

Introduction

The Muswellbrook provisioning center operates in the heart of the Hunter Valley network. The diverse team repairs and maintains over 400km's of track including all facets of the right of way with over 150MGT's passing through Muswellbrook junction a year. The track section services a large portion of the Hunters coal customers and provides a vital link for passenger, grain and freight services. Within the track section we are fortunate and privileged to have a spectacular playground across open country, mountain ranges and residential areas, however, this does not come without its challenges. With a multitude of challenging grades, large tunnels, tight curves and an aging infrastructure this makes the recipe for an extremely busy maintenance team.

The asset is serviced by a mixture of signal electricians, infrastructure maintainers, planners, asset data administrators, leaders and an asset assurance engineer totaling 49 FTE's of which ¼ are female employees.

The area covered by the Muswellbrook PC was previously split between 4 additional smaller PC's that have been consolidated overtime. The last transition occurred in October last year with the introduction of the Scone PC to Muswellbrook. Both culturally and technically this had its challenges which the team overcome with ease and thrived. To date they are the top performing provisioning center across the hunter valley network and have been the catalyst for multiple safety, process and work management-based improvements that have been replicated across the sister PC's.

Safety

The team has shifted the dial in a positive direction in terms of its safety performance, reporting and culture. The last recorded lost time injury was October 2016 and with only one FAI for the year in review. Proactive hazard reporting and elimination has been a record year and a key highlight for the team with 83 hazards identified, nearly double that of the previous financial year and an overall net reduction in near misses and incidents from the previous year.

One of the standout highlights has been our focus of our Fatal & Sevier Risk 01 Vehicle Accidents. The team have had a dramatic improvement in there driving behaviours, even with an increase in KM's travelled due to the volume of work. Clearly demonstrating our commitment to No Harm as our number one value.

Field leadership has nurtured a positive turn around in team members safety behaviors while on task and around the depot. With the safe work interaction program as the vehicle to helping leaders engage with team members on a personal level. Demonstrating the care and commitment for them and others around them for safer outcomes. This program has enabled rich discussions and insightful learnings for both leader and team member. An example of this working well would be the innovation around a fall from heights risk shared further in the document.



The team has made a deliberate step in engaging with the local community. The team have helped in terms of volunteer labour for specific tasks and continue to support the local areas and build on the relationships with our community partners.

The Muswellbrook PC conducts over 12,000 Maintenance Scheduled Task's annually across civil and signals. The compliance of which has been great. Specifically of note the smoothing to realign over 7000 signal MST's across the year and remove peaks and troughs has started to enable an ability to package defect work in with basic maintenance tasks to enable a more reliable signaling asset and reduced network risk with signaling failures. The 39 lubricators within the PC area averages an 85% operation run rate which is a large step change from the previous year and a good result considering the amount of servicing and ad-hoc removals for other track maintenance activities.

People

At the start of the FY the structure and discipline around training was inconsistent. There was misalignment to the fundamental understanding of training needs analysis and aligning training needs to the business needs. ARTC employed a Training Advisor to work closely with all provisioning centres across the Hunter Valley to address the training gaps and low engagement from the teams regarding their professional development.

Muswellbrook PC was selected to trial the newly developed competency framework for Civil Infrastructure Maintainers (IM) to progress four levels over four years including the Certificate II and III in Rail Infrastructure. Individual training plans were developed for each employee and discussions were facilitated

for each person with the support of their leader and the Training Advisor to give clarity on the direction their career was heading and what they needed to do to achieve their goals.



Block training was created for all levels and we now see RTO trainers out in our provisioning centers teaching the theory and the practical elements of the training in real life scenarios. Muswellbrook PC trialed the first two block sessions and the positive feedback was overwhelming. Here's some of the feedback we received from the team at Muswellbrook:

"It's been good to learn the theory part of our job, it's alot easier to progress in levels, I wish I had completed this training earlier in my career at ARTC. It's been great to have help in getting our TLI's, we have never had help like this before" – Amy Kiem



"Just wanted to say thank you. The transition for us here at Muswellbrook PC to help us with level progression has been made a lot easier with your help and to have an actual plan in place has been great, especially having the TLI training over the RPL training as it has been made a lot easier and also suits the individuals and their needs to progress. I believe the courses we have done lately would be really beneficial to new starters to give them a broader insight on the day to day duties as an infrastructure Maintainer" - Callan Murphy

We quickly saw the benefits of this competency framework being implemented and over the last 12 months 31 Infrastructure maintainers have progressed in their career at Muswellbrook PC. ARTC has also started to review and redevelop the signaling training to be rolled out beginning of next year. Muswellbrook PC has been involved in this work supporting the project with some great ideas on improving our current processes.

This year saw Covid – 19 test our ability to keep our training going and keeping the teams engaged. Many controls were put in place to allow our training to continue and some of these include;

- Locations arranged where social distancing could occur

- Training postponed not cancelled in March to ensure we could still keep our promise to develop our people
- Reducing trainer travel, using local businesses
- Daily temperature checks on arrival

We saw our people adapt to change quickly and with ease once they knew we had the correct measures in place and could safely continue to upskill our workforce.

2021 will see a strong focus on training at Muswellbrook PC, upskilling our people in roles such as Track Certifiers, Protection Officers 3 & 4, Ultrasonic Testers and welders.

Muswellbrook has transformed over the year with a strong investment in the team members and the lift in capability of its leadership to provide more authentic leadership. The cultural has shifted very positively with an excellent increase in engagement and a dramatic turnaround in the pride and ownership of the workplace. The depot has taken on new form of organized and tidy with a clear maintained standard throughout.



Organisation and Leadership

At the start of FY19/20 the Muswellbrook PC had over 2400 active known conditions (defects) in Ellipse, ARTC's maintenance management system. The planning of the defects was very sporadic and did not get the most efficient outcomes from a resource utilization and asset perspective. Through the implementation of a 4 week planning process and strategic work packaging the team have been able to reduce the overall defects number by 1400, over half. This has contributed to a more reliable asset and significant reduction in reactive work activities.

During the revamping of the planning and work management processes over the year, Muswellbrook PC has been able to identify and implement a split of the asset area into 12 locations in line with the majority of the civil maintenance tactics. This runs a 12 week planning cycle in the background allowing the creation and filtering of planning buckets and work packaging. The key benefits associated with this are predicted maintenance windows and areas for network integration and train pathing, increased resource utilization and cost efficiencies, more long-term effective planning processes.

Over the year the quality and quantity of information coming back from the team members has improved dramatically. Engagement with the asset assurance engineer with the field teams and the leadership team's encouragement has seen early identification of more significant asset defects, such as formation failures. This has enabled the team to effectively feed the long-term planning team proactively to schedule large duration, high cost activities.

To enable a reduction in our response times and mean time to repair (MTTR) the Muswellbrook PC has established three remote storage areas in strategic locations within the rail corridor. This allows for the focus on getting the equipment and resource to the failed asset in a timely manner and easy of movement of materials required to recover from an event.

A key part of effective planning and creating an achievable schedule is understanding resource requirement and specific skill sets. At the commencement of the year in review it was not uncommon for work to be planned without the understanding of resources, resulting in the cancellation of work and a hit to the schedule compliance of the PC as well numerous other flow on impacts. This opportunity paved the way for the creation of a resourcing roster for the planning function and expectations of leave notification. Now when planning tasks there is a clear check to ensure not only do we have the people for the work (not on AL, training etc) but also the correct skill sets (welders, operators, certifiers etc). This roster is maintained by the office admin and WGL's to ensure accuracy of the data within.

Achievement

One of the many achievements for the Muswellbrook team has been the significant improvement in the number of heat related track buckles. In the 2017 year the Muswellbrook team responded to 18 track buckles over the summer months. In the 2020 year relevant to this submission the team have been able to reduce this down to only 2 events through a systematic approach to improvement the management of rail stress and the teams understanding of the tasks required to manage this year-round. The team are most very proud of is this achievement as it has been a result of 3 years of sustained effort across 4 specific hot spot locations.



In 2017 majority of the heat buckles originated from 4 areas "hot spots". These were Pages River – Ardglen, Ardglen – Kankool, Singleton and Wollar. Each of these locations are best characterised as very steep grades (2.5% ruling grade), tight radius curves (~200m radius) and reverse curves with short transitions. Another complexity to these locations is 3 out of 4 locations cater for passenger trains through to loaded coal trains. Through a process of investigation and inquiry the team identified that the management or rail stress was heavily reliant on a few individual maintainers rather than reliant on a systemised approach. The team had experienced a significant loss of skilled employees which exposed the level of technical capability in the team and with 18 individual track buckles the magnitude of the problem was overwhelming. In terms of track related issues a number of defects were identified relating to ballast deficiency, off line rail adjustment, skewed sleepers, damaged or missing curve and creep reference points and a high degree of over tamping with track machines.



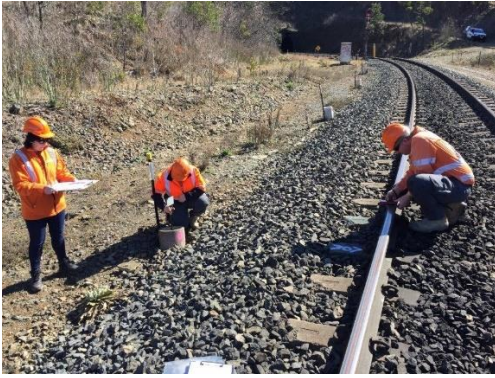
The first step to improving the track buckle performance was to complete a thorough “current state assessment” on the area that had exhibited the highest number of repeat buckles. This was the Pages River to Ardglen Tunnel section on the Main North line (356.500 – 362.300). The CSA was by walking the entire area, capturing all the items of concern. The process was a learning opportunity for several new employees who had only recently commenced a career in the rail industry with ARTC. Following the current state assessment, the same process was applied across the other 3 know hotspots to make sure the team identified the depth and breadth of the problems. The outcomes of this assessment then formed the basis for a 2 year action plan heavily focused on the major closedowns to complete the work.

Murrurundi Range Track Stability Project													
Job Priority Number	Task	Closedowns									Who	Date	Resources
		April	May	June	July	August	September	October	November				
1	Peg additional Creep Posts											Complete	
2	Electrical Cable Scan											Complete	Ashley to confirm marks in field
3	Cut new Creep Posts from Scrap Rail											Complete	
4	Replace survey marks (GIP)										SO	10th June	Survey & PO
5	Order and Coordinate Ballast Drops on the Range										JJ	May	Spotter, PO and Trucks
6	Ballast Track - Loader & excavator										AH	9th June	Loader & Excavator
7	Repair 360.000 Creep Post down Cess										AH	9th June	TBA
8	Repair 360.500 Creep Post Down Cess										AH	9th June	TBA
9	Install new Creep Posts in up cess (road side)										AH	9th June	TBA
10	Install new Creep Posts in down cess										AH	9th June	TBA
11	Ballast Track - Trains and regulator										WI	Jul - Sept	Ballast Trains & Team
12	create MST's for monthly creep measurement											Complete	
13	Fix Skewed Sleepers & Welds										AH	9th June	Attempt prior to June Excavator Team
14	Repeat Curve alignment Measurements each Closedown										AH	10th - 11th June	1 x Team of 3 - 4
15	Cut and Plate Rail on out of alignment of curves (N.O)										NB	31st July	Weld / Adjust Team
16	Move Rail back onto alignment										NB	1st August	Track Machine & Weld/Adjust Team
17	Rail adjustment										NB	1st -2nd August	Weld / Adjust Team
18	Order then Install Rail Anchors										AH	September	Inventory + Weld / Adjust Team
19	Design Data capture forms for Creep and alignment										MB	18th May	MB
20	Development of a Database for the information										MT	October	Engineering Reliability Resource

Over the next 2 years work was undertaken to complete routine curve and creep measurement across all 4 hotspots over the full calendar year to understand the dynamics of the rail creep at each location. This allowed the team to achieve a complete data set for each location. In parallel the team reset all curve and creep monitoring reference points and installed 26 new creep monitoring locations. The new creep monitoring posts were typically installed at key curve and transition points that would aid in the understanding of any rail creep over the course of the year. Ballasting was conducted through all 4 track sections to make sure any ballast defects were removed from the known hotspots.



Pages river to Ardglen section was completed cut and pulled back onto design alignment, rail adjusted and punched. This was now the new baseline from which the team could effectively monitor the track with a high degree of detail and confidence. In addition, rail anchors were applied on the Pages river – Ardglen section. This work was completed based on the evidence of rail creek continuing to occur with a mix of rail movement and skewed sleepers occurring.



All 4 hot spot locations have additional permanently fixed curve and creep monuments installed, all tracks are on design alignment and adjusted, regular and routine monitoring is occurring with a wide range of employees exposed and familiar with the process and the record keeping required. In the year relevant to this submission the team have been able to achieve zero track buckles across the 4 identified hot spots and only 2 heat buckles across the broader Muswellbrook PC area.

Innovation

A potential fall from heights risk associated with access and egress into the excavator when it is loaded onto the truck was identified through a hazard report. Two infrastructure maintainers worked together and identified the potential to engineer a solution to mitigate the risk.

Before – Walk along back of float. No official access from rear & when entering excavator no ability to maintain 3 points of contact

After – Engineered modifications to the excavator and float to allow direct access and 3 points of contact

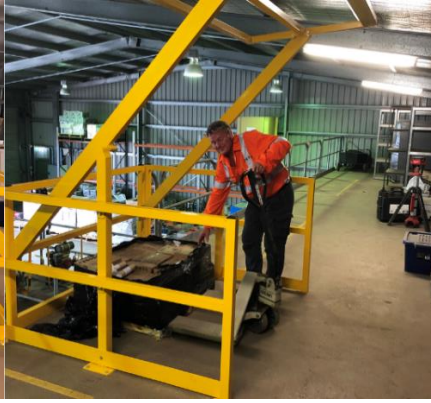


Through increase hazard reporting there was a need to rectify and delineate potential fall risks within the rail corridor. A Muswellbrook team member came up with the idea to manufacture purpose built poles to fit in railway sleepers and attached signage. This allowed a fast and easy install, no excavation and the reuse of old end of life sleepers to control risk.

Before

After





Upper Hunter National Servicemen's Association and Affiliates praise ARTC employees for going 'the extra mile'

Local News

THE Upper Hunter National Servicemen's Association and Affiliates (Nashos) have praised the Australian Rail Track Corporation (ARTC) for its efforts in helping them maintain their memorial sites in Muswellbrook.

Vice-president Ray Cannon visited the local provisioning centre recently to seek assistance in gaining access to ARTC land in order to run pipes to preserve the group's "sacred area" on Aberdeen Street.

With increased water restrictions, the current irrigation in place is no longer permitted to be used.

A JOB WELL DONE: Muswellbrook Provisioning Centre coordinator James Johnson and area manager David Green with Nashos Ian Hilder and Ray Cannon at the group's memorial site in town.

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LOCAL NEWS

1. Maxwell Solar Farm approved
2. Bust the Dust campaign is back
3. Dartbrook project is 'unravelling'



Kudos to the Muswellbrook PCYC team and community!
ARTC's Muswellbrook team worked in collaboration with the PCYC to deliver Christmas presents to the local drought affected farmers. Happy Christmas to all!

#ARTC #communityengagement #PCYC



