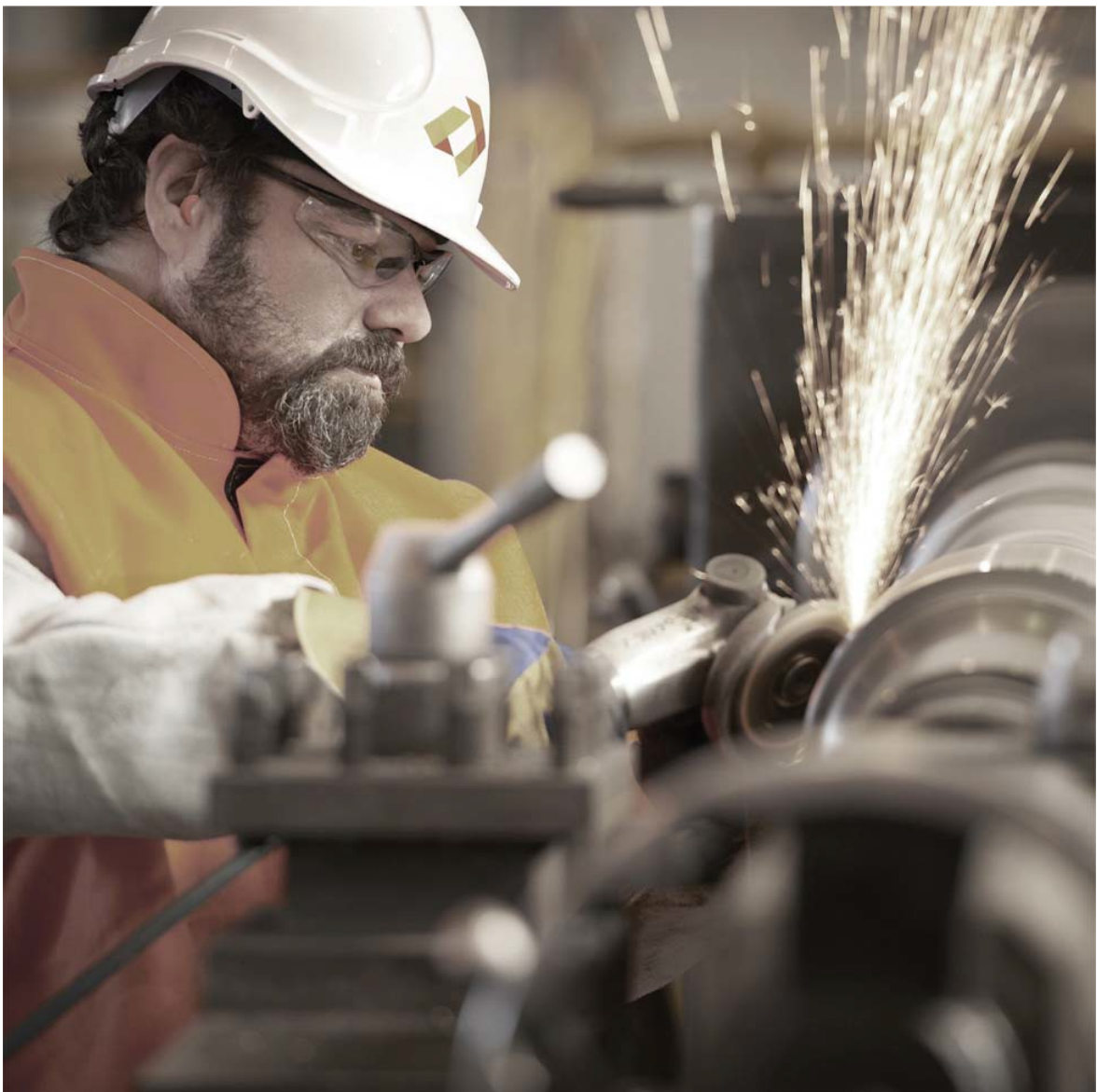


# Quarterly Maintenance Cost Report

January – March 2019

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## Table of Contents

1.0 Report Contents .....	3
2.0 Network Performance Metrics.....	4
2.1 Safety .....	4
Injury Reporting Metrics.....	4
Major Reportable Safety Incidents.....	5
2.2 Network Reliability.....	6
Coal Carrying Train Services.....	6
Dewirements.....	7
Derailments.....	8
Derailments with a cost of recovery in excess of \$100,000 .....	9
Temporary Speed Restrictions .....	9
Below Rail Cancellations.....	10
Overall Track Condition Index .....	10
Below Rail Transit Time.....	11
3.0 Maintenance Performance.....	12
3.1 General Maintenance .....	12
Track Defects.....	12
Work Orders vs Maintenance Completed.....	12
4.0 Network Maintenance Costs.....	13
4.1 Overall Maintenance Costs.....	13
Total Network Direct Maintenance Cost.....	13
Direct Maintenance Cost by Activity.....	13
Direct Maintenance Cost by System .....	15
4.2 Mechanised Maintenance.....	20
Ballast Undercutting .....	20
Rail Grinding .....	21
Track Resurfacing .....	23

# Quarterly Maintenance Cost Report

## 1.0 Report Contents

This report is provided to the QCA in accordance with Aurizon Network's 2017 Access Undertaking (**UT5**); clause 10.3.2 (c).

It provides transparency around Aurizon Network's maintenance performance by comparing scope delivered and costs incurred for the quarter, January to March 2019 (**Reporting Period**), to the QCA's final approval of UT5 issued in February 2019 (**UT5 Final Decision**). The forecast scope and costs within the UT5 Final Decision were published as annual totals. To provide a meaningful comparison for the Reporting Period, the FY2019 totals provided in the UT5 Final Decision have been apportioned to the Reporting Period based on Aurizon Network's annual budget, which is phased quarterly.

This information is provided for the four coal systems in the Central Queensland Coal Network (**CQCN**); Blackwater, Goonyella, Moura, and Newlands.

It should be noted that while the UT5 Final Decision contains individual Reference Tariffs and Allowable Revenues for the Goonyella to Abbot Point Expansion (**GAPE System**), the GAPE System is not a geographically distinct coal system. Rather, it is akin to 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.

Some of the data in this report will also be included in Aurizon Network's Quarterly Performance Report, which will be published at the following link:

<http://www.aurizon.com.au/what-we-deliver/network/network-downloads>.

## 2.0 Network Performance Metrics

### 2.1 Safety

Safety is Aurizon Network's core value. Aurizon Network aspires to be world class in safety through its journey to ZEROHARM, which has delivered tangible benefits in terms of safety performance and safety culture. ZEROHARM comprises:

The logo for ZEROHARM, with 'ZERO' in a larger, bold, orange font and 'HARM' in a smaller, regular, orange font.

- ZERO incidents;
- ZERO injuries;
- ZERO work-related illnesses; and
- ZERO environmental incidents.

#### 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.

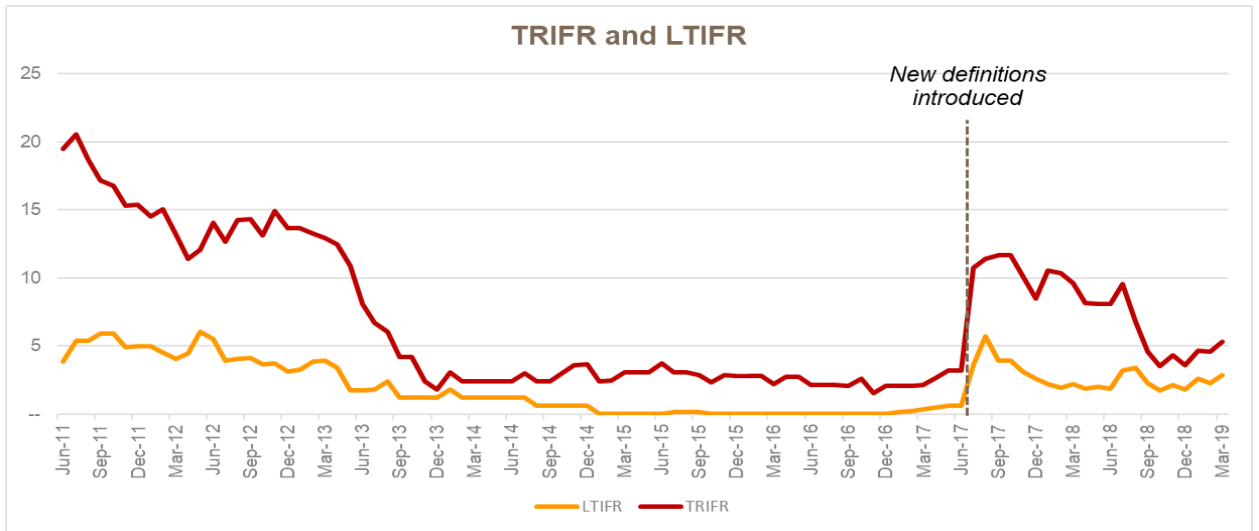
To continue the journey to becoming world leading in safety, Aurizon Network revised its injury definitions from 1 July 2017. The key changes include:

- > the inclusion of contractors in all injury metrics;
- > widening the scope of total recordable injuries to include all restricted work injuries; and
- > expanding the definition of 'Lost Time Injuries' such that it captures any lost day of work following the injury<sup>1</sup>.

**Figure 1** illustrates the TRIFR for Aurizon staff since June 2011, as compared with the LTIFR. Since that time, there has been a noticeable improvement in safety performance in terms of TRIFR.

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<sup>1</sup> The previous definition of 'Lost Time Injuries' only captured instances where the injury impacted the next rostered shift.



**Figure 1 – TRIFR and LTIFR**

**Major Reportable Safety Incidents**

Aurizon Network confirms that there were 2 major reportable safety incidents reported to the Safety Regulator during the Reporting Period.

Safety incidents reported to the Safety Regulator	Blackwater	Goonyella	Moura	Newlands	GAPE
January – March 2019	--	2	--	--	--

**Table 1 - Number of major reportable safety incidents reported to the Safety Regulator in the quarter**

## 2.2 Network Reliability

### Coal Carrying Train Services

**Table 2** provides a measure of the throughput achieved by each coal system, for each month within the Reporting Period. It presents the aggregate Gross Tonne Kilometres (**GTK**), Net Tonnes, Net Tonne Kilometres (**NTK**) and Electric Gross Tonne Kilometres (**eGTK**) for Coal Carrying Train Services.

Coal Carrying Train Services	Blackwater	GAPE	Goonyella	Moura	Newlands
<b>January 2019</b>					
GTK'000	3,387,346	794,744	3,515,438	376,264	208,348
Net Tonnes	5,826,439	1,558,454	10,939,314	1,459,738	1,005,759
NTK'000	2,123,249	492,406	2,205,168	235,727	129,123
eGTK'000	2,712,122	--	3,273,568	--	--
<b>February 2019</b>					
GTK'000	2,659,013	397,993	2,938,249	260,329	104,427
Net Tonnes	4,585,233	763,864	8,874,517	1,035,619	483,090
NTK'000	1,653,269	246,037	1,840,048	162,960	64,914
eGTK'000	2,060,507	--	2,730,476	--	--
<b>March 2019</b>					
GTK'000	3,189,450	714,863	3,062,112	274,549	264,227
Net Tonnes	5,421,278	1,381,281	9,630,281	1,097,115	1,250,558
NTK'000	1,976,952	441,989	1,918,556	171,299	163,698
eGTK'000	2,548,938	--	2,872,713	--	--

**Table 2 - Coal Carrying Train Service Performance**

## Dewirements

The number of dewirements recorded for each quarter since Q1 FY2010, are shown in **Table 3** below.

There were no dewirements during the Reporting Period.

Number of Dewirements	Blackwater	Goonyella
Jul-Sept 2010	--	2
Oct-Dec 2010	--	--
Jan-Mar 2011	--	2
Apr-Jun 2011	--	--
Jul-Sept 2011	--	1
Oct-Dec 2011	1	--
Jan-Mar 2012	1	1
Apr-Jun 2012	1	1
Jul-Sept 2012	1	--
Oct-Dec 2012	--	--
Jan-Mar 2013	--	--
Apr-Jun 2013	--	1
Jul-Sept 2013	1	--
Oct-Dec 2013	1	--
Jan-Mar 2014	--	--
Apr-Jun 2014	--	1
Jul-Sept 2014	--	2
Oct-Dec 2014	--	--
Jan-Mar 2015	--	--
Apr-Jun 2015	--	--
Jul-Sept 2015	--	--
Oct-Dec 2015	--	--
Jan-Mar 2016	--	--
Apr-Jun 2016	1	--
Jul-Sept 2016	--	--
Oct-Dec 2016	--	1
Jan-Mar 2017	--	1
Apr-Jun 2017	--	--
Jul-Sept 2017	--	--
Oct-Dec 2017	1	1
Jan-Mar 2018	2	1
Apr-Jun 2018	--	--
Jul-Sep 2018	1	--
Oct-Dec 2018	--	--
Jan-Mar 2019	--	--

**Table 3 - Number of Dewirements**

## Derailments

A Derailment occurs where one (or more) rolling stock wheel(s) leave the rail or track during railway operations. The number of derailments recorded for each quarter since Q1 FY2010 is outlined in **Table 4** below.

There were two (2) derailments during the Reporting Period; both in the Goonyella system

Number of Derailments	Blackwater	Goonyella	Moura	Newlands
Jul-Sept 2010	8	11	1	2
Oct-Dec 2010	1	5	3	1
Jan-Mar 2011	7	7	6	1
Apr-Jun 2011	3	8	1	2
Jul-Sept 2011	3	7	3	3
Oct-Dec 2011	5	2	1	--
Jan-Mar 2012	9	5	4	1
Apr-Jun 2012	5	7	3	4
Jul-Sept 2012	6	6	3	--
Oct-Dec 2012	4	6	3	1
Jan-Mar 2013	3	6	2	--
Apr-Jun 2013	3	1	1	--
Jul-Sept 2013	5	4	3	--
Oct-Dec 2013	4	2	--	--
Jan-Mar 2014	6	3	4	1
Apr-Jun 2014	2	3	--	1
Jul-Sept 2014	2	8	2	--
Oct-Dec 2014	5	3	--	1
Jan-Mar 2015	2	4	--	--
Apr-Jun 2015	2	--	--	--
Jul-Sept 2015	--	1	--	--
Oct-Dec 2015	2	3	--	--
Jan-Mar 2016	8	2	--	--
Apr-Jun 2016	1	3	1	--
Jul-Sept 2016	--	1	--	2
Oct-Dec 2016	--	2	1	--
Jan-Mar 2017	2	1	1	--
Apr-Jun 2017	--	--	--	--
Jul-Sept 2017	3	1	1	1
Oct-Dec 2017	2	2	1	--
Jan-Mar 2018	3	--	--	1
Apr-Jun 2018	1	6	--	--
Jul-Sep 2018	1	--	--	--
Oct-Dec 2018	2	1	1	--
Jan-Mar 2019	--	2	--	--

**Table 4 - Number of Derailments**



### Derailments with a cost of recovery exceeding \$100,000

Aurizon Network confirms that during the Reporting Period, there was one (1) derailment in which the cost to Aurizon Network of recovery exceeded \$100,000.

During the Reporting Period, Aurizon Network also incurred financial ‘settlement’ costs in relation to derailments that occurred in prior reporting periods. For transparency, these are also outlined in the table below.

Derailment Incident	Date	Location	Cost (\$)
DR917641	18/08/2017	Windah Westwood	1,434,170
D1109439	9/06/2018	Waitara	149,372
D1177754	6/10/2018	Dakenba	270,453
D1200068	24/11/2018	Marmor	340,453
D1240384	10/03/2019	Dalrymple Bay	999,470

Table 5 - Derailments with a cost of recovery exceeding \$100,000

### Temporary Speed Restrictions

Imposed Temporary Speed Restrictions (TSR) indicate the level of controlled defects on the Network and Removed TSR indicate maintenance undertaken by Aurizon Network to remove operational constraints. TSR are put in place to ensure levels of operational safety are maintained during, for example, track maintenance work.

Figure 2 below shows the number of TSR imposed on and removed from the network within each quarterly reporting period since FY2010.

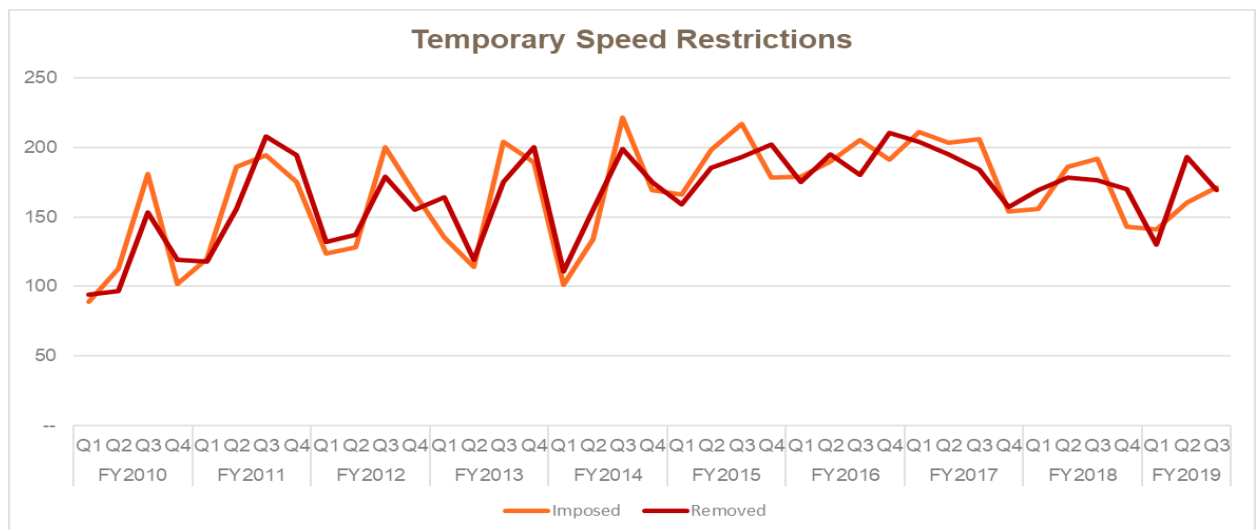


Figure 2 - Temporary Speed Restrictions Imposed and Removed

### Below Rail Cancellations

Figure 3 below illustrates the percentage of train services cancelled due to a Below Rail cause.

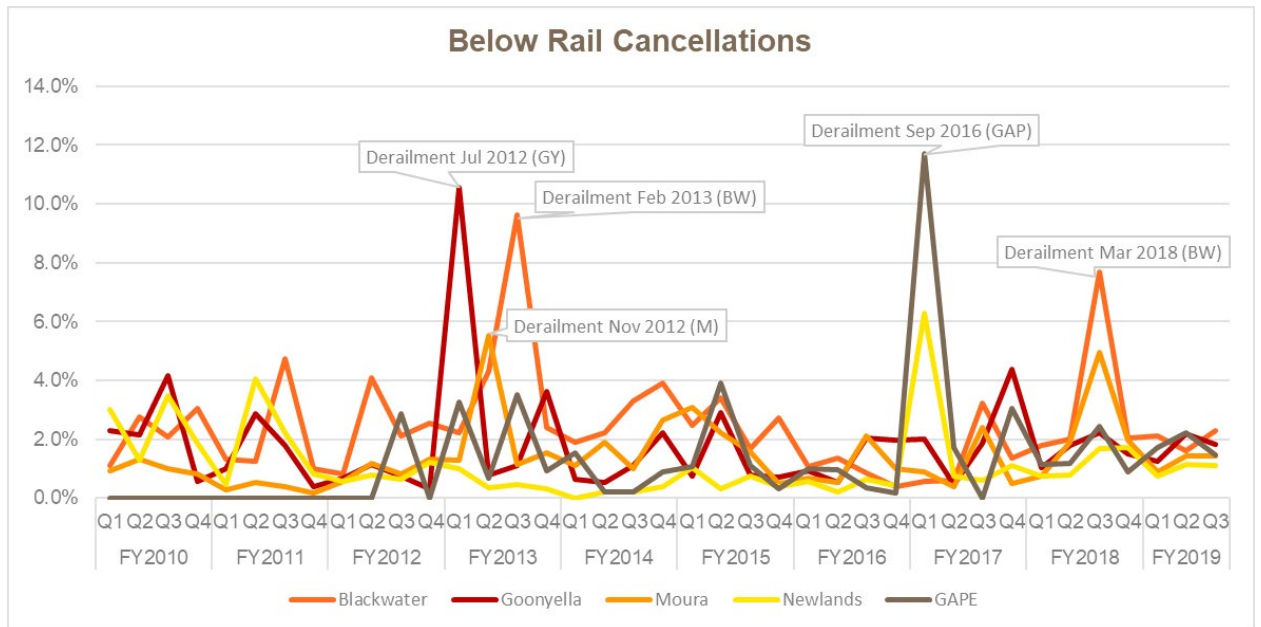


Figure 3 - Percentage of Cancellations due to a Below Rail Cause

### Overall Track Condition Index

The Overall Track Condition Index (OTCI) is a measure of quality of the network for each Coal System. It provides a general indicator of 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.

Please note that the OTCI values presented below reflect an average over a defined length. It cannot reflect all the variations in track quality which may exist within a coal system. Consequently, it should be interpreted as an indicator of abnormality.

Table 6 provides the OTCI for the Reporting Period.

Overall Track Condition Index	Blackwater	Goonyella	Moura	Newlands
Jan-Mar 2019	29.95	27.82	30.97	25.81

Table 6 - Overall Track Condition Index

## Below Rail Transit Time

Below Rail Transit Time (**BRTT**) is an indicator of operational performance of each Coal System. The BRTT includes the following:

- > 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.

**Table 7** below outlines this performance measure for each individual coal system during the Reporting Period.

Below Rail Transit Time %	Blackwater	Goonyella	Moura	Newlands	GAPE
Jan-Mar 2019	107%	109%	128%	127%	124%

**Table 7 - Below Rail Transit Time Percentage**

The BRTT for all coal systems was within the respective requirement during the Reporting Period. This outcome is indicative of a well performing, fit for purpose network.

## 3.0 Maintenance Performance

### 3.1 General Maintenance

#### Track Defects

Aurizon Network's Network Asset Management System (**NAMS**) uses notifications to request works where a track defect has been identified. The following data in **Table 8** represents the number of Notifications which have been raised for rectification during the Reporting Period.

Rectification Period	Number of Notifications
Under 30 days	2,729
30-90 days	1,947
90 days and over	919
<b>Total</b>	<b>5,595</b>

**Table 8 – Number of Notifications**

#### Work Orders vs Maintenance Completed

The number of Work Orders Created is compared with the number of Maintenance Tasks Completed, for the Reporting Period, in **Table 9** below.

Work Order type	Number of Work Orders Created	Number of Maintenance Tasks Completed
Immediate	2,121	2,119
Corrective	2,825	2,926
Preventive	8,256	7,794
<b>Total</b>	<b>13,202</b>	<b>12,839</b>

**Table 9 - Work Orders vs Maintenance Completed**

Depending on the severity of the defect, work orders created during the Reporting Period may be scheduled for execution over varying time horizons, for example, immediate, 1 week, 3 months or 12 months etc. Consequently, the number of maintenance tasks completed for the quarter will not necessarily match the number of work orders created.

Similarly, please note that the data relating to the:

- > number of work orders created; and
- > maintenance tasks completed,

includes planned maintenance tasks (e.g. inspections). These tasks are periodic in nature, and do not have a corresponding Notification; hence there were more Work Orders created than Notifications raised.

## 4.0 Network Maintenance Costs

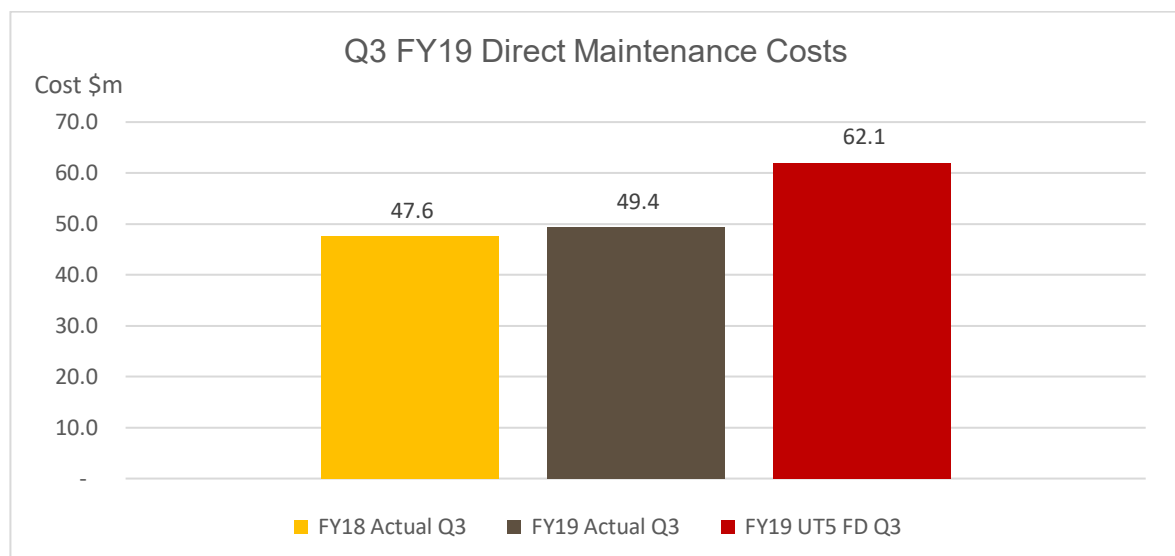
This section outlines Aurizon Network's actual maintenance performance for the Reporting Period in terms of costs incurred for CQCN maintenance activities and scope delivered for mechanised maintenance activities.

The QCA's Final Decision on UT5 was published on 6 December 2018 and consequently, this report compares Aurizon Network's actual maintenance cost and scope to the forecasts outlined in the UT5 Final Decision. It should also be noted that the UT5 Final Decision does not present costs on a quarterly basis. To facilitate a comparison for the Reporting Period, the annual costs outlined in the UT5 Final Decision have been apportioned in line with Aurizon Network's maintenance budget phasing for FY2019.

### 4.1 Overall Maintenance Costs

#### Total Direct Maintenance Cost - CQCN

The total direct maintenance costs incurred during the Reporting Period is shown in **Figure 4** below. For comparative purposes, actual costs for the Reporting Period are compared to both the QCA's UT5 Final Decision and the costs incurred during the same quarter in the previous financial year.



**Figure 4 - Total Network Direct Maintenance Cost**

Aurizon Network's direct maintenance expenditure for the Reporting Period was \$49.4m; an amount of \$12.7m or 21% lower than the apportioned UT5 Final Decision and 4% higher than Q3 FY2018.

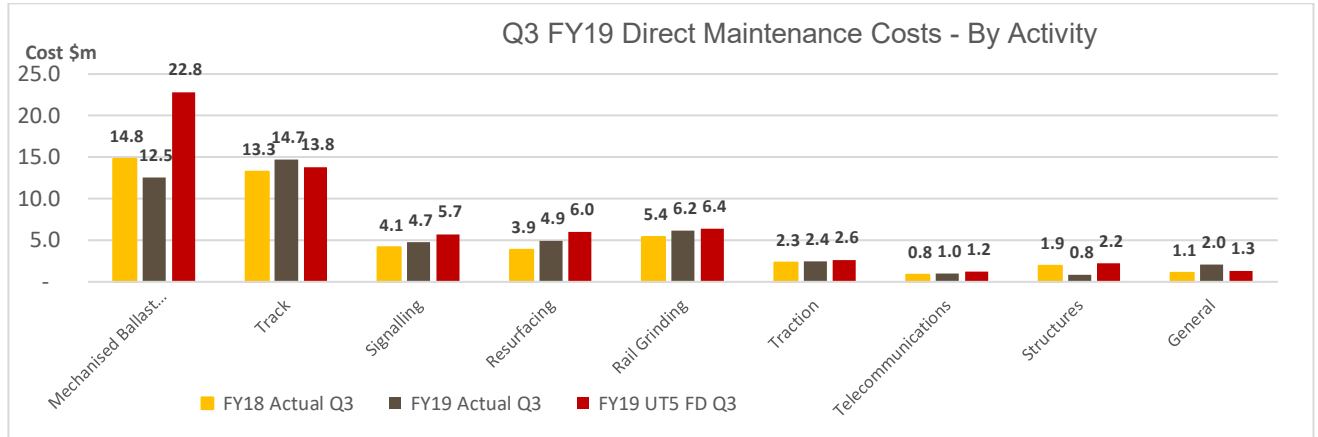
In comparison to the apportioned UT5 Final Decision, Aurizon Network's main underspend was impacted by Mechanised Ballast Undercutting, Resurfacing, Structures and Signalling maintenance activities and overspends were seen in Track and General maintenance.

Mechanised Ballast Undercutting was underspent by \$10.3 million as compared to the UT5 Final Decision due to lower production caused by track access disruptions from protestor activity in the Newlands system, protected industrial action, derailments and dewirements during the quarter. In addition to the track access disruptions, the wet weather conditions adversely impacted Resurfacing activities where work was redirected to emergency operations. An underspend in Structures maintenance was attributable to lower culvert cleaning and structures inspections, whereas the underspend in Signalling maintenance activities related to lower preventative signalling field and level crossing maintenance.

The \$0.9 million overspend in Track maintenance was driven by the continued focus on the removal of temporary speed restrictions and the adverse wet weather conditions requiring additional rail stress management and rail repairs as well as top and line resurfacing.

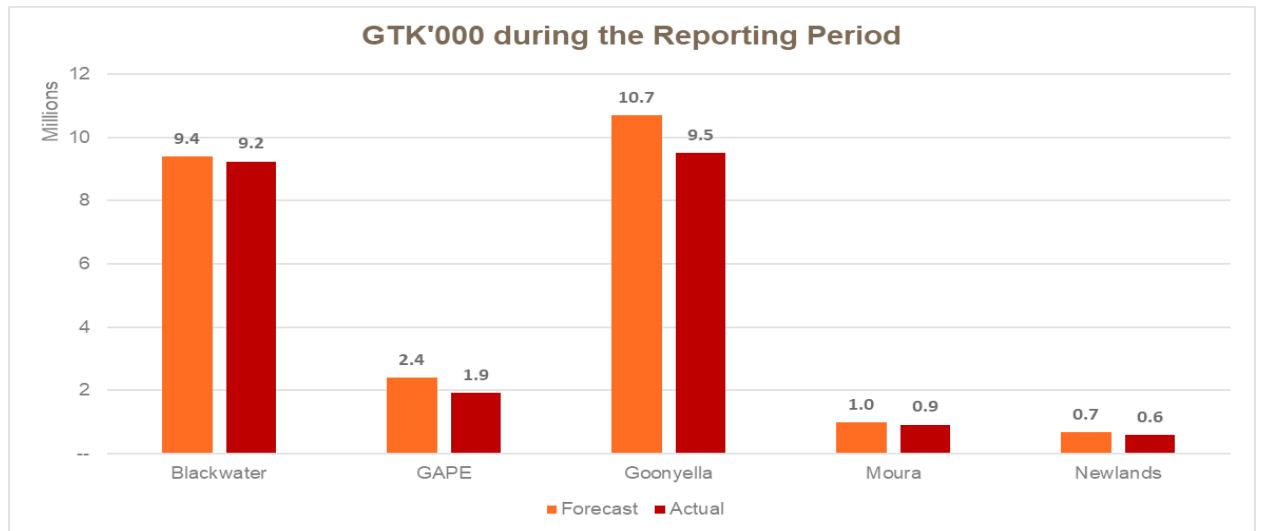
### Direct Maintenance Cost by Activity

**Figure 5** below identifies the total direct maintenance costs incurred during the Reporting Period by activity, in comparison to the apportioned UT5 Final Decision and the same quarter in the previous year.



**Figure 5 – Direct Maintenance Cost by Activity**

A comparison of the actual Gross Tonne Kilometres (GTK) railed during the Reporting Period, relative to the forecast GTK from UT5 Final Decision is outlined in **Figure 6** below.



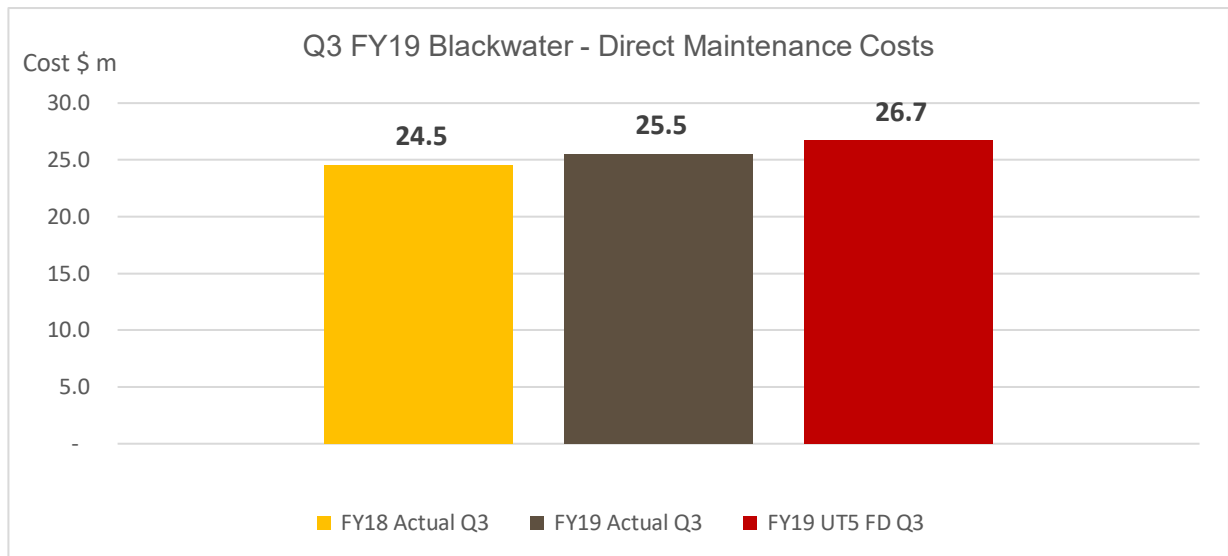
**Figure 6 - Forecast GTK vs Actual GTK**

### Direct Maintenance Cost by System

The direct maintenance cost incurred for the Reporting Period compared against the apportioned UT5 Final Decision and the same quarter in the previous year is shown below for Blackwater (**Figures 7 and 8**), Goonyella (**Figure 9 and 10**), Moura (**Figure 11 and 12**) and Newlands (**Figure 13 and 14**). These costs are broken down per activity for the separate systems.

#### Blackwater

The direct maintenance costs incurred during the Reporting Period for the Blackwater system was \$25.5m which was 5% lower than the apportioned UT5 Final Decision for the same period and 4% higher than the third quarter in the prior year.

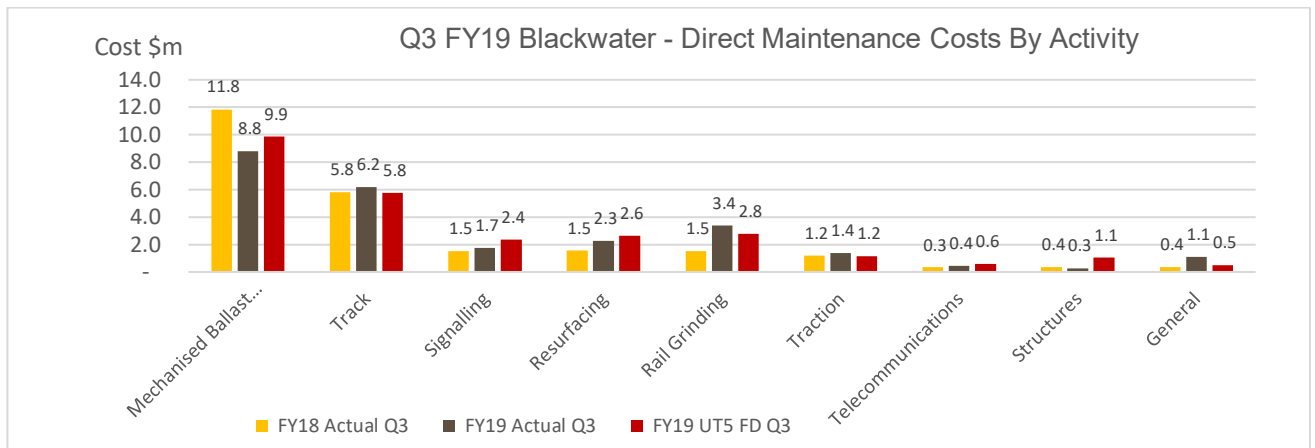


**Figure 7 – Blackwater Direct Maintenance Cost**

The main underspends during the Reporting Period were in Mechanised Ballast Undercutting, Resurfacing, Structures maintenance and Signalling maintenance activities. The adverse weather conditions impeded the continuation of production in Ballast Undercutting and the ability to deliver scope. Resurfacing maintenance scope delivery was also impacted due to the focus on the removal of temporary speed restrictions.

Lower spend in Structures maintenance activities included lower structures inspections, culvert cleaning and drainage maintenance. Savings were also attributable to Signalling maintenance activities relating to preventative field maintenance and corrective wayside monitoring system maintenance as well as the treatment of standby cost of the on-call maintenance. This is being captured as General maintenance as compared to the allocation of the Final Decision which was allocated to Signalling.

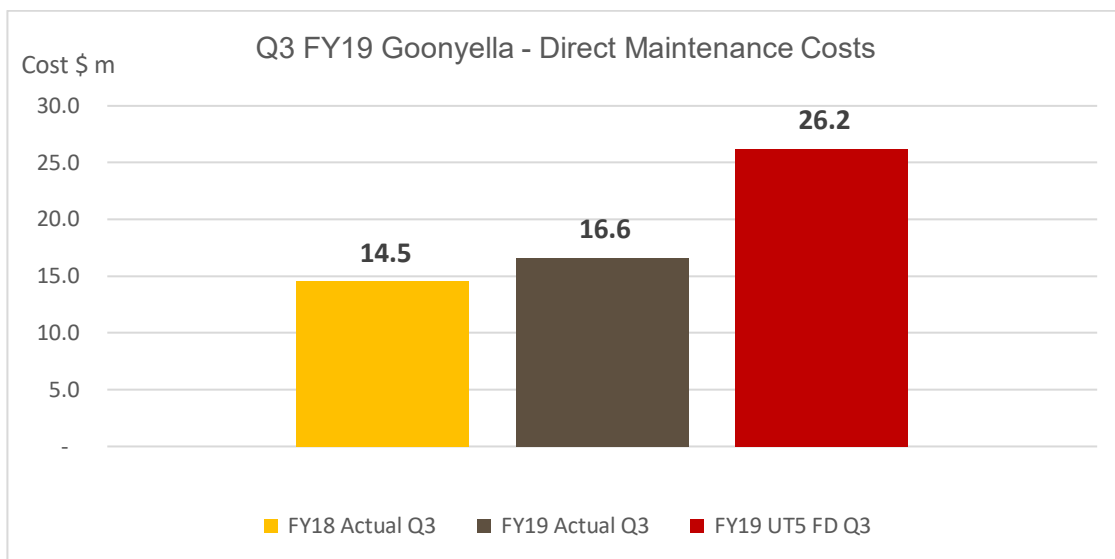
With the continued focus on the reduction of temporary speed restrictions, higher spend was seen in Track maintenance to address defects identified by the track recording vehicle and infrastructure maintenance inspections. The track maintenance activities included rail stress management, rail repairs and top and line resurfacing. Higher spend was also seen in General maintenance reflecting the contra savings in Signalling maintenance mentioned above.



**Figure 8 - Blackwater Direct Maintenance Cost by Activity**

### Goonyella

The direct maintenance costs incurred during the Reporting Period for the Goonyella system was \$16.6m, which was \$9.6m, or 37% lower than the UT5 Final Decision apportionment. This represents a \$2.1m, or 14%, increase from the comparative period in FY18.



**Figure 9 - Goonyella Direct Maintenance Cost**

Goonyella's maintenance cost by activity is shown in **Figure 10**. The underspends against the UT5 Final Decision are attributable to Ballast Undercutting, Rail Grinding, Resurfacing maintenance, Structures maintenance, and Signalling maintenance activities. This was slightly offset by a higher spend on Track maintenance for rail stress management, rail repairs and non-formation earthworks.

The underspend on Ballast Undercutting was attributable to the loss of production from the train derailment at the Dalrymple Bay Coal Terminal (DBCT) balloon as listed in table 5 above. The Ballast Undercutter was required to assist in the track recovery operations to minimise delays at the port. Rail Grinding was also impacted by the train derailment as track possession was restricted due to the running of trains in and out of the balloon to facilitate the restoration of system operations.



The Resurfacing underspend during the reporting period was caused by inclement wet weather conditions impacting production. Resurfacing fleet was redeployed from Network Maintenance Planned activities to emergency operations including track buckles and points failures.

Structures maintenance savings were achieved in culvert cleaning and drainage maintenance while savings in Signalling maintenance were achieved in preventative level crossing protection and cable route maintenance.

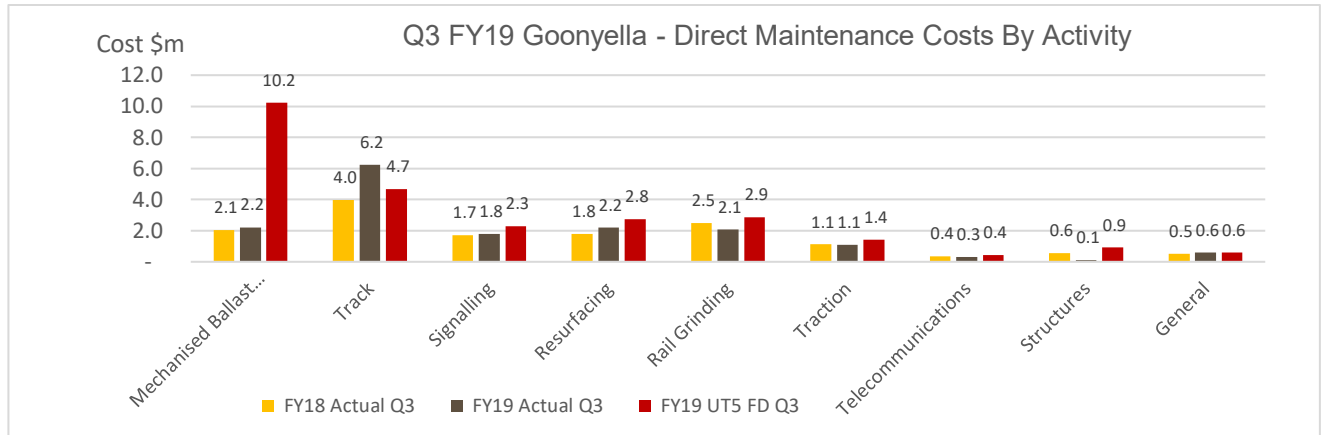


Figure 10 – Goonyella Direct Maintenance Cost by Activity

### Moura

The direct maintenance costs incurred during the Reporting Period for the Moura system was \$4.4m, which was \$1.2 higher than the UT5 Final Decision and \$0.7m lower than the comparative period from the previous year.

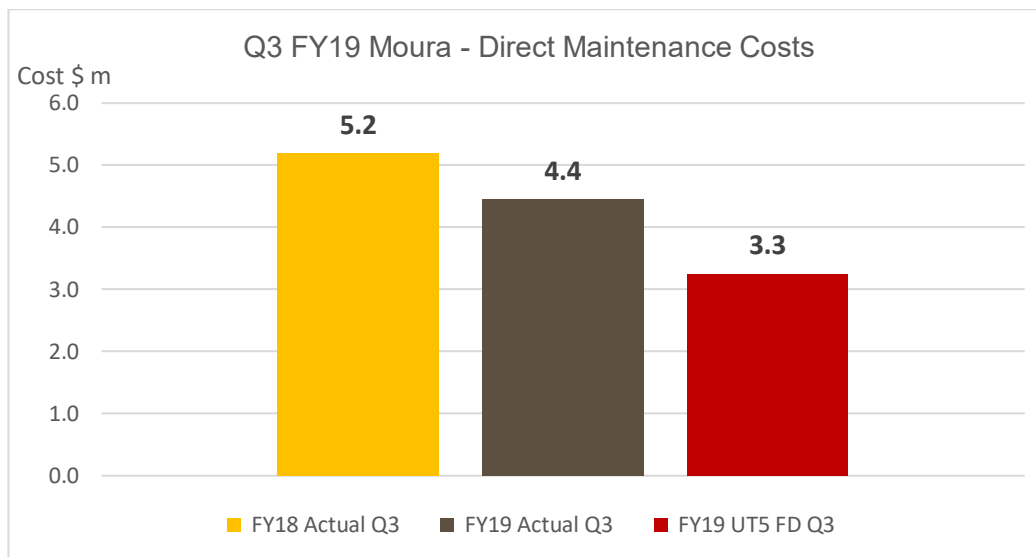
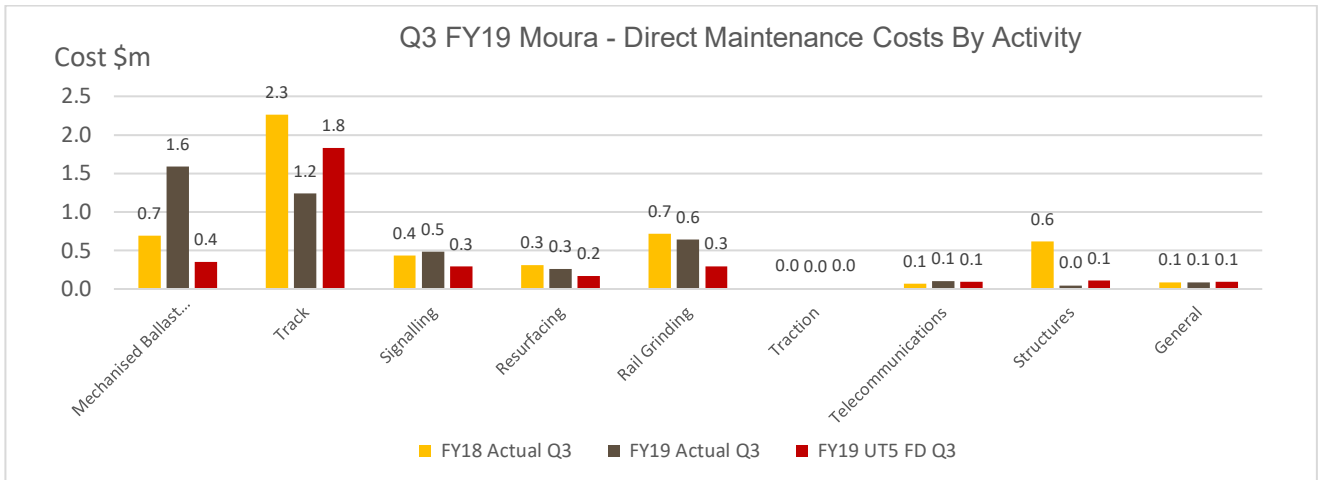


Figure 11 - Moura Direct Maintenance Cost

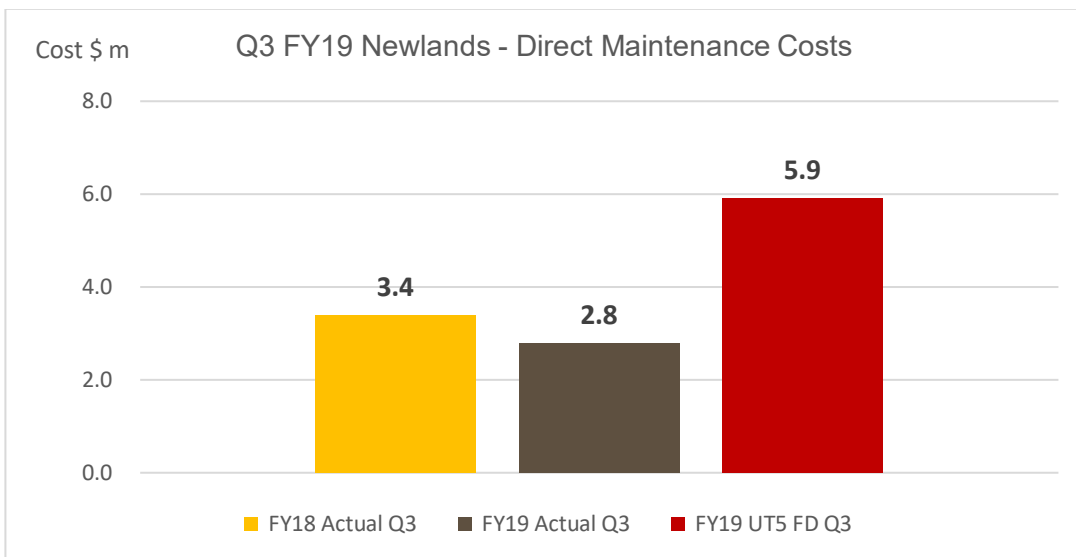
The primary contributors to the overspend were Ballast Undercutting, Rail Grinding and Signalling maintenance activities. These variances were due to the timing of activities compared to the apportionment of the UT5 Final Decision.



**Figure 12 - Moura Direct Maintenance Cost by Activity**

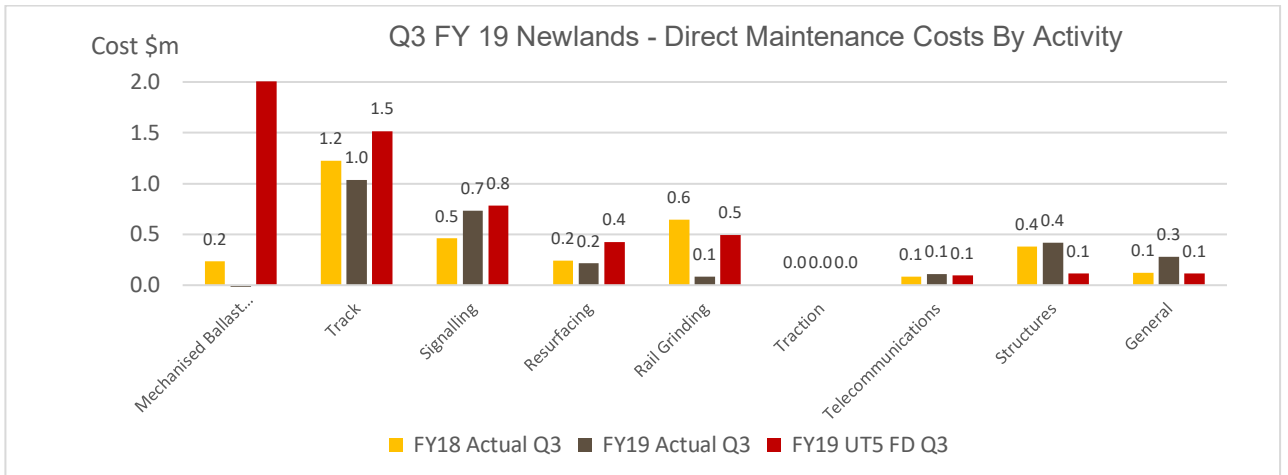
### Newlands

The direct maintenance costs incurred during the Reporting Period for the Newlands system was \$2.8m, which was \$3.1m lower than the UT5 Final Decision apportionment and \$0.6m lower than the comparative period from the previous year.



**Figure 13 - Newlands Direct Maintenance Cost**

Ballast Undercutting, Track maintenance, Rail Grinding and Resurfacing activities were underspent during the quarter and was impacted by disruption to operations from an increase in Protestor activities in this system. These savings were partially offset by an overspend against the allowance for Structures and General maintenance activities.



**Figure 14 - Newlands Direct Maintenance Cost by Activity**

## 4.2 Mechanised Maintenance

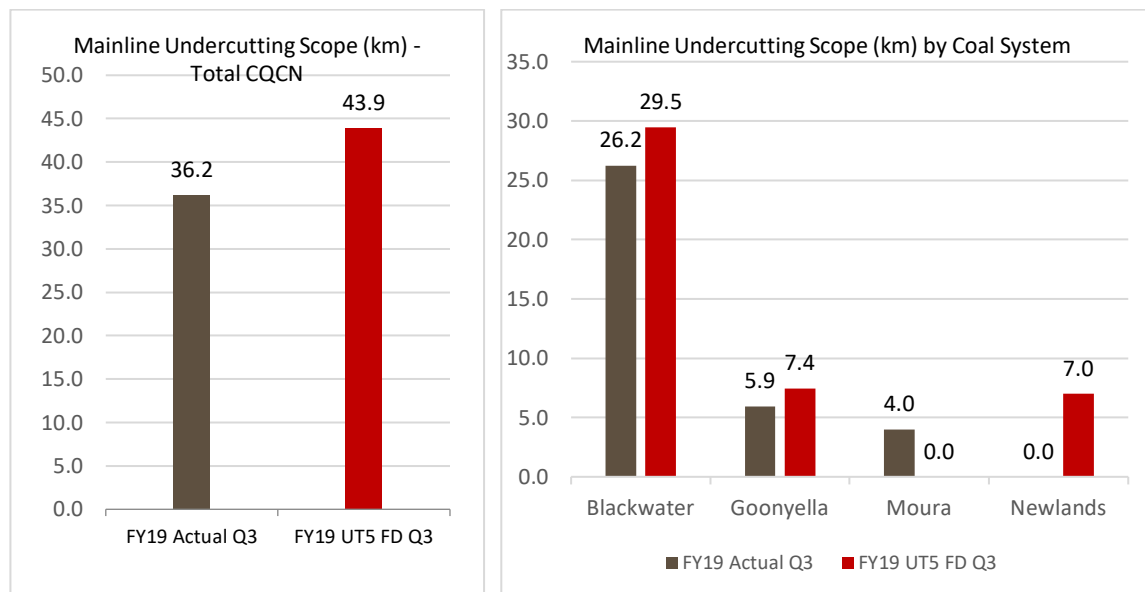
Mechanised maintenance works utilise mechanical machinery and comprise the following categories: Ballast Undercutting, Rail Grinding, and Resurfacing. Mechanised maintenance scope performance for the Reporting Period is outlined in more detail below. Please note that the UT5 Final Decision scope for each coal system is typically set in advance of the regulatory period. The distribution of actual scope between systems is based on a detailed assessment by Aurizon Network’s engineers and planners, who prioritise scope based on asset condition and criticality. As a consequence, variances may exist due to timing differences between when the scope is set for regulatory purposes and when it is planned for execution.

### Ballast Undercutting

Ballast Undercutting by system for the Reporting Period is shown below in **Figure 15** and **Figure 16**, in terms of both linear kilometres and number of turnouts, compared with the UT5 Final Decision. During Quarter 3 of FY2019, unscheduled emergency works, disruption from protestor action and protected industrial action adversely impacted production with 18% less Mainline Ballast Undercutting scope being delivered.

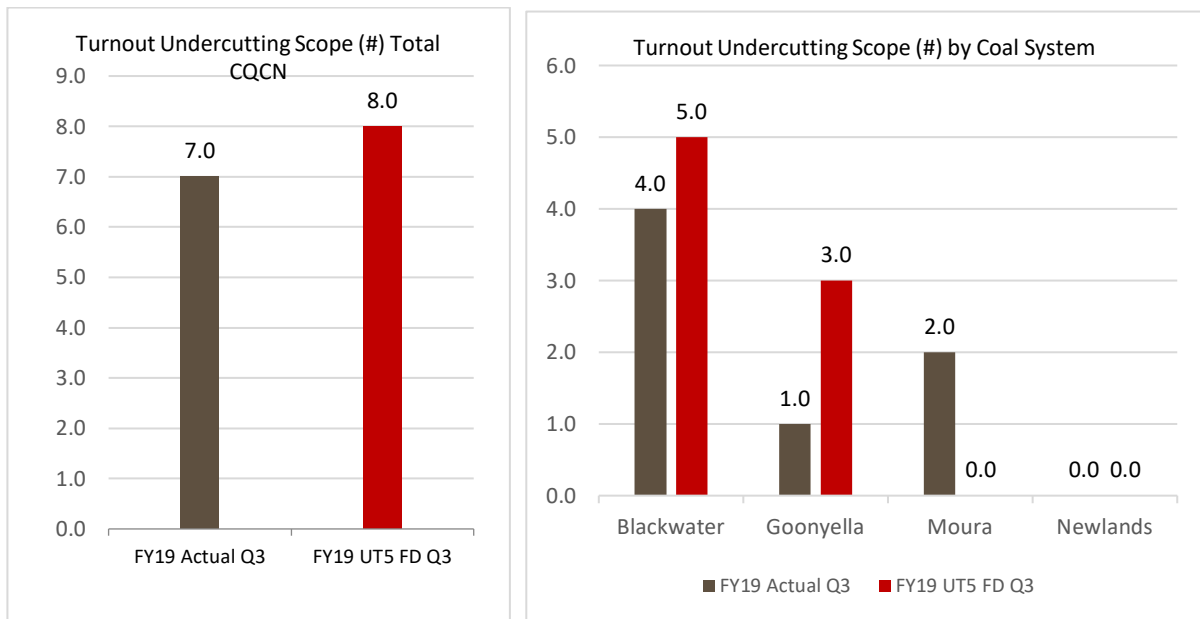
Ballast Undercutting includes costs relating to the Ground Penetrating Radar machine which has not been allocated to a system. The costs incurred for the Reporting Period is \$0.3m

During the Reporting Period, the Mechanised Production team have delivered 26% of the FY2019 mainline undercutting scope with Moura exceeding the full year scope in the previous periods. At this stage, the RM900 is not expected to deliver any further Mainline Ballast Undercutting work in the Moura system for the remainder of the financial year.



**Figure 15 – Mainline Ballast Undercutting scope by System**

The Turnout Ballast Undercutting compared with the UT5 Final Decision is shown in **Figure 16**



**Figure 16 - Ballast Undercutting (Turnouts) by System**

**Figure 16** above presents Turnout Undercutting scope achieved in comparison to the apportioned UT5 Final Decision for the Reporting Period. The Mechanised Production team undercut a total of 7 turnouts during the Reporting Period, which was 1 lower than the apportioned UT5 Final Decision. 4 turnouts were undercut in Blackwater, 1 in Goonyella and 2 in Moura.

Ballast Undercutting scope variations in:

- > Blackwater and Moura systems were driven by the requirements of the asset and scope prioritisation (as determined by track recording vehicle data and inspection).
- > Goonyella system was attributable to the prioritisation of emergency recovery works with mechanised maintenance machines being redeployed to support train derailments.
- > Newlands system was impacted by the protestor activity, which disrupted operations.
- > All systems was due to the Protected Industrial Action (PIA) from Aurizon train crew and Operations personnel and the resultant impact from rescheduling of track possession.

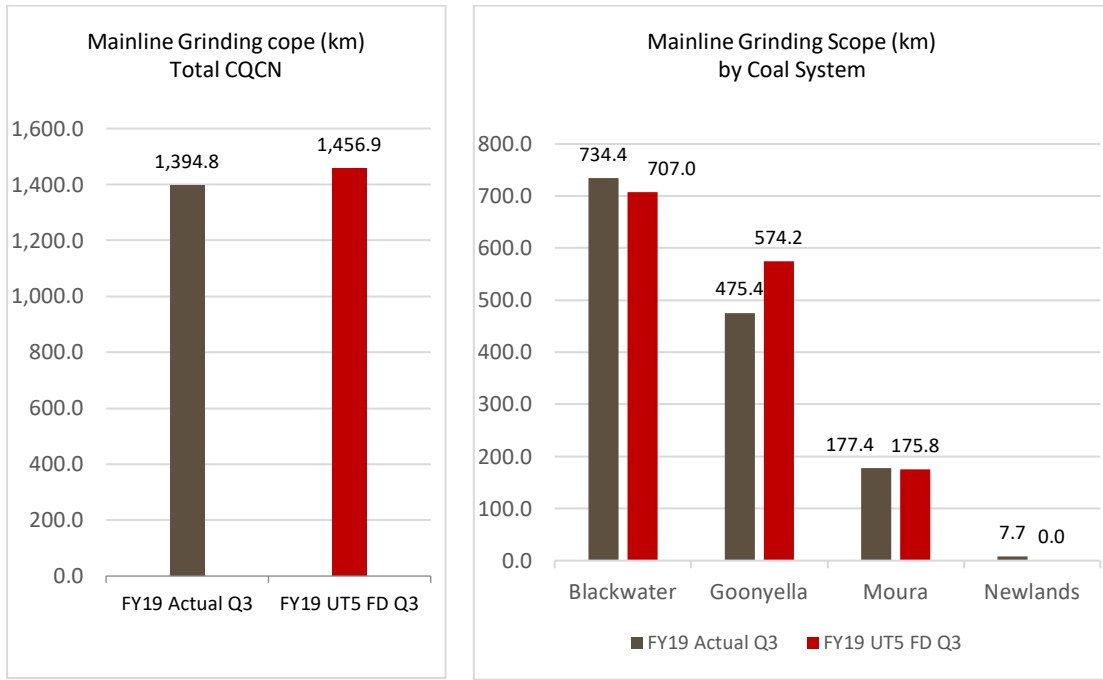
## Rail Grinding

Mainline Rail Grinding by system for the Reporting Period is shown in **Figure 17** below. During the Reporting Period, 1,395km of Mainline Grinding scope was delivered, which was 62km lower than the apportioned UT5 Final Decision.

At a system level, Goonyella achieved 99km less scope than was planned for the Reporting Period as compared to the UT5 Final Decision. This result was attributable to the loss of track access due to the prioritisation of emergency works relating to train derailments. There were 734 mainline kilometres delivered in Blackwater, 177km in Moura and 8km in Newlands.

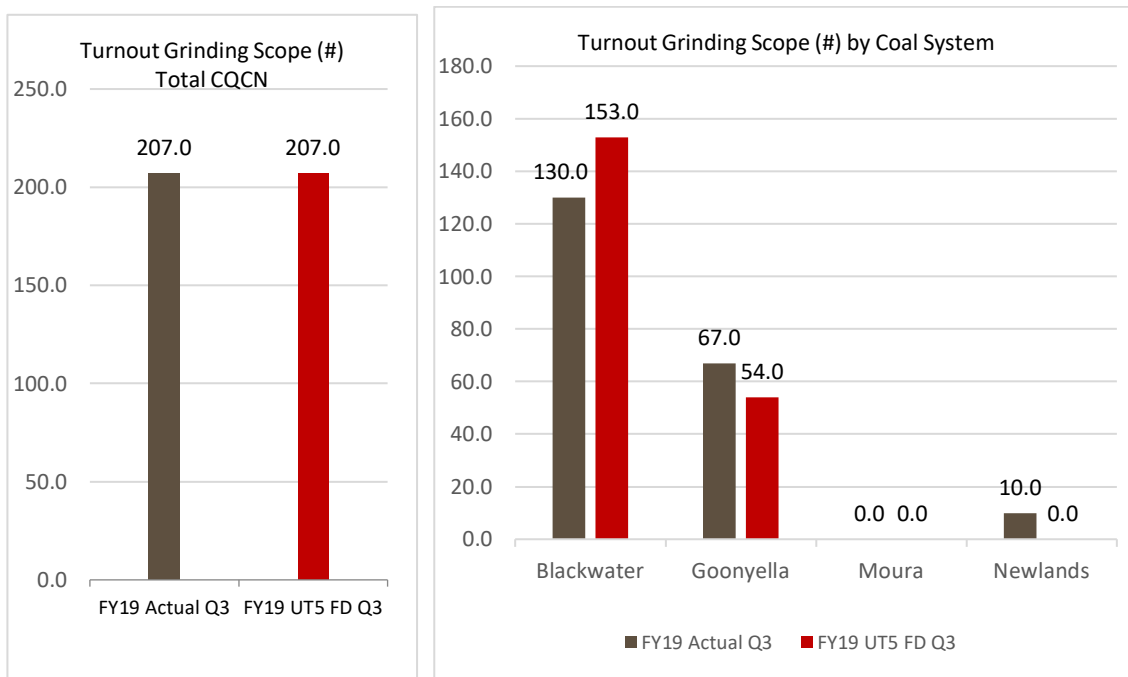
During the Reporting Period (relative to the apportioned UT5 Final Decision), production was also impacted by disruption from the Protected Industrial Action (PIA) of Aurizon train crew and Operations personnel.

For the third quarter, 34% of the total Mainline Rail Grinding scope for FY2019 was delivered.



**Figure 17 - Rail Grinding (Mainline) by System**

Rail Grinding (Turnouts) by system for the Reporting Period is shown in **Figure 18** below.



**Figure 78 - Rail Grinding (Turnouts) by System**

During the Reporting Period, Rail Grinding completed 207 turnouts; which was in line with the apportioned UT5 Final Decision.

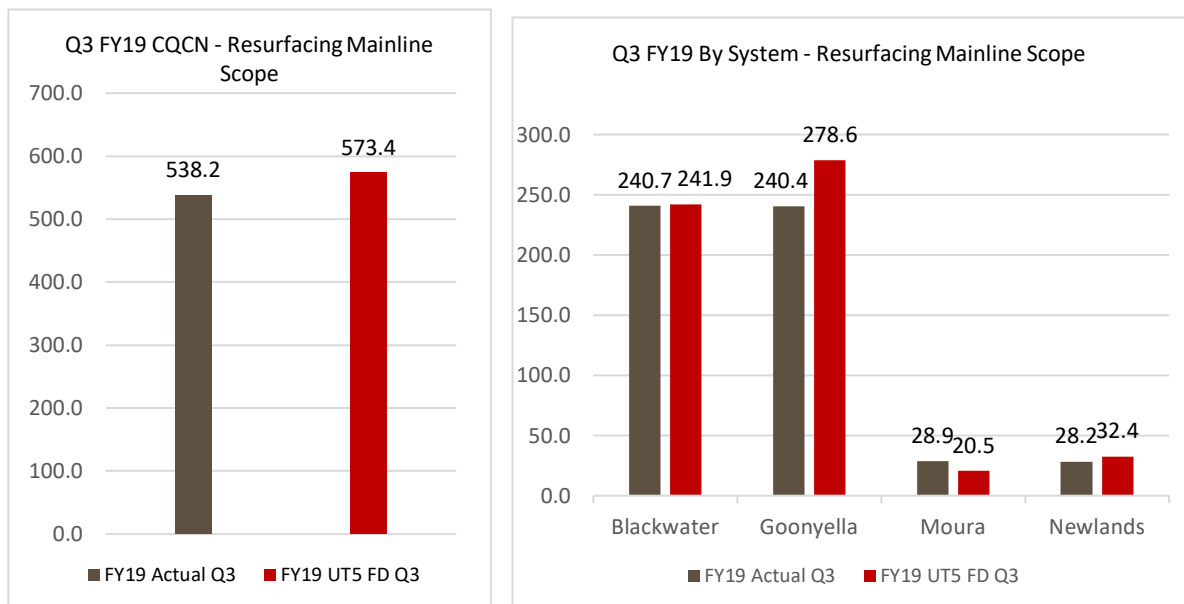
For quarter three, 27% of the total Turnout Grinding scope for FY2019 was completed with 90% being completed within the year to date, including completing the full annual turnout grinding scope for the Moura system.

## Resurfacing

Resurfacing (Mainline) by system for the Reporting Period is shown below in **Figure 19**. During the reporting period, Aurizon Network delivered 538 kilometres of Mainline Resurfacing; which was 138km or 6% lower than the apportioned UT5 Final Decision. This result was primarily driven by lower production in the:

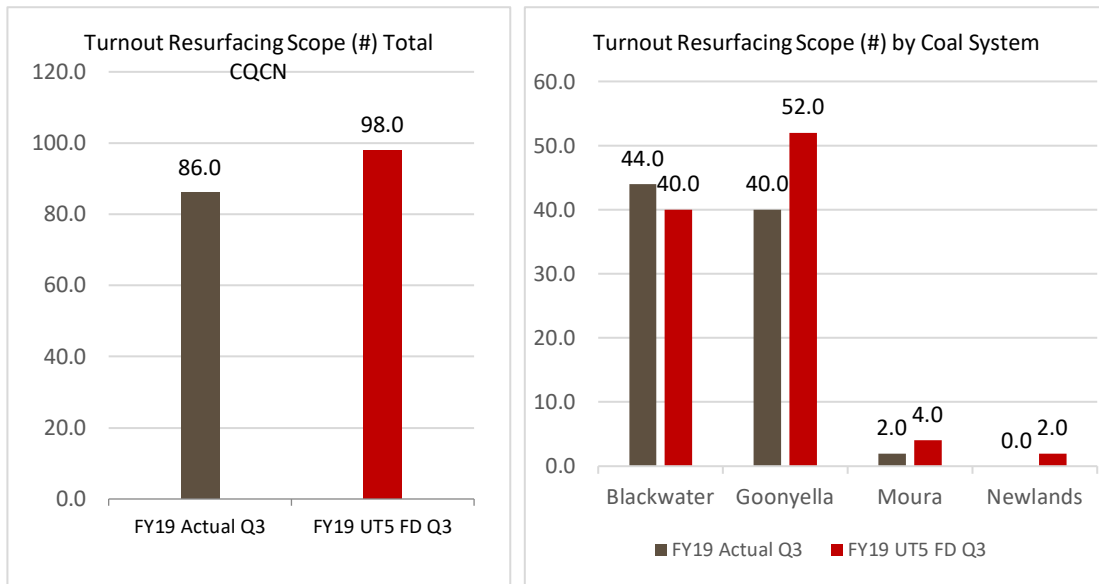
- > Blackwater, Goonyella and Newlands systems due to the unplanned emergency response works and inclement wet weather impacting the continuation of production; partially offset by
- > Moura system due to the timing of activities based on the asset requirement and prioritisation as compared to the apportionment of the UT5 Final Decision.
- > All systems due to the Protected Industrial Action (PIA) from Aurizon train crew and Operations personnel interrupting operations and the resultant impact to rescheduling of track possession.

During the Reporting Period, Mechanised Production team delivered 25% of the total UT5 Final Decision Mainline scope for FY2019.



**Figure 8 - Resurfacing (Mainline) by System**

Resurfacing (Turnouts) by system for the Reporting Period is shown below in **Figure 20**.



**Figure 20 - Resurfacing (Turnouts) by System**

During the Reporting Period, Aurizon Network completed resurfacing works of 86 turnouts; 12 turnouts less than the UT5 Final Decision equivalent. On a year to date basis, Resurfacing Turnout maintenance was ahead of plan. With the strong performance and improved planning, resurfacing fleet was redirected to complete additional Mainline Resurfacing scope. Additional scope was achieved in the Blackwater system to rectify defects identified by the track recording vehicle and infrastructure maintenance inspections and focus on the removal of temporary speed restrictions.