WIRP Users: Submission to the Queensland Competition Authority

Response to QCA's Supplementary Draft Decision: Reference Tariffs for Wiggins Island Rail Project

September 2015

Contents

EXECUTIVE SUMMARY

The Wiggins Island Rail Project (‘**WIRP’**) User Group welcomes the opportunity to make a submission to the Queensland Competition Authority (‘**QCA’**) in relation to the July 2015 Supplementary Draft Decision on Aurizon Network’s (‘**AN’s’**) Reference Tariffs for WIRP Train Services (‘**2015 WIRP SDD’**), submitted on 18 December 2014.

The WIRP User Group comprises Washpool Coal Pty Ltd, Caledon Coal Pty Ltd, Wesfarmers Curragh Pty Ltd, Colton Coal Pty Ltd, Cockatoo Coal Pty Ltd, Yarrabee Coal Company Pty Ltd and Glencore Coal Assets Pty Ltd (‘**WIRP User Group’**).

To fairly respond to the complex issues contained within the 2015 WIRP SDD, this submission is divided into two main sections:

1) ***WIRP Capacity, Scope and Cost Review:*** So as to address many of the concerns raised by stakeholders impacted by the WIRP expansion; to provide robust and sufficient evidence for the QCA; and to decrease the amount of confusion among stakeholder and the QCA relating to the purported benefits of works associated with the project, the WIRP User Group engaged a consortium of experts led by Balance Advisory with the aim of undertaking an analysis that could once and for all address the question as to whether any system wide benefits are associated with the WIRP capital works.

   To address these questions, an independent party undertook capacity simulation modelling, providing data for analysis by Balance Advisory. The simulation model was built upon the Planimate software platform which is the same software used by AN, although we understand that AN’s model has undergone extensive reviews and validation by independent consultants including Ausenco - Sandwell and McKinsey and Co.

   Upon completion of modelling data analysis, findings suggest that benefits to the whole system are both real and tangible. Specifically, the capacity and operational based modelling undertaken has indicated that:

   a. Below Rail Transit Times (‘BRTT’) are significantly improved in both the minimum WIRP (5 duplications) and the full WIRP scope of seven (7) duplications, thus highlighting the benefits of system robustness. This is supported by the increase in available train paths created from this scope, providing higher recovery from unplanned outages and system losses;
   b. With a fully duplicated Blackwater system, delivery of track maintenance is less intrusive on supply chain operations as there is a reduction in full system closures;
   c. Modelling of the pre-WIRP scenario that includes the 5Mtpa access queue at that time demonstrates benefits to the system in fulfilling an identified 2Mtpa throughput gap.

   The final two duplications comprises scope that is of operational benefit to all Blackwater system users (WIRP and non-WIRP alike) so the cost of these, $100.181M, is adopted for re-allocation.

   In addition to the capacity analysis, a review of the project scope was undertaken at a detailed level to identify elements of work that the WIRP User Group believes provide benefits to other system users in addition to themselves. In doing so, it was revealed that a large number of work items had been undertaken by the project that constituted enhancements to AN's existing assets and should rightly belong to AN's maintenance or asset renewals costs rather than within the WIRP cost. The identified amount of $10.334M within the Blackwater system, should be re-allocated to AN's renewals expenditure accordingly.

Other works identified in the detailed scope review of the Blackwater system were deemed to constitute 'system enhancements', with the amount of $39.445M properly being allocated to Blackwater users. Further, it is contended that all the Moura East works constitute a Moura system enhancement and accordingly, the amount of $15.225M should be allocated from WIRP to Moura users.

2) ***Regulatory issues:*** Following on from the detailed findings contained in Section 2, Section 3 addresses many of the regulatory issues. In particular, the WIRP User Group:

   a. Strongly disagrees with the QCA's Draft Decision 3.3 and believes this regulatory positioning seriously threatens future investment within the CQCN; introduces unanticipated regulatory risk into the Queensland Economy; reduces regulatory certainty which should be associated with infrastructure assets, especially those of national significance; and most importantly, reduces confidence into the efficacy of the regulatory environment under which the CQCN and its stakeholders operate;
   b. In relation to the Blackwater system and based upon results from Section 2's capacity and operational modelling, regulatory econometric analysis indicates that:
      i. All users in the Blackwater system would reasonably be able to receive operational and capacity benefits from the scope of works attributable to the final two duplications;
      ii. Close to 23% or approximately $146.01m[1] of the WIRP-Blackwater capital cost should actually be apportioned to all users of the Blackwater system; and
      iii. In the absence of a WICET related expansion, these benefits would have been required by the existing users of the Blackwater system if they sought to meet existing tonnage haulage levels. That is, at least two duplications would be required to deliver the additional 5Mtpa.
   c. In relation to the Moura system and based upon results from Section 2's capacity and operational modelling, regulatory econometric analysis indicates that:
      i. Existing users in the Moura system would reasonably be able to receive operational benefits from the construction works. Without a doubt, as Moura segment works relate to formation strengthening, it is reasonable to assume that system metrics would be enhanced, thus allowing for reduced levels of speed restrictions;
      ii. Close to 24% or approximately $17.55m[2] of the WIRP-Moura capital cost should actually be apportioned to users of the Moura system; and
      iii. In the absence of WIRP, these benefits would have been required by the existing users of the Moura system if they sought to – or continue to – meet existing tonnage haulage levels.

[1] Note, this amount includes Interest During Construction ('IDC')
[2] Note, this amount includes Interest During Construction ('IDC')

d. Based upon conservative modelling assumptions, regulatory econometric modelling therefore indicates that when factoring in such benefits and associated cost allocations:
    i. Modelled price paths for WIRP customers are clearly below that of non-WIRP customers within both the Blackwater and Moura systems; and
    ii. Modelled price paths, if socialised, clearly show 'averaging-down' price path outcomes.
e. Hence based upon the evidence within the submission and subsequent analysis undertaken, no system premiums are required in either the Blackwater or Moura systems; and
f. Before commenting on the suitability of a revenue deferral mechanism, the WIRP User Group would like to see detailed economic modelling on what such impacts have upon reference tariffs, recognising that risks of any deferral need to be allocated to the party best able to handle such risks, whilst also recognising that these same parties earn a commensurate return; and
g. In respect of pricing for the NCL (Colton), the WIRP users support the QCA proposed pricing in Table 7 of Appendix D on page 73 for WIRP NCL and CPI escalation in Table 1 Item 9 of Appendix C due to the unique characteristics of this haul.

This submission does not seek to evaluate the scope, standard or costs associated with WIRP, as these will be subject to regulatory prudency tests that will happen in the future, subsequent to the commissioning of the infrastructure.

If you have any questions relating to the information attached or our submission, please contact our representative Mr Jamie Freeman (jfreeman@balanceadvisory.com).

We confirm that this submission is public (noting Figures 4 & 5 and other associated commentary have been redacted in this public version due to confidentiality reasons).

1. RESPONSE TO QCA's DRAFT DECISION

1.1 WIRP Pre-Agreement Scope Development

In relation to the project, very little of WIRP can be characterised as greenfield rail construction, with the vast majority involving modifications and/or additions to the existing Central Queensland Coal Network ('CQCN'). Coal haulage services on the Blackwater Line and North Coast Line will use all of the existing pre and post WIRP constructed assets, meaning that enhancements to assets made during the WIRP construction will be utilised by all Blackwater system coal and even non-coal rail traffic, be they existing or new users.

During the development of the WIRP project, a large amount of scope definition and rail capacity modelling work was undertaken with the objective of identifying the minimum additional track and network infrastructure that would be required to reliably deliver the total pre-WIRP and WIRP tonnage task.

However, at the time of reviewing and agreeing the WIRP Deed including the associated scope and budget costs, the WIRP User Group was typically provided with high level scope diagrams, capacity modelling results overviews and high level project cost estimates. A scope definition was developed (WIRP Stage 1 Scope Book) to document the proposed project works, yet no detailed design documents were available for review at that early stage. Hence the level of scope definition provided to the WIRP User Group could be described as moderate at best, retaining little detailed design definition at the early stage of the project.

Even though the detailed design of the project scope took place after the WIRP Deed was executed, the WIRP User Group was not provided any further visibility of, or given the opportunity to review and comment on, the fully developed project works documentation. The WIRP Deed does however provide for the appointment of an Independent Engineer (WIRP IE) to overview and monitor the completion of the detailed design development; the implementation of the construction works; and report upon the alignment of the implemented works with the agreed (high level) WIRP scope and budget.

Prior to the investigations related to this submission, the WIRP IE has been the only party outside of AN permitted full access to the detailed design documentation and the fully detailed WIRP project cost reports.

Upon receipt of the 2015 WIRP SDD pricing determination, the WIRP User Group engaged independent technical and commercial resources that had previously been extensively involved during the WIRP project definition phase. Requests were also made to AN to release the detailed project documentation for review. In response, AN provided high level works schematics; a moderate level of project costing information including the tendered Bill of Quantities for some project segments; and access to undertake a review of the developed project construction documentation. A full list of project documentation provided or made available by AN for review is included in Appendix A.

At formation of the WIRP Deed, the WIRP User Group was advised by AN and understood that there would be works undertaken to replace or enhance existing assets while doing work both in the vicinity and of a related type. For instance, upgrading/repairing existing drainage culverts while extending or adding to them. It was also understood by the WIRP User Group at the time that the cost of this work would not be allocated to the WIRP project costs. However this investigation has revealed many instances where such costs remain in the WIRP Forecast Final Cost.

It is also important to remember that the description of the WIRP scope in the WIRP Deed was for the purposes of determining a fee to be paid by the WIRP Users to AN. The entire WIRP Deed is aimed at determining that fee. That the Deed deals with the management of scope change, target cost and optimisation risk reflects a negotiated commercial outcome that was considered necessary by the WIRP Users to have AN construct an expansion that would deliver WIRP tonnes to WICET.

The Deed does not (and did not at the time of entering it) reflect the WIRP Users' view on what parts of the scope should be included in the RAB, what parts of the scope were maintenance or asset renewal or what parts of the scope were solely for the WIRP tonnes or were otherwise required to ensure both WIRP tonnes and pre-WIRP tonnes were able to be delivered with the level of robustness expected and required by all users of the relevant coal systems. As noted, the lack of detail in the scope included in the WIRP Deed did not permit this level of detailed analysis during the commercial negotiations.

However, the existence of the WIRP Deed provides benefits to all users of the relevant systems:

1. the appointment of the WIRP IE has meant independent overview of scope changes; and
2. as previously noted in submissions by the WIRP Users, the WIRP Users are incentivised to reduce the total cost of the WIRP as far as possible, as the final cost of the project flows through to the calculation of the WIRP fee.

1.2 Design and Construction Scope and Cost Allocation

Investigations have revealed that costs which should belong to AN's maintenance or asset renewals budgets actually remain in the WIRP Forecast Final Cost. It has also been confirmed that the scope includes substantial elements that provide operational benefits to all system users.

It was understood and accepted by the WIRP User Group that AN proposed to undertake various asset enhancements in conjunction with executing the WIRP scope. Such asset enhancements are normally planned and carried out by AN under asset renewals and maintenance programs, with their costs being allocated to those annual budgets.

However, focussed scrutiny has identified numerous instances where existing assets have been replaced or upgraded in areas beyond the WIRP scope as understood by WIRP User Group and the costs thereof remain in the WIRP Forecast Final Cost. It should also be noted that AN has removed a proportion of asset work items from the project costs assigned as part of the project, but not all. These are detailed in the submission.

In addition, comprehensive capacity modelling and analysis undertaken for this submission has identified substantial elements of the final WIRP scope that provide operational benefits to all system users.

This submission describes the investigations and findings in relation to the above, with the contention that the costs of these elements should not be attributed solely to WIRP Users.

2. WIRP CAPACITY, SCOPE AND COST REVIEW

2.1 Approach

The approach taken to identifying operational benefits and associated costs proposed to be allocated to different parties is, in essence, to:

- Investigate the project scope for items or features that the WIRP User Group believes the costs of which should be attributable to either all system users or to AN; and
- Undertake independent capacity modelling and analysis to determine the minimum infrastructure required for WIRP capacity and system performance, then compare this to what was provided by AN.

The investigation has identified four primary categories of the WIRP scope to which costs should be allocated, namely:

Item	Category	Description
1	Defined Works	Works defined in the WIRP Deed as being part of the project Scope of Works and attributable to the WIRP User Group, and other works noted in the WIRP Deed as being non-WIRP, constructed in conjunction with the project for cost efficiency or similar reasons
2	Asset Renewals or Maintenance	Cost of works undertaken and accumulated by the project where such items should have been allocated to AN's asset renewals or maintenance budgets and not to WIRP. Examples include old culvert replacements and upgrading the Mt Larcom Signalling Equipment Room (SER).
3	Robustness	Works incorporated that have provided system 'robustness' over and above the WIRP minimum requirements that are now available to all system users. An example is where the final two Blackwater duplications create additional system flexibility and robustness.
4	System Benefits	Other works or inherent features that provide benefits to all system users that are not in any of the other categories. Some of these have been constructed as part of the WIRP design and some are 'spin-off' benefits. An example of an inherent benefit to users in addition to WIRP User Group is the construction of the bridge abutments at WIBL for four tracks when only one is required now

Identification of costs under Items 2 to 4 was undertaken through examination of project cost records and constructed scope of works, as defined in drawings and specifications. These costs are generally quantifiable and are segregated from costs under Item 1.

In regard to Item 3, capacity modelling has been undertaken to identify the minimum scope of work elements necessary in the Blackwater system to meet the capacity requirements for WIRP and with other system performance standards being at acceptable levels. Installed works above this level are deemed to be of benefit to all users in the respective system.

Costs identified as being in Items 2 to 4 are tabulated and form the basis of modelling under the regulatory pricing regime to arrive at a recommendation for an updated capital indicator and revised capital expenditure allocations.

2.2 Capacity Review

2.2.1 Capacity Review Approach

To identify capacity allocation the recent history of incremental capacity build from 75Mtpa (export) without an access queue and WIRP to 108Mtpa with access queue and WIRP is examined along with the associated work scope and costs for these examined for applicability to particular user groups or to AN.

It is recognised that some of these scope and cost elements may not be quantifiable because they cannot be separated. For example, an additional passing loop may be required to overcome a system capacity constraint but due to its presence, additional train paths are created to the benefit of all users.

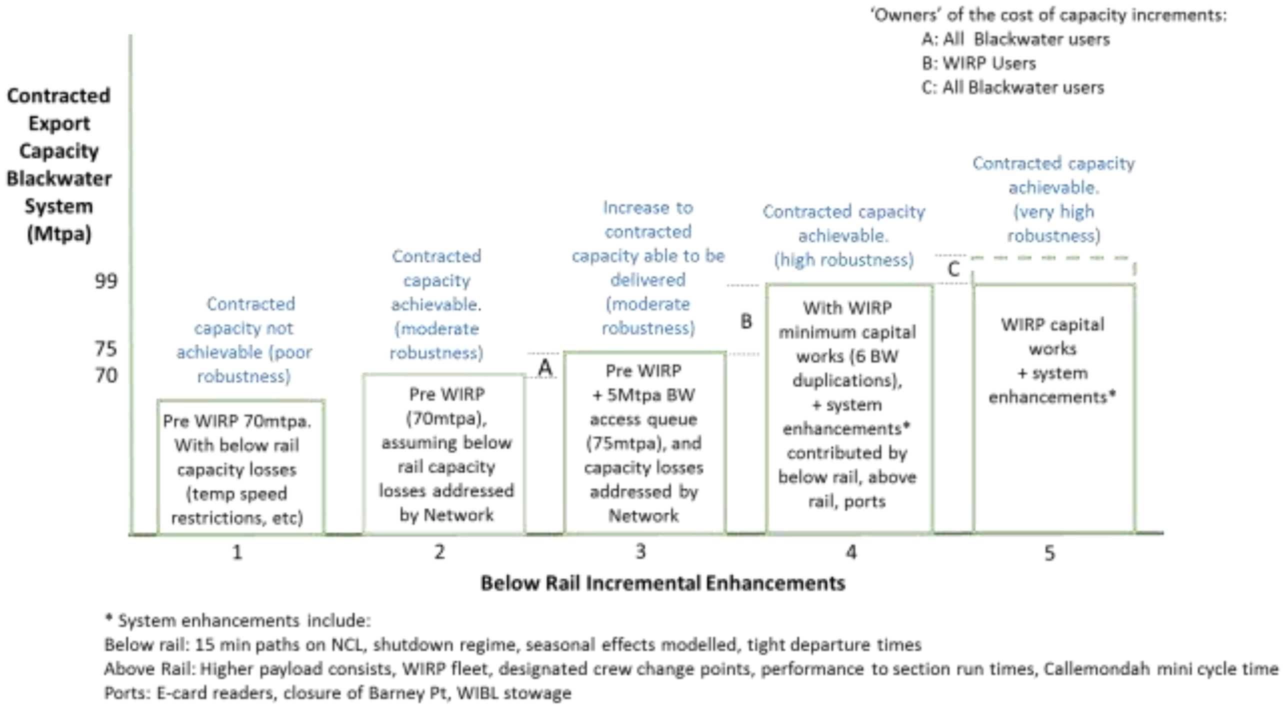
The additional train paths are unallocated and may be taken advantage of by all system users as:

- Additional train paths for short term capacity demands by users seeking to rail at rates higher than short term peaking capacity. The following sections will outline how additional train paths have been identified by modelling.
- High probability of achieving annualised contracted capacity due to higher peaking performance from events that remove short term capacity. Historically in the Blackwater and Moura systems, annualised capacity has not been achievable because the short term peaking capacity was not sufficient to overcome both the chronic underlying losses and the additional short term losses from adverse events.
- Higher recoverability following unplanned outages, planned shutdowns or major weather events. An example of this is having more flexibility to re-route or to stow trains on the fully duplicated Blackwater line.
- Higher availability for maintenance and asset renewals on the Blackwater line due to the ability to re-route trains, new tracks being at 6m centres, a distance that avoids the requirement for full track closures.

The WIRP User Group contends that the cost of these benefits should be distributed across all users of each system. It should also be noted that above rail operators have greater flexibility and now have the ability to run substantially longer trains on some services, which has already occurred with railings to WICET.

Figure 1 below describes the incremental capacity development steps from before the WIRP was approved through to its completed state.

Figure 1 - Incremental Capacity Development



2.2.2 Capacity Planning and Modelling Process

Capacity analysis and simulation modelling are highly effective means of establishing a baseline capability of a rail system and/or a supply chain.

Effective capacity modelling is a two staged approach, the first being a static or theoretical analysis of the system to establish an indicative view of the capability of the system. From this static analysis a reasonable baseline understanding of system performance and where constraints might exist can be gained and guide further detailed assessment. The second stage of the process is a more detailed analysis through the use of a discrete event capacity simulation model. Both techniques have been used in this case.

Discrete event simulation models have the capability to apply as static inputs or statistical distributions, variable events, conditions or performance data that occur within a dynamic supply chain or operation. This type of modelling allows a reasonable approximation of "real world" conditions to be applied to the scenario producing a more robust system view than the static analysis. Comparison of the two outcomes is useful in quickly validating the performance of the simulation model from which a reasonably accurate view of baseline system performance can be established.

From this baseline, both the positive and negative impacts resulting from incremental changes to elements of the system, such as volume increases, can be established and the level of system enhancements requiring capital investment by the system users can be identified.

This section provides description of the capacity modelling process adopted underpinning this submission and contextual discussion of how capacity is calculated, applied and managed in the Blackwater System. It also provides the results of capacity simulation modelling undertaken by an independent consultant, A.D. Boyle and Associates.

Due to confidentiality and the unavailability of specific input data normally available to AN, the inputs and assumptions applied to the capacity modelling process in this case have been derived from the AN document *Project Assumptions and Operating Principles WIRP 1.* As a result payloads, track closures and speed restriction data used may be inconsistent with that used in the WIRP Project modelling. As such preliminary modelling was conducted on this basis and, for consistency, it was decided to report on the outcomes of a system state without track closures and speed restrictions.

AN have developed their capacity simulation model over circa 15 years with continual improvement to the operating logic. It is inevitable that there will be subtleties and specifics of the operating logic not available to the modeller in this instance that will produce different values of the outcomes of scenarios, for example a BRTT value. Given this, the direct comparison of outputs between this exercise and the finalisation of WIRP scope by AN is neither practical nor required.

Process

The intent of capacity modelling in the context of this submission is not to challenge the outcomes of the capacity modelling that underpinned the Scope Development of the WIRP Project, rather to present additional comparative review of benefits derived from the final project scope and made available to the Blackwater System Users that were not identified as part of the modelling to identify the project scope.

The limited time available to deliver the capacity modelling task restricts the ability to fine tune the model performance including running a number of calibration scenarios that normally would precede final model runs and logging outputs for reporting purposes. This could produce inconsistent data values between separate scenarios. In the context of this exercise the key performance criteria of the model is judged on a consistent and expected trend of outputs. To this point the scenarios tested and their outputs display an expected trend.

To create an understanding of the system performance impacts related to the incremental increase in volume demand to the Blackwater system created by additional export contracts through Gladstone's RG Tanna Coal Terminal ('RGTCT') and the development of Wiggins Island Coal Export Terminal ('WICET'), independent expertise in simulation modelling has been engaged through A.D. Boyle and Associates.

To deliver the task A.D. Boyle and Associates were provided with limited supporting information to enable capacity modelling data to be provided for analysis by Balance Advisory using a simulation model built on the Planimate software platform. This software is the preferred software on which AN's model is built. AN's model has, at the request of entities such as the GCEE and internally within Aurizon, undergone multiple validation reviews by independent consultants such as Ausenco, Sandwell and McKinsey and Co. The outcomes of these reviews have identified the model and software platform is robust and acceptable in the manner in which it executes simulation activities and the production of statistically valid output data.

Given the limited time available, three key scenarios were selected for evaluation. These scenarios, focussed on the WIRP benefits framework identified in Figure 1 were:

Scenario 1

Base system performance Pre-WIRP to establish the capability of the CQCN to deliver 76Mtpa export coal and 10Mtpa domestic coal.

Scenario 2

System performance with an additional 5Mtpa export volume from the Blackwater System. Compared to the base scenario, this scenario examines both the capability of the system to deliver the additional volume and the impacts to levels of performance with respect to reliability and robustness compared to Scenario 1.

Scenario 3

Delivery of the WIRP Project scope to confirm the minimum requirement to deliver the additional WIRP volume maintaining similar performance levels to Scenarios 1 and 2 and establish any improved system reliability and robustness levels available to the system users beyond the minimum requirement.

If the simulation model logic has been developed to the events to be monitored, capacity simulation models are capable of producing outputs and results of any number of metrics. The reportable focus of this capacity modelling exercise is system performance, reliability and robustness. Additional built capacity is also considered as a function of robustness.

This approach serves to provide quantifiable evidence to support a view that the WIRP project scope benefits all system users. Given this focus, the key elements of system performance to be compared with each scenario are:

- Cycle time;
- Delay minutes per cycle;
- Annual throughput compared to target demand; and
- BRTT.

Commentary and observations on these scenarios assume the other key proponents of the supply chain – being producers, rail operators and port operators – have the resource capability to execute the incremental increases and take advantage of any identified system benefit when required.

It should also be noted that whilst the primary focus of examination is on the Blackwater System, the integrated nature of the Blackwater and Moura Systems resulting from accessing RGTCT through to the Callemondah Yard, can result in consequential impacts of events or changes in either system having the potential to manifest as delays or queuing in both systems. Conversely any benefits derived in one system may also deliver consequential benefits to the other.

2.2.3 Blackwater System Overview Pre-WIRP

Prior to the delivery of the WIRP scope, the Blackwater System consisted of infrastructure varying in configuration, standard and condition. Track configuration was a mix of bi-directional duplicated track and single line track sections with crossing loops.

Operationally, the ability to reliably deliver train services from load points to the unloading facilities for either export or domestic, is heavily influenced by two key fundamentals:

1. The ruling headway or section run time which is influenced by the configuration of the track network and determines the number of train paths available per day; and
2. The condition of the assets with respect to age and reliability in performing to design capability and its contribution to levels of speed restrictions, component failures resulting in delays and day of operation capacity losses.

At the time, the ruling headway for scheduling purposes, as opposed to section run times, was 30 minutes departing Callemondah and Bluff for coal traffic thereby providing limited pathing options to enable recovery from network delays. This separation of train paths also forms the capacity allocation from which the train service entitlement of an access holder is allocated.

Temporary speed restriction levels as identified in AN's document *Project Assumptions and Operating Principles WIRP 1* (and also the Southern Bowen Basin System Operating Parameters) suggest a range of impacts to cycle times of between 14 minutes and 88 minutes, depending on seasonal impacts. A review of AN's Public *Quarterly Performance Reports* validate this cyclic pattern of fluctuating speed restrictions as illustrated in Figure 2 below. Overlaid across this data of average number of kilometres of track under speed restriction is the average daily delays as provided by AN. Of note is the reduced average delay period against and increase in track kilometres restricted. The data for 2012/13 is likely to be the result of a major seasonal flooding event.

Figure 2 - Average Kilometres of Track under Speed Restriction Blackwater System

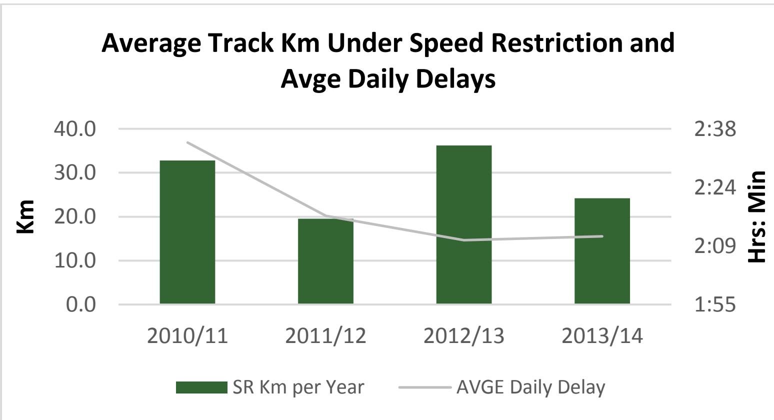


Figure 2 above demonstrates the trend of average kilometres of track under speed restriction shown on the left vertical axis, overlaid with the average daily train delays attributed to those speed restrictions shown in hours and minutes on the right vertical axis.

The track maintenance regime and frequency of maintenance to single line track sections is generally driven by age; condition of the components utilisation levels including GTK; and the availability of the network to deliver the maintenance. In the case of single line sections, the delivery of track maintenance requires a closure of the system. The combination of duplicated and single line track sections result in varying degrees of maintenance levels and end of life acceleration or degradation. It is logical to assume that single line track sections will experience greater levels of impact due to higher GTK impact, resulting from trains in both directions traversing the section. Turnouts at crossing loops will also experience increased degradation from switching movement and higher GTK impact.

The result is that depending on the frequency and level of maintenance to these sections and turnouts, greater levels of failure rates and the consequential impact of failures in delay minutes will be experienced on single line section and crossing loop track infrastructure as the components age. This is compared to duplicated track sections, where maintenance can be less intrusive on the system operation, and operational procedures can be applied to minimise wear by more evenly distributing loaded and empty traffic operating on each of the duplicated track sections.

The integrated planning paradigm of maintenance in the Blackwater System provides the opportunity to minimise system impacts by delivering maintenance to single line sections during planned system closures or in the shadow of maintenance being delivered to other parts of the supply chain. However any disconnects in the ability to coordinate and deliver this integrated maintenance planning will often manifest in additional speed restrictions being applied or an increase in unplanned maintenance to limit further accelerated degradation and maintain safety levels.

Figure 3 - Below Rail Performance Metric Summary

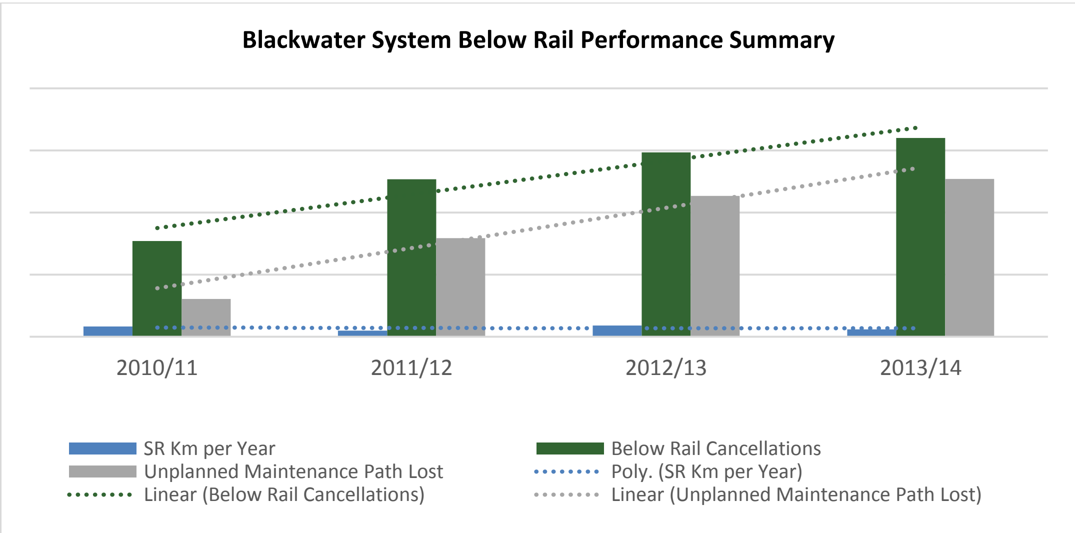


Figure 3 above illustrates data extracted from AN's *Public Quarterly Performance Reports* of key below rail performance metrics of the network relevant to the impact of infrastructure robustness prior to practical completion of the WIRP infrastructure for use by revenue trains in 14/15FY. Of note is the trend of increasing path loss allocated to unplanned maintenance and cancellations attributed to the Below Rail cause compared to a reasonably stable trend of average number of track kilometres under speed restriction. It should be noted the performance data supplied for speed restrictions does not indicate the severity of the restriction hence potentially masking the condition of the underlying infrastructure. It can be reasonably argued the increasing trend noted in Figure 3 is related to deteriorating infrastructure condition and failures as opposed to construction of the WIRP project scope. It could also be argued that system unavailability or delays due to construction would be captured in either Planned Maintenance or Construction possession data.

Figure 4 - XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

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Figure 5 - XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

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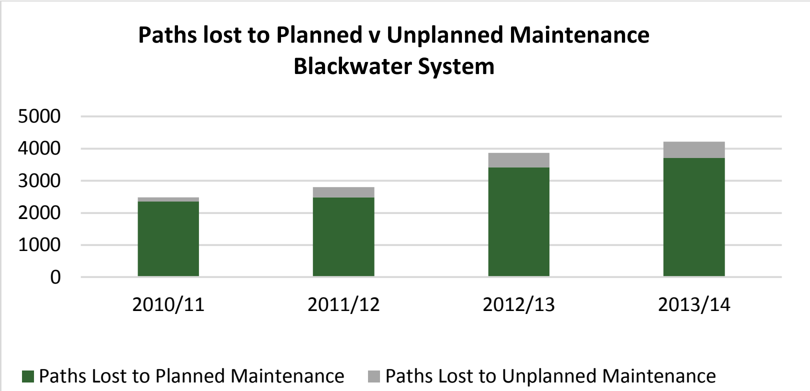
This appears to be further supported in the significant upwards trend of Planned Maintenance depicted in Figure 6 below, particularly through 12/13 and 13/14 financial years when the major activities of the WIRP Project delivery are occurring.

Figure 6 - Comparison of Paths Lost to Planned and Unplanned Maintenance



Above Rail Operations

Above rail operations in the Blackwater System are delivered by two operators.

The two principal sources of impact to above rail operational robustness are related to rollingstock and train crew. Typically above rail delays and cancellations will manifest as a result of delays within the cycle/s accumulating to the point where either rollingstock or crew are not available to meet a connection, or system delays have accumulated to the point where resources are exhausted and the supply chain velocity needs to be reset by cancelling a train/s.

Aurizon has principal traincrew depots located at Callemondah and Bluff, with a minor depot at Stanwell to service Stanwell Power Station. Pacific National has a principal traincrew depot located at Gracemere.

The distance and transit time between Callemondah and Bluff results in the scenario where traincrew are scheduled to change mid-way between depots on the network. This regular change results in an additional 20 minutes delay on each transit leg of the cycle and compounds other system delays. For the purpose of the capacity modelling undertaken by A.D. Boyle and Associates, this location was assumed to be Duaringa.

The elements of the rail operation described above combined with the consequential impacts on the above rail operator's ability to perform effectively on the day of operation frequently result in capacity losses quoted at circa 10 % including train service cancellations.

Figure 7 - Cancellations by Category

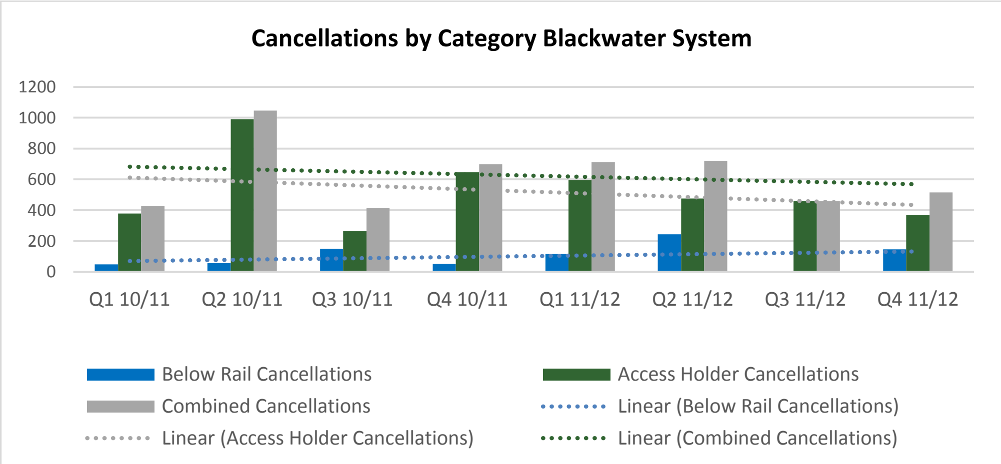


Figure 7 above compares cancellations attributed to below rail and access holders. Of note in this graph is the consistent quarter on quarter decline in overall cancellations and cancellations attributed to access holders against the upward trend of cancellations attributed to below rail. This observation in conjunction with the trends noted in Figure 3 could support the hypothesis that the overall network robustness was diminishing at the point the WIRP project commenced.

System Demand

The volume demand of the CQCN at the time was reflected in an aggregated planning level of 86Mtpa. Of this total volume, approximately 76Mtpa was export coal and 10Mtpa domestic coal.

The system specific breakdown used for planning purpose was circa:

- Blackwater System – 64Mtpa export + 6Mtpa domestic
- Moura System – 12Mtpa + 4Mtpa domestic

Of the 76Mtpa export demand, 69Mtpa was allocated to the RGTCT and 7Mtpa allocated to Barney Point Export Coal Terminal. This allocation was based on Nameplate Capacity of each facility and used as the basis for capacity analysis conducted by AN.

Capacity Allocation

For the purpose of this section a "train path" is a loaded or "one way" train path only. A single Train Service Entitlement ('TSE') is based on two "one-way" paths to deliver the demand volume noted above. The following average daily train path requirements (excluding seasonal and or production variation) have been calculated for the Blackwater system using an assumed average payload of 8,000 tonnes. This payload has been used for consistency with the inputs of the capacity simulation model.

It is noted the payloads prior to WIRP were less than current and as such, the allocations below are slightly conservative. Pre-WIRP payloads have not been made available for this modelling exercise.

- Blackwater export 22 loaded paths

- Blackwater domestic 3 loaded paths

In addition, a number of paths are allocated to non-coal traffic, commonly referred to as Preserved Paths.

The scheduling process at the time was based on a diagram of set coal train paths between Callemondah and Bluff. Each of these coal train paths were separated by 30 minutes, thereby creating a scheduled headway of 30 minutes offering two loaded services per hour to the system for which capacity is calculated and allocated. Passenger and freight trains sharing the North Coast Line between Callemondah and Rocklands were typically scheduled between these 30 minute coal paths creating a default scheduling headway of 15 minutes. Connectivity issues between path separations from Rocklands to Bluff resulted in these “in between” paths not being made available to coal trains.

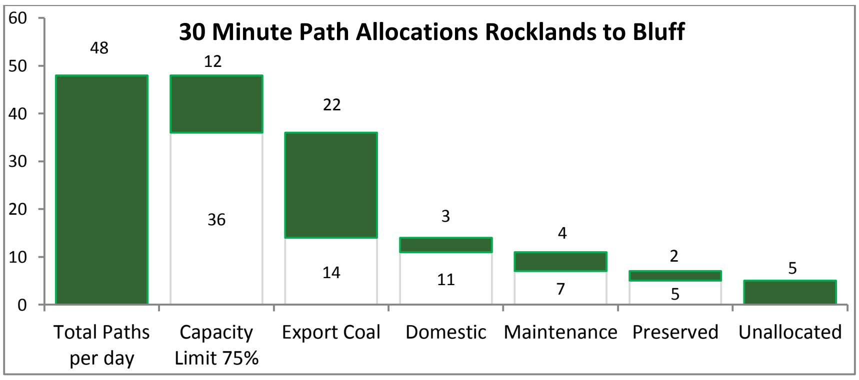
The scheduled headway for coal trains of 30 minutes delivered a theoretical capacity of 48 paths per day. Consistent with world railway capacity management standards, AN apply a 75% practical capacity limit on the theoretical maximum of 48 paths per day yielding an available capacity of 36 train paths per day. This limit is applied to manage congestion and provide the ability to recover from out-of-course events and deliver seasonal peaks in production and demand for capacity. The practical capacity limit of 36 train paths is the number from which contracted TSE is drawn and allocated.

As can be seen, the system demand of 25 coal train paths and two (2) non-coal paths per day is within the practical capacity limit of 36 paths per day. When path allocations to planned track maintenance is added, only five (5) remaining paths are available for surge/peaking capacity or additional contracts.

This is acceptable from a “static” analysis or theoretic capacity perspective, however when the variation arising from normal system dynamics is applied in a simulation model, the result is a less reliable and robust system.

Figure 8 below demonstrates allocation of one-way paths per day between Rocklands and Bluff based on 30 minute path separation.

Figure 8 - One-Way Path Allocations - Rocklands to Bluff 30 Minute Separation



The key observation to be made from this graph is that assuming the capacity allocations nominated, the Blackwater System offered little in additional theoretical capacity based on the management of path allocations as undertaken by AN.

In addition to the allocations described above, the combination of single line sections and poor ballast and formation condition present additional degradation to remaining unallocated and buffer capacity levels. Ballast Cleaning Machine (BCM) operations are quoted in AN's document *Project Assumptions and Operating Principles WIRP 1* (and the Southern Bowen Basin System Operating Parameters) as being a 72 hour single line section closure every week for 4.8 months. Given there are four occurrences where the BCM program is aligned with the 36 hour system closure the net additional path allocation to BCM operations is circa three (3) additional one-way paths which must be deducted from either the 12 allocated to system recoverability or five unallocated paths.

AN contend the 25% buffer capacity is contingency to enable recovery of annualised throughput loss from day of operations losses quoted at 10% and support variation in demand over the year.

Temporary speed restrictions caused by track or formation condition are another example of potential reductions in the available spare or buffer capacity. For example a system reference train of 1685m comparison length encountering 30 kilometres of 40kph restriction from road speed of 80kph will experience 26 minutes of delay, potentially sterilising the equivalent of one (1) train path. In practice, speed restrictions are not in the one location as per the above calculation. The impact of decelerating, the whole train clearing the speed restriction and then accelerating is likely to be much more significant. In order to pass a 100m speed restriction, the whole train needs to be at a reduced speed for twice its length, i.e. 3370m plus the speed restriction and also the time to decelerate and accelerate. Hence the estimate of sterilising one train path is likely to be understated.

Below Rail Transit Time (BRTT) is an agreed performance measure by which the below rail performance of the Network is measured. It is applied as an allowable percentage of additional time added to the average cycle time of the systems to account for delays attributed to Below Rail causes. The agreed BRTT threshold for the Blackwater System is 127%.

The delay types reported as BRTT include:

- Train crossing delays
- Delays caused by temporary speed restrictions
- Delays caused by infrastructure failures and emergency maintenance

2.2.4 Baseline Modelling Pre-WIRP (Scenario 1)

The purpose of this modelling scenario is to establish a modelled base from which further scenarios are developed. This will enable a benchmark to measure the outcomes of Scenario's two and three. This Scenario represents Case 1 of Figure 1 in Section 2.2.1.

The inputs used in this scenario are assumed to be those representing the operation pre-WIRP.

It should be noted that due to limitations of the simulation model, unplanned infrastructure failures and consequential delays as identified in Figure 4 above have not been modelled. Similarly without the program of maintenance closures and speed restrictions or detail of rollingstock allocations used in pre-WIRP project modelling by AN, this scenario is based on the modellers' assumption of rollingstock allocations. Track closures or speed restrictions have not been applied.

The outcomes noted below are based on the key capacity metrics of:

- Volume delivered compared to target demand
- Average weighted cycle time
- Average delays per cycle
- Below Rail Transit Time (BRTT)

Table 1 below shows the summary of results achieved in the modelled base scenario.

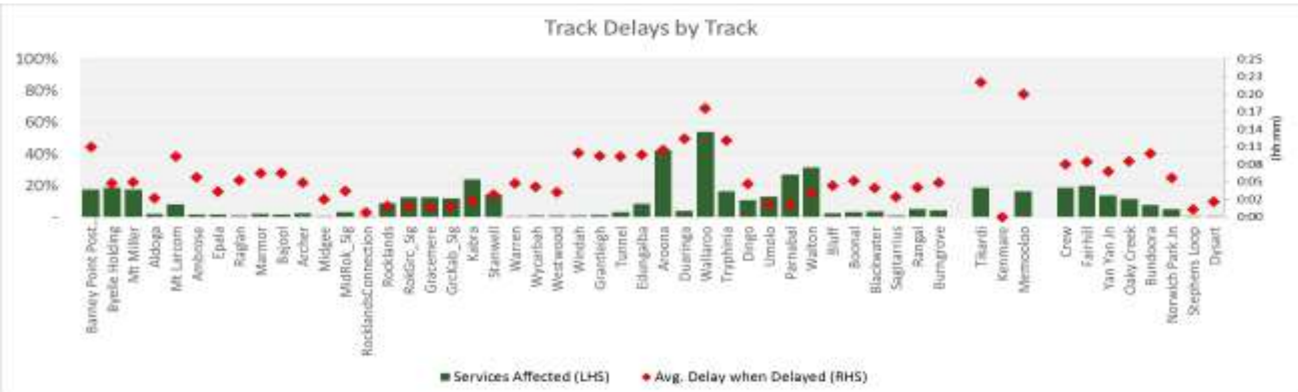
Table 1 - Summary Model Results (Scenario 1a)

	Tonnes Delivered	Target Tonnes		Avg. Cycle Time	Avg. Mins. Delays/Cycle	Avg. BRTT
Blackwater Exp.	60.5	63.0	*96.1%*	22:26	0:35	119.9%
Moura Exp.	12.1	12.5	*97.0%*	13:48	0:18	108.9%
Domestic	12.1	10.5	*114.8%*	14:55	0:17	113.0%

As can be observed in the table above, the model delivered only 96% of the Blackwater export demand target falling short by 2.5Mtpa. The over-achievement of domestic tonnes is related to the disproportionate allocation of rollingstock capacity to demand of the East End limestone traffic and the way in which the model logic operates. The modelled scenario delivered 94% of Blackwater System domestic demand. The outputs presented in the table above become the base for which further scenarios are compared.

The graph below shows the average delays by track section with the percentage of services affected on the left vertical axis. The red diamond indicates the average length of time a modelled service is delayed and the columns the percentage of services affected during the modelled period.

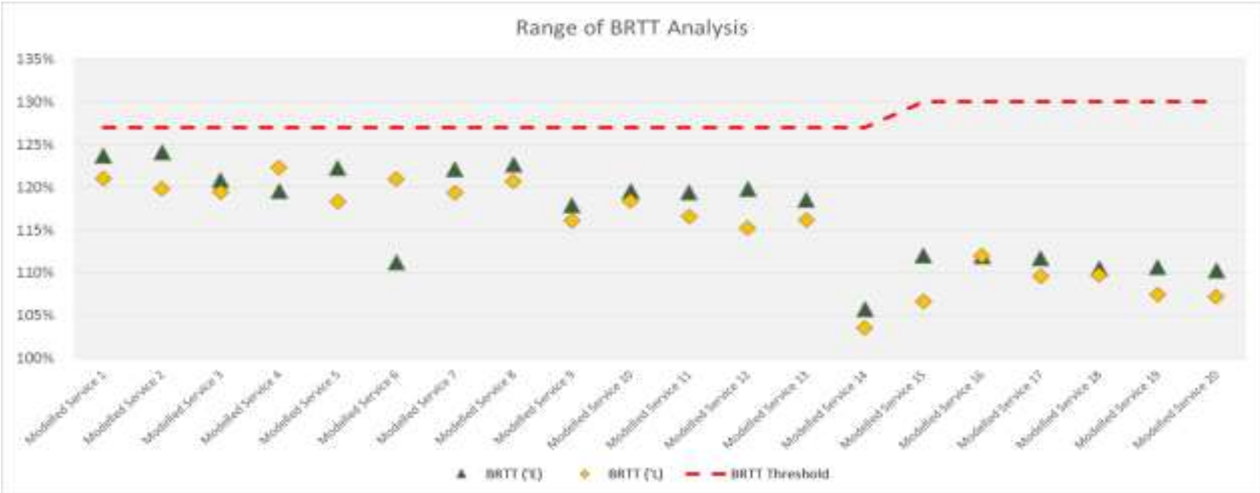
Figure 9 - Track Delays by Track Section (Scenario 1a)



As can be observed the greatest number of services affected and period of delay centres around the single line sections and notably either side of Duaringa where crew changes take place. Delays at Mt Miller and Byellee are the result of congestion at Callemondah.

The graph below demonstrates a BRTT outcome within the contracted 127% threshold. Modelled services 15 to 20 are Moura System services where the contracted BRTT threshold is 130%.

Figure 10 - Range of BRTT Analysis (Scenario 1a)



Of note is the close distribution between empty and loaded BRTT values. This is indicative of a relatively stable system velocity where delays are distributed evenly between each transit leg of the cycle.

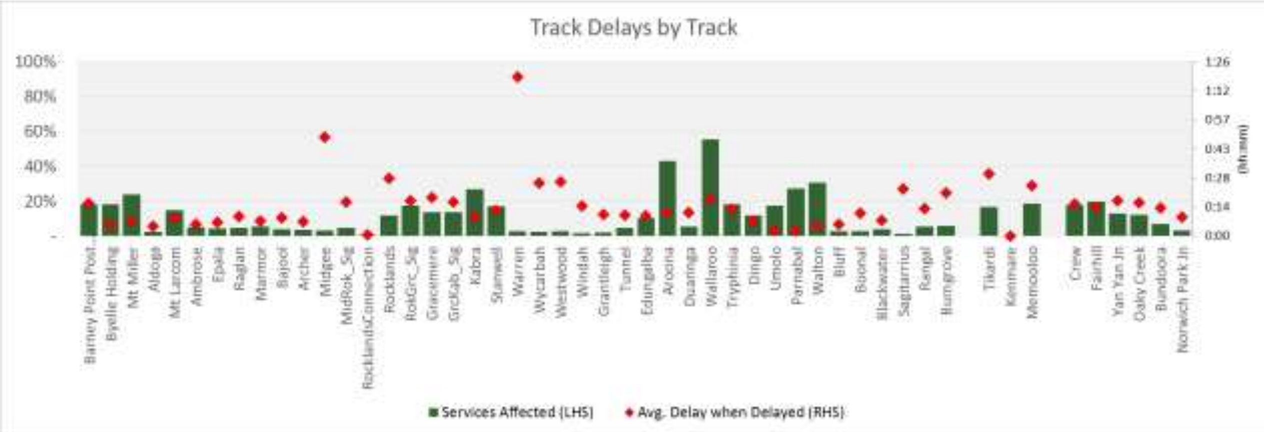
Whilst the scenario presented above is of an unconstrained system from a below rail perspective, another base case scenario was run applying the WIRP closure and speed restriction inputs. The purpose of this scenario (1b) is to establish a relationship between the trends of the unconstrained system and a constrained system. The increased maintenance requirement identified to meet the additional WIRP tonnage is the only data available for this modelling exercise. These closures are considered to be in excess of what would have been required in the system pre-WIRP, thus resulting in a conservative output.

Table 2 - Summary Model Results (Scenario 1b: with closures & speed restrictions applied)

System	Tonnes Delivered	Target Tonnes		Avg. Cycle Time	Avg. Delays/Cycle	Avg. BRTT
Export Blackwater	56.4	63.0	89.5%	23:56	1:10	129.5%
Export Moura	11.7	12.5	93.6%	14:20	0:23	115.4%
Domestic	11.4	10.5	109.0%	15:29	0:26	121.8%

As can be observed in the table above, the model delivered only 89% of the Blackwater export demand target and average cycle time has increased by approximately 1.5 hours. Whilst the actual output values can be challenged, the delta between the average cycle time of the unconstrained scenario and this is consistent with the performance data supplied by AN indicating and average daily speed restriction delay of 2 hours 35 minutes in 2010.

Figure 11 - Track Delays by Track Section (Scenario 1b: with closures & speed restrictions applied)



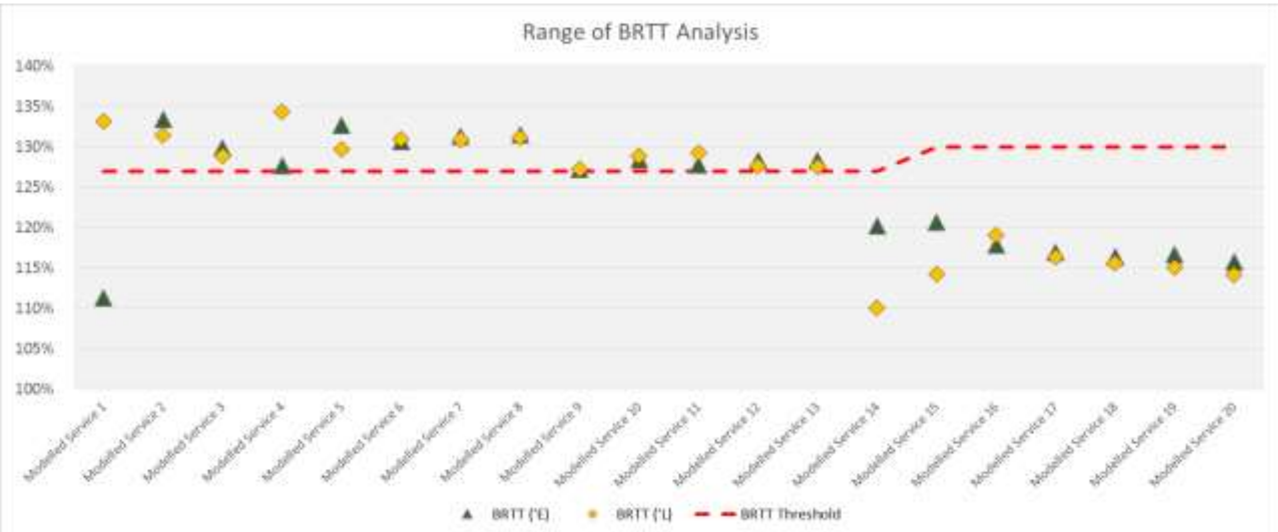
The impact to modelled delays track delays as observed in the graph above is an expected increase in the period of delay as compared to the unconstrained system.

BRTT is also expected to increase as speed restrictions is a key element in the calculation of BRTT. The modelled outcome indicates a breach of the contracted BRTT threshold of 127%. This is indicative of a track closure program being excessive.

The modeller would not have been able to, in the timeframe afforded to undertake the analysis, develop the model to the point where the appropriate logic to filter outliers and delays associated with modelled services being delayed. Typically in the day of operation, trains that will be stowed on the network during network closures for maintenance will be terminated at that location in the reporting systems. This means delays will no longer be attributed to that service and will not impact performance criteria such a BRTT. In the modelled scenario, changes must be applied to the reporting logic filter out these types of delays.

The graph below demonstrates the BRTT outcome of the impact of applying speed restrictions and track closures.

Figure 12 - Range of BRTT Analysis (Scenario 1b: with closures & speed restrictions applied)



Each subsequent scenario was modelled with speed restrictions and track closures applied with the trend of outputs monitored against the unconstrained system state.

Given the uncertainty surrounding the accuracy of the input data for track closures, it was decided report further comparative analysis based on the system state, without speed restrictions or track closures applied.

2.2.5 Additional Contracted 5Mtpa Pre-WIRP Modelling

In a parallel timeframe to the initial WIRP scope development, the Gladstone Port Authority put in place a contract for an additional 5Mtpa of export coal through RGTCT.

This additional demand required an additional two (2) train paths per day in the Blackwater System taking the Blackwater System requirement to a notional 27 paths per day to deliver both export and domestic contracts.

It is assumed capacity modelling of the additional demand was undertaken with the proposed WIRP volumes included. The modelling undertaken by AN to assess the impact of the additional 5Mtpa identified an additional passing loop – Lilyvale – on the Gregory Branch, where the additional demand was to originate, but no requirement for additional infrastructure on the main trunk of the Blackwater System.

Figure 13 - One-Way Path Allocations Rocklands-Bluff 30 Minute Separation

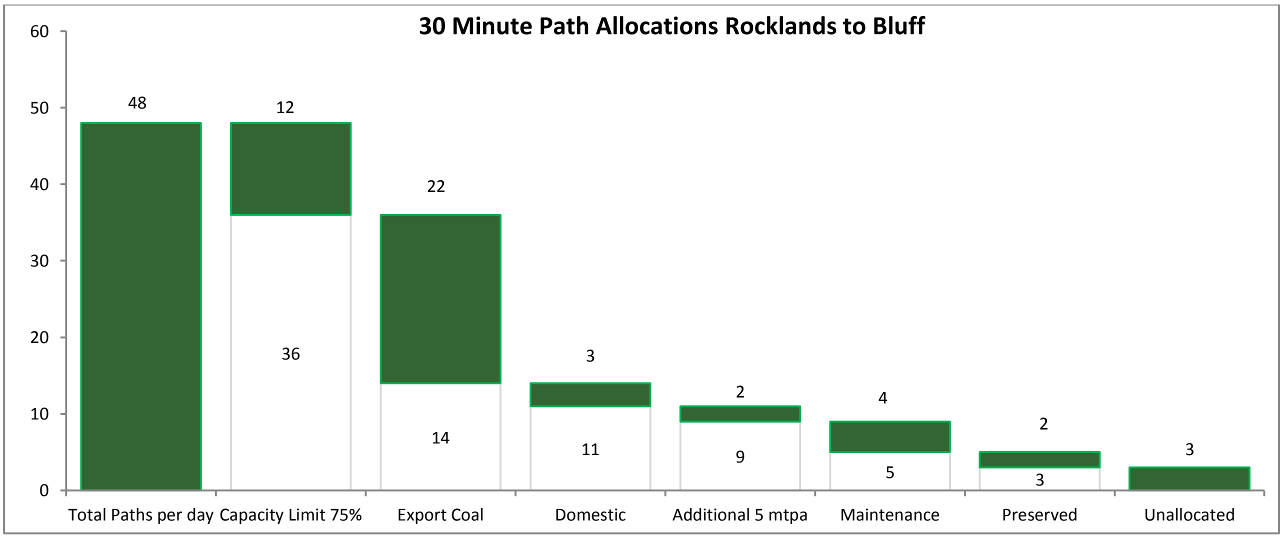


Figure 13 above demonstrates an allocation of train paths between Bluff and Rocklands including the additional 5Mtpa.

The key observation that can be made from Figure 13 is that with the addition of 5Mtpa export demand on the Blackwater system, the robustness of the system is challenged to the point where the 25% capacity buffer must cater for all unplanned events including additional unplanned track maintenance, BCM operations, system recovery from infrastructure failures and annualised day of operations losses and cancellations.

Given the increasing trend of path losses to unplanned maintenance and below rail cancellations identified in Figure 6, it can be reasonably assumed that the capability of the network to deliver the additional 5Mtpa at equivalent or improved levels of reliability, to the base scenario without either infrastructure enhancement or investment in track component upgrades as proposed by the WIRP scope, puts the system under significant operational stress.

The outcomes of the dynamic simulation modelling as outlined in the next section further expand on this hypothesis.

2.2.6 Capacity Modelling Outcomes Additional Tonnage Pre-WIRP (Scenario 2)

This scenario has been modelled to form a view on any changes to the pre-existing system performance as identified in the base case Scenario 1a as a result of the additional 5Mtpa export demand to RGTCT from the Blackwater System. This scenario is represented as Case 3 of Figure 1 in Section 2.2.1. For consistency with the base case Scenario 1a presented above, the results of modelling the system without speed restrictions and closures will be presented.

This Scenario (2a) uses the same inputs and track infrastructure as the base case with the exception of an additional three consists to deliver the extra demand. This takes the system total from 34 consists to 37 consists. Static calculations indicate an additional three consists loaded to 8,000t payload, operating on an average 24hr cycle over 360 days, would yield an additional 8Mtpa.

This suggests potential opportunity to deliver the additional 5Mtpa and recover the 2.5Mtpa lost in the base case. The results of the modelling per Table 3 below indicate a continued shortfall of 2Mtpa suggesting only 0.5Mtpa has been recovered delivering a net decrease in system efficiency based on asset availability.

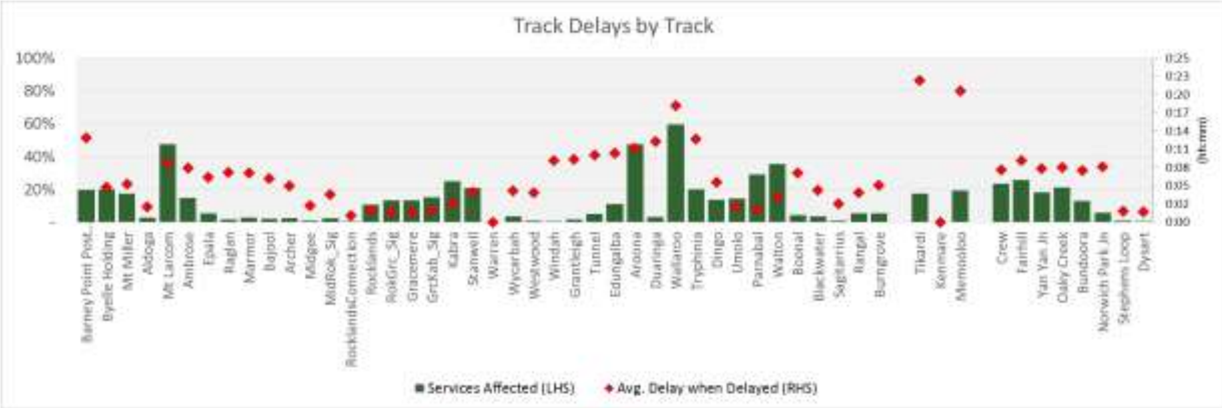
Table 3 - Summary Model Results (Scenario 2a)

System	Tonnes Delivered	Target Tonnes		Avg. Cycle Time	Avg. Delays/Cycle	Avg. BRTT
Export Blackwater	66.1	68.0	*97.2%*	23:39	0:49	125.6%
Export Moura	12.0	12.5	*96.1%*	14:00	0:20	108.9%
Domestic	12.1	10.5	*114.9%*	15:15	0:20	112.9%

The 5Mtpa addition to the system represents a volume increase of 7%. Compared to the base case throughput, the addition of three additional consists has resulted in an increase of only 1% in throughput achieved against target. This result is indicative of the additional congestion placed on the system from the additional demand and rollingstock required to deliver the demand.

Both cycle time, average delays per cycle and BRTT are negatively impacted.

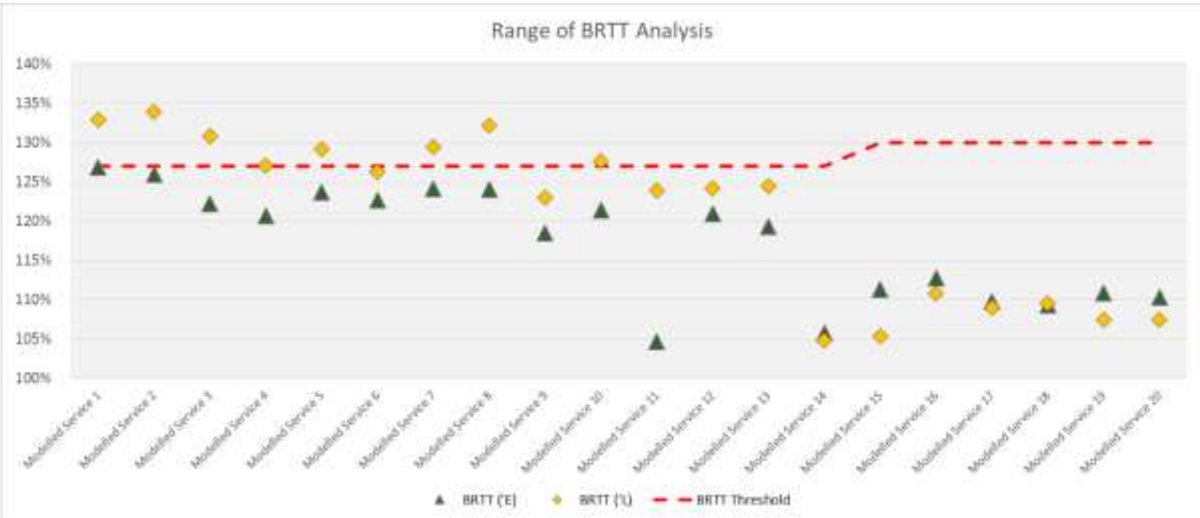
Figure 14 - Track Delays by Track Section (Scenario 2a)



Comparison of delays by track section shown in Figure 14 with the base case highlight increases in the number of services delayed, particularly on the sections East of Bluff and around the Gracemere area. This is to be expected as increases in system congestion will manifest at areas where trains either dwell to pick up a scheduled path – as is the case with Bluff – or attempt to pass through a junction to a more heavily congested corridor as is the case with the Gracemere area, where coal services are required to integrate with the North Coast Line freight and passenger service.

The modelled BRTT outcome of the additional 5Mtpa is shown in the graph below. The key observation to be made beyond the expected increase is the difference between loaded and empty BRTT values. This increasing gap is representative of the supply chain velocity becoming increasingly unstable and less robust.

Figure 15 - Range of BRTT Analysis (Scenario 2a)



To determine if additional infrastructure identified for the WIRP project would benefit the system in reducing the shortfall in tonnes delivered, a scenario variation (2b) was modelled by adding two track duplications. This scenario represents Case 3 of Figure 1 in Section 2.2.1. Analysis of Figure 14 suggested these duplications be on the single line sections between Rocklands and Gracemere to ease congestion associated with the North Coast Line and also between Parnabal and Umolo to better manage congestion around the Bluff area.

The results of this scenario variation are presented in Table 4 below.

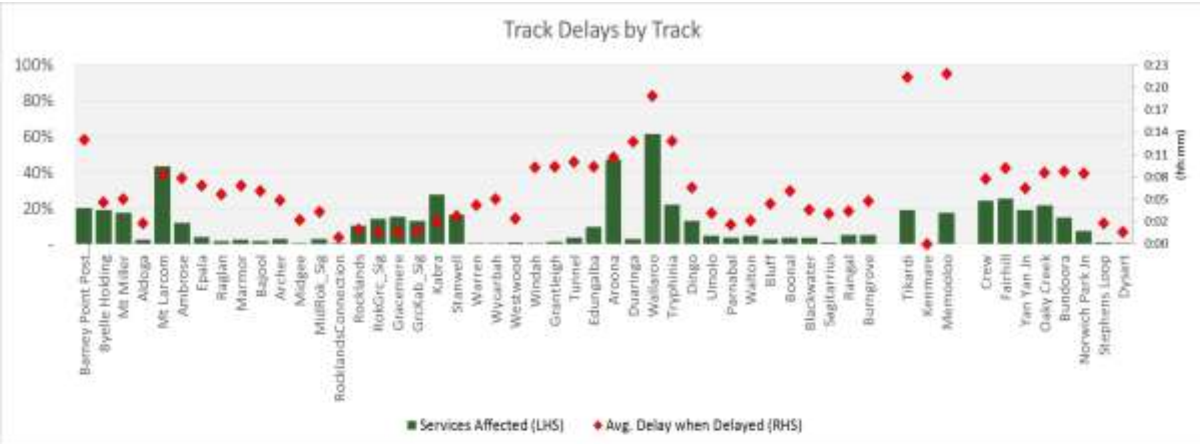
Table 4 - Summary Model Results (Scenario 2b: with 2 track duplications)

System	Tonnes Delivered	Target Tonnes		Avg. Cycle Time	Avg. Delays/Cycle	Avg. BRTT
Export Blackwater	67.2	68.0	*98.9%*	23:11	0:46	121.1%
Export Moura	12.0	12.5	*96.2%*	14:01	0:19	108.9%
Domestic	12.2	10.5	*116.2%*	15:05	0:18	113.2%

As can be seen in the table above, the modelled result of throughput achieved has improved as has average cycle time, delays per cycle and BRTT.

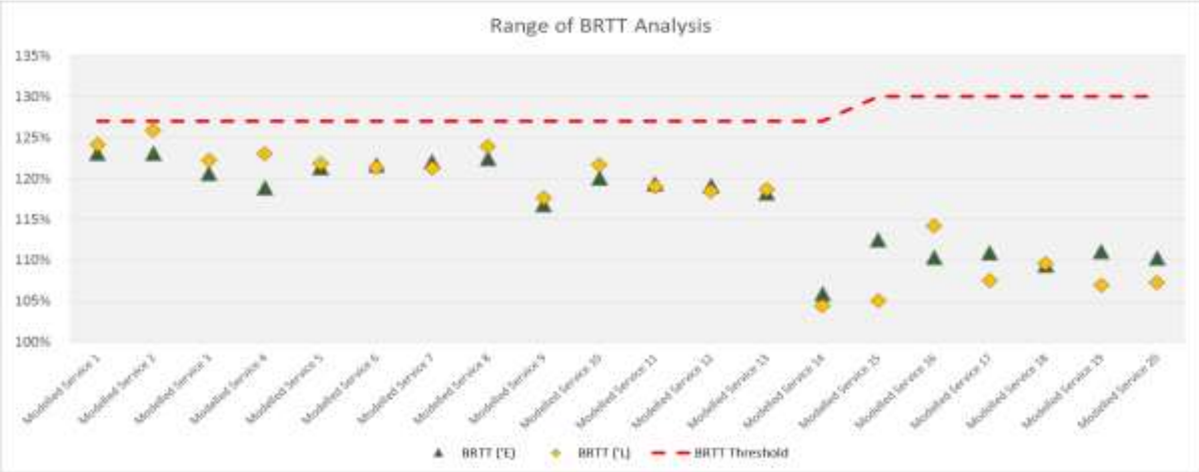
Examination of the delays by track section graph in Figure 16 below also indicates significant improvements, particularly around the Bluff area in the number of services affected. Track delay durations on the remaining single line sections continue to remain high.

Figure 16 - Track Delays by Track Section (Scenario 2b: with 2 track duplications)



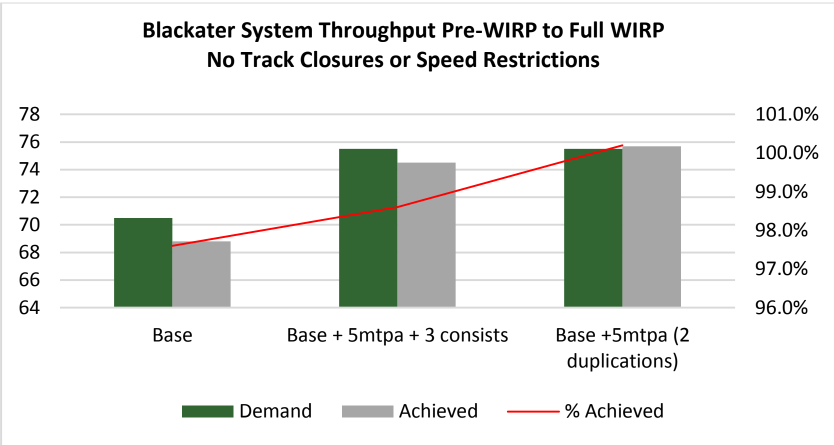
The improvement to BRTT as shown below is highlighted in the closing of gaps between empty and loaded BRTT values indicating a return to a more stable supply chain velocity as was the case prior to the addition of the 5Mtpa.

Figure 17 - Range of BRTT Analysis (Scenario 2b: with 2 track duplications)



The results presented above in Figure 17 show throughput separated into export and domestic demand. The following graph summarises the modelled outputs of the three scenarios at aggregated system demand for further comparison and benefits identification.

Figure 18 - Blackwater System Throughput Pre-WIRP to Full WIRP



At an aggregated system throughput level it can be seen from Figure 18 above that the modelled 2Mtpa shortfall in target throughput is rectified by the addition of two track duplications.

The results of the pre-WIRP modelling indicate two track duplications, notionally between Rocklands and Gracemere and Parnabal and Umolo are beneficial in enabling the modelled 2Mtpa shortfall in system target tonnes to be filled.

2.2.7 WIRP Modelling

The addition of the WIRP demand to the Blackwater System, 23.5Mtpa (the remaining 3.5Mtpa nameplate capacity originates from the Maryborough and Moura systems) places an additional requirement of eight (8) loaded train paths per day into the Blackwater System. This takes the system total average daily loaded train path requirements to 35. When added to the two (2) paths allocated to non-coal services and the paths allocated to maintenance, the practical capacity limit of 36 set by AN is exceeded. Given the levels of poor reliability and delays experienced in the system and the forecast additional track maintenance of the existing components of the Network from the additional tonnage, it is considered a prudent decision not to elevate the practical capacity limit to 37 or 77% to service the additional system demand generated by WIRP.

The alternative was to create additional network paths to service the additional coal volume and track maintenance demand and increase levels of available contingency to aid system recoverability. To deliver this improvement required a step change in the way train pathing was allocated and scheduled separation reduced. By aligning the ruling section run time of 19 minutes with the scheduled path separation, additional paths could be created.

After substantial analysis, a scheduled path separation of 20 minutes was decided to be the most appropriate between Rocklands and Bluff providing the opportunity to maximise latent path availability on the North Coast Line while resulting in the least delay time transitioning to the available 15 minute paths on the North Coast Line. Capacity modelling undertaken by AN to determine the best location to transition between the 15 minute paths on the North Coast Line and the 20 minute paths west of Rocklands to Bluff identified Kabra as the most suitable location, giving consideration to the timing of connecting paths on the North Coast Line and integrating with the Freight and Passenger operations to minimise delay.

The natural variation in timing between the North Coast Line and Western pathing will result in a period of delay to transition between paths that is available to Operators in optimising crew deployment strategies, thus eliminating additional system delays associated with changing crews between depots.

A pathing template was developed coordinating a minimal delay between the North Coast Line and the new 20 minute paths.

A number of locations where single line crossing conflicts were identified in this template that required duplication of a minimum of five (5) specific single line sections to put in place a schedule of 20 minute train paths. The sections of track, identified for duplication in AN's document *Project Assumptions and Operating Principles WIRP 1* included:

- Rocklands – Gracemere – Kabra – Stanwell
- Umolo – Parnabal
- Walton – Bluff

By duplicating these single line track sections, the total number of theoretical train paths could be increased to 72 each way per day with a 75% practical capacity limit of 54. In turn this results in a surplus of 6 paths in the corridor between Kabra and Bluff that can be made available to any user of the system subject to Above Rail Resource availability and or to increase track maintenance levels.

Figure 19 below demonstrates an allocation of train paths between Bluff and Rocklands including the additional 5Mtpa, 23.5Mtpa for WIRP and increased path allocations for maintenance as derived from the Aurizon document *Project Assumptions and Operating Principles WIRP 1.*

Figure 19 - One-Way Path Allocations Rocklands-Bluff 20 Minute Separation

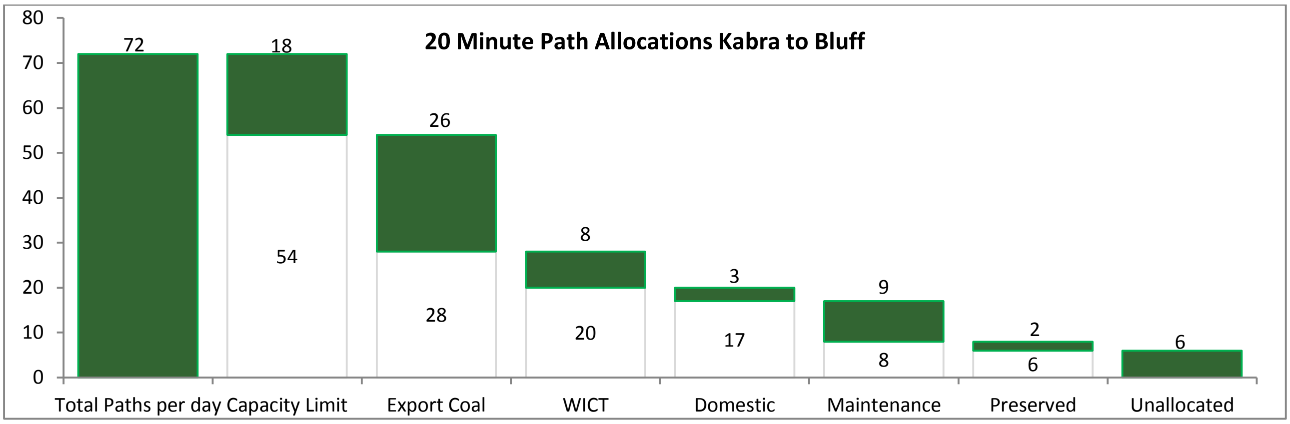


Figure 19 also demonstrates the additional daily pathing available to all users of the system from the unallocated paths. The allocation of unallocated paths illustrated above offers a potential theoretical additional throughput opportunity of circa 10Mtpa. However when congestion of the North Coast Line and Supply Chain capability is considered the ability to recover system losses through peaking capacity is substantially increased.

2.2.8 Capacity Modelling Outcomes Wiggins Island Rail Project (WIRP 1)

There is a view that the minimum infrastructure scope to support the additional 23.5Mtpa from the Blackwater System to WICET was five of the seven duplications; as well as the holding roads at Kabra to deliver the additional train paths required. Further infrastructure enhancement was on the basis of ensuring system robustness and availability. Capacity modelling has been undertaken to examine the identified minimum requirements and the addition of infrastructure to support system robustness.

For consistency with the base case scenarios presented above, the results of modelling the system without speed restrictions and closures will be presented. The first scenario modelled is deemed to be the minimum WIRP scope to deliver the additional paths required to meet the WIRP demand. This comprised of five track duplications and two additional holding roads at Kabra.

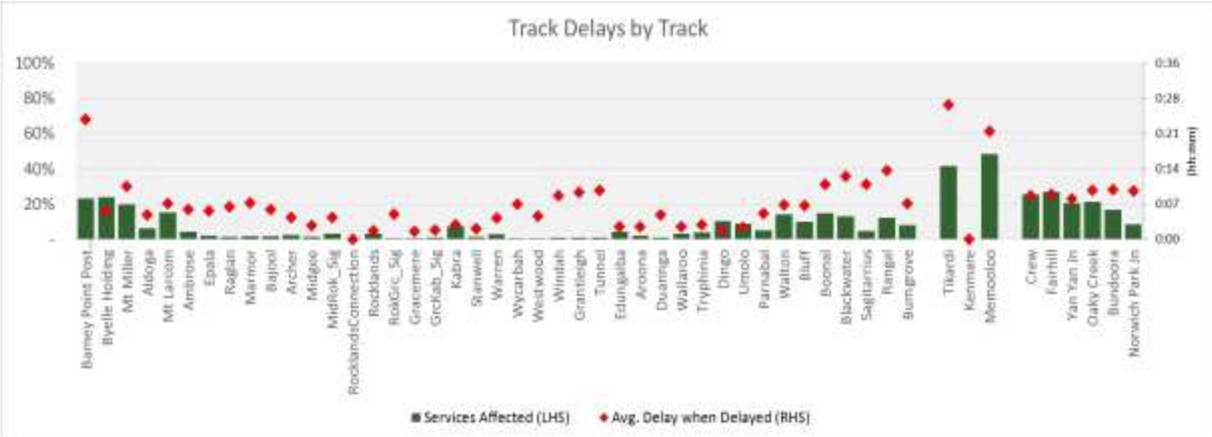
The results of the “minimum scope” modelling is summarised in Table 5 below.

Table 5 - Summary Model Results (Scenario 3a: Minimum WIRP Scope)

System	Tonnes Delivered	Target Tonnes		Avg. Cycle Time	Avg. Delays/Cycle	Avg. BRTT
Export Blackwater - Ex WIRP	68.3	68.0	*100.5%*	23:09	0:44	112.7%
Export Blackwater - WIRP	23.4	23.5	*99.4%*	19:16	0:33	113.9%
Export Moura - Ex WIRP	11.5	12.5	*91.9%*	14:41	0:31	110.4%
Export Moura - WIRP	3.0	3.5	*84.4%*	25:05	0:51	139.2%
Domestic	11.8	10.5	*112.8%*	15:01	0:18	113.7%

This table summarises the outputs of the "minimum WIRP scope" scenario. It can be seen that all system demand is delivered including the 2Mtpa throughput shortfall identified in the base case scenarios rectified by the addition of two track duplications.

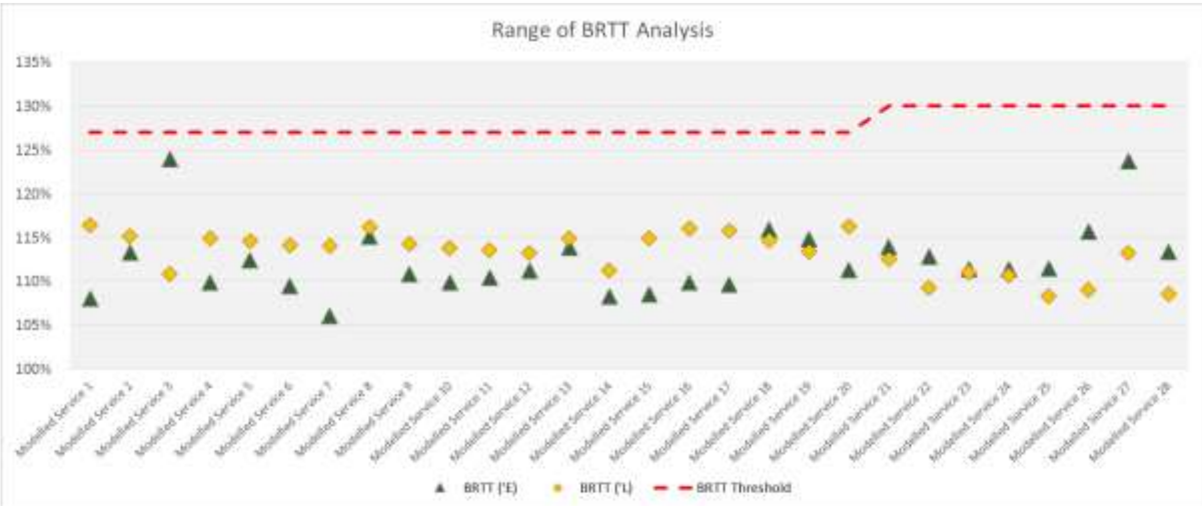
Figure 20 - Track Delays by Track Section (Scenario 3a: Minimum WIRP Scope)



Delays by track segment as indicated in Figure 20 above are significantly reduced compared to the pre-WIRP state, however delays remain high around the Bluff area.

The corresponding BRTT outcomes have also significantly improved compared to the base case scenarios as shown in Figure 21 below, with the exception of an increase in the gap between empty and loaded values.

Figure 21 - Track Delays by Track Section (Scenario 3a: Minimum WIRP Scope)



The next WIRP scenario variation modelled is the final WIRP scope as delivered. This scenario represents Case 5 of Figure 1 in Section 2.2.1. The modelling results are summarised in the Table 6 below. The over-achievement of non-WIRP demand compared to WIRP demand in Table 6 below is a modelling anomaly resulting from the limited time available to fine tune the model performance. This is demonstrated in the aggregated system results as shown in Table 7 below.

Table 6 - Summary Model Results (Scenario 3b: Full WIRP Scope)

System	Tonnes Delivered	Target Tonnes		Avg. Cycle Time	Avg. Delays/Cycle	Avg. BRTT
Export Blackwater - Ex WIRP	71.0	68.0	*104.4%*	23:04	0:41	111.0%
Export Blackwater - WIRP	20.4	23.5	*86.6%*	19:05	0:24	112.8%
Export Moura - Ex WIRP	11.4	12.5	*91.4%*	14:45	0:30	110.2%
Export Moura - WIRP	3.0	3.5	*85.4%*	24:50	0:49	139.8%
Domestic	12.0	10.5	*113.9%*	15:00	0:14	112.7%

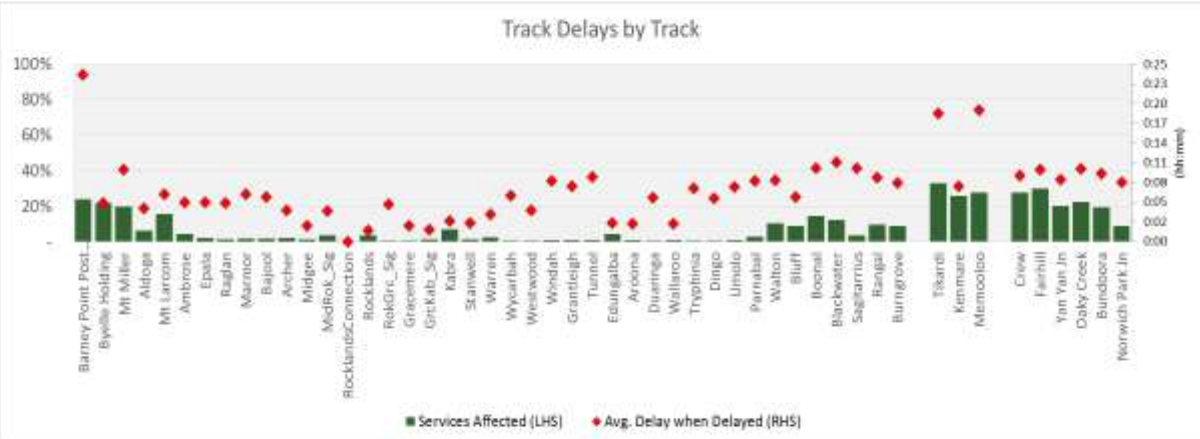
The summary of aggregated system results in Table 7 below once again indicates all Blackwater System demand fulfilled with further improvements to cycle time, delays per cycle and BRTT.

Table 7 - Aggregated System Results

System	Tonnes Delivered.	Target Tonnes		Consists	Avg. BRTT
Blackwater	99.6	99.0	*100.6%*	44	111.9%
Moura	18.6	19.0	*98.0%*	8	112.1%

Track delays as shown in Figure 22 below have further improved, with the additional two track duplications in both the percentage of services affected and the average delay duration.

Figure 22 - Track Delays by Track Section (Scenario 3b: Full WIRP Scope)



Compared to the minimum scope scenario it can be observed in the BRTT graph in Figure 22 above, that the delta between empty and loaded values has closed supporting the view that the additional two duplications improve system robustness.

Figure 23 - Track Delays by Track Section (Scenario 3b: Full WIRP Scope)

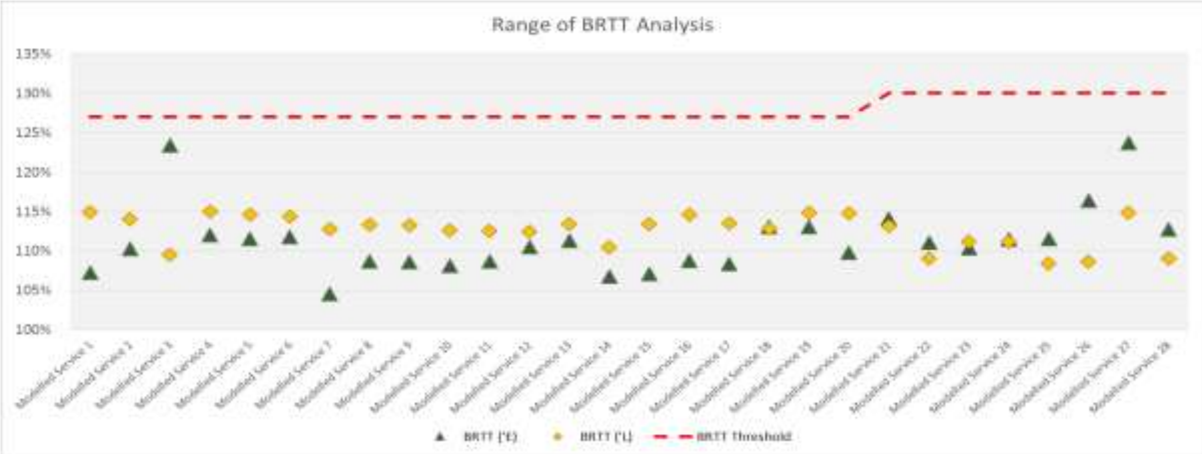


Figure 23 shows that the outcomes of the WIRP scenario modelling support the view that the minimum scope identified for the WIRP project (5 track duplications + 2 holding roads at Kabra) do satisfy the throughput targets, with the final two Blackwater System track duplications serving to provide an additional system robustness benefit derived from minimising track delays, resulting in lower BRTT and delivering a more stable system velocity.

2.2.9 Modelling Outcome

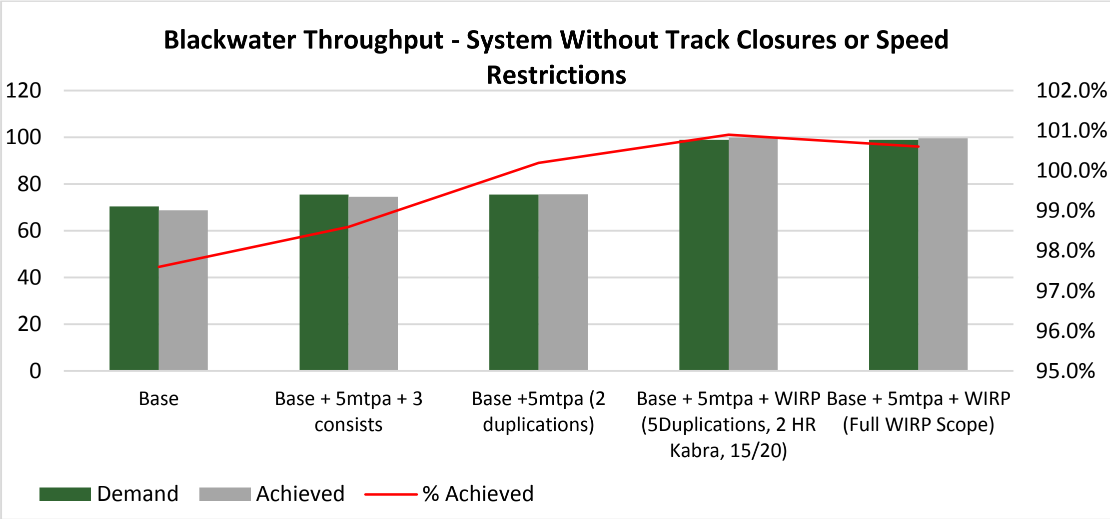
Analysis of the capacity modelling outcomes support the proposition that elements of the WIRP infrastructure scope provide benefit to all system users.

Comparison between the base case scenario and the pre-WIRP scenario with an additional 5Mtpa demonstrates benefits of two track duplications (Rocklands – Gracemere and Parnabal – Umolo) to deliver a throughput shortfall of 2Mtpa. The two duplications also contribute to returning the system to pre-existing performance levels and robustness.

The modelled outcome of the WIRP scope indicate the Blackwater System WIRP demand was fulfilled with an additional 1Mtpa benefit to users on top of that identified with the addition of two track duplications.

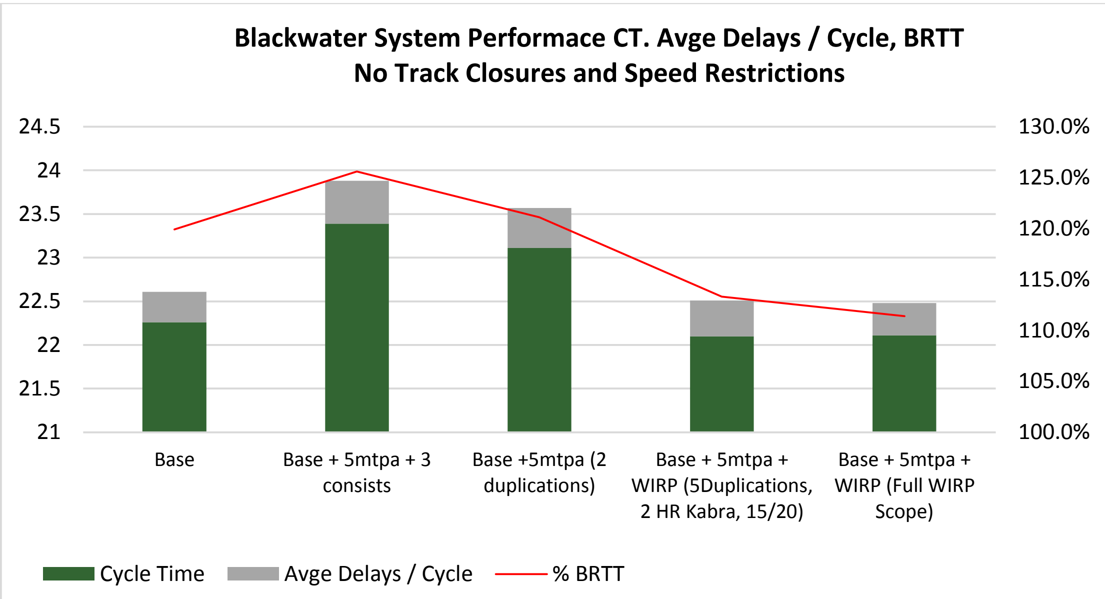
Figure 24 below is aligned to Figure 1 in Section 2.2.1 and demonstrates the modelled throughput at an aggregated system level achieved against the incremental build of infrastructure. It highlights the benefit to pre-WIRP expansion of two of the track duplications delivered as part of the WIRP scope and the final two track duplications delivering no additional throughput in the modelled scenarios.

Figure 24 - Blackwater Throughput



The following graph (Figure 25) demonstrates the comparison of system performance for the modelled base case and WIRP scenarios.

Figure 25 - Blackwater System Performance



This graph demonstrates that the pre-WIRP system performance levels of average cycle time and average delays per cycle are restored once the minimum WIRP infrastructure scope of 5 duplications and reduction in path separation is delivered. BRTT is significantly improved in both the minimum WIRP scope and further in the full WIRP scope of seven (7) duplications highlighting the benefits of system robustness. This additional system robustness provides capability to either reduce the number of consists to deliver demand, deliver additional tonnes and operate over-length consists where the associated infrastructure is capable.

Delivery of track maintenance is less intrusive on supply chain operations with the fully duplicated system requiring less full system closures. This is significant given the trend of unplanned maintenance shown in Figure 6.

Table 8 below summarises from the capacity modelling the incremental benefits associated with demand increases in the Blackwater System with associated commentary and proposed beneficiary of system enhancements.

Table 8 - Incremental Benefits

Volume Increase	Above Rail Increment	Below Rail Enhancement	Comment	Beneficiary
70-75Mtpa	+ 3 consists	2 x Track Duplications	Enables filling an existing 2Mtpa throughput shortfall in base demand of 70Mtpa.	Pre WIRP users
75-99Mtpa	+ 7 consists	3 x Duplications, 2 x Holding Roads Kabra, Aldoga Holding Road	Delivers additional demand for WIRP, maintains non-WIRP users throughput at improved system performance levels through creation of additional train paths	WIRP users
75-99Mtpa	+ 7 consists	2 x Duplications	Delivers additional demand for WIRP, maintains non-WIRP users throughput at improved system performance and robustness levels. Enables additional track maintenance to be delivered reducing risk of volume loss and delivering additional robustness to recover seasonal losses Enables flexibility of the operator to optimise rollingstock allocations to meet demand including operating over-length consists	All system users Non-WIRP WIRP Aurizon Network Above Rail operators

In summary the capacity modelling has demonstrated benefits to the system in fulfilling a 2Mtpa throughput gap in targeted pre-WIRP tonnes at improved system robustness levels based on the following track infrastructure elements of the WIRP scope:

- Duplication of the Rocklands – Gracemere section
- Duplication of the Umolo – Parnabal section

The capacity modelling of the WIRP scope, shows system robustness benefits from the final two track duplications, Dingo – Umolo and Parnabal to Walton.

Additional benefits arising from the last two duplications to system users will manifest in less disruption to the system from the increased track maintenance task forecast as being required from the additional WIRP demand. Reflecting on the performance identified in Section 2.2.4 with respect to path loss to planned maintenance and cancellations; and delays attributed to infrastructure failures, it is reasonable to expect future improvement in these performance metrics from the fully duplicated network.

The availability of unallocated train paths resulting from the reduced scheduled separation delivered by the five track duplications in association with the increased robustness of the seven duplications offers strong robustness and reliability including surge capacity and recovery from seasonal losses.

2.3 Scope Definition and Allocation

This Section describes the background, approach and findings in relation to identification and categorising as-constructed scope items deemed to be outside the WIRP User Group liability. This category is separate to the capacity analysis in Section 2.2.

2.3.1 Approach To Reviewing Scope Allocation

At formation of the WIRP Deed, the WIRP User Group was advised by AN and understood that there would be works undertaken to replace or enhance existing assets while doing work both in the vicinity and of a related type. For instance, upgrading/repairing existing drainage culverts while extending or adding to them. It was also understood by the WIRP User Group at the time that the cost of this work would not be allocated to the WIRP project costs. However this investigation has revealed many instances where such costs remain in the WIRP Forecast Final Cost.

The approach the investigation undertook was to conduct a detailed review of the project construction documentation by civil engineers familiar with the project so as to identify and categorise particular project elements that the WIRP User Group believes is not their liability under the WIRP Deed.

Detailed cost estimates were then prepared on the elements identified, with a methodology as outlined in Section 0. These were then independently reviewed by cost estimator for accuracy and correctness. The determined costs associated with the project elements were then allocated to the various scope categories as described above, and total cost allocations summed by category and WIRP project segment. A summary of the resultant cost allocation figures is provided in Table 10.

2.3.2 Background

WIRP Segments 2, 4A and 4B all provide additional operational track infrastructure that enhance the existing Blackwater rail system and increase the pathing capacity of the affected line sections. Coal haulage services on the Blackwater Line and North Coast Line will use all of the existing pre-WIRP and WIRP constructed assets.

During the pre-approval phase of development of WIRP, a large amount of scope definition and rail capacity modelling work was undertaken with the objective of identifying the minimum additional track and network infrastructure required to reliably deliver the total pre-WIRP and WIRP tonnage task.

It is important to appreciate that the WIRP Stage 1 Deed was executed with five of the seven project segments (Segments 1, 3, 4A, 4B and 5) developed to the AN's DD_{50} project approval stage gate. The original proposed scope for Segment 2 was not agreed at this stage, but was further developed post Deed signing and was subsequently added to the WIRP Deed as an agreed variation with design developed to approximately DD_{30}. Segment 8 works were also subsequently added to the Deed scope as a variation with design developed to the DD_{50} stage.

At the DD_{50} stage, typically the rail civil works are developed to preliminary design stage and rail systems, track and overhead elements are only developed to concept level sufficient that a project budget estimate with approximately +/- 30% accuracy can be generated.

At time of reviewing and agreeing the WIRP Deed including the associated scope and budget costs, the WIRP User Group was typically provided with high level scope diagrams, capacity modelling results overviews and high level project cost estimates. A scope definition was developed (WIRP Stage 1 Scope Book) to document the proposed project works, yet no detailed design documents were available for review at this early stage. Hence the level of scope definition provided to the WIRP User Group could be described at moderate at best, retaining little detailed design definition at the early stage of the project.

Following agreement of the project scope between AN and the WIRP users, AN further developed or directed the detailed design and documentation, procured and project managed the construction of the project works ensuring that the project scope components were suitably integrated with and enhanced the existing rail system.

The detailed design development of the project scope took place after the WIRP Deed execution. The WIRP 1 users were not provided any visibility of or opportunity to review and comment of the fully developed project works documentation. The WIRP Deed does however provide for the appointment of an Independent Engineer (WIRP IE) to overview and monitor the completion of the detailed design development; the implementation of the construction works; and report upon the alignment of the implemented works with the agreed WIRP scope and budget. To this point the WIRP IE has been the only party outside of AN permitted full access to the detailed design documentation and the fully detailed WIRP project cost reports. This investigation has been conducted independent to the IE and his role.

As part of development of this submission, requests were made to AN to release certain detailed project documentation for review. In response, AN has provided high level works schematics, a moderate level of project costing information including the tendered Bill of Quantities for some project segments and access to undertake a review of the developed project construction documentation. A full list of project documentation provided or made available by AN for review is included in Appendix A.

2.3.3 Scope Categories

Costs associated with elements of the WIRP project works were classified into the following scope categories:

- Works undertaken and costs accumulated by the project, where the cost of such items should have been allocated to AN's asset renewals or maintenance budgets and not to WIRP.
- Other works or inherent features that provide benefits to all system users that are:

  a. Not in the WIRP Deed;

b. Not deemed to be part of AN's costs above; and/or
c. Not deemed to be spare capacity, which is the subject of another area of investigation.

Some of these items have been constructed as part of the WIRP scope and some are deemed as 'spin-off' benefits to current and/or future users.

2.3.4 In Deed, In Scope

This is the default category which contains the bulk of the WIRP project works and costs. As stated, the vast majority of the project scope was found to be in alignment with the agreed scope and standards. No cost have been explicitly entered into this category, but figures should represent the difference between the total indicated forecast costs for each segment less the costs identified in other categories.

2.3.5 In Deed, Out of Scope

Some of the works constructed under the WIRP Stage 1 project make provision for non-WIRP system enhancements such as the electrification of the Wiggins Island Balloon Loop.

The below details a number of elements where this is considered to be the case.

2.3.5.1 Provision for Wiggins Island Balloon Loop Electrification

The WIRP Stage 1 scope clearly sets out that electrification of the balloon loop is out of scope. AN have however elected to electrify the Balloon loop as part of an overall system efficiency drive.

Whilst the overhead and power supply works costs have been allocated to budgets outside of the WIRP project costs, the provision of the electrified assets has resulted in additional WIRP project civil works costs which enable the installation of the overhead electrification works. The additional impacts on the civil works include:

- Additional formation width to accommodate the space for the overhead masts (an additional 0.775m each side of the formation where masts are located).
- Installation of the mast foundations and grading rings were provided under the WIRP project costs.
- Provision for formation space for the power cubicles and power equipment rooms.
- Provision of under-track crossings for power supply cables.
- Maintenance access roads to the power cubicles and power equipment rooms.

2.3.6 Asset Renewal or Maintenance

During execution of the WIRP construction works, AN seized an opportunity to address some asset renewal/maintenance works. These works occurred on Segments 2, 4A and 4B.

Combining the work streams is logical and provides an opportunity for realising cost efficiencies from the concurrent execution of the two separate tasks. However identification and separation of the cost allocations between the tasks can be a complicated exercise.

AN has made an effort to appropriately separate costs relating to asset renewal works and the WIRP IE has assisted in this task. In reviewing the Project Cost Report and BOQs it has been determined that there are gaps in the way that costs have been determined and allocated between WIRP costs and AN asset renewal/maintenance budgets. Examples of where this has occurred are outlined in the following sub-sections.

2.3.6.1 Cross drainage enhancement, culvert strengthening/replacement

AN has identified a number of cross drainage structures in Segments 4A and 4B that were understrength or were found to have inadequate drainage capacity. The WIRP scope provided for the design and installation of adequate drainage culverts to the new formation, which met current design loading standards and were detailed and installed for the duplicated track sections under the WIRP project budget.

However it is pointless to increase the drainage cross section on one track, of a dual track formation, as the drainage flow will still be restricted by the existing undersize culvert barrels. AN took the opportunity to increase the cross drainage capacity and/or replace old understrength culverts at a significant number of locations in the duplicated Blackwater Line track sections by one of the following methods:

- Replacing existing culvert structures under track closures;
- Sleeving newer high strength culvert barrels within existing culvert barrels and grouting the surrounds;
- Jacking new culvert pipe barrels under the existing formation; or
- Grout filling old culverts and diverting flows to and adjacent culvert which additional supplemented cross drainage capacity.

Generally it was found that the allocation of direct construction costs have been appropriately allocated to the respective project budgets in Segment 4B. However the respective AN WIRP project on-costs have not been apportioned appropriately with project development and construction procurement costs for asset renewal works being assigned to the WIRP Cost Report.

Additional culvert locations were also identified in Segment 4A. The WIRP IE has confirmed that the direct works costs have not been apportioned to the asset renewal budget (as has been done for Segment 4B). Hence an estimate of the apportionment has been made for these works elements including apportionment of the related AN on-costs.

2.3.6.2 Signalling Equipment Room (SER) Upgrades

Significant upgrades are being undertaken to the existing signalling equipment rooms (SERs) located at Mt Larcom and Mt Miller as part of the WIRP Segment 2 works. These two SERs control the signalling on the section of the North Coast Line between Mt Larcom and Fishermans Landing junction.

Modifications to the two SERs are required to provide for functional requirements of the modified track cross over arrangement and sectioning structure on the North Coast Line as part of the WIRP Segment 2 works.

The WIRP IE has reviewed the project requirements for the upgrading of the Mt Larcom SER. and has confirmed that it is prudent to undertake the upgrades as proposed by AN. But the IE recommends that the costs associated with the SER upgrade be apportioned between the WIRP and non-WIRP users in proportion to respective annualised tonnage commitment on this section of the network.

The IE's report contains details of the maintenance history of the Mt Larcom SER, which highlights a large number of circuit faults resulting in frequent train delays in the section.

The Mt Larcom SER contained Microlok+ interlocking circuitry that was originally installed in 1997 and is based on 1980's technology. The system in use at this SER differs from the newer Westrace MKII interlocking that is used extensively by Aurizon elsewhere on the NCL line. The Microlok+ system is no longer supported by the equipment supplier (Ansaldo) and spare parts are extremely hard to source.

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It is clear that the equipment was in poor condition prior to the additional WIRP tonnage and proposed upgrades being undertaken. It is arguable though that the replacement of this equipment should have already taken place as part of a regular Aurizon maintenance program, and therefore the costs should include contributions from elsewhere, rather than solely from the WIRP budget.

The WIRP IE has also advised in writing that he understands that the Mt Miller SER was in a similar situation but noted that the Mt Miller SER was listed in the WIRP Stage 1 Scope Book as requiring upgrading. Costs for both SERs have been apportioned in proportion to the network tonnage commitments on this section (i.e. WIRP: 23.5Mtpa/103.5Mtpa = 23.5%) in the costs allocation summary table.

2.3.7 System enhancements providing improved functionality/benefits

As outlined in Section 2, a number of elements of the constructed WIRP scope provide benefit to all Blackwater system users. Both WIRP and non-WIRP haulage operations will use all duplicated track infrastructure constructed under WIRP Segments 2, 4A and 4B due to the integrated nature of the constructed track duplication and triplication works, therefore providing a shared benefit.

Additionally some of the works constructed under the WIRP Stage 1 project make provision for future system expansions. Whilst clearly being a key element of delivering the WIRP user coal to the WICET terminal, the scoping and implementation of the balloon loop has considered overall system performance and a number of provisions have been made to facilitate coal delivery to future WICET expansions which will provide benefits beyond the WIRP 1 producers.

The shared system user benefits and the future system expansion provisions are explained in further detail in the following sections.

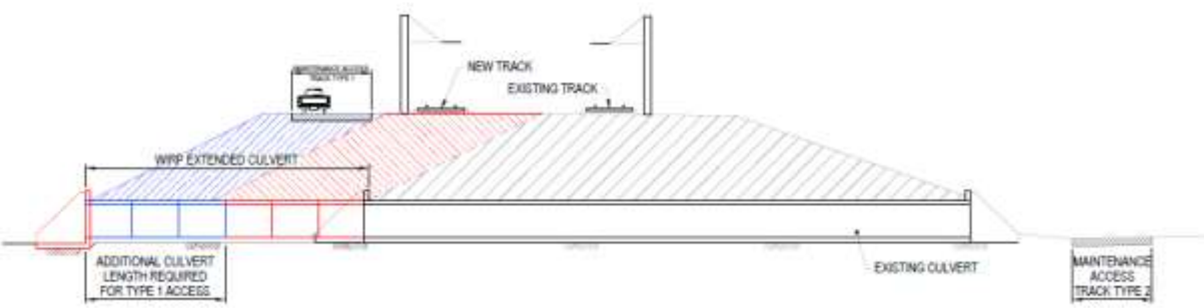
2.3.7.1 Provision for Future Unloading loops at Wiggins Island Balloon Loop (Segment 1)

Local rail formation earthworks either side of the balloon loop unloading station have been constructed to suit four parallel unloading stations, although only one station is required and has been constructed as part of the WIRP Stage 1 works. This has resulted in an additional 25,500m^3 of fill earthwork embankment being placed over an extent of approximately 50m either side of the unloading station location.

2.3.7.2 Rail Maintenance Access Roads

The rail maintenance access roads ('RMAR') provide for regular inspection and maintenance access to all areas of the rail lines. It also provides access for workers and heavy equipment to aid in recovery of rail operations and rolling stock under derailment, post flooding/track washout or other extreme system failures/conditions. There are two types of RMAR used on the WIRP project. Type 1 is located adjacent to the rail track at formation level and Type 2 is located adjacent to the base of the rail embankment close to natural surface level as depicted in
Figure 26.

Figure 26 - Rail Maintenance Access Road Types



The pre-WIRP existing double track section on the North Coast Line in Segment 2 and the single line track sections within the Segment 4A and 4B on the Blackwater Line, typically has a formed and graded 4m wide gravel access road along at least one side of the rail formation (Type 2).

Within the last 2 years (after execution of the WIRP Deed), Aurizon Network have updated their access policy/standard. The new policy requires access to be provided to critical rail systems infrastructure (e.g. rail signal equipment rooms, turnout points, etc.) via the provision of an access road that is, at or close to, the top of rail formation level. This type of access road provides for improved access to rail track and systems even under flood conditions and is classed as a Type 1 RMAR. Where there is not critical infrastructure located within a section of track, it is still permitted to provide a Type 2 RMAR.

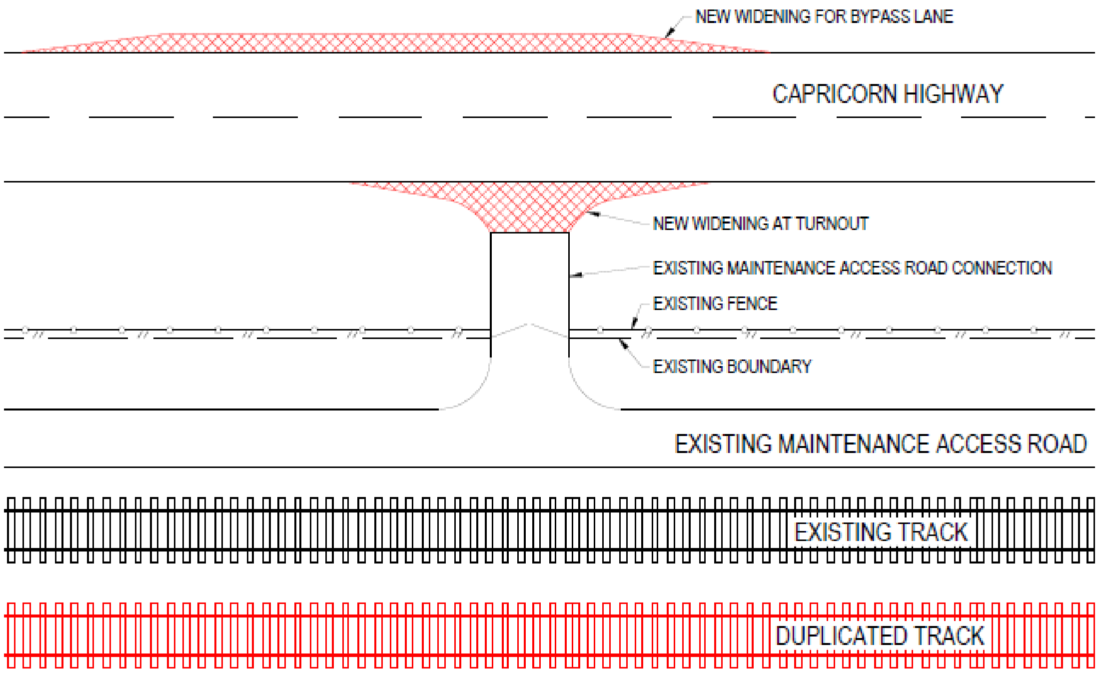
The construction of a Type 1 RMAR requires additional formation earthworks (both cut and fill) and requires extension of cross drainage culvert structures (under the RMAR). For Type 2 RMAR, crossing of waterways is typically provided by grading the road around the end of the culvert for dry bed streams, and in the case of larger ephemeral creeks and streams, a grouted rock or concrete causeway is constructed.

Where the rail crosses large creeks and rivers, the RMAR is terminated at either side of the waterway opening. For a Type 2 RMAR, this is facilitated by providing a turnaround area at ground level. For a Type 1 RMAR (at formation level), more substantial earthworks are required to permit a safe turnaround area either side of the waterway crossing.

As a consequence of the differences in RMAR types as described above, additional construction costs are associated with the provision of a Type 1 RMAR. However the provision of a Type 1 RMAR has clear operational benefits over a Type 2 RMAR in terms of quicker, more reliable and improved access to important rail track and operational infrastructure, this provides for more efficient rail maintenance access and quicker rail systems operational recovery under systems failure or other critical conditions. The benefits of this enhancement are shared by all Blackwater system users.

In Segment 4B, upgrades to a number of connection points of the existing RMAR to the Capricorn Highway (outside of the rail corridor) were constructed to permit improved access at these locations. Again enhancements to the existing RMAR access benefit all Blackwater rail system users. Figure 27 typical details of the RMAR connection upgrades.

Figure 27 - RMAR Connection Works



Segment 2 of the WIRP project provides for a 3.5km section of triplicated rail track at the northern end of the WIBL junction of the North Coast Line. This triplicated track section (and the Aldoga Holding Road) provides additional staging and passing sections either end of the hilly and tight horizontal curved section of the NCL between Calliope and Yarwun. This enables more effective use of available rail traffic pathing over the existing dual track section, with both WIRP asset elements being available for use by all coal and non-coal rail traffic on the NCL.

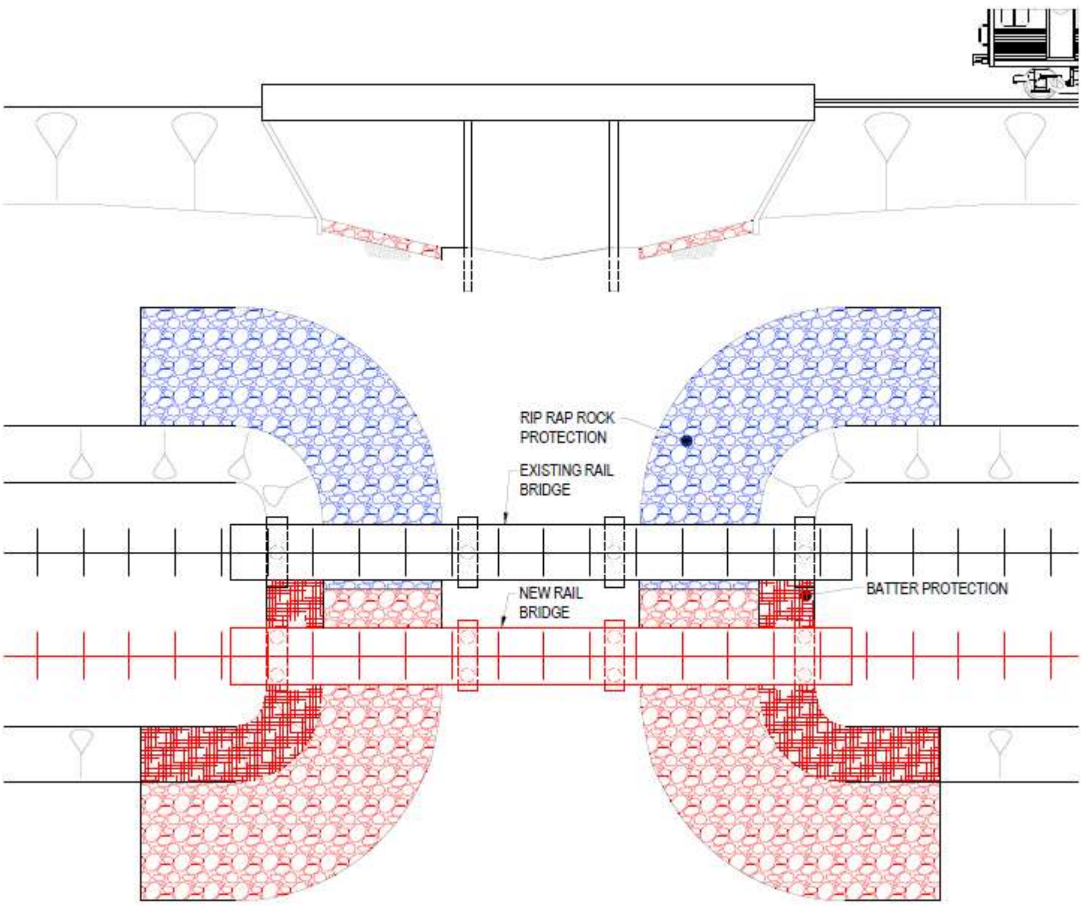
Whilst the pre-WIRP AN standard permitted the provision of Type 2 RMAR to both sides of triplicated track section (refer QR standard drawing 2721), AN have provide improved access to this section of track via the provision of Type 1 RMAR in between the existing NCL dual track and the new third track over a large portion of this WIRP Segment 2 section. At the northern end of this track section it was required to construct a significant length of retaining wall along the edge of the formation to permit a Type 1 RMAR, due to the close proximity of existing gas and slurry pipeline underground services.

2.3.7.3 Flood Protection Enhancements

At a number of major creek crossings located in Segment 4A and 4B, the WIRP project scope has required the construction of new bridges as part of the track duplication works. The new rail bridges are typically constructed alongside the existing rail bridges with the waterway areas and bridge pier locations closely matched to ensure efficient water flow under the rail bridges. Additionally spill through formation earthworks at the bridge ends are constructed to similar details, with slope protection works integrated to ensure there is no risk of damage from water flows during flood events.

At a number of bridge locations it has been noted that extensive additional dumped rock matting has been placed to the base of the bridge end formation slope protection works. This additional flood protection measure is typically installed where the stream flood velocities are relatively high and there is a risk that scour could undermine the end slope protection and then washout the embankment at the bridge end. Figure 28 shows the typical details of the flood protection works at the duplicated rail bridges.

Figure 28 - Bridge Flood Protection



Clearly the bridge end protection works to the new rail bridge construction are a base part of the WIRP project scope. It has been noted that at a number of duplicated bridge locations, this additional dumped rock matting has been extended under the existing rail bridge. This is very logical from a civil engineering perspective as any weak point in this protection can potentially cause a bridge washout. Costs associated with extending the bridge end slope protection works to the existing bridge are considered to provide benefit to the existing rail infrastructure assets through increased flood protection and hence costs are considered to be attributable to the System wide benefits category.

2.3.7.4 Level Crossing Removals

Two existing road level crossings were located within close proximity of each other in the Gracemere to Kabra section of WIRP Segment 4A project works. One of these was the Malki Road public open level crossing, and the other the Somerset Road private level road crossing.

Due to the very close proximity between the rail corridor and the Capricorn Highway at this location and heavy truck usage, both crossings were problematic with a significant number of incidences, with oncoming trains narrowly avoided colliding with trucks stuck across the level crossing whilst waiting to enter the Capricorn Highway. This was due to inadequate queuing distance and high road traffic volumes on this section of the Capricorn highway.

AN contributed funding to the DTMR constructed Gracemere Industrial Area Overpass Bridge located in the vicinity of the level crossings and was built at the same time as the WIRP Segment 4A works. The construction of the overpass bridge permitted AN to permanently close and remove the two problematic level crossings, as alternative grade separate access was then available across the rail corridor.

AN's financial contribution to the Gracemere Overpass Bridge does not form part of the WIRP Project Budget and Cost Report, however the costs associated with the removal of the two existing level crossings are contained within the WIRP Project Cost Report.

The removal of the two problematic level crossings is clearly of benefit to all rail operations using the Blackwater line and not directly related to works necessary for the provision of the additional system capacity for WIRP 1.

2.3.7.5 Level Crossing Upgrades

Three existing road level crossings required upgrading within the WIRP Segment 4B project works scope. The construction of duplicated track in the Walton to Bluff and the Umolo to Parnabal track sections required the regrading of these existing level crossings to cater for the duplicated track.

In reviewing the construction documents for these sections it was noted that the road surface formation width at these crossings has been increased from the existing ~4.5m width. Additionally the tie in works to other connecting public roads should not need to be upgraded outside of the influence zone of the road re-profiling for the duplicated track.

Works beyond the minimum requirement for the duplicated track are considered to benefit all Blackwater system users, with costs associated with these enhancements classified as system enhancements.

2.3.7.6 On Existing Corridor Fencing Reconstruction

The construction of duplicated track with an additional rail maintenance access road, has in significant sections, required the purchase of additional property from adjoining land owners. As a consequence of the expanded rail corridor assets, it has been necessary to construct new fencing and gates to the adjusted corridor boundary. This work clearly fits within the WIRP scope requirements.

In a number of locations within Segment 4A and 4B it was noted that fencing has been reconstructed on the non-duplicated track side of the corridor and in some locations where the existing boundary is unchanged on the duplicated side of the corridor. The fencing may have needed to be reconstructed due to poor condition of the existing fencing, or as part of negotiations with the adjoining land owners or some other AN requirement. Costs associated with fencing in these locations have been classified as a rail system enhancement.

2.3.7.7 Rail Noise Mitigation Provisions

Within the scope of works for Segment 4A, provision was made for the installation of up to 3km of noise walls to the rail corridor boundaries in the populated Gracemere area. It is noted that the 33% increase in rail traffic volume would not significantly increase the noise nuisance to the adjoining public residences. Hence the requirement for the provision of noise mitigation measures in this section is considered to be driven by a pre-existing grievance by the adjoining residences. As such the costs associated with any noise mitigation works would be considered as a whole of system enhancement.

AN is reluctant to install noise walls to this location as this may well set a precedent for numerous other locations along the Blackwater rail corridor resulting in significant noise mitigation works across the whole system. The current AN proposal to address this issue is understood by the WIRP Users to comprise the installation of rail-head greasers to the curved track locations (both existing and duplicated) in the Gracemere area. This is cheaper than the forecast cost of the noise walls installation with a provision of $500k made for this work in the current WIRP Cost Budget.

2.3.7.8 Moura System Enhancements

Works undertaken at Moura East do not provide additional capacity as is explicitly stated in Schedule 3 of the WIRP Deed, Segment 3 Scope of Works; “Upgrades of approximately 3km of the Moura rail formation in specific areas without the need for any new infrastructure to increase capacity.” Given this, the WIRP User Group contends that the cost of this, $15,225M (excluding interest during construction), should be attributed to all Moura Users.

2.3.7.9 Non-Priced System Enhancements

A number of other elements of the constructed WIRP scope result in system wide enhancements that will benefit all system users. Whilst the benefits are clear, due to the integrated nature of the operation of the rail system it is difficult to separate out a specific cost allocation from the WIRP capital costs. These additional items and there related benefits are summarised below:

- The construction of additional holding roads at Kabra on the Blackwater line (2 roads) and at Aldoga on the North Coast Line (1 holding road) provide additional crew change locations on the network.

The ability to undertake crew changes at these locations is not limited to WIRP haulage operators and could provide opportunities for haulage operators to rationalise and optimise their crewing requirements.

- New duplicated track works on the Blackwater line have been constructed at a minimum of 6m track centre separation. This track separation distance is larger than the typical 4.2m minimum standard on all the other Blackwater duplicated track sections. The increased track separation distance allows for single line track running whilst track based maintenance is undertaken on one road of the duplicated track sections. This permits continued operation of the rail system (at a partial capacity) during future track maintenance works and hence will have a reduction on maintenance closure impacts on network capacity.

2.4 Cost Review and Allocation

The process used to determine and allocate costs associated with the items identified under the various classification categories is outlined below.

Following identification of the project works sub-elements where the functionality differed from the original WIRP scope agreement or where works substantially enhanced the existing base rail asset to the benefit of all system users, the corresponding work items were generally located within the AN provided tendered Bill of Quantities schedules (BOQ's).

Details of these items were entered into modified Bill of Quantity schedules with quantification of the various project sub-elements undertaken through reference to the dimensions and details from the relevant "Issued for Construction" or "As-constructed" project drawings (where made available). Reference was also made to the AN standard drawings some of which contain quantity take-off tables such as for pipe and box culverts. Unit cost rates for these project elements were copied from the same or similar elements within the AN provided project BOQ's. Where BOQ rates were not available, equivalent current market rates were determined by reference to similar items within other project segment BOQ's or by reference to standard industry cost sources such as Rawlinson's (a very small number of items were costed in this manner).

The extended cost amounts were then summed by relevant track section and project segment. The summed net costs represent the direct construction costs for these elements with built-in contractor overheads and profit provisions.

The summed elemental costs were bought forward to summary tables and then added with prorated proportions of the other project on costs.

Where the civil works construction works have already reached completion, typically there was a difference between the original total tendered costs and the final contract costs with the difference representing the sum of all AN approved contract variation claims. The approach taken has been to add the portion the total variation costs in direct relation to the relevant track sub section tendered cost total, since details of the variation agreed claims were not made available.

The AN provided Project Cost Report breaks out the AN on-costs into elements typically only to the project segment level (not to the track section level). Hence a portion of the relevant on-costs has been added to the direct element costs to represent to equivalent total project value of the respective element.

An explanation of some of the more relevant on-cost structure elements within the AN Project Cost Report are summarised in the following Table 9.

Table 9 - Project Cost Report Inclusions Summary

AN Project Cost Report WBS Description	Covers
Project Delivery	Project Management, Governance, Commercial Asset and Operations Management, Site Works Management
Project Management	WIRP team management including Programme Management, Risk Management, Contract Procurement, IE costs, Commercial Asset and Operational Management, Scheduling, Cost and Document Control
Civil Management	AN Project Co-ordination
Civil Engineering	Survey, Geotech, Internal Civil Design and Subcontracted Design
Allowances	Pre-feasibility, Feasibility and Base Case Project Development (costs pre WIRP agreement)

The AN on-costs have been prorated in portion to the elements value compared to the relevant direct contract works totals.

2.5 Cost Allocation by Category

The following Table 10 summarises the allocation of costs for scope deemed to be outside the WIRP Deed into the nominated categories, showing the source of the costs from each respective area.

Table 10 - Cost Allocations

Cost Areas and Elements	Asset Enhancements	System Robustness	Other System Enhancements	Totals (A$)
Segment 1 – WIBL				
Electrification			7,944,227	7,944,227
Allowances for 4 unload stations			4,138,027	4,138,027
Segment 2 – NCL & Aldoga, Kabra HR's				
Enhancements			20,476,387	20,476,387
Signal Equipment Room Upgrades (Mt Miller & Mt Larcom)	5,873,957			5,873,957
Re-railing on NCL	1,823,360			1,823,360
Segment 4A – Rocklands – Stanwell				
Maintenance Access Road			2,272,733	2,272,733
Enhanced Cross Drainage	1,258,384			1,258,384
Flood Protection Enhancements			132,395	132,395
Level Crossing Removals			702,870	702,870
Segment 4B – Dingo - Bluff				
System robustness:				
- **Dingo – Umolo Duplication**		70,351,151		70,351,151
- **Parnabal – Walton Duplication**		29,830,186		29,830,186

Cost Areas and Elements	Asset Enhancements	System Robustness	Other System Enhancements	Totals (A$)
Asset enhancements:				
- **Cross Drainage**	1,378,547			1,378,547
System enhancements:				
- **Maintenance Access Road Enhancements**			944,518	944,518
- **Flood Protection Enhancements**			2,112,601	2,112,601
- **Upgrades to Existing Level Crossings**			552,623	552,623
- **On Existing Corridor Fencing**			170,421	170,421
Segment 5 – Bauhinia North				
Blackwater Category Totals	***10,334,249***	***100,181,337***	***39,446,800***	***149,962,386***
Segment 3 – Moura East				
Track Upgrade			15,225,000	15,225,000
Segment 8 – Moura West				
Moura Category Totals			***15,225,000***	***15,225,000***
Total other than in WIRP Deed				***165,187,386***

3. REGULATORY PRICING MATTERS

3.1 Relevant Access Undertaking Provisions

Draft Decision 3.3 of the 2015 WIRP SDD stated that:

> *….while the 2010AU provisions relating to WIRP pricing are relevant to our consideration of the reference tariffs for WIRP under the 2014DAU, we do not consider these provisions are determinative, particularly as our focus is on assessing the 2014DAU.*[3]

However, the WIRP User Group strongly disagrees with the stance of the QCA.

By their very nature, infrastructure assets require considerable time to negotiate, design and construct. This can span years and span multiple regulatory periods, with train services at times beginning in a different regulatory period than when the asset was first conceptualised. WIRP is a prime example of this, with its inception; commercial acceptance; physical design; and the majority of its construction, mainly performed under the provisions contained in the 2010AU ('UT3').

As the majority of WIRP has been developed under UT3, the commercial and regulatory treatment of WIRP was developed and agreed under that regulatory regime, a regulatory environment that the WIRP User Group knew and in the context of what reasonably could be expected to occur under those same provisions. Whilst not ignorant to the different economic – and at times challenging – conditions faced by coal producers today, some four years later and whilst also rapidly approaching the UT5 regulatory undertaking period; the WIRP User Group is now told that although the UT3 regulatory framework is relevant to a QCA decision on WIRP, it is not wholly influential upon how WIRP should be treated from a regulatory perspective. In particular, the QCA believes elements within the 2014DAU – still yet to be approved – require deliberation, such as the Expansion Principles, even though this regime did not exist within the 2010AU and could not be reasonably anticipated when WIRP was conceptualised or even when WIRP was agreed to by the WIRP customers themselves.

Simply, the WIRP User Group remains alarmed that this approach could be considered by the QCA, not just for itself, but for all stakeholders of the Central Queensland Coal Network ('CQCN').

For example, if customers (both WIRP and non-WIRP) of the CQCN sought to undertake a further expansion of the network today, they would reasonably expect that the commercial and regulatory treatment applying today would continue to apply to the expansion when complete and when railing had commenced. As this hypothetical expansion commenced within the UT4 regulatory period, the 2014DAU Expansion Principles could reasonably be expected to apply into future regulatory undertaking periods even if railings began subsequently, unless a sound regulatory econometric case was presented that benefitted all stakeholders as required under Part 5 of the *Queensland Competition Act 1997* ('*QCA Act*'), including the expanding users. That is, firms make significant investment decisions with expectations that regulators will continue to apply regulation as previously administered:

[3] QCA, 2015, *Supplementary Draft Decision – Aurizon Network 2014 DAU: Reference Tariffs for Wiggins Island Rail Project Train Services,* pg. 25, 31 July 2015, available at www.qca.org.au

Firms need to form expectations about the outcome of future regulatory decisions in order to evaluate the business case for investment projects. In forming these expectations, the firm will look to any past history of regulatory decision-making by the same people, and will update these expectations each time a new decision is observed. This learning process implies that regulatory uncertainty is highest, early in the tenure of a new regulator.[4]

The regulator authorised to approve tariffs under the 2010AU has not changed since WIRP was committed. The QCA is not new to the regulation of the CQCN, nor has it made any decision in the past from which the WIRP customers could infer that future regulatory positions would influence decisions made within previous undertaking periods.

To be clear, the QCA appears to be applying principles contained within the 2014DAU retrospectively to determine either the applicability or relevancy of the 2010AU provisions. The WIRP User Group believes such retrospective action contravenes the objectives of the *QCA Act*, particularly Part 5 as per Clause 69E:

The object of this part [Part 5] is to promote the economically efficient operation of, use of and investment in, significant infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets.[5]

This retrospective application of the 2014DAU may discourage future investment into the CQCN given the uncertain investment environment this creates.

The WIRP User Group therefore believes that such regulatory positioning seriously threatens future investment within the CQCN; introduces unanticipated regulatory risk into the Queensland economy; reduces regulatory certainty which should be associated with infrastructure assets, especially those of national significance; and most importantly, reduces confidence into the efficacy of the regulatory environment under which the CQCN and its stakeholders operate.

3.2 Cost Allocations

3.2.1 Capital costs

As implications from the construction of WIRP and the connecting rail infrastructure evolved since 2008, uncertainty has also been created. Stakeholders have indicated that one of the main drivers for this uncertainty has been Aurizon Network ('**AN**') purporting different beneficial impacts of the Blackwater asset duplications and recommending varying provisioning levels towards existing users of the Blackwater system.[6,7] Specifically:

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4 ACCC, 2001, *Regulatory Risk,* pg. 9, 7th March 2001, available at www.accc.org.au

5 Queensland Government, 2012, *Queensland Competition Authority Act 1997,* pg. 63, 21st September 2012, available at www.legislative.gld.gov.au

6 QCA, 2015, *Supplementary Draft Decision – Aurizon Network 2014 DAU: Reference Tariffs for Wiggins Island Rail Project Train Services,* 31 July 2015, available at www.qca.org.au

7 Asciano, 2015, *Asciano Submission to the Queensland Competition Authority in Relation to an Aurizon Network Proposed Tariff for Train Services to Wiggins Island Coal Export Terminal,* 28th February 2015, available at www.qca.org.au

- In the 2008 Coal Rail Infrastructure Master Plan ('CRIMP'), AN modelling indicated that duplications were required with or without the Wiggins Island Coal Export Terminal ('WICET');
- In the June 2011 drafting of the WIRP Access Conditions, AN produced modelling indicating that the duplications were not required in the absence of WICET;
- In August 2014 as part of the 2014DAU, AN indicated that only one of the seven WIRP Blackwater duplications should be included within the existing Blackwater system; and
- Most recently in the December 2014 WIRP Pricing Proposal ('2014 WIRP Pricing Proposal'), AN revised its position indicating that 50% of the capital expenditure associated with WIRP Blackwater duplications should be included within the existing Blackwater system.[8]

Usually as understanding increases, assumptions are refined, thus allowing for more accurate estimates of what benefits can be attributable to an enhancement or an expansion of an asset. However, AN's eclectic stances since 2008 provide little comfort to the WIRP User Group as to what cost allocations can both be accurately and prudently allocated to existing system users of the Blackwater system (if any).

To address this uncertainty once and for all, the WIRP User Group committed to quantify whether the Blackwater asset duplications do provide benefits to existing customers. Specifically, answers to three main questions were sought including:

- 1Q. Could the existing users of the Blackwater system be reasonably able to receive operational and/or capacity benefits from the construction of any duplications attributable to the WIRP?
- 2Q. What quantum of operational and/or capacity benefits could the existing users of the Blackwater system reasonably expect to receive from the construction of the capital costs attributable to the WIRP?
- 3Q. In the absence of WICET, would these benefits have been required by the existing users of the Blackwater system so that tonnages railed since completion of the enhancements continue to be attained with the same level of confidence?

The WIRP User Group provides this information to the QCA so as to address many of the concerns historically raised by non-WIRP users, such as the limited transparency[9] into the underlying assumptions used by AN in determining the proposed allocation of assets; the lack of clear, reliable evidence; and the inability to assess the overall reasonableness of the proposed allocations.[10,11,12]

The WIRP User Group also provides this evidence in response to the QCA position stated in the 2015 WIRP SDD, so has to enhance the available information by ensuring sufficient evidence is provided so that the correct quantum of capital cost allocations associated with the Blackwater duplications can be prudently allocated to non-WIRP users.

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[8] Aurizon Network, 2014, *Aurizon Network Access Undertaking (2010) – Proposed New Reference Tariff: Train Services to Wiggins Island Coal Export Terminal,* 31st December 2014, available at www.qca.org.au
[9] QCA, 2015, *Supplementary Draft Decision – Aurizon Network 2014 DAU: Reference Tariffs for Wiggins Island Rail Project Train Services,* pg. 31, 31 July 2015, available at www.qca.org.au
[10] Rio Tinto, 2015, *Aurizon Network Submission to the QCA regarding Proposed New Reference Tariff Train Services to Wiggins Island Coal Export Terminal,* 18th February 2015, available at www.qca.org.au
[11] Anglo American, 2015, *Submission to the Queensland Competition Authority – Aurizon Network's Proposed Treatment of the Wiggins Island Rail Project (WIRP),* 18th February 2015, available at www.qca.org.au
[12] QCA, 2015, *Supplementary Draft Decision – Aurizon Network 2014 DAU: Reference Tariffs for Wiggins Island Rail Project Train Services,* pg. 28, 31 July 2015, available at www.qca.org.au

3.2.1.1 Results of capacity based modelling

Outlined in significantly greater detail within Section 2 of this submission, capacity modelling has indicated that the Blackwater duplications do in fact enhance the operational benefits, altogether enhancing both the reliability and robustness of the existing Blackwater system by:

- Increasing capacity, creating additional train paths and thereby potentially lowering access tariffs;
- Reducing train headways, cycles times, network delays as well as below rail transit times; and
- Providing greater flexibility so that the network can accommodate capacity losses associated with network closures, maintenance activities and speed restrictions.

In answering the three questions posed in the previous section, modelling has indicated that:

- 1A. Existing users in the Blackwater system would reasonably be able to receive operational and capacity benefits from the construction works attributable to the seven duplications. Specifically, capacity modelling has indicated a minimum of 2Mtpa additional throughput, with static analysis demonstrating 6 unallocated train paths per day;
- 2A. Close to 18% or approximately $178.55m[13] of the WIRP-Blackwater capital cost could be prudently apportioned to the existing users of the Blackwater system; and
- 3A. In the absence of WICET, these benefits would have been required by the existing users of the Blackwater system if they sought to meet existing tonnage haulage levels. Explicitly, at least two duplications would be required to deliver the additional 5Mtpa.

Hence based upon these findings, capacity modelling analysis clearly indicates that 18% of the WIRP-Blackwater capital costs could be allocated to existing Blackwater users on grounds of fairness, economic efficacy and regulatory prudency. In other words, the WIRP User Group believes the findings from the capacity modelling provides clear evidence that existing users are currently – or will in the future – benefit from a reasonable proportion of the duplications associated with the WIRP asset expansion.

Due to fewer lost services resulting from full duplication of the system that provides increased flexibility and recovery from unplanned and planned outages, the avoidance of lost services could be valued according to train revenue. The average coal train on the Blackwater and Moura systems provides revenue to the average coal producer of approximately AUD$920,000 (assuming a 65%/35% coking coal/thermal coal type mix) based on today's current coal prices and foreign exchange rates. This supports the WIRP Users stance that the cost of the duplications in Table 10 is a reasonable approach to take.

With clear evidence being provided in Section 2 and indicating that an additional 6 train paths are available above the baseline capacity of 70Mtpa, the WIRP User Group believes that capital cost allocations towards existing users of the Blackwater system can now comprise of two parts:

1) Firstly per the QCA's Draft Decision of 4.3 within the 2015 WIRP SDD, a proportion of the Wiggins Island Balloon Loop costs ('WIBL') could be allocated to existing users of the Blackwater system;

[13] Note, this amount includes Interest During Construction ('IDC')

2) Secondly as per the WIRP User Group capacity modelling, a proportion of the Blackwater duplications could be allocated to the existing users.

In addition, the WIRP User Group believes the above approach should be applied fairly and consistently.[14] Specifically, any existing network that receives a benefit from WIRP capital expenditure should be allocated a proportion of the costs that fairly reflect any benefits received. Hence, even though AN has not proposed to allocate any costs associated from WIRP-Moura, the WIRP User Group sought to answer three further questions:

- 4Q. Could the existing users of the Moura system be reasonably able to receive operational and/or capacity benefits from the construction works attributable to the WIRP-Moura segments?
- 5Q. What quantum of operational and/or capacity benefits could the existing users of the Moura system reasonably expect to receive from the construction of the WIRP-Moura segments?
- 6Q. In the absence of WICET, would these benefits have been required by the existing users of the Moura system so that tonnages railed since completion of the enhancements continue to be attained with the same level of confidence?

As a portion of the capital costs of WIRP-Moura designated as asset renewals, the WIRP User Group believes that:

- 4A. Existing users would reasonably be able to receive operational and capacity benefits from the construction works. Unambiguously, as Moura segment works relate to formation strengthening it is reasonable to assume that system metrics would be enhanced, thus allowing for reduced levels of speed restrictions;
- 5A. Close to 27% or approximately $17.55m[15] of the WIRP-Moura capital cost could be prudently apportioned to the existing users of the Moura system; and
- 6A. In the absence of WICET, these benefits would have been required by the existing users of the Moura system if they sought to meet existing tonnage haulage levels.

Hence as a result of the independent capacity modelling set out in Section 2, the WIRP User Group also believes that 27% of the capital expenditure associated with WIRP Moura costs could be allocated to the existing Moura system.

3.2.2 Operating and maintenance costs

As WIRP is considered an expansion of the existing network, the WIRP User Group agrees that both operating and maintenance costs are incremental in nature. In this light, the WIRP User Group supports the QCA where it approves the proposed operating and maintenance costs of WIRP for 2015-16 and 2016-17 financial years. Nevertheless, the WIRP User Group seeks to emphasize that ongoing maintenance costs of WIRP should continue to remain low across the short-to-medium term given the infancy of the infrastructure asset itself.

[14] QCA, 2013, *Statement of Regulatory Pricing Principles,* 31st August 2013, available at www.qca.org.au
[15] Note, this amount includes Interest During Construction ('IDC')

3.3 WIRP Pricing Options and Proposed Pricing Arrangements

The 2015 WIRP SDD outlined how the QCA assessed three alternative pricing approaches in regards to establishing an appropriate pricing option for the WIRP train services, including the adoption of a fully socialised approach; adopting a partially socialised approach; as well as the deliberation of an entirely new and separate reference tariff.

The WIRP User Group believes significant complexity exists in implementing new and entirely separate reference tariffs for WIRP train services, even though the QCA believes regulatory precedent exists with the Goonyella to Abbot Point Expansion (‘**GAPE’**) rail project. Yet the definition of an independent system could potentially create concerns regarding the treatment of both common and/or incremental costs, as well as mine specific infrastructure previously included within the regulated asset bases of other systems. Further unlike previous analysis indicating that GAPE traffic would reduce existing Goonyella system capacity,[16] WIRP capital expenditure and associated traffic has modelled entirely different outcomes, with the specific ability of WIRP to enhance the existing Blackwater network by increasing capacity altogether (refer findings within Section 2).

Further distinguishing WIRP from GAPE, the very nature of WIRP is that it is not, nor ever will be, a truly independent and separate system from that of the existing Blackwater/Moura systems. Due to its locality; the substitutability of its destinations; benefits attributable to WIRP Blackwater duplications; as well as those associated with the WIRP Moura asset renewals; real benefits could reasonably be expected to be provided to existing users (Refer Section 3). Lastly, as per the QCA’s 2013 Discussion Paper on Capacity Expansion and Access Pricing for Rail and Ports (‘2013 Capacity Expansion Discussion Paper’)[emphasis added]:

> *If average costs are **increasing substantially with capacity**, a separate access price should normally be calculated and charged to those whose capacity underwrites the new tranche of capacity that reflects the average cost of that new capacity.*[17]

Emphasis is added to the above comment as clarity should be provided as to what is considered substantial. For instance, within the 2015 WIRP SDD, initial analysis undertaken by the QCA indicates that average system tariffs for the Blackwater and Moura systems increase by between 1.9 – 4.1% over the 2015-17FYs. The results of this analysis is replicated in Table 11 below.

[16] QCA, 2013, *Capacity Expansion and Access Pricing for Rail and Ports – Discussion Paper,* pg. 22, 30th April 2-13, available at www.qca.org.au

[17] QCA, 2013, *Capacity Expansion and Access Pricing for Rail and Ports – Discussion Paper,* pg. iv, 30th April 2-13, available at www.qca.org.au

Table 11 - Comparison of Average System Reference Tariff for Existing Train Services[18]

Average system reference tariff ($/t)	***2015–16***	***2016–17***
Blackwater system		
Existing system excluding WIRP	6.60	6.49
Existing system including WIRP (socialised)	6.79	6.75
Difference (%)	2.9%	4.1%
Moura system		
Existing system excluding WIRP	3.23	3.59
Existing system including WIRP (socialised)	3.29	3.72
Difference (%)	1.9%	3.7%

The WIRP User Group seeks clarity on this matter, as increases of less than 4% do not seem substantial, particularly when AN is allowed to smooth allowable revenue across regulatory periods for close to this quantum. Additionally, even if analysis did indicate tariffs to increase, operational and capacity based modelling indicates benefits related to WIRP capital expenditure outweigh any such increases.

Hence as stated in previous submissions to the QCA[19], the WIRP User Group continues to have the view that a fully socialised pricing approach (referred to by the QCA as the 'socialised pricing approach')[20] is the most effective, fair and prudent pricing option for the long-term pricing of WIRP related train services. As such, the WIRP User Group believes all WIRP and non-WIRP customers should pay the same system reference tariff; adhere to a combined set of take-or-pay arrangements; operate under one revenue cap; as well as benefitting from other system attributes such as the ability to pool access rights.[21,22]

However the WIRP User Group recognises that the outcome of a fully socialised price would need to be close to or lower than the existing system price. If not, such outcomes would not be consistent with the cost reflectivity and efficiency elements contained within Section 168A(b) of the *Queensland Competition Authority Act 1997* ('QCA Act'). Where a fully socialised price exhibits an overall 'averaging down' outcome, then the WIRP User Group also believes that the numerous aspects of cost reflectivity, efficiency and fairness would be maintained.

As stated within its earlier submission[23], the WIRP User Group considers that such an outcome is reasonable and would continue to be a preferred solution for all parties concerned. Similar views have been expressed by stakeholders towards the QCA previously[24], with the QCA also expressing parallel views in its 2013 Capacity Expansion Discussion Paper:

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[18] QCA, 2015, *Supplementary Draft Decision – Aurizon Network 2014 DAU: Reference Tariffs for Wiggins Island Rail Project Train Services,* 31 July 2015, available at www.qca.org.au
[19] WIRP User Group, 2015, *Pricing for WIRP Train Services,* 2nd July 2015, available at www.qca.org.au
[20] QCA, 2015, *Supplementary Draft Decision – Aurizon Network 2014 DAU: Reference Tariffs for Wiggins Island Rail Project Train Services,* pg. 43, 31 July 2015, available at www.qca.org.au
[21] Wesfarmers and WIRP User Group, 2015, *Wiggins Island Rail Project Proposed Pricing Treatment – Clarification of regulatory framework and proposed commercial outcomes*, 13th April 2015, available at www.qca.org.au
[22] WIRP User Group, 2015, *Wiggins Island Rail Project Proposed Pricing Treatment,* 6th February 2015, available at www.qca.org.au
[23] WIRP User Group, 2015, *Pricing for WIRP Train Services,* 2nd July 2015, available at www.qca.org.au
[24] Anglo American, 2013, *Submission to the Queensland Competition Authority – Queensland Competition Authority Pricing Papers,* pg. 16, July 2013, available at www.qca.org.au

> *Where costs are declining, a uniform average cost based access price…may be the preferred solution by the access seller and access buyer alike. Such a scenario does not seem to raise significant concerns for existing or new users and does not appear to have any significant economic efficiency implications. It is the option preferred by the Queensland Resources Council (QRC), as noted above, and implicitly the miners it represents; and it is also what has been agreed at Wiggins Island in the WITAP.* [25]

And further:

> *With long-term contracts and a substantial decrease in average cost…a uniform average cost-based price ('cost socialisation') is reasonable as it will allow established users to be compensated for Greenfield risk …. and would be perceived as fair…* [26]

3.3.1 Results of regulatory based econometric modelling

The stance of the WIRP User Group is supported by regulatory based econometric modelling, analogous to that performed by the QCA to support its position within the 2015 WIRP SDD. To address much of the uncertainty surrounding the treatment of WIRP pricing, and so as to ensure the rigour of modelling undertaken, a conservative approach was also applied to many of the assumptions underpinning the results. Specifically:

- Applying the Energy Economics volumes as presented by the QCA within the 2015 WIRP SDD;
- Using a WACC of 7.17% as published by the QCA within its September 2014 Draft Decision of AN's UT4 Submission ('UT4 Draft Decision');
- Utilising the results from Section 2 and noting that the findings are nowhere near as high as the allocations as recommended by AN (i.e. 50% of the duplications per 2014 WIRP Pricing Proposal); explicitly, assuming that 18% and 27% of the capital costs associated with WIRP Blackwater and WIRP Moura respectively be allocated towards non-WIRP users respectively; and
- Reflecting the QCA's stance within the UT4 Draft Decision, where regulatory depreciation starts from when the asset is commissioned, not the year after commissioning, with capital expenditure capitalised via a WACC of 7.17% until the 2015-16FY.

Based upon these assumptions, tariffs for Blackwater WIRP customers and turn, socialised system tariffs, are lower than tariffs for the Blackwater non-WIRP customers for every year apart from 2015-2016FY. This mostly reflects lower volume levels as well as the recognition of the capitalised capital expenditure costs within AN's Regulated Asset Base ('RAB'). Yet as volumes strengthen, modelled price paths for WIRP customers are clearly below that of non-WIRP customers, and if socialised, clearly show 'averaging-down' price path outcomes. Moreover as illustrated below, if 18% of the WIRP Blackwater capital costs are allocated to non-WIRP users of the Blackwater system, price paths become even more favourable for all users on a socialised system tariff basis.

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[25] QCA, 2013, *Capacity Expansion and Access Pricing for Rail and Ports – Discussion Paper,* pg. 13, 30th April 2-13, available at www.qca.org.au

[26] QCA, 2013, *Capacity Expansion and Access Pricing for Rail and Ports – Discussion Paper,* pg. 25, 30th April 2-13, available at www.qca.org.au

Figure 29 - Blackwater Modelled Price Path (Cost Allocations)

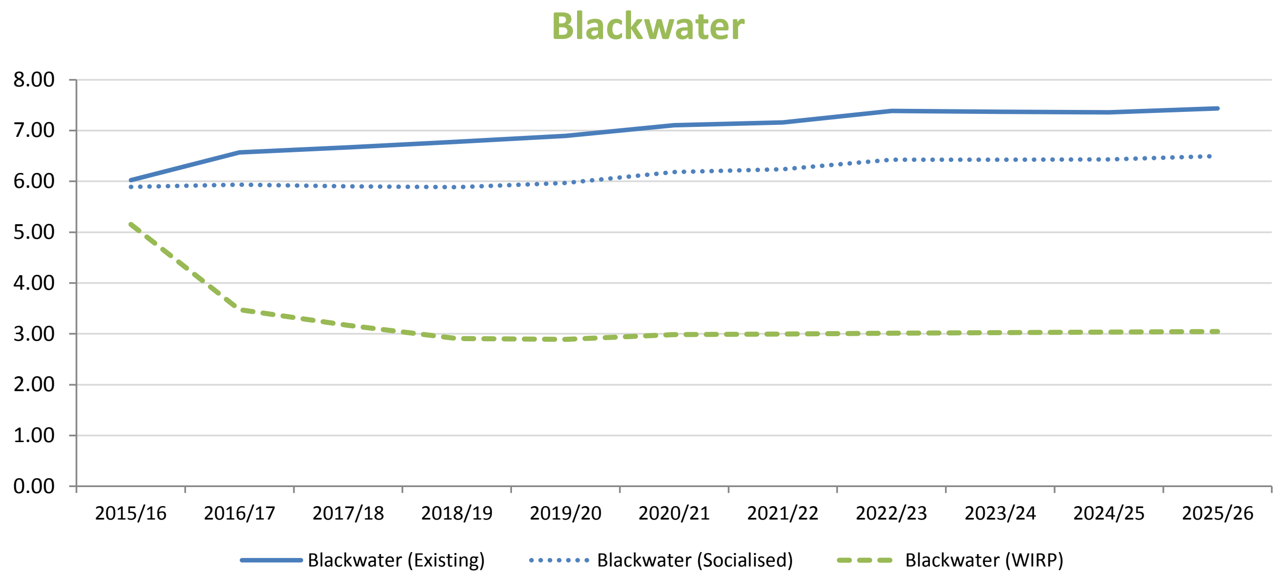

Table 12 - Blackwater Tariff Comparison

$/t	***2015-16***	***2016-17***	***2017-18***	***2018-19***	***2019-20***	***2020-21***
Cost allocations @ 18%						
Existing system excluding WIRP*	6.03	6.57	6.67	6.78	6.89	7.10
WIRP	5.15	3.47	3.16	2.91	2.89	2.98
Existing system including WIRP (socialised)	5.89	5.94	5.90	5.88	5.97	6.18
Difference	-2.25%	-9.64%	-11.44%	-13.23%	-13.40%	-12.97%

Utilising the same assumptions as above, similar outcomes are indicated within the Moura system tariffs for Moura WIRP customers. Again this reflects the relatively low volume levels, the infancy of the asset, and recognition of the capital costs within AN's RAB. When allocating 27% of the WIRP Moura capital costs to the existing non-WIRP users of the Moura system, more favourable socialised price paths are exhibited for all users, as illustrated in Figure 30.

Figure 30 - Moura Modelled Price Path (Cost Allocations)

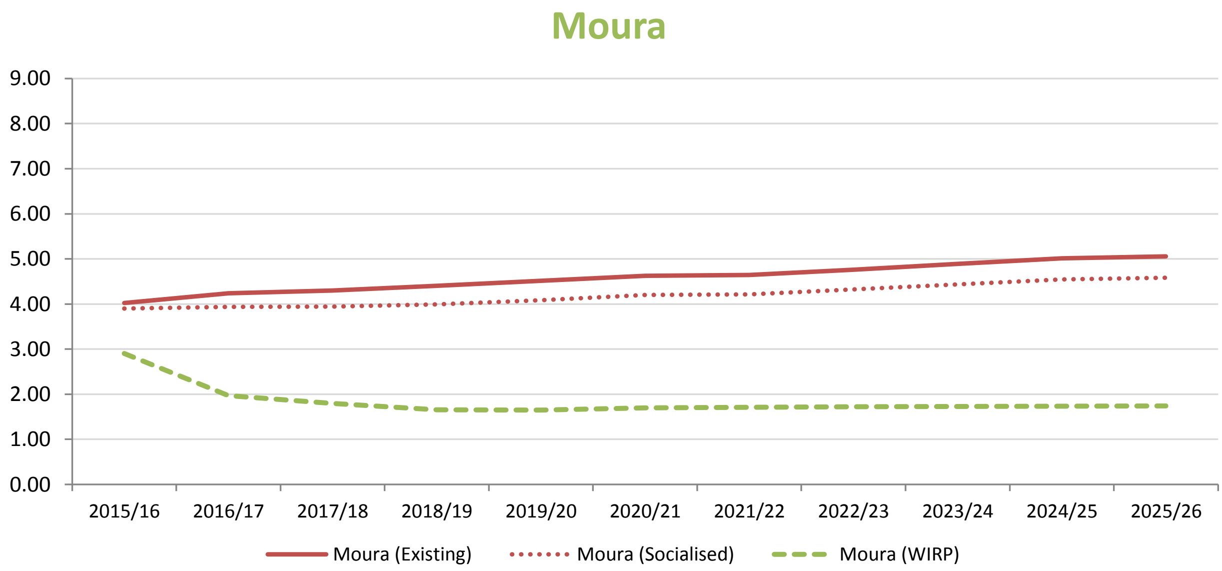

Table 13 - Moura Tariff Comparison

$/t	***2015-16***	***2016-17***	***2017-18***	***2018-19***	***2019-20***	***2020-21***
Cost allocations @ 24%						
Existing system excluding WIRP*	4.02	4.24	4.30	4.41	4.52	4.63
WIRP	3.92	3.95	3.95	4.00	4.09	4.20
Existing system including WIRP (socialised)	3.90	3.94	3.99	4.08	4.20	4.22
Difference	-2.96%	-7.10%	-8.25%	-9.44%	-9.60%	-9.28%

Hence in combination with results from the capacity modelling, the WIRP User Group is of the firm view that both WIRP and non-WIRP customers benefit from lower socialised tariffs across the medium to long term.

3.3.2 Colton Pricing Arrangements

The WIRP User Group supports the QCA's position that CPI is the appropriate escalation for NCL pricing rather than the 5% proposed by Aurizon (Appendix C, item 9). Given the unique circumstance of the Colton haul, we support the proposed pricing in Table 7 on page 73 for WIRP NCL and note that the 2015-16 pricing is in excess of $24 per thousand gross tonne kilometres which is very high by any standard.

We also note that the Colton service will predominately use the part of the Network having significant surplus rail capacity which also supports the case for a minimum contribution to common costs (CCC) as per AN's proposal for an alternative approach to calculating a minimum CCC for this Train Service. That proposal resulted in a train path charge equivalent to $1.09 per net tonne (in FY2012$) which was approved by the QCA in its Final Decision.

3.4 System Premiums

Due to the infancy of both the WIRP and WICET infrastructure assets, the WIRP User Group understands the difficulties associated in applying a uniform pricing approach that reflects:

- An infrastructure asset at maturity;
- An asset where volumes are within a 'ramp-up phase';
- An asset approaching project completion construction dates; and/or
- Where infrastructure is still being finalised.

Within the early stages of WIRP where an asset hasn't become fully operational, the WIRP User Group appreciates the QCA view as outlined within Draft Decision 5.1 in the 2015 WIRP SDD. Pointedly, where the socialisation of tariffs exhibits price paths higher than baseline system tariffs, then a system premium (referred to by the QCA as the 'system premium approach' or 'partial socialisation')[27] should be utilised.

However, the WIRP User Group believes that whilst the concept of a system premium is reasonable and fair; the application of a system premium is not justified under the set of circumstances facing the WIRP, especially as:

- Socialised tariffs indicate 'average-down' behaviour for Blackwater when costs fairly are allocated to existing system users;
- Socialised tariffs indicate 'average-down' behaviour for Moura when costs fairly are allocated to existing system users;
- Socialised tariffs indicate 'average-down' (except for the 2015-16FY by a difference of 0.81%) behaviour for Blackwater even when costs are not allocated to existing system users; and
- Socialised tariffs indicate 'average-down' behaviour for Moura even when costs are not allocated to existing system users.

To ensure that each customer contributes to the efficient cost of hauling product from pit to port, a *System Test* is applied to connected infrastructure, where if a customer passes the *System Test*, then they will in turn pay the existing system price. Alternatively, in the case where a mine/customer does not pass the *System Test*, a *System Premium* will apply. Hence a *System Premium* ensures that a customer contributes to the efficient cost of the haulage.

In order to determine whether a mine/customer does pass the *System Test*, incremental costs and associated revenue are determined for the customer infrastructure. Existing and forecasted system tariffs are then utilised, with the AT3 ($/NTK) tariff calculated to ensure the incremental revenue requirement is met. If the calculated AT3 tariff is less than the System AT3 tariff, then the connecting infrastructure is deemed to pass the *System Test*. This is calculated for each year of an undertaking period, where the *System Test* and associated *System Premiums* can indicate different results for each different year.

[27] QCA, 2015, *Supplementary Draft Decision – Aurizon Network 2014 DAU: Reference Tariffs for Wiggins Island Rail Project Train Services,* pg. 53, 31 July 2015, available at www.qca.org.au

The same approach was applied to the modelling undertaken by the WIRP User Group and utilising the same assumptions as before, results indicate that the:

- AT3 tariff for WIRP-Blackwater customers is lower than the AT3 tariff for non-WIRP Blackwater customers for every year; and
- AT3 tariff for WIRP-Moura customers is lower than the AT3 tariff for non-WIRP Moura customers for every year.

As a result, both the WIRP-Blackwater and WIRP-Moura customers pass the *System Test* ensuring no *System Premium* should be paid.

3.5 Revenue Deferral Mechanism

In circumstances where lower volumes are experienced or where some customers are not yet producing coal, an under-utilisation of WIRP train services could be experienced. As a potential approach to address associated regulatory economic impacts, Section 5.5 of the 2015 WIRP SDD makes reference to a potential revenue recovery option.

Referred to as a '*Revenue Deferral Mechanism'*, the approach has been proposed before by AN in 2013, once relating to the Newlands to Abbot Point Expansion ('NAPE') rail project as well as the revised AT5 DAAU for Blackwater Electric Traction Train Services.

Revenue deferral lessens the impacts of lower throughput upon allowable revenue and associated reference tariffs. This is done by deferring revenue that AN is entitled to receive, with operating customers potentially not being exposed to material increases in tariffs, or adversely affected by paying tariffs that incorporate allowable revenue attributable to 'return of' and 'return on' capital. Hence, revenue attributable to those customers that aren't operating is deferred, earning a WACC on such deferral until recognised in later years. Whilst net present value neutral from a regulated revenue perspective, the timing of such recognition is crucial as the result of deferring recognising total revenue attributable to an expansion could simply defer material increases in tariffs. Furthermore, so as to ensure AN is allowed to earn its allowable revenue sometime in the future, the WIRP User Group also believes that a sunset date needs to be agreed as deferred revenue simply cannot continue to be delayed indefinitely.

Hence before commenting on the suitability of a revenue deferral mechanism, the WIRP User Group would like to see detailed economic modelling on what such impacts have upon reference tariffs, recognising that risks of any deferral need to be allocated to the party best able to handle such risks, whilst also recognising that these same parties earn a commensurate return.

3.6 Volumes and Substitutability Factor

The QCA comments that one of the main issues emerging from the Energy Economics' volume assessment is the substitutability factor, i.e., the fact that existing mines have largely substitutable train service entitlements to various destinations within the Port of Gladstone, including the RG Tanna Coal Terminal, Barney Point Coal

Terminal, or the soon to be commissioned Wiggins Island Coal Export Terminal ('WICET'). Due to this factor, the QCA is of the view that difficulties are encountered when attempting to distinctly define true incremental tonnages from those that can be transferred from other destinations. [28]

To address such difficulties, the QCA considered two approaches in determining a relevant proxy for WIRP incremental volumes, being either the expected railings approach or an apportionment mechanism. As with most methodologies, both retain their own set of advantages and disadvantages. In any case, the QCA considered the expected railings approach more appropriate.

Volumes have always been a contentious issue within regulatory determinations and the WIRP User Group recognises that different experts can estimate potentially different forecasts, with the JT Boyd and Energy Economics forecasts the most recent illustration of this conundrum. In any case, it should be reiterated that volume forecasts are indeed that and actual tonnages can exceed those forecasted and/or those contracted. Instances of this are being experienced within the Central Queensland Coal Network ('CQCN') as volumes continue to exceed those forecasted by the Energy Economics.

Additionally, the WIRP User Group notes that when Energy Economics' mine level volume forecasts have exceeded those as already contracted to WICET, adjustments have been made to ensure that no mine level volume forecast exceeds those already contracted. The WIRP User Group respects this approach and appreciates the stance. Yet the WIRP User Group is also of the view that contracted entitlements – and those that the rail haulage agreements are built upon – continue to remain the best proxy for volumes throughout the remainder of UT4 and also into UT5 as both the WIRP and WICET matures.

[28] QCA, 2015, *Supplementary Draft Decision – Aurizon Network 2014 DAU: Reference Tariffs for Wiggins Island Rail Project Train Services,* pg. 39, 31 July 2015, available at www.qca.org.au

4. APPENDICES

4.1 APPENDIX A

List of Documents

Document Reference	Document Title	Document Type
QRN A01552-20-TN-0001 BOQ T1	Bill of Quantities Segment 1 WIBL Civil works Contract No. A01552-20-TN-0001	BOQ
QRN A01631-20-CC-0002 BOQ	Bill of Quantities Segment 4A Rocklands to Stanwell Civil works Contract No. A01631-20-CC-0002	BOQ
QRN A01731-10-CC-0004 BOQ	Bill of Quantities Segment 4B Walton to Bluff Civil works Contract No. A01731-10-CC-0004	BOQ
	Bill of Quantities Segment 5 Bauhinia North Branch Upgrade Civil works Contract	BOQ
QRN A03686-10-TN-0001 BOQ	Bill of Quantities Segment 8 Moura West Civil works Contract No. A03686-10-TN-001	BOQ
CC-CST-127	WIRP Project Cost Report as at 31/08/2015	Cost Report
C30997	Dingo to Bluff Duplication - Line Diagram	Drawings
C30464-C30548	Dingo to Umolo Duplication (Locality Plan, Typ Sections, WP&S, Drainage, Fencing)	Drawings
AUR-Q-0505-0046	Fishermans Landing Crossover - Plan & Set out Details	Drawings
C30176	Gracemere to Kabra Duplication - Line Diagram	Drawings
C30246	Kabra to Stanwell Duplication - Line Diagram	Drawings
C30252-C30342	Kabra to Stanwell Duplication (Locality Plan, Typ Sections, WP&S, Drainage, Fencing)	Drawings
C28938-C28941	Moura East Upgrade - SP1 (Locality Plan, Typ Sections, WP&S)	Drawings
C28950-C28961	Moura East Upgrade - SP2 (Locality Plan, Typ Sections, WP&S)	Drawings
C29000-C29002	Moura East Upgrade - SP3 (Locality Plan, Typ Sections, WP&S)	Drawings
C29010-C29015	Moura East Upgrade - SP4 (Locality Plan, Typ Sections, WP&S)	Drawings
AUR-Q-0583-0031	Moura West Track Upgrade - Civil Works Schematic Plan	Drawings
AUR-Q-0525-1005	Moura West Upgrade - Line Diagram	Drawings
C30732-C20987	Parnabal to Walton Duplication (Locality Plan, Typ Sections, WP&S, Drainage, Fencing)	Drawings
2751-2752	QR Network Standard Drawings - Index of Standard Drawings	Drawings
2718-2723	QR Network Standard Drawings - Track Formation	Drawings
C30000	Rockland to Gracemere Duplication - Line Diagram	Drawings
C30002-C30082	Rockland to Gracemere Duplication (Locality Plan, Typ Sections, WP&S, Drainage, Fencing)	Drawings
C30604-C30727	Umolo to Parnabal Duplication (Locality Plan, Typ Sections, WP&S, Drainage, Fencing)	Drawings
C30815-C30969	Walton to Bluff Duplication (Locality Plan, Typ Sections, WP&S, Drainage, Fencing)	Drawings
C29208-C29458	Wiggins Island Balloon Loop (Locality Plan, Typ Sections, WP&S, Drainage)	Drawings
230160-SK-C-001-B	Wiggins Island Branch Line Civil Works Stage 1 Line Diagram	Drawings
AUR-Q-0527-1004	WIRP 1 Segment 2 NCL Line Diagram	Drawings
AUR-Q-0527-3004	WIRP 1 Segment 2 NCL Line Diagram	Drawings
C28313-C28316	WIRP Segment 4B Line Diagrams	Drawings
	Average Daily Speed Restrictions, Number of Cancellations due to infrastructure & signalling and train delays per event by System	Report
	Existing Track Upgrades for Flood Immunity	Report
	Fencing Details and Costs by Segment	Report
	List of Asset Renewals – drainage/culverts	Report
	List of Level Crossings Upgraded/Renewed	Report
	List of Public Road Upgrades	Report
60225041	Moura East Upgrade - SP2 Final Design Report	Report
230160	Segment 1 - Addendum to Drainage Report	Report
H331892-1001-08-124-0005	Segment 1 - Detailed Drainage Design Report	Report
AEC-000-000-RP-0020	Segment 2 - Hydrology and Hydraulics Final Design Report SP1	Report
AEC-000-000-RP-0025-03	Segment 2 - Hydrology and Hydraulics Final Design Report SP2, SP3, SP4	Report
42626853	Segment 4a - Hydrology and Hydraulics Final Design Report (Rocklands-Stanwell)	Report
42626853	Segment 4B - Hydrology and Hydraulics Final Design Report	Report
	Static 15-20min train plan Aug 2015	Report
	WIRP 1 Project Assumptions & Operating Principles (PAOP) v3.8	Report
	WIRP Stage 1 Scope Book Rev L	Report