

Concept Study Proposal

11 August 2023

Newlands and GAPE
Transitional Arrangements



AURIZON[®]

We deliver.

Executive Summary and Table of Contents

Executive Summary

On 21 April 2023, the Queensland Competition Authority made a determination to proceed with the implementation of Transitional Arrangement NG3 (Collinsville Passing Loop Extension (Day-Time Operations)) subject to the reduced handling allowance being acceptable to above rail operators and that no further extension is required.

Aurizon Network has determined there is a high probability that day-time operations will cost more than the initial estimate or alternatively will not deliver the expected capacity benefit due to cost escalation of material and labour, additional scope to address the above rail operator identified risks, and potential restrictions on empty/loaded traffic being able to utilise the passing loop.

In addition to the above, the initial estimate did not include any allocation of costs to address community concerns surrounding the passing loop location. Intermittent use of the existing Collinsville Passing Loop has resulted in negative publicity and council requests to cease use of the rail infrastructure to above rail operators.

To identify a suitable location to cross trains between the Almoora to Birralelee section of the Newlands System, Aurizon Network has consulted with stakeholders on the scope of works for a Concept Study. As full support for the scope of works has not been received, Aurizon Network is proposing to undertake a Concept Study on both Coral Creek and Collinsville passing loops to assess:

1. Passing loop locations taking into consideration operational impacts to community and customers, including alternative passing loop locations between Pelican Creek and Coral Creek; and
2. Cost of noise mitigation options to address community concerns.

Table of Contents

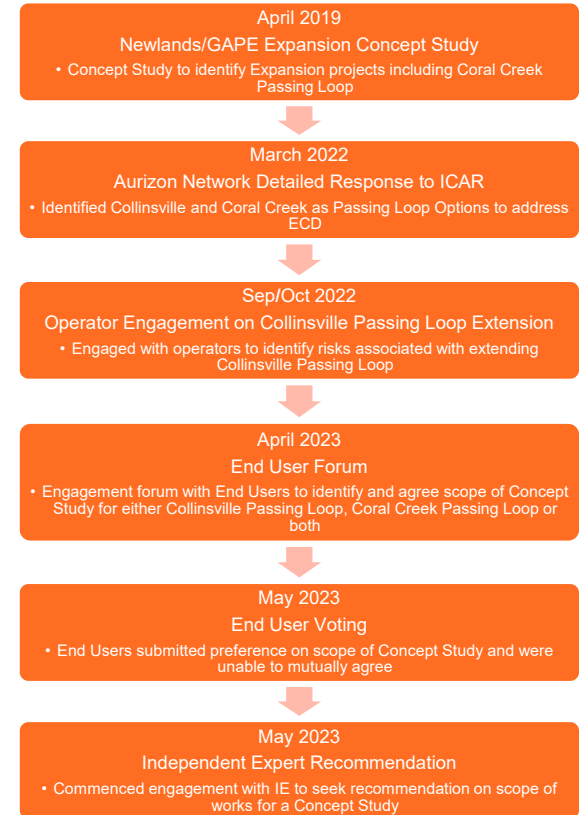
1. Executive Summary
2. Transitional Arrangements
 - a) Process Overview
 - b) Existing Capacity Deficit
 - c) Approval Status
 - d) Conditional Approval of Collinsville Passing Loop Extension
3. Engagement and Concept Study Proposal
 - a) Outcome of Operator engagement
 - b) Outcome of engagement with End Users
 - c) Proposed Scope of Newlands Transitional Arrangement Concept Study
4. Additional Information
 - a) Collinsville Passing Loop Train Length Assessment
 - b) Collinsville Passing Loop Extension cost estimates
5. Additional Confidential Information (to be redacted)

Transitional Arrangements Process Overview and History of Collinsville/Coral Creek Engagement

UT5 includes a process for the Independent Expert to review the capacity of the Rail Infrastructure, and for Aurizon Network to remedy any Existing Capacity Deficits through Transitional Arrangements, including changes to operating parameters, capital of up to \$300m and voluntary relinquishment of Access Rights

28 Oct 21	Initial Capacity Assessment Report (ICAR)	<ul style="list-style-type: none"> The Independent Expert (IE) developed the ICAR identifying an Existing Capacity Deficit (ECD) of ~32mtpa across all systems in the QCN.
12 Nov 21	AN's Preliminary Response	<ul style="list-style-type: none"> Aurizon Network provided a preliminary response to the ICAR outlining Transitional Arrangements to address the ECDs for customer consultation.
14 Mar 22	AN's Detailed Response	<ul style="list-style-type: none"> Aurizon Network and affected users did not reach agreement as to which Transitional Arrangements should be implemented.
8 Jun 22	Concept Study DAAU	<ul style="list-style-type: none"> A Draft Amending Access Undertaking (DAAU) was submitted to the QCA to support a staged review approach to the Transitional Arrangements involving an Expansion and allow Aurizon Network to recover the costs of studies undertaken through the staged review.
17 Jun 22	IE recommendation to the QCA	<ul style="list-style-type: none"> The IE recommended Transitional Arrangements to effectively and efficiently resolve the ECDs including support for a staged review approach to the implementation of Transitional Arrangements involving an Expansion.
16 Nov 22	QCA Determination	<ul style="list-style-type: none"> The QCA made a determination to approve eight of the Transitional Arrangements that will most efficiently and effectively address the ECDs identified in the respective systems.
23 Jan 23	Resubmitted Concept Study DAAU	<ul style="list-style-type: none"> Aurizon Network withdrew its Original Concept Study DAAU and submitted a new draft amending access undertaking (the Resubmitted Concept Study DAAU) to address the issues raised in the QCA's draft determination.
23 Mar 23	QCA Determination	<ul style="list-style-type: none"> QCA final determination to approve the Resubmitted Concept Study DAAU. Final determination on the remaining Transitional Arrangements is expected in April 2023.
21 April 23	QCA Determination	<ul style="list-style-type: none"> QCA final determination on further Transitional Arrangements approved for progression including Collinsville Passing Loop (day-time operations), Jilalan additional road, Installation of crossovers between Jilalan and Wotonga, Callemondah Yard additional road and Moura provisioning at Stirrit.
	Implementation	<ul style="list-style-type: none"> Implementation timeframes will largely be based on the mix of transitional arrangements. Aurizon Network has commenced implementation where it is appropriate to do so noting the approval status of the Transitional Arrangements.

History of Collinsville/Coral Creek Engagement



Existing Capacity Deficit | Newlands and GAPE

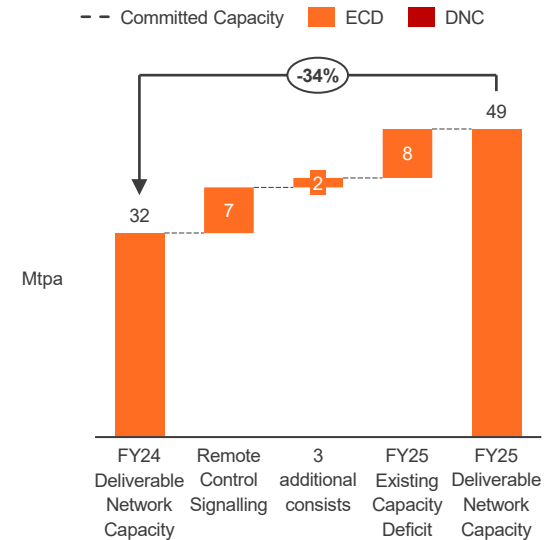
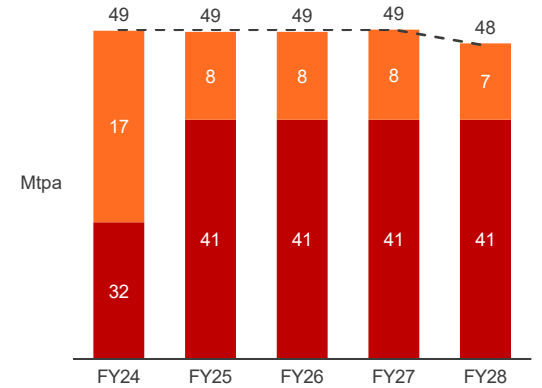
In the Newlands and GAPE systems, a capacity deficit of 34% has been identified*. A mix of operational and capital investment activities have been recommended as the most efficient and effective way to resolve this.**



- 1 DTC Signalling**
 - DTC signalling impacting train pathing while trains stop to change points
- 2 Almoola to Birralee Section**
 - Pathing impact due to inability to cross trains at Collinsville
- 3 Rollingstock Fleet**
 - Consists deployed are matched to current demand
- 4 Yard Congestion**
 - Pring Yard congestion when capacity simulated at 50mtpa with increased consists

Note:
 * Initial Capacity Assessment Report identified up to 36% Existing Capacity Deficit (Independent Experts Initial Capacity Assessment Report dated 27 October 2021). The most recent Annual Capacity Assessment Report, ACAR 2023, published in June 2023 identified a 34% deficit in FY24, reducing to 20% in FY25 following the implementation of Remote Controlled Signalling in Newlands.
 ** Aurizon Network's Preliminary Response to the ICAR (November 2021), Aurizon Network's Detailed Response to the ICAR (March 2022), Independent Expert's recommendation to the QCA (June 2022) and QCA Determination on Transitional Arrangements (November 2022 and April 2023)

Annual Capacity Assessment Report, 2023



Approval Status of Transitional Arrangements

Transitional Arrangement	Detailed Report End User Agreement (Newlands)	Detailed Report End User Agreement (GAPE)	IE Recommendation	QCA Determination	Status
NG1: Installation of RCS Signalling	100%	83%	Immediate Implementation	Approved	Aurizon Network Implementing
NG2: Optimised BCM	100%	83%	Immediate Implementation	Approved	Implemented in FY23/FY24 through MRSB Process
NG3: Collinsville Passing Loop Extension (Day Time Operations)	100%	83%	Immediate Implementation	Approved (Conditional)	Proposed for Concept Study
NG4: Collinsville Passing Loop 24hrs	66%	50%	Staged Review		Proposed for Concept Study
NG5: Coral Creek Passing Loop	66%	50%	Staged Review		Proposed for Concept Study
NG5A: Coral Creek Passing Loop + Collinsville Passing Loop (Day Time Operations)	N/A	N/A	Staged Review		Proposed for Concept Study
NG6: Pring Yard Additional Road	0%	50%	Staged Review		On hold until demand nearing 50mtpa.

Conditional Approval of Collinsville Passing Loop Extension

Independent Expert Recommendation

In June 2022, The Independent Expert provided the following recommendation to the QCA in relation to the Collinsville Passing Loop Extension:

“The Independent Expert supports Aurizon Network’s recommendation to proceed with Collinsville Passing Loop extension by ~16 metres (NG3) given its significant capacity benefit, speed of implementation and low capital cost. However, should Above Rail indicate that the ~16 metre extension cannot be utilised using the current Newlands/GAPE consist configuration (84 wagon trains), the Independent Expert recommends that Aurizon Network cease any further work on this project and re-engage with Customers on the best way forward.”

Independent Expert Recommendation to QCA 2022, 17 June 2022, Page 21

“This project proceeding immediately is dependent on Above Rail approval and no extension (additional costs) being required. Should this not occur then it is recommended that a further staged review be undertaken before being implemented”

Independent Expert Recommendation to QCA 2022, 17 June 2022, Page 12

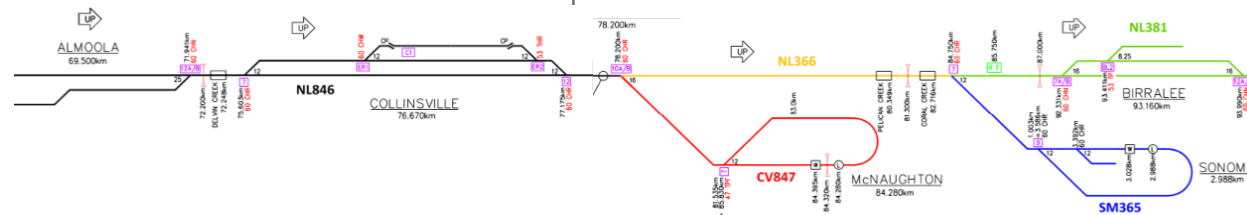
QCA Determination

In its decision on the Collinsville Passing Loop Extension in April 2023, the QCA determined that:

“Based on the estimated cost for implementing this transitional arrangement and the expected capacity created, we consider that the Collinsville passing loop extension may form part of the overall solution for resolving the existing capacity deficit at the lowest net present cost to access holders. ... Therefore, in proceeding with this transitional arrangement, we consider it appropriate for Aurizon Network to firstly confirm that a reduced handling allowance of 4 metres associated with this transitional arrangement is acceptable to above-rail operators and that no further extension is needed. At this stage, implementation of this transitional arrangement should not proceed past this interim step ... Aurizon Network is to notify us whether it considers a further extension of the passing loop is required. We will then make a further determination in relation to the progression of transitional arrangements to resolve the existing capacity deficits remaining in the Newlands and GAPE systems.”

Queensland Competition Authority, Decision Notice Transitional arrangements to address existing capacity deficits, 21 April 2023, Page 5

Figure 1: Line diagram – Constrained Section, Almoola to Birralee



Outcome of Operator engagement on Collinsville Passing Loop Extension

- The Newlands and GAPE expansion was designed for the operation of 82 wagon consists. Train configurations today are now 84 wagons.
- This length constraint means no train crossings can occur at Collinsville without an extension. Aurizon Network has engaged with operators regarding the risks associated with operating the Collinsville loop with 84 wagon consists, if extended by 16m in length by relocating the signals at the southern end.
- The following table outlines the risks and potential mitigants identified by operators that will result in increased costs and reduced capacity compared to the efficient and effective assessment by the Independent Expert and QCA.

Issue	Operator Feedback	Potential Mitigants	Likely Cost Impact	Capacity Impact
Passing Loop Length	SPAD and Collision Risk	<ul style="list-style-type: none"> • Count down and in-clear markers • Caution signage on approach to signals • Speed reduction when entering loop • Administrative controls (work instructions, route knowledge, scheduling templates & ATT updates) 	Yes	Yes
Level Crossing Activation	Restricted access for public and emergency services	<ul style="list-style-type: none"> • Level crossing modifications 	Yes	No
Community Concerns	Historical community issues for noise and dust	<ul style="list-style-type: none"> • Noise and dust abatement solutions 	Yes	Yes
Loaded services lifting into Biraba bank	Rollback, stalling and additional noise	<ul style="list-style-type: none"> • Restrict passing loop traffic to empty services only 	Yes	Yes

Outcome of engagement with End Users on Concept Study Scope

On identifying that proceeding with the Collinsville Passing Loop extension would likely result in increased costs and a reduction in the identified capacity benefit, Aurizon Network engaged with End Users on options to proceed with a Newlands Transitional Arrangements Concept Study.

Three options were proposed to End Users, with less than 50% of respondents supportive of any one option.

Upon receiving End User responses, Aurizon Network sought to obtain full support for a Concept Study that included both Collinsville and Coral Creek passing loops. As part of this engagement verbal support was received from one respondent who was initially not supportive, however we were unable to achieve full support across all End Users.

Options	Transitional Arrangement Scope	Estimate Concept Study Costs (based on Detailed Report Estimates)	Risks Identified by End Users in Engagement Forum	% of Respondents Supportive of Options Post Engagement Forum
Collinsville Concept Study	NG3: Collinsville Passing Loop Extension (Day-time operations)	\$70k	<ul style="list-style-type: none"> Community concerns (Emergency access, noise and dust) Above rail operations 	20%
	NG4: Collinsville Passing Loop (24hr Operations)	\$30k	<ul style="list-style-type: none"> Community concerns (Emergency access, noise and dust) Above rail operations 	20%
Coral Creek Concept Study	NG5: Coral Creek Passing Loop	\$30k	<ul style="list-style-type: none"> Potential environmental concerns Potential loop location impact to mine operations 	40%
Collinsville and Coral Creek Concept Study	NG3, NG4 and NG5: Collinsville and Coral Creek Passing Loop	\$100k	<ul style="list-style-type: none"> Community concerns (Emergency access, noise and dust) Above rail operations Potential environmental concerns Potential loop location impact to mine operations 	40%

Aurizon Network proposes that a Newlands Transitional Arrangement Concept Study should include:

- Collinsville Passing Loop Extension
- Collinsville Passing Loop 24 hour operations
- Alternate Coral Creek Passing Loop locations between Pelican Creek and Coral Creek

Consistent with the IE's recommendation, the QCA's Determination and Aurizon Network's obligation to do everything reasonably necessary to implement transitional arrangements in a prudent and diligent manner, Aurizon Network is seeking an IE recommendation to the QCA for a QCA Determination on the scope of a Newlands Transitional Arrangement Concept Study.

End Users have been notified that as full support for the scope of the Concept Study was not received, that the next steps would be an Aurizon Network proposal to the Independent Expert seeking a recommendation for the QCA to make a determination.

Proposed Scope of Concept Study

Concept Study Scope of Works

- **NG3 & NG4: Collinsville Passing Loop (Day-time operations and 24hr operations)**
 - Likely frequency of use for Collinsville passing loop during each of day time and night time operations.
 - Assessment of passing loop locations to avoid adjacency to housing.
 - Mitigations of identified Operator risks including SPADs, loaded services lifting into Biraba bank and level crossing activation for emergency services.
 - Third part consultant to assess noise mitigation options for emission levels relative to operating scenarios, including the requirement for Council approvals to install any noise barriers.
 - Formal risk assessment conducted with all stakeholders which assess the community risks and rail operations risks.
 - An assessment of the net benefit of reducing trains to 82 wagons as an interim solution to enable the use of Collinsville passing loop with no infrastructure changes.
- **NG5: Coral Creek Passing Loop**
 - Optimal location of Coral Creek passing loop and capacity impact of options.
 - Impact on QCoal Northern Hub Mining complex.
 - Environmental impacts.
 - Noise mitigation for increased use of mainline through Collinsville.
- **Alternative Passing Loop Location and Options**
 - Assess alternative locations for a passing loop between Pelican Creek and Coral Creek including a capacity assessment and environmental impact of options
 - Assess option to add a starter signal at the 67 km mark on the up and down tracks between Almoola and Briaba

Indicative Cost and Timing of Concept Study

- \$185k Concept Study
 - \$100k Concept Design
 - \$50k Environmental Consultant
 - \$35k Indirect Costs (Project Management)
- Indicative timing 6 months

Concept Study Outcomes (UT5)

A study that includes a preliminary assessment of the potential costs, benefits and risk involved in addressing identified capacity constraints and includes:

- Confirmation of capacity constraints and demand
- Identification of a possible technical solution to provide the capacity required;
- Indicative assessment of:
 - project objectives
 - a broad cost estimate of the potential solution with a +/-50% accuracy
 - preliminary financial analysis
 - preliminary risk assessment
 - indicative timeframes for the development and delivery of the project.
- A Pre-feasibility Study execution plan; and
- A written report on the outcome of the analysis and the reasons for the selection(s) made and the preliminary scope, cost and program details of the selected alternatives, including where options do not progress to +/- 50% cost accuracy.

CONCEPT STUDY PROPOSAL

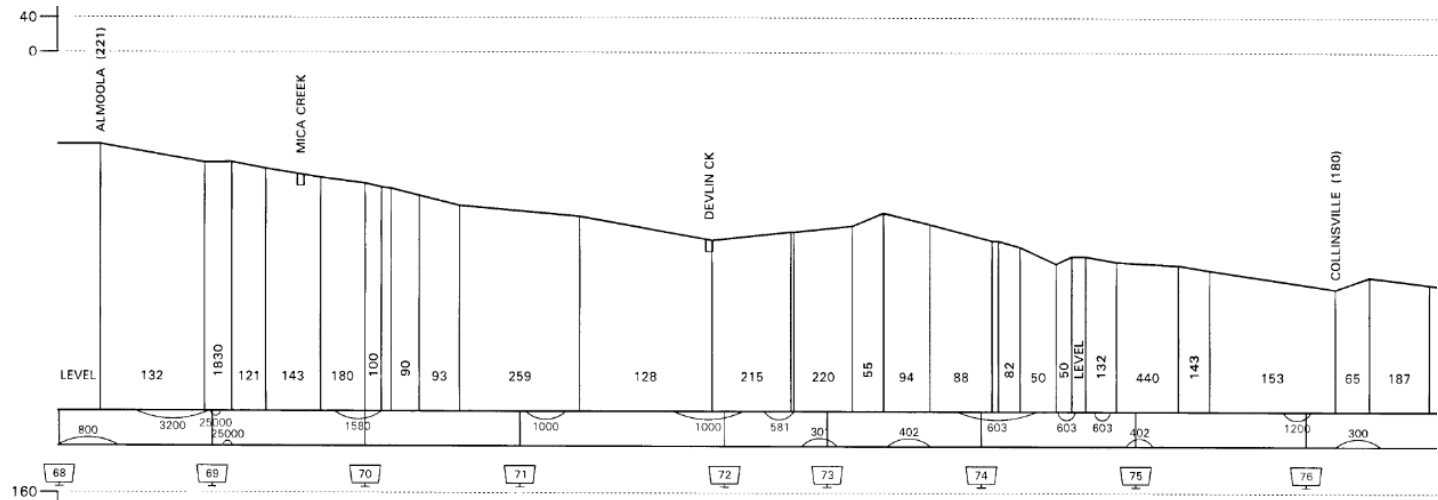
Additional Information

Collinsville Passing Loop | Train Length Assessment Detail

Train Type	UT5 reference train 82	AO 84	BRC 3 loco 84	BRC 2 loco 84	PN 84
Static Length		1,396	1,392	1,368	1,387
Length Assumptions	2% stretch 0.125m/coupler	0.95% stretch 0.0515m/coupler	1% stretch 0.125m/coupler	1% stretch 0.125m/coupler	1% stretch 0.125m/coupler
Current Comparison Length	1,402	1,410	1,417	1,393	1,412
Current Collinsville Holding Length	1,398	1,398	1,398	1,398	1,398
Proposed Collinsville Holding Length	1,414	1,414	1,414	1,414	1,414
Tolerance (meters)	12	4	-3	21	2

Other considerations:

- Ability to lift load on a loaded train from Collinsville Passing Loop to Almoola



Collinsville Passing Loop | Day-time Operations Cost Estimate

Significant cost increases are being identified in maintenance and renewals work. Impacts are expected on previously estimated costs to implement day-time operations at Collinsville as well as additional costs for civil works and noise mitigation.

	Detailed Report (March 2022)	Revised Estimate (Based on CPI all groups; Brisbane)#	Comments
Concept Design	\$33,000	\$35,500	
Prefeasibility Design	\$88,000	\$94,500	
Feasibility Design	\$130,000	\$140,000	
Construction Cost Estimate (+/-50%)	\$304,000	\$326,550	A 20% increase in costs and labour would see estimated costs on original scope at approximately \$365,000
Operational Systems	\$17,000	\$18,250	
Signalling Construction	\$170,000	\$182,600	
Telecommunications	\$90,000	\$96,700	
Project Management and Indirect costs	\$27,000	\$29,000	
Noise mitigation	\$0	TBC	\$10m included in Collinsville 24 hour construction estimate in Detailed Report
Additional Civil Works	\$0	TBC	\$4m included in IE recommendation for civil works

Indice movement March 2022 to March 2023 at 7.4%. However, a number of indices are trending higher than CPI. Ranging from 10% to 35%