

CROSS INDUSTRY  
SKILLING PATHWAY:

# A model for harnessing transferable skills



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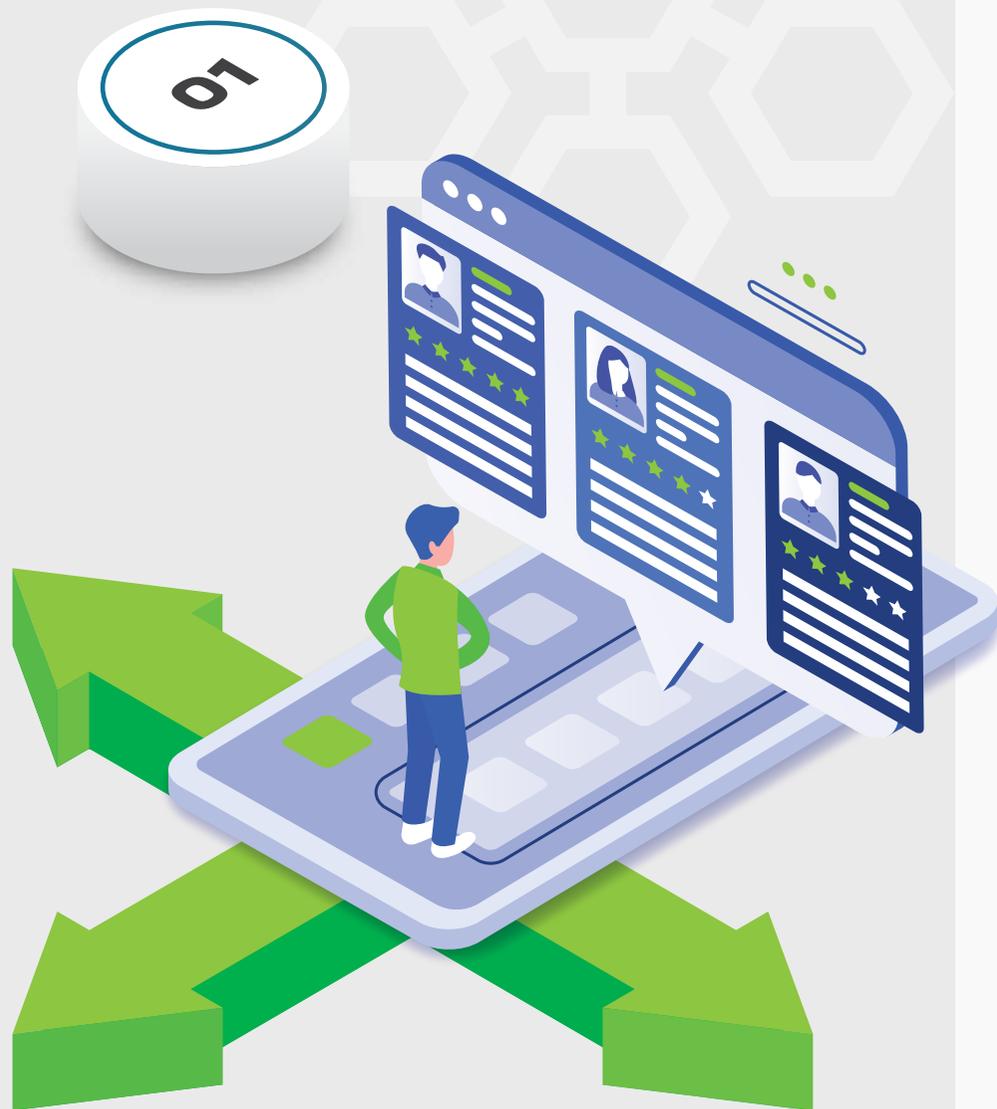
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## THE MINING INDUSTRY

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# Introduction



## Project overview

### The Cross Industry Skilling Pathway project

**Cross job and cross industry skilling is becoming increasingly important in a world where the nature of our industries and day-to-day work is evolving.** The Cross Industry Skilling Pathway project is being delivered to identify and activate pathways to ensure workforces in the Greater Whitsunday region can redeploy their skillsets into different job roles and industries as the nature of work changes.

Research undertaken within the Greater Whitsunday region identifies that flexible workforce pathways will ensure the ongoing economic growth and prosperity of the region. This project focuses on identifying pathway barriers now, to ensure that workers, industries and the broader regional economy have access to the tools required to initiate workforce pathways in the future.

Within the Greater Whitsunday region there is already a perceived flow of workforces between mining and construction industries, as well as skills package alignment between the two industries. Therefore, this project aims to use a mining to civil construction skilling pathway as the focus for a cross industry skilling pathway pilot.

The aim of the pilot is to validate cross industry pathways, develop a clear cross industry pathway framework and identify pathway tools that need to be developed to ensure that workers can transition both within their industries and across industries if required in the future.

Using data from the Mackay Isaac Whitsunday Future Employment Study, a pilot scenario has been developed taking into account the jobs that are likely to be altered by the early adoption of technology in the mining industry and matching this to projected growth in the construction sector.

**This project takes into account a range of factors that may impact on workers needing to redeploy from one job role or industry to another, including:**

-  the cyclical nature of industries;
-  the evolution of work and roles due to technology and automation;
-  the impact of global trends; and
-  workers seeking a career and lifestyle change.

1 KPMG, 'Future Employment Study', Greater Whitsunday Alliance (September 2020)

2 Greater Whitsunday Alliance, 'Greater Whitsunday Future Skills Roadmap', Greater Whitsunday Alliance (January 2021)

## Background to the mining to civil construction pilot

**Given that mining is the largest employer within the Greater Whitsunday region and in response to the accelerated adoption of technology in the sector, there is an increased regional focus on developing a diverse, talented and future-fit workforce within the region.**

Significant work is already being undertaken within the local mining industry to upskill and reskill workforces to adapt to changing labour market needs. Initiatives include the Queensland Future Skills Partnership, the BMA Chair in Automation and Future Work Skills and the Future Fit Academy.

The Cross Industry Skilling Pathway project provides an opportunity to extend on sector specific reskilling options by validating and exploring a cross industry pathway model.

In order to narrow the focus for the pilot, the pathway framework is being developed using data from the Mackay Isaac Whitsunday Future Employment Study, which identifies key job roles that could potentially be impacted by the early adoption of technology.

Given the natural but unstructured workforce flow between the mining and construction industry, targeted job roles in mining will be matched against projected jobs growth areas in civil construction to develop a more formalised pathway.

### Research background to support our approach

A major impact of the Fourth Industrial Revolution is the challenges it brings to the workforce as an increasing amount of jobs are automated or augmented with cutting edge technology.<sup>1</sup> In the mining industry, over **77% of jobs are expected to incorporate new technical elements** and increase productivity by 23% over the next 5 years.<sup>1</sup> The benefits from technological advancements in the long-term are **significant for improving safety** for workers on site and bettering strategic planning to enhance productivity. In addition, this will reduce operating costs and support in extending a mine's life-cycle.<sup>1</sup>

Despite the fact that civil construction is introducing some aspects of automation, it has been identified as an **ideal industry pathway for workers with skills and experience in mining.**<sup>2</sup> In addition, as outlined in the State Infrastructure Strategy 2022, the Queensland Government alone is investing \$50 billion in infrastructure over the next four years, presenting further need to develop pathways into the construction industry.

# Objectives and approach

## Project objectives

This pilot project will see the development of pathways and opportunities for the targeted mining job roles to transfer their skillssets into civil construction.

To enable this, the project objectives are:

- ▶ Identify cross industry workforce opportunities from jobs impacted by technology in mining into jobs growth areas in construction
- ▶ Identify upskilling and reskilling opportunities to transition interested workforces from mining to construction
- ▶ Develop and implement a framework to transition identified workforces from mining to construction
- ▶ Identify tools and resources that need to be activated at each stage of the pathway to support workforce transition
- ▶ Promote the opportunities and benefits of seeking and employing individuals from adjacent industries

## Approach

With the support of desktop research and consultations\* with the project working group and associated contacts, the following approach was undertaken in the development of this report.

- 1▶ Target mining job roles were identified based on projected impacts (including technology). Job roles were identified via ANZSCO occupations and those reported in Faethm. Three key personas were developed that prioritise the job roles with the greatest opportunity to transition from the mining industry.
- 2▶ Target construction job roles were identified based on projected growth, number of FTE in the region and associated links with mining job roles.
- 3▶ Target mining job roles were mapped against construction job roles to identify those that are most closely aligned and the feasibility of the transition.
- 4▶ Key skill and training requirements were identified for the relevant mining and construction job roles to support the identification of upskilling or reskilling opportunities.
- 5▶ Pathways into the construction industry from mining were developed to understand the stages of transition and the information and resources required to support workers to move into construction.

## Pathway



\* Refer to the Appendix for details of the stakeholders consulted as part of the report development

# Overview of the region

## Geography

The Greater Whitsunday region is comprised of Mackay, Isaac and Whitsunday LGAs in Queensland. The region spans an area of 90,354km<sup>2</sup> from St Lawrence in the south, to Bowen in the north and beyond Clermont in the west.



Figure 1: Map of the Greater Whitsunday region

## Demographic Profile

With a permanent population of around 183,000<sup>3</sup> and a median age of 38,<sup>3</sup> the majority of the workforce are full time equivalent employees (FTEs) (93%).<sup>1</sup> The age group with the highest employment rate is 45-54 year olds with 19,522 people working in the region across all industries, which is approximately 23% of the workforce population.<sup>4</sup> Across construction and mining, the highest percentage of workers falls into the 35-44 age group,<sup>3</sup> and given the large mining presence, numerous roles also require fly-in-fly-out (FIFO) and drive-in-drive-out (DIDO) ways of working.<sup>2</sup>

1 KPMG, 'Future Employment Study', Greater Whitsunday Alliance (September 2020)

2 Greater Whitsunday Alliance, 'Greater Whitsunday Future Skills Roadmap', Greater Whitsunday Alliance (January 2021)

3 Australian Bureau of Statistics 2021, 2021 Census QuickStats Mackay-Isaac-Whitsunday, accessed on 14 September 2022, <https://abs.gov.au/census/find-census-data/quickstats/2021/312>

4 Mackay Regional Council, Economy, Jobs and Business Insights, accessed on 29 October 2021,

<https://app.remplan.com.au/mackay/economy/workers/age?state=Ln7AUG!gbozHQWdZTVgOwIGaarVfOi2SnqNuWsmSEZDCpUMUIU0oFjU00ImUrJy>

5 Jobs Queensland, 'Data Explorer', Microsoft Power BI, accessed on 29 October 2021, <https://jobsqueensland.qld.gov.au/anticipating-future-skills/data-explorer/>

## Key Industries

Total employment in the region in 2019 was 93,556 and there is an expected employment growth rate of 8% to 2024 (765 additional jobs).<sup>5</sup> The top five employment industries in the region in 2019 were Mining, Health Care and Social Assistance, Construction, Retail Trade and Accommodation and Food Services.<sup>2</sup> These same industries have the highest employment projections in the region through to 2024.<sup>2</sup>

The mining and METS industry makes the greatest contribution to economic output in the region, and the most significant type of mining contribution is metallurgical coal.<sup>1</sup> In 2020, the mining and METS industry was responsible for 18% of employment across the region. Of this, 79% of industry employment was in Isaac, 16% in Mackay, and 5% in the Whitsundays.<sup>1</sup> It is projected that mining will remain the region's largest employer until at least 2024, whereas construction will be amongst the industries with the greatest growth between 2019 and 2024.<sup>2</sup>

Figure 2 highlights the relative stability of the Mining, Retail Trade and Accommodation and Food Services industries across the six years from 2019 to 2024. In contrast, the Construction and Health Care and Social Assistance industries have the greatest projected growth from 2019.

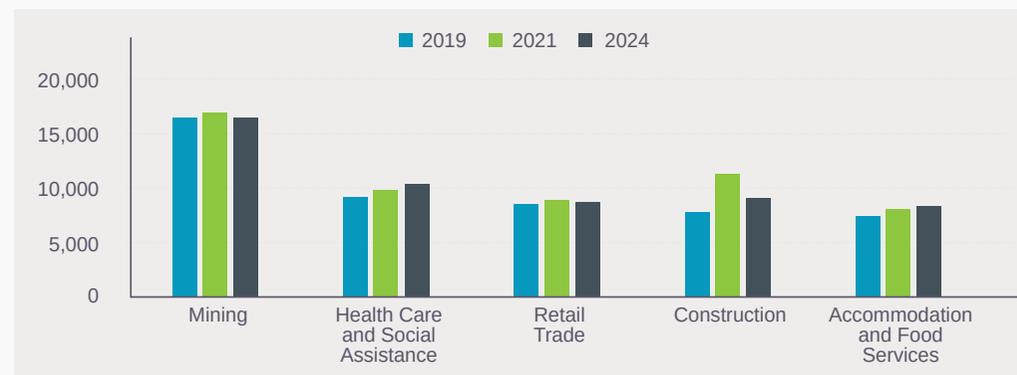
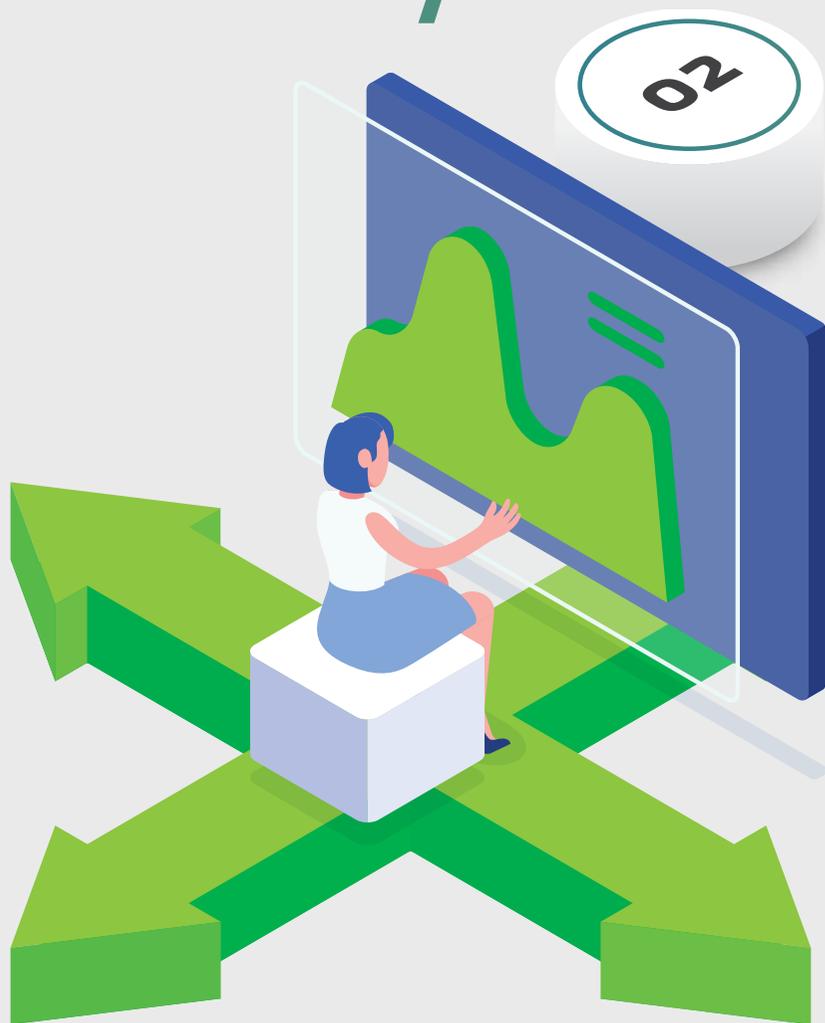


Figure 2: Total employment across the top five industries in the region from 2019 - 2024

Source: Jobs Queensland Data Explorer, <https://jobsqueensland.qld.gov.au/anticipating-future-skills/data-explorer/>

# The Mining Industry



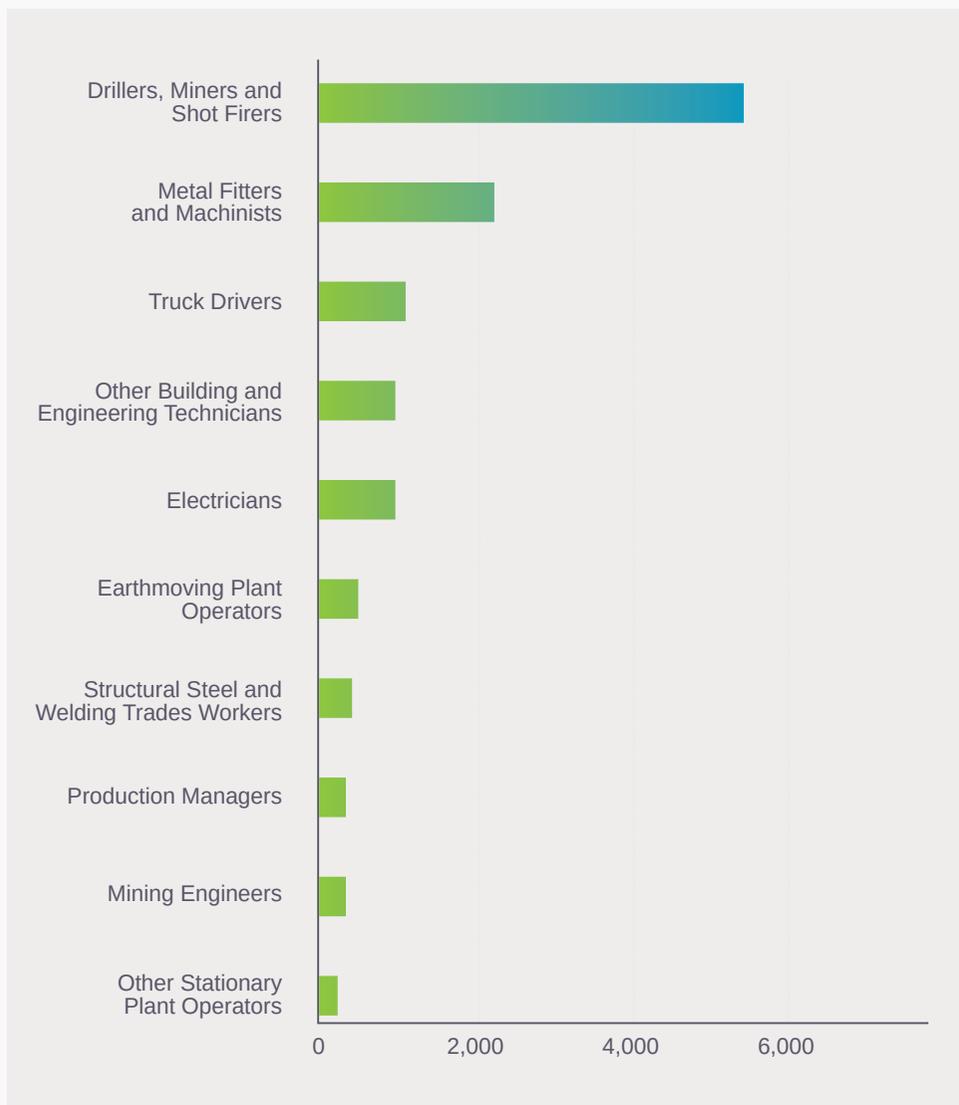
## Overview of the mining industry

### The mining industry

**Mining is the largest industry in the Greater Whitsunday region with the greatest economic output.** More specifically, coal mining is the most significant sub-industry with just over 14,000 employees. The majority of coal in this region is high quality metallurgical coal, which is exported internationally - with China and India being among the largest consumers. This type of coal produces steel and is utilised overseas in furthering infrastructure, meaning demand is likely more robust than for other types of coal.<sup>6</sup> Across the region, Isaac has 26 coal mine sites making it the largest mining region in Queensland. Mackay is a world leader in technological mining equipment and has a strong presence in the Bowen and Galilee basins, and in the Whitsundays, mining is the biggest contributor to the economy producing approximately \$996 million in outputs in 2020.<sup>1</sup>

Figure 3 highlights the top ten mining job roles by employment in the region in 2021. Jobs Queensland predicts that these figures will remain relatively stable through to 2024.<sup>5</sup>

1 KPMG, 'Future Employment Study', Greater Whitsunday Alliance (September 2020)  
 5 Jobs Queensland, 'Data Explorer', Microsoft Power BI, accessed on 29 October 2021, <https://jobsqueensland.qld.gov.au/anticipating-future-skills/data-explorer/>  
 6 'Mining and METS', Greater Whitsunday Alliance, accessed on 29 October 2021, <https://www.greaterwhitsundayalliance.com.au/infrastructure-development>



**Figure 3:** Top ten job roles in mining in the region by employment levels in 2021.

**Source:** Jobs Queensland Data Explorer, <https://jobsqueensland.qld.gov.au/anticipating-future-skills/data-explorer/>

## Factors impacting industry demand and supply

### Pipeline

While the pipeline of mining workers in the region is projected to remain strong over the next few years, decarbonisation, technology and changing consumer sentiment are among the defining business challenges.

### Technological advancements

Developments in computing, signalling and sensing, and system field communications are a focus for 2030, though we are seeing the beginnings of technological impacts already through the fleets of autonomous trucks in coal mines.<sup>1</sup> While many current mining occupations are likely to be impacted by automation and augmentation, there is likely to be opportunity for the gained workforce capacity to be directed to higher value tasks.<sup>1</sup> However, new pathways need to be explored for those less willing to undertake considerable upskilling into alternative jobs.

### Societal trends and events

Global events, such as the COVID-19 pandemic as well as large upcoming construction projects, such as the Brisbane Olympics, may result in workers transitioning out of the industry and/or region for outside opportunities. More generally, people are seeking lifestyle changes following the COVID-19 pandemic and, with a lack of labour mobility in the region and challenges attracting workforces to the region, this may further impact the pipeline of workers in mining.<sup>7</sup>

### Industry perception and attractiveness

Industry perception, specifically from millennials, is that mining can be a damaging and dirty practice, misaligned with the social values of modern times. Many younger generations are adverse to the perceived unsustainability of mining practices and so the industry is struggling to involve people in the area.<sup>7</sup> In contrast, others are drawn to mining due to a variety of lifestyle preferences, including shift work and working even time rosters with a generally high paying salary.

<sup>1</sup> KPMG, 'Future Employment Study', Greater Whitsunday Alliance (September 2020)

<sup>7</sup> AusIMM, 'A Critical Moment: The supply and demand of mining, metallurgical and geotechnical engineers in the Australian resources industry', AusIMM (November 2021)

# Target job roles and core skills (1 of 3)

The following job roles have been identified as feasible for consideration in a transferable skills pathway from mining. Many jobs in mining will be altered by technological innovations, with opportunities to transfer skills within the industry. However, this pilot project explores the transfer of skills into civil construction, focusing on job roles in mining that will experience early adoption in technological innovation. In addition, typical 'trades' roles that have more established pathways between industries were not identified as a priority for consideration.

**Table 1: Target job roles in Mining**

Target job roles* (ANZSCO unit group code)	Relevant qualifications/s	Skill areas covered in the core Units of Competency										
		Work health and safety	Risk management and control	Site maintenance, inspection and quality standards	Environmental heritage and sustainability	Machine, plant or lift operations	Monitoring and maintaining equipment	Manual handling materials	Measurements, calculations and assessments	Workplace planning, communication and teamwork	Technical drawings and plans	Customer service
Truck Drivers (7331)	Certificate II in Surface Extraction Operations	✓	✓		✓					✓		
	Certificate III in Surface Extraction Operations	✓	✓		✓							
	Certificate III in Underground Coal Operations		✓			✓						
Crane, Hoist and Lift Operators (7121)	Certificate III in Construction Crane Operations	✓ Includes emergency processes		✓	✓	✓		✓	✓	✓	✓	✓
Drillers, Miners and Shot Firers (7122)	Certificate III in Underground Coal Operations		✓			✓						
	Certificate III in Surface Extraction Operations	✓	✓		✓							
	Certificate III in Drilling Operations	✓ Includes emergency processes	✓	✓ Includes site operations	✓		✓			✓		
	Certificate IV in Drilling Operations	✓ Includes emergency processes	✓	✓ Includes supervising	✓		✓ Includes mobilisation			✓ Includes leadership		

\* Refer to the Appendix for the ANZSCO Occupations that relate to each ANZSCO Unit Group Code

# Target job roles and core skills (2 of 3)

The following job roles have been identified as feasible for consideration in a transferable skills pathway from mining. Many jobs in mining will be altered by technological innovations, with opportunities to transfer skills within the industry. However, this pilot project explores the transfer of skills into civil construction, focusing on job roles in mining that will experience early adoption in technological innovation. In addition, typical 'trades' roles that have more established pathways between industries were not identified as a priority for consideration.

**Table 2: Target job roles in Mining**

Target job roles* (ANZSCO unit group code)	Relevant qualification/s	Skill areas covered in the core Units of Competency												
		Work health and safety	Risk management and control	Environmental heritage and sustainability	Machine, plant or lift operations	Manual handling materials	Measurements, calculations and assessments	Workplace planning, communication and teamwork	Using hand and power tools	Technical drawings and plans	Basic levelling	Site and equipment set up and maintenance	Hand or manual excavation	Monitoring and maintaining systems and equipment
Earthmoving Plant Operators (7212)	Certificate III in Civil Foundations	✓	✓		✓	✓ Includes disposal of non-toxic materials	✓	✓	✓	✓	✓	✓ Includes to drain and dewater	✓	
	Certificate III in Civil Construction Plant Operations	✓	✓		✓	✓ Includes disposal of non-toxic materials	✓	✓	✓	✓	✓	✓ Includes to drain and dewater	✓	
	Certificate III in Civil Construction	✓	✓		✓		✓	✓	✓	✓				
Stationary Plant Operators (7129)	Certificate II in Process Plant Operations	✓ Includes emergency processes		✓				✓						
Other Building and Engineering Technicians (3129)	Certificate IV in Underground Coal Operations	✓ Includes emergency response	✓					✓ Includes leadership						✓ Includes management plans

\* Refer to the Appendix for the ANZSCO Occupations that relate to each ANZSCO Unit Group Code

# Target job roles and core skills (3 of 3)

The following job roles have been identified as feasible for consideration in a transferable skills pathway from mining. Many jobs in mining will be altered by technological innovations, with opportunities to transfer skills within the industry. However, this pilot project explores the transfer of skills into civil construction, focusing on job roles in mining that will experience early adoption in technological innovation. In addition, typical 'trades' roles that have more established pathways between industries were not identified as a priority for consideration.

**Table 3: Target job roles in Mining**

Target job roles* (ANZSCO unit group code)	Relevant qualification/s	Skill areas covered in the core Units of Competency										
		Work health and safety	Risk management and control	Environmental heritage and sustainability	Machine, plant or lift operations	Manual handling materials	Monitoring and maintaining systems and equipment	Measurements, calculations and assessments	Workplace planning, communication and teamwork	Using hand and power tools	Technical drawings and plans	Provision of on-the-job training
Metal Fitters and Machinists (3232)	Certificate III in Engineering - Mechanical Trade	✓		✓	✓	✓		✓ Includes computations	✓	✓	✓	✓
Production Managers (1335)**	Diploma of Surface Operations Management	✓	✓									
	Diploma of Underground Coal Mining Management	✓ Includes emergency response	✓				✓ Includes implementing		✓ Includes implementing plans			
	Advanced Diploma of Extractive Industries Management	✓	✓									
	Advanced Diploma of Underground Coal Mining Management	✓ Includes emergency response	✓				✓					
	Advanced Diploma of Surface Coal Mining Management	✓ Includes emergency response	✓	✓			✓		✓			
Engineering Production Workers (7123)	Certificate III in Resource Processing***	✓	✓	✓					✓			

\* Refer to the Appendix for the ANZSCO Occupations that relate to each ANZSCO Unit Group Code

\*\* Many Production Managers and Superintendents hold a Bachelor's Degree in Engineering – for the purposes of this skills mapping exercise, reference has only been made to nationally-endorsed vocational qualifications

\*\*\* Industry feedback suggested this qualification may be used for other job roles. For consistency, alignment between the ANZSCO designation in the qualification has been kept

# The Civil Construction Industry

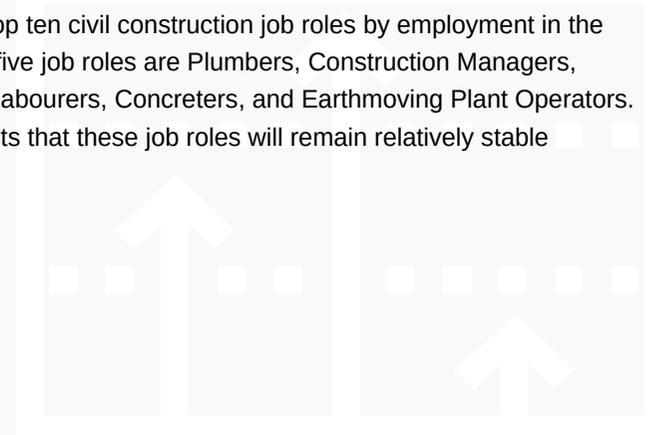


## Overview of the civil construction industry

### The civil construction industry

Construction is the third largest employer in Queensland, with 71,000 businesses comprised mainly of small businesses with under 20 people.<sup>8</sup> In the Greater Whitsunday region in 2021 there were 9,910 industry workers making up 10% of the workforce.<sup>9</sup> 2021 has seen a strong forecast for the future of the industry in the region with over \$3.5 billion in construction work and more than 500 projects in the pipeline. This includes key projects such as the Clarke Creek Wind Farm located in Isaac, which is estimated to generate around 350 jobs in the region and total investment is projected to be approximately \$1.5 billion.<sup>10</sup>

Figure 4 highlights the top ten civil construction job roles by employment in the region in 2021. The top five job roles are Plumbers, Construction Managers, Building and Plumbing Labourers, Concreters, and Earthmoving Plant Operators. Jobs Queensland predicts that these job roles will remain relatively stable through to 2024.



<sup>8</sup> CSQ, 'Are You Ready For Change?: Foresight for Construction', CSQ (2016)

<sup>9</sup> CSQ, Regional Industry Snapshot: Mackay-Whitsunday, CSQ, accessed on 29 October 2021, [https://www.csq.org.au/wp-content/uploads/2021/09/Regional-Industry-Snapshot\\_Mackay-Whitsundays.pdf](https://www.csq.org.au/wp-content/uploads/2021/09/Regional-Industry-Snapshot_Mackay-Whitsundays.pdf)

<sup>10</sup> State Development, Infrastructure, Local Government and Planning, 'Strengthening Greater Whitsunday', Queensland Government, accessed on 29 October 2021, <https://www.statedevelopment.qld.gov.au/regions/queensland/greater-whitsunday>



**Figure 4:** Top ten job roles in civil construction in the region by employment levels in 2021

Source: Jobs Queensland Data Explorer, <https://jobsqueensland.qld.gov.au/anticipating-future-skills/data-explorer/>

1 KPMG, 'Future Employment Study', Greater Whitsunday Alliance (September 2020)

8 CSQ, 'Are You Ready For Change?: Foresight for Construction', CSQ (2016)

11 Skills For Australia, 'Industry Skills Forecast and Proposed Schedule of Work: Mining, Drilling and Civil Infrastructure', PwC (April 2019)

12 'About Mackay Isaac Whitsunday (MIW)', Greater Whitsunday Alliance, accessed on 29 October 2021, <https://www.greaterwhitsundayalliance.com.au/about-the-region>

## Factors impacting industry demand and supply

### Pipeline

CSQ reports a strong pipeline of construction work in the region over coming years, with a number of major projects in Mackay. The five job roles with the highest forecasted workforce impact are Structural Steel Construction Workers, Concreters, Electrical Distribution Trades Workers, Earthmoving Plant Operators, and Other Construction and Mining Labourers. Stakeholders noted that mining typically drains skilled workers from construction and there is a high skills shortage as a result.

### Technological advancements

While the industry is moving towards automation, the rate of adoption is lagging behind that of the mining industry. Technologies being introduced include polymer stabilisation for road pavements and remote control shotcreting and levelling.<sup>11</sup> Consequently, key skills required in the future will relate to digital foundations and data areas.<sup>1</sup> Additional job roles, such as building assembly technicians, construction artists, building drone operators or robot resource managers, may also be required in the future.<sup>8</sup> While the construction industry in Australia historically has struggled with innovation given issues like skills shortages, the main challenge the industry faces in the transition from resource-led growth to a knowledge economy will be requiring an increase in the skill levels of the workforce.<sup>12</sup>

### Societal trends and events

Following COVID-19 and its challenges, society is now largely reconsidering various lifestyle and career choices. With parts of the industry offering more regular work schedules and opportunities to work in various locations, it can be a preferred pathway, particularly in comparison to mining. However, stakeholders noted that in some sub-industries, work schedules and rosters can be more irregular and demanding.

### Industry perception and attractiveness

While construction has a high waste and environmental impact - through greenhouse gas emissions and use of materials that are emission intensive<sup>8</sup> - the industry does not experience the same negative perception when compared to some mining subsectors. However, stakeholders have noted that some parts of the industry struggle to attract and retain workers due to the various benefits experienced in mining, including a higher salary.

# Target job roles and core skills (1 of 3)

The following job roles have been identified as priority for consideration as they represent the job roles that are core to the civil construction industry. These job roles are listed in the Resources and Infrastructure Industry (RII) Training Package as part of Civil Construction.

**Table 4: Core job roles in Civil Construction** (i.e. job roles listed in the RII Training Package as Civil Construction qualifications)

Target job roles* (ANZSCO unit group code)	Relevant qualification/s	Skill areas covered in the core Units of Competency													
		Work health and safety	Risk management and control	Environmental heritage and sustainability	Machine, plant or lift operations	Manual handling materials	Measurements, calculations and assessments	Workplace planning, communication and teamwork	Using hand and power tools	Technical drawings and plans	Basic levelling	Site and equipment set up and maintenance	Hand or manual excavation	Quality systems and plans	
Earthmoving Plant Operators (7212)	Certificate III in Civil Foundations	✓	✓		✓	✓ Includes disposal of non-toxic materials	✓	✓	✓	✓	✓	✓	✓ Includes to drain and dewater	✓	
	Certificate III in Civil Construction Plant Operations	✓	✓		✓	✓ Includes disposal of non-toxic materials	✓	✓	✓	✓	✓	✓	✓ Includes to drain and dewater	✓	
	Certificate III in Civil Construction	✓	✓		✓		✓	✓	✓	✓					
Other Construction and Mining Labourers (8219)	Certificate I in Resources and Infrastructure Operations	✓						✓							
	Certificate II in Resources and Infrastructure Work Preparation	✓	✓	✓				✓							
	Certificate III in Civil Construction	✓	✓		✓		✓	✓	✓	✓					
Other Mobile Plant Operators (7219)	Certificate II in Bituminous Surfacing	✓				✓	✓	✓	✓	✓					
Architectural, Building and Surveying Technicians (3121)	Certificate IV in Civil Construction	✓	✓					✓ Includes leadership				✓ Includes supervising			
Civil Engineering Draftspersons and Technicians (3122)	Diploma of Civil Construction Management	✓	✓	✓				✓ Includes managing teams							✓
	Advanced Diploma of Civil Construction Design	✓	✓					✓							✓
	Advanced Diploma of Civil Construction	✓	✓	✓				✓ Includes leadership							✓

\* Refer to the Appendix for the ANZSCO Occupations that relate to each ANZSCO Unit Group Code

# Target job roles and core skills (2 of 3)

The following job roles have been identified as priority for consideration for civil construction as they meet one or more of the following criteria: job roles with strong projected growth in the region in the next five years, job roles with a high number of FTE in the region and job roles that demonstrate a strong fit with target mining job roles for transition.

**Table 5: Other supporting job roles in Civil Construction**

Target job roles* (ANZSCO unit group code)	Relevant qualification/s	Skill areas covered in the core Units of Competency														
		Work health and safety	Risk management and control	Environmental heritage and sustainability	Machine, plant or lift operations	Manual handling materials	Measurements, calculations and assessments	Workplace planning, communication and teamwork	Using hand and power tools	Technical drawings and plans	Basic levelling	Site and equipment set up and maintenance	Hand or manual excavation	Cure, finish and place concrete	Apply quality systems and procedures	Provide on-the-job training
Concreters (8212)	Certificate III in Concreting	✓		✓		✓ Includes to place and fix	✓	✓ Includes supply requirements		✓	✓	✓ Includes worksite set up	✓	✓		
Construction Managers (1331)	Certificate IV in Building and Construction	✓	✓ Includes adhering to standards	✓ Includes minimising waste				✓		✓		✓ Includes supervising				
Other Miscellaneous Labourers (8999)	Certificate II in Road Transport Terminal Operations	✓				✓	✓	✓								
Handy-persons (8993)	Certificate III in Engineering - Electrical / Electronic Trade	✓		✓			✓ Includes computations	✓							✓	✓
Electrical Distribution Trades Workers (3422)	Certificate III in Engineering - Electrical / Electronic Trade	✓		✓			✓ Includes computations	✓							✓	✓

\* Refer to the Appendix for the ANZSCO Occupations that relate to each ANZSCO Unit Group Code

# Target job roles and core skills (3 of 3)

The following job roles have been identified as priority for consideration for civil construction as they meet one or more of the following criteria: job roles with strong projected growth in the region in the next five years, job roles with a high number of FTE in the region and job roles that demonstrate a strong fit with target mining job roles for transition.

**Table 6: Other supporting job roles in Civil Construction**

Target job roles* (ANZSCO unit group code)	Relevant qualification/s	Skill areas covered in the core Units of Competency															
		Work health and safety	Risk management and control	Environmental heritage and sustainability	Machine, plant or lift operations	Manual handling materials	Measurements, calculations and assessments	Workplace planning, communication and teamwork	Using hand and power tools	Technical drawings and plans	Basic levelling	Gas appliances and ventilation	Welding, reinforcing, cutting and bending metals	Prepare simple drawings	Site maintenance, inspection and quality standards	Customer service	Computer applications, hardware and software
Structural Steel Construction Workers (8217)	Certificate III in Steelfixing	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓				
Plumbers (3341)	Certificate III in Plumbing	✓ Includes first aid				✓ Includes to install and fix		✓	✓		✓	✓	✓	✓			
Crane, Hoist and Lift Operators (7121)	Certificate III in Construction Crane Operations	✓ Includes emergency processes		✓	✓	✓	✓	✓		✓				✓	✓		
Electrical Engineering Draftspersons and Technicians (3123)	Certificate IV in Engineering Drafting			✓			✓ Includes computations	✓									
Office Managers (5121)	Certificate III in Business	✓		✓				✓ Includes critical thinking								✓	
Electronics Trades Workers (3423)	Certificate III in Computer Systems Equipment	✓		✓		✓ Includes to install and fix											✓

\* Refer to the Appendix for the ANZSCO Occupations that relate to each ANZSCO Unit Group Code



# Personas and Pathways



# Stages of the transition pathway (1 of 2)

The transition pathway follows an individual through the process of transitioning from their current job role into a new job role. The six stages of the transition pathway each outline the information an individual needs at that point in time to continue progressing along the pathway, as well as the potential tools and resources to support information attainment and decision making. The three personas on the following pages are used to demonstrate the transition pathway.

## 01 AWARENESS

What is my **skillset** and **recognised prior learning (RPL)**?

What are the **career pathways** and **job opportunities** outside of my current job role?

### Information required

- Formal qualifications completed
- Competencies acquired on-the-job
- Potential career pathways and job opportunities

### Supporting tools and resources\*

- Workplace LMS report or database of knowledge and skills acquired informally on-the-job
- RPL pathway from a relevant RTO
- Online Regional Jobs Board to seek 'easy swap jobs'
- Career Trade Fairs and Information Sessions
- Career Counsellor/Advisor

### OUTCOME

Awareness of own skillset and potential career pathways and job opportunities to pursue

## 02 UNDERSTANDING

How is my **skillset relevant** to other job roles and industries?

How can I **transition** from my current job role?

### Information required

- Prerequisites to transition to other job roles and/or industries, including training and licensing requirements and funding options
- Shared core skills and competency gaps with other job roles

### Supporting tools and resources\*

- Platform to compare job roles, including shared skills and skill gaps
- Qualification and core units of competency comparison
- Networking events with industry representatives and employers
- Career Counsellor/Advisor

### OUTCOME

Understanding of the job roles that align to own skillset, and the transition process

## 03 PREFERENCE

What **skills** do I want to **pursue** and what **strengths** do I want to **leverage** in a new role?

What new **skills** do I want to acquire?

### Information required

- Job profiles, including key work tasks and job requirements
- Own desired work environment and lifestyle
- Career progression pathways
- Trade offs and benefits of transitioning
- Expected barriers and adjustments

### Supporting tools and resources\*

- Hands on experience in the new job role
- Flow chart to visualise possible career pathways from entry-level job roles, including pros and cons to enable comparison
- Interactive models

### OUTCOME

Identification of a short list of preferred job roles to pursue

\* Supporting tools and resources have been identified based on consultations with working group members and other industry stakeholders

# Stages of the transition pathway (2 of 2)

The transition pathway follows an individual through the process of transitioning from their current job role into a new job role. The six stages of the transition pathway each outline the information an individual needs at that point in time to continue progressing along the pathway, as well as the potential tools and resources to support information attainment and decision making. The three personas on the following pages are used to demonstrate the transition pathway.

## 04 SELECTION

What **industry, career pathway and job role** do I want to pursue?

### Information required

- Complete picture of possible job roles, career pathways and progression, and future prospects

### Supporting tools and resources\*

- One-stop-shop to compare and contrast job role information and requirements

### OUTCOME

Selection of a new job role to pursue

## 05 PREPARATION

What **training** do I need to undertake to fill my skill gaps?

What **activities** will prepare me to enter into my chosen industry and job role?

### Information required

- Formal qualification and licensing requirements and how to obtain them
- Skill requirements, including technical skills, transferable skills and physical skills
- Relocation requirements and whether support/living arrangements are provided
- Requirements to transition, including resume, cover letter, and probationary period

### Supporting tools and resources\*

- Transition platform to access all required information to enable effective transition
- Coaching and mentoring support

### OUTCOME

Prepared for the new job role and the transition

## 06 APPLYING

How do I **find opportunities** in my chosen industry and job role?

How do I **apply** for my chosen job role?

### Information required

- Where to find job vacancies
- Application process
- What the industry and employers are seeking in potential employees and the application

### Supporting tools and resources\*

- Platforms to find job vacancies, such as Seek
- Resume writing and interview support
- Connections into the industry

### OUTCOME

Applied for and secured the new job role

\* Supporting tools and resources have been identified based on consultations with working group members and other industry stakeholders



**Jamie is a truck driver who loves being outdoors and wants to work close to home because they have a young family.**



24 years old



Isaac Region, Qld



**No formal qualification**

**Competencies include:**

- Conducting rigid haul truck operations
- Conducting articulated haul truck operations

## Persona 1: Haul truck operator

### BEHAVIOURS AND HABITS

- Jamie is used to driving their truck in the mine site and is looking for greater variability in their work
- Jamie loves being outdoors and socialising and is seeking opportunities to meet and work with new people
- Jamie enjoys exploring new technologies
- Jamie is comfortable being busy and multi-tasking

### PAIN POINTS

- Jamie wants a lifestyle change and to live in a bigger town with more opportunities
- Jamie no longer wants to do shift work, and especially night shifts
- Jamie wants to develop a broader range of skills

### ATTITUDES AND SENTIMENTS

- Jamie is excited to work with a broader group of people and build new relationships
- Jamie will feel proud to be a part of a new team that achieves its goals
- Jamie is looking forward to being home most nights and working a more regular schedule

### GOALS

- Jamie wants to experience greater opportunities for their career and enjoy a variety of work
- Jamie wants the opportunity to move outside of a coal mining town with greater access to child care for their kids, more career options for their partner, and more opportunities to continue their volunteering
- Jamie is seeking greater flexibility to move their young family to a regional city, such as Mackay

# Persona 1: possible transition pathway (1 of 2)

The pathway below follows Jamie as they transition from their mining job role into the construction industry.

## 01 AWARENESS

Whilst Jamie does not have a formal qualification, they are competent in their role, specifically in conducting rigid haul truck operations and conducting articulated haul truck operations. Jamie has completed workplace training (on health and safety and risk management practices) and is able to download this information from their workplace LMS platform.

Jamie is aware that their skills will enable them to transition into other industries like construction, however they are not initially aware of opportunities. Jamie searches websites such as Seek and Indeed for job roles that match their skills as a Truck Driver, and talks to social and work networks to learn more about job roles in construction.

Jamie is aware that their current job role will change with the introduction of autonomous fleets and in the future their job may no longer exist.

Jamie's research uncovers that some of the job roles that are best aligned to their job role as a Truck Driver include:

### Job roles with the greatest % fit\*

Other Construction and Mining Labourers
Crane, Hoist or Lift Operators
Earthmoving Plant Operators
Handypersons
Office Managers

## 02 UNDERSTANDING

Jamie understands that the technical aspects of driving haul trucks and their operation will transfer well into construction jobs also requiring the operation of machines. Jamie also understands that their enterprise skills in time management and coordination with others will translate well into this style of construction work. Based on this, Jamie decides to look more closely into job roles centring around machine operation technology.

However, Jamie particularly understands that they lack some required skills, surrounding knowledge of technical drawings and mathematics. Despite this, Jamie enjoys a challenge and is interested in expanding their knowledge base.

Job role	FTE*	Growth*	Core skill gaps*
Crane, Hoist or Lift Operators	97	Moderate	Manual handling materials; Measurements, calculations and assessments; Technical drawings and plans; Customer service
Other Construction and Mining Labourers	275	Moderate	Measurements, calculations and assessments; Using hand and power tools; Technical drawings and plans
Earthmoving Plant Operators	177	Stable	Manual handling materials; Measurements, calculations and assessments; Using hand and power tools; Technical drawings and plans; Basic levelling

## 03 PREFERENCE

One of Jamie's preferences is to transition into a Crane, Hoist or Lift Operator role. This role is similar to a Truck Driver given the practical and hands on nature of the work, and especially appeals to their interest in technical operation of machines. This job role also has a high average salary increase\*, which will help support their young family and future endeavours.

However, given financial stability and job security is very important to Jamie and their family, Jamie may also be interested in job roles classified under Other Mining and Construction Labourers, such as a Crane Chaser or Driller's Assistant. Job roles in this category are projected to have moderate future growth and have a stable number of FTE in the region, indicating there would likely be a number of positions available. The average salary is also higher than Jamie's current job role.\*

Jamie will need to focus on upskilling, particularly in mathematics, but is confident that they can master other skill requirements for a Crane, Hoist or Lift Operator job role in particular, including customer service, and interacting with others, by utilising previous experience working within a team on a mine site.

Overall, Jamie very much enjoys being outside and is excited for the opportunity to work in a different environment.

### Jamie's preferences

Other Construction and Mining Labourers
Crane, Hoist or Lift Operators

\* Refer to the Appendix for more information on job role mapping from mining to construction

# Persona 1: possible transition pathway (2 of 2)

The pathway below follows Jamie as they transition from their mining job role into the construction industry.

## 04 SELECTION

In weighing up the options, Jamie selects the Crane, Hoist or Lift Operator profession as the main job role to pursue. This job role is projected to have moderate future growth, and whilst it may not be as easily attainable as a Mining and Construction Labourer, Jamie believes there is enough demand to successfully secure a job that will provide stability.

Jamie has heard that this role would provide the opportunity to continue learning about technology, specifically robotics. A small proportion of Crane, Hoist and Lift Operator job roles will likely be augmented in the future with navigation robotics to assist in loading and moving equipment, and sensory perception robotics to assist in placing blocking under cranes. Jamie finds this interesting as they love exploring technologies and think it will help their career to become well acquainted with emerging technology.

The expected salary is an increase\* from Jamie's current salary. They are very comfortable working outdoors, and want to continue to do so where possible. Jamie also chooses to pursue this role as it may enable them to move away from Moranbah and set up a life with greater access to child care and a greater variety of career options.

### Jamie's rationale to pursue a Crane, Hoist or Lift Operator role

Moderate projected growth and salary increase for job security and financial stability

Interested in emerging technologies and machine operations

Supports life goals, including to move out of a coal mining town

\* Refer to the Appendix for more information on job role mapping from mining to construction

## 05 PREPARATION

While Jamie does not have a formal qualification, the truck driving experience has provided them with significant recognised prior learning (RPL). Jamie will need to obtain at least a VET qualification, the lowest being a Certificate III in Construction Crane Operations. This requires the completion of 16 core units and 7 electives, and based on the core units currently being taught, Jamie has limited or no experience in 4 of the skills these core units teach\*. These are:

	Manual Handling Materials
	Measurements, Calculations and Assessments
	Technical Drawings and Plans
	Customer Service

Jamie investigates whether they can enrol in this course and receive an RPL for some units of study, or whether they need to undertake a separate RPL assessment to avoid training in units in which they are already qualified.<sup>13</sup> Jamie also investigates through the RTO whether they can receive funding through the Certificate 3 Guarantee funding scheme. Given Jamie has not done a qualification before and is an Australian citizen, they meet the eligibility requirements.

Jamie also needs to obtain licences before starting work, including the 'Prepare to Work Safely in the Construction Industry' course (i.e. White Card), as well as the required high risk work licence to operate cranes. To secure the required licences, Jamie enrolls with an RTO, completes the assessment, and then applies to receive the licences.

## 06 APPLYING

Jamie is committed to regularly checking public websites for new job listings such as Seek and Indeed, and applying for jobs intrastate through these websites.

Over the last few years, Jamie has also built up a network in the mining industry and has raised these transition plans with members of their team. One of Jamie's previous managers has a connection in the construction industry in Mackay, who is preparing for a number of upcoming projects. Jamie's old manager connects them with the contact in Mackay, who is willing to help Jamie find a job at a local business, particularly as they have just announced a large monetary reward for referring someone who stays with the business for a minimum of 6 months.

The contact in Mackay provides Jamie with an insight into the typical hiring process, which consists of an application and then an interview.

Submit resume and cover letter via Seek

Undertake interview in-person

After leveraging resources off the internet, Jamie is seeking support to write their resume and cover letter for the application and also hoping to do some interview practice with their partner, friends, and colleagues in order to be as prepared as possible.

Jamie is very excited and hopeful that their chances of success will be improved thanks to the referral. Jamie is looking forward to the opportunity to move to Mackay with their family.



**Alex is a multi-skilled operator (dozer and moxy, excavator, bobcat) who loves travelling and wants to have a good work-life balance because they have a lot of commitments outside of work.**



47 years old



Mackay Region, Qld



**Certificate III in Surface Extraction**

## Persona 2: Ancillary equipment operator

### BEHAVIOURS AND HABITS

- Alex has been in the industry for 20 years and is experienced in operating equipment
- Alex is flexible in their work schedule and enjoys working at different sites
- Alex is a hard worker and enjoys working independently
- Alex enjoys travelling and tries to plan trips that fit in with their work schedule

### PAIN POINTS

- Alex wants to have greater work-life balance day-to-day
- Alex no longer wants to travel long distances for work and relocate for periods of time as they are getting older and looking to settle more in their home town
- Alex wants greater exposure to a variety of work sites and teams

### ATTITUDES AND SENTIMENTS

- Alex will feel comfortable knowing that they have a stable job likely to sustain them until retirement
- Alex will be excited to live a more balanced lifestyle
- Alex is skeptical about transitioning out of mining due to the potential reduction in salary, however, they know that there will be opportunities that provide benefits to match their lifestyle preferences

### GOALS

- Alex will be able to effectively balance a successful career with personal commitments
- Alex will have greater flexibility in work to plan their travels
- Alex wants their work to be focused mainly in the Mackay area

# Persona 2: possible transition pathway (1 of 2)

The pathway below follows Alex as they transition from their mining job role into the construction industry.

## 01 AWARENESS

Alex has worked hard in the mining industry during their career, and as a result is a multi-skilled ancillary equipment operator with a wealth of experience and knowledge. Alex also achieved a formal qualification of a Certificate III in Surface Extraction over 10 years ago.

Alex is vaguely aware of potential opportunities to utilise their skills in the construction industry. Alex has started using Facebook to keep up with friends and has seen a number of success stories of people who have recently moved from mining into construction. Many of them seem to have a better work-life balance with the ability to travel more freely. Alex wants this same freedom.

Alex understands that automation is being introduced into mining and that may affect their job role. Despite this fact, Alex believes they would be able to transition into construction.

Alex researches construction job roles that align to their multi-skilled capabilities and discovers a number of options:

### Job roles with the greatest % fit\*

Earthmoving Plant Operators
Office Managers
Electronic Trades Workers
Electrical Engineering Draftspersons and Technicians
Plumbers

## 02 UNDERSTANDING

Alex understands that they can continue in a similar role as an Earthmoving Plant Operator in the construction industry, but whilst the skills will transfer across industries well, Alex may lack industry domain knowledge. Alex understands that they might also be required to update their qualification or go through in-house training to ensure eligibility and readiness for work.

Alex thrives in an inclusive environment and is curious to explore whether they would be a good fit for a managerial position, despite enjoying working more independently. Based on this, Alex decides to focus their efforts exploring Earthmoving Plant Operator roles and Office Manager roles.

Alex understands that if they decide to move into a different job role, they will be lacking key skills in areas like customer service and implementing practices such as sustainability. However, Alex is a very resourceful person who values constructive feedback and is willing to put in the hard work to upskill and reskill.

Job role	FTE*	Growth*	Core skill gaps*
Earthmoving Plant Operators	177	Stable	N/A
Office Managers	918	Moderate	Environmental heritage and sustainability; Customer service
Electronics Trades Workers	114	Stable	Environmental heritage and sustainability; Computer applications, hardware and software

## 03 PREFERENCE

One of Alex's preferences is to pursue a role as an Earthmoving Plant Operator, which would be similar to their current role. This is because Alex is skeptical about leaving the mining industry given the lower remuneration in construction. However, Alex also understands that there may be a trade-off between salary and work-life balance. Alex is also more comfortable transitioning into a familiar role as they believe they will thrive, while gaining exposure to different sites and teams. It also means Alex may experience less micro-managing, given the familiarity with some of the equipment.

Alex has always been accepting of workplace change and values diversity of experiences, seeing these as learning opportunities. As a result, Alex is also considering the role of an Office Manager, however, they are more reluctant to pursue this pathway given the potential decrease in salary.\*

Alex's main priority is to balance non-work commitments and to spend more time travelling. Alex is aware, however, that not all construction job roles have better work-life balance, as there is not always certainty in rostering. In light of this, Alex has decided to search for jobs across the Greater Whitsunday region where Alex currently lives, in the hopes of significantly cutting down travel time, and counteracting some of the uncertainty.

### Alex's preferences

Earthmoving Plant Operator
Office Manager

\* Refer to the Appendix for more information on job role mapping from mining to construction

# Persona 2: possible transition pathway (2 of 2)

The pathway below follows Alex as they transition from their mining job role into the construction industry.

## 04 SELECTION

Alex decides to pursue a role as an Earthmoving Plant Operator. The growth for this role in construction is projected to remain stable, and whilst there may be a larger number of available positions for Office Managers, there is still reasonable demand for Earthmoving Plant Operators. Alex believes pursuing a role in this area will sustain them until their retirement, which is important.

Alex has also heard that some forms of augmentation may be introduced to Earthmoving Plant Operator roles in the future. Alex has learned to embrace technology and is an ambitious person, so this does not deter them from pursuing this job role.

In addition, Alex has been working with machines throughout their career and feels as though this role will be the best fit as it involves being exposed to different tasks and equipment. Alex believes that working as an Office Manager, whilst it may offer a higher responsibility, may end up becoming too repetitive and monotonous.

### Alex's rationale to pursue an Earthmoving Plant Operator role

Same job role but applied in a new context

Stable projected growth

Supports goals and behaviours, including to work in new environments and more independently

## 05 PREPARATION

Alex has a Certificate III in Surface Extraction, however this was obtained over 10 years ago. As a result, Alex may be required to update the qualification as they move into construction. Alex is told that the competencies for the qualification may have been maintained through currency of operating equipment and refreshers on site, making the qualification upgrade much simpler.

Alex learns from the RTO that they may be able to upgrade the qualification with the help of the Certificate 3 Guarantee funding scheme determined by the 'Back to Work' team. Another option may be the Older Workers Program which provides access to funding for up to \$2,000. Alex may be eligible for this as they are older than 45 and may be at risk of entering an income support system.

Depending on the workplace, Alex may not need to upgrade the qualification, but instead will complete in-house training to ensure that they can adapt and perform in the new workplace context. There are key differences between the mining and construction industries (e.g. terminology and processes) regardless of the similar job role title.

Alex has great experience in the mining industry and decides to formalise their various competencies. Alex looks into obtaining different licences to ensure that their experience is recognised in construction.

### Alex's licences

White Card

Working at heights

Elevating work platform

Forklift

## 06 APPLYING

Alex has reached out to a number of Facebook friends to see if they are aware of any vacant Earthmoving Plant Operator job roles in construction, and to learn more about the application process for these roles.

Alex has decided to be very selective in their applications, ensuring to research the businesses and job descriptions carefully, whilst also discriminating based on location and travel requirements. This may mean that it takes slightly longer to find a job, as Alex is putting in fewer applications and is less willing to be flexible on all aspects of the job. It also ensures that Alex is not sacrificing any goals or priorities, especially when it comes to work-life balance.

Alex has also been looking at job advertisements on Seek and Indeed, and has recently created a LinkedIn profile to better network and not miss any job opportunities.

Alex is going through the process of refining their resume and plans to update it frequently as they gain more licence qualifications and training. Alex is ensuring that their cover letter accurately reflects their experience and career achievements, whilst clearly articulating Alex's priorities in a new job.

### Alex's avenues for job searching

1 ▶ Construction skills website/s

2 ▶ Word of mouth, network

3 ▶ Adverts on Seek

\* Refer to the Appendix for more information on job role mapping from mining to construction



**Sam is a line leader who loves being challenged and wants to continuously upskill because career progression is important to them.**



32 years old



Whitsunday region, Qld



**Advanced Diploma of Underground Coal Mining Management**

## Persona 3: Supervisor

### BEHAVIOURS AND HABITS

- Sam loves their job and is passionate about learning new things and furthering their career
- Sam has great people management and communication skills, and enjoys collaborating with team members
- Sam has had a number of different jobs within the business and mining industries and enjoys looking for new challenges

### PAIN POINTS

- Sam is seeking greater job security, structure and challenge
- Sam is looking to broaden their possible career pathways and skillset through greater job variability

### ATTITUDES AND SENTIMENTS

- Sam is eager and motivated to try new things and be exposed to new and different situations
- Sam values teamwork and collaboration and is looking forward to working with a larger team

### GOALS

- Changing job roles will assist Sam in reaching their financial goals
- With a more regular work schedule, Sam will be able to spend more structured time upskilling
- Sam wants to progress their career and be well set up to support a family in the future

# Persona 3: possible transition pathway (1 of 2)

The pathway below follows Sam as they transition from their mining job role into the construction industry.

## 01 AWARENESS

Sam has had a number of different job roles within the business and mining industries over the last 10 years and, as a result, has a broad knowledge base across these industries. Sam is no stranger to job-hopping and has always been confident in their ability to learn new things and overcome every challenge. Sam undertook an Advanced Diploma of Underground Coal Mining Management a few years ago and has enjoyed building connections with work teams and developing communication and collaboration skills.

Sam is very career focused, and is looking for a new challenge to fulfil their passion of learning new things and exploring new opportunities, particularly where they can leverage and build on their existing skillset. Sam is well acquainted with job searching and begins to research the opportunities in construction.

Sam's research uncovers a number of possible job roles that they could pursue in construction:

### Job roles with the greatest % fit\*

Office Managers
Construction Managers
Civil Engineering Professionals
Electrical Engineering Draftspersons and Technicians
Human Resource Managers

## 02 UNDERSTANDING

Sam understands that a lot of their people management and communication skills can transfer well into the construction industry. However, Sam has no real understanding of the key differences between management positions in construction compared to those in mining. Sam connects with an old co-worker, who is now working in construction, who is able to provide Sam with some further context. They also let Sam know about a short 4-week opportunity where Sam can try a Construction Manager role before committing to pursuing a similar role full-time.

Sam is always eager to upskill and is excited to take on this 4-week opportunity to support the lead Construction Manager of the project. Sam is aware that Construction Managers generally have a Certificate IV in Building and Construction and Sam is willing to undertake this qualification alongside any in-house training to bridge the gap in their knowledge and skills.

Job role	FTE*	Growth*	Core skill gaps*
Office Managers	918	Moderate	Customer service
Civil Engineering Professionals	163	Very Strong	<b>Required to obtain a Bachelor's Degree in Civil Engineering</b>
Construction Managers	333	Strong	Technical drawings and plans

## 03 PREFERENCE

Sam enjoyed the 4-week opportunity and learned a lot as it was different to what they had expected. Sam was surprised to learn that the role was more 'hands on' than anticipated. In addition, Sam would need to upskill particularly in interpreting and understanding plans and specifications, as well as relevant building codes and standards. Regardless, Sam believes the future of work is in the construction industry and they are excited for the change of scene, greater variation, and ability to obtain and grow a new skillset.

Sam does not have a family yet, however they plan to have one in the future once their career has progressed and they feel more financially stable. As a result, Sam is attracted to the role of a Construction Manager given its strong projected growth and the higher salary.

However, Sam is also considering the role of an Office Manager, which has a strong number of FTE in the region and is also projected to have moderate growth in the future. In addition, this job role would involve more time indoors and less hands on work, and Sam is wondering whether this could be a nice change. Sam decides to look into both job roles, which will enable them to look into a wide range of companies and select those that best fit their upskilling and career progression goals.

### Sam's preferences

Construction Manager
Office Manager

\* Refer to the Appendix for more information on job role mapping from mining to construction

# Persona 3: possible transition pathway (2 of 2)

The pathway below follows Sam as they transition from their mining job role into the construction industry.

## 04 SELECTION

Ultimately, Sam decides to pursue a role in construction management. Sam has enjoyed the job role in mining, and has come to the realisation that they are excited to be more hands on, despite being unsure initially. It will provide Sam with more opportunities to connect with colleagues and the chance to be challenged and learn as much as possible in a new environment.

Sam is also attracted to the higher average salary\* that construction management offers to help reach their financial goals. Sam is also excited to see that there is strong projected growth in this area, as Sam thinks this will open a number of pathways to different sites and roles should they wish to pursue them.

Sam is very interested in undertaking the relevant qualification that is required for this role, being an avid learner, and is keen to translate new theoretical knowledge into practice.

### Sam's rationale to pursue a Construction Manager role

Increase in salary to support financial goals

Strong projected growth allowing for career progression opportunities

Opportunities for greater involvement on site and for fostering strong connections with colleagues

## 05 PREPARATION

Sam is looking forward to undertaking the Certificate IV in Building and Construction, as they are keen to build new skills. Sam has heard that students can receive credits towards new qualifications by obtaining RPLs, and looks into this further. However, given the specificity of the units in Sam's Advanced Diploma in Underground Coal Mining Management, they realise that they are unlikely to obtain an RPL for any of the units.

Sam has also been thinking about the 4-week work experience, and feels it was extremely useful, as assisting the lead Construction Manager enabled Sam to upskill on the job and understand the role better. As a result, Sam looks for similar short term opportunities that are around 6 months in duration. In this way, Sam hopes to continue the in-person upskilling and training alongside the formal qualification. The main skills Sam needs to acquire are:

	Apply building codes and standards, legal requirements, and structural principles
	Interpret plans and specifications
	Minimise waste
	Supervise communications and administration

This role helps Sam to feel much more prepared to apply for a lead Construction Manager job role, and they know that having experience is particularly important for obtaining management positions in construction.

## 06 APPLYING

Sam has now undertaken a couple of roles assisting a lead Construction Manager. Sam feels confident that they understand the requirements of the role and have enough experience to apply for more permanent Construction Manager roles. Sam has found this work experience very meaningful and feels the work is positively impacting society, which is fulfilling and exciting.

Sam takes the time to update their resume to reflect the most recent experiences and writes a cover letter outlining their skills and ambitions. Sam is well practiced at writing job applications and interviewing for various positions and feels confident in the process.

Sam reaches out to the lead Construction Managers from their previous roles, as well as their broader network, to see whether they know of any job opportunities. Sam also keeps a close eye on the main job advertisement websites, including Seek, Indeed and LinkedIn, and applies for relevant job roles that they feel most suit their ambition and upskilling desires.

Sam has learned a lot over this process and is excited to start working with, and learning from, their new team.

Update cover letter and resume

Reach out to networks

Apply to job adverts online

\* Refer to the Appendix for more information on job role mapping from mining to construction

# Success factors for transitioning and recommendations

For the transition pathway to be successful across each of the personas and for workers in the mining industry in general, the following success factors have been identified through desktop research and consultation. These success factors are to be kept front of mind in the development pathway and when considering what tools and resources to leverage and implement. Based on these success factors and from discussions with industry stakeholders, a number of recommendations have also been provided.

	Success factors	Description	Recommendations for implementation
1	Readily <b>available</b> and <b>accessible</b> information and resources	Ensuring information and resources are accessible across different channels, and are readily available, will support ease of transition for workers. This includes information for workers to understand their skillset and competencies and how this is transferable across job roles. Readily available and accessible information will also work to remove any negative or inaccurate perceptions of the construction industry and job roles, to support greater connections between the two industries.	<p><b>Recommendations include:</b></p> <ul style="list-style-type: none"> <li>• Provide <b>multiple channels and sources of information</b> for workers to better understand their skillset, possible pathways and the transition process (including online access across different devices and in-person events)</li> <li>• Engage in <b>marketing and industry engagement</b> to support awareness of the information and resources available</li> </ul>
2	<b>Relevant</b> and <b>tailored</b> information and resources for workers with different wants and needs	Relevant and tailored information for those of different circumstances and characteristics will ensure the transition process caters for diverse wants and needs. This includes training and licensing needs and avenues to access funding arrangements, as well as job contextualisation and how a 'similar' job role may differ day-to-day in the construction industry. This will ensure workers have clear expectations and are well prepared and supported for the transition.	<p><b>Recommendations include:</b></p> <ul style="list-style-type: none"> <li>• Provide <b>detailed information on the industry, job roles, transition process and funding arrangements for training</b>, including information that caters for career and lifestyle preferences and understanding day-to-day tasks and requirements</li> <li>• Provide <b>links and industry contacts</b> for individuals to access additional information and resources</li> <li>• Develop and release "Day in the life" videos for different job roles, showing the work and who the role interacts with</li> </ul>
3	<b>Enabling</b> workers to make informed decisions and take action	Enabling workers to make decisions and take action will ensure workers transition effectively into the industry. In particular, ensuring transition processes and requirements are clearly established will enable workers to transition into the right job role.	<p><b>Recommendations include:</b></p> <ul style="list-style-type: none"> <li>• Provide <b>clear and specific pathway options and next steps</b> for workers</li> <li>• Provide easy access to <b>employment opportunities</b> and industry contacts</li> </ul>
4	<b>Strong connections</b> and <b>collaboration</b> between the mining and construction industries	Strong connections and collaboration between the two industries will enable individuals to better understand the possible pathways to transition, as well as develop networks and find employment opportunities. This also includes connections with RTOs for relevant upskilling or reskilling requirements.	<p><b>Recommendations include:</b></p> <ul style="list-style-type: none"> <li>• Hold <b>regular events and forums</b> for workers, employers, industry bodies and RTOs to connect and network (e.g. Career Trade Fairs, Information Sessions)</li> </ul>
5	Identifying and collaborating to address <b>structural barriers</b> preventing inter-industry transition	The success of this project is influenced by factors not controlled by those who may implement the project. There are existing structural barriers relating to qualification recognition, transition timing and funding that multiple parties (some state or national entities) will have to support if the project is to be successful.	<p><b>Recommendations include:</b></p> <ul style="list-style-type: none"> <li>• Work with entities responsible for the development and regulation of national qualifications to <b>ensure participants are fully and fairly recognised</b> for their skills</li> <li>• Collaborate with employers across industries to ensure the timing of the transition <b>practically supports</b> the transitioner</li> <li>• Advocate to state and federal funding bodies to <b>provide appropriate resources</b> for training and other transition activities</li> </ul>

# Appendix



## ANZSCO Unit Group Code and associated occupations - mining

ANZSCO Unit Group Code (Mining)	Associated ANZSCO Occupations
Truck Drivers (7331)	Truck Driver (General); Tanker Driver; Tow Truck Driver; Aircraft Refueller; Furniture Removalist
Crane, Hoist and Lift Operators (7121)	Crane, Hoist or Lift Operator
Drillers, Miners and Shot Firers (7122)	Driller (includes Directional Driller, Exploration Driller); Miner (includes Coal Cutter, Underground Truck Operator, Blogger Operator); Shot Firer
Earthmoving Plant Operators (7212)	Earthmoving Plant Operator (General); Backhoe Operator; Bulldozer Operator; Excavator Operator; Grader Operator; Loader Operator
Stationary Plant Operators (7129)	Bulk Materials Handling Plant Operator; Waste Water or Water Plant Operator; Cement Production Plant Operator; Boiler or Engine Operator; Concrete Batching Plant Operator; Concrete Pump Operator; Paper and Pulp Mill Operator; Railway Signal Operator; Train Controller; Weighbridge Operator
Metal Fitters and Machinists (3232)	Fitter (General); Fitter and Turner; Fitter-Welder; Metal Machinist; Textile, Clothing and Footwear Mechanic
Production Managers (1335)	Production Manager (Mining) (i.e. Mine Manager, Mine Superintendent); Production Manager (Manufacturing); Production Manager (Forestry)
Engineering Production Workers (7123)	Engineering Production Worker
Other Building and Engineering Technicians (3129)	Mine Deputy; Maintenance Planner; Metallurgical or Materials Technician; Mining Detail Draftsperson

## ANZSCO Unit Group Code and associated occupations - civil construction

ANZSCO Unit Group Code (Construction)	Associated ANZSCO Occupations
Earthmoving Plant Operators (7212)	Earthmoving Plant Operator (General); Backhoe Operator; Bulldozer Operator; Excavator Operator; Grader Operator; Loader Operator
Electrical Distribution Trades Workers (3422)	Electrical Linesworker; Technical Cable Joiner
Concreters (8212)	Concreteer
Structural Steel Construction Workers (8217)	Construction Rigger; Scaffolder; Steel Fixer; Structural Steel Erector
Other Construction and Mining Labourers (8219)	Crane Chaser; Driller's Assistant; Lagger; Mining Support Worker; Surveyor's Assistant
Crane, Hoist and Lift Operators (7121)	Crane, Hoist or Lift Operator
Office Managers (5121)	Office Manager
Electronics Trades Workers (3423)	Business Machine Mechanic; Communications Operator; Electronic Equipment Trades Worker; Electronic Instrument Trades Worker (General); Electronic Instrument Trades Worker (Special Class)
Electrical Engineering Draftspersons and Technicians (3123)	Electrical Engineering Draftsperson; Electrical Engineering Technician
Plumbers (3341)	Plumber (General); Airconditioning and Mechanical Services Plumber; Drainer; Gasfitter; Roof Plumber
Other Miscellaneous Labourers (8999)	Crossing Supervisors; Electrical or Telecommunications Trades Assistant; Mechanic's Assistant; Railways Assistant; Sign Erector; Road Traffic Controller
Handypersons (8993)	Handyperson
Construction Managers (1331)	Construction Project Manager; Project Builder
Civil Engineering Professionals (2332)	Civil Engineer; Geotechnical Engineer; Quantity Surveyor; Structural Engineer; Transport Engineer
Other Mobile Plant Operators (7219)	Paving Plant Operators; Aircraft Baggage Handlers and Airline Ground Crew; Linemarkers; Railway Track Plant Operators; Road Roller; Street Sweeper Operators
Architectural, Building and Surveying Technicians (3121)	Architectural Draftsperson; Building Associate; Building Inspector; Construction Estimator; Plumbing Inspector; Surveying or Spatial Science Technician; Architectural; Building and Surveying Technicians

## Skills mapping and job role fit across mining and civil construction

The following table provides a view of the target mining job roles and the top five construction job roles (at the ANZSCO unit group code level) with the greatest % job fit as reported in Faethm. The job fit calculation takes into account the following factors: small attribute gaps between job roles to improve ease of transition; future economic growth; salary equivalence; low probability of automation; and small environmental attribute gaps indicating a similarity in the style and environment of the job roles.

Target mining job roles (ANZSCO unit group code)	Top five civil construction job roles that are most closely aligned (ANZSCO unit group code)				
Truck Drivers (7331)	Other Construction and Mining Labourers (8219)	Crane, Hoist and Lift Operators (7121)	Earthmoving Plant Operators (7212)	Handypersons (8993)	Office Managers (5121)
Crane, Hoist and Lift Operators (7121)	Crane, Hoist and Lift Operators (7121)	Office Managers (5121)	Electronics Trades Workers (3423)	Electrical Engineering Draftspersons and Technicians (3123)	Plumbers (3341)
Drillers, Miners and Shot Firers (7122)	Other Construction and Mining Labourers (8219)	Crane, Hoist and Lift Operators (7121)	Earthmoving Plant Operators (7212)	Handypersons (8993)	Other Miscellaneous Labourers (8999)
Earthmoving Plant Operators (7212)	Earthmoving Plant Operators (7212)	Office Managers (5121)	Electronics Trades Workers (3423)	Electrical Engineering Draftspersons and Technicians (3123)	Plumbers (3341)
Stationary Plant Operators (7129)	Other Construction and Mining Labourers (8219)	Crane, Hoist and Lift Operators (7121)	Earthmoving Plant Operators (7212)	Office Managers (5121)	Electronics Trades Workers (3423)
Metal Fitters and Machinists (3232)	Other Miscellaneous Labourers (8999)	Handypersons (8993)	Other Construction and Mining Labourers (8219)	Crane, Hoist or Lift Operator (7121)	Earthmoving Plant Operator (7212)
Production Managers (1335)	Office Managers (5121)	Construction Managers (1331)	Civil Engineering Professionals (2332)	Electrical Engineering Draftspersons and Technicians (3123)	Human Resource Managers (1323)
Engineering Production Workers (7123)	Electrical Engineering Draftspersons and Technicians (3123)	Electronics Trades Workers (3423)	Office Managers (5121)	Civil Engineering Professionals (2332)	Plumbers (3341)
Other Building and Engineering Technicians (3129)	Electronics Trades Workers (3423)	Office Managers (5121)	Electrical Engineering Draftspersons and Technicians (3123)	Civil Engineering Professionals (2332)	Plumbers (3341)



90 - 100% job fit



80 - 90 % job fit



70 - 80 % job fit



&lt; 70% job fit

# Persona 1: Job role mapping

The following table provides a summarised view of the job role mapping process for a Truck Driver (Persona 1) transitioning into the construction industry. Based on the top five civil construction job roles with the greatest % job fit as reported in Faethm, this table provides additional information to support workers to determine the pathway options and job roles best suited for them.

Mining job role	Construction job roles	FTE <sup>1</sup>	Projected growth <sup>2</sup>	Core competency gaps <sup>3</sup> (based on relevant qualifications and core units of competency)	Key similarities in the work environment <sup>2</sup>	Key differences in the work environment <sup>2</sup>	Weekly salary <sup>2</sup> (compared to \$1,509)
Truck Drivers	Other Construction and Mining Labourers	275	Moderate	<b>3 core skill gaps:</b> Measurements, calculations and assessments; Using hand and power tools; Technical drawings and plans	Practical and hands-on; Using hands to handle, control or feel; Wear protective/safety equipment; In an enclosed vehicle or equipment; Time pressure; Frequent decision making	Dangerous equipment; Spend time standing; Teamwork; Cramped work space; Whole body vibrations; Health and safety of others	\$1,683
	Crane, Hoist or Lift Operators	97	Moderate	<b>4 core skill gaps:</b> Manual handling materials; Measurements, calculations and assessments; Technical drawings and plans; Customer service	Practical and hands-on; Contact with people; Wear protective/safety equipment; Working in an enclosed vehicle or equipment; Using hands to handle, control or feel; Outdoors exposed to weather; Time pressure	Health and safety of others; Teamwork; Indoors not heat controlled; Dangerous equipment	\$2,500
	Earthmoving Plant Operators	177	Stable	<b>5 core skill gaps:</b> Manual handling materials; Measurements, calculations and assessments; Using hand and power tools; Technical drawings and plans; Basic levelling	Practical and hands-on; Outdoors and exposed to weather; Using your hands to handle, control or feel; Wear protective/safety equipment; In an enclosed vehicle or equipment	In an open vehicle or equipment; Teamwork; Whole body vibrations; Dangerous equipment; Health and safety of others; Making repetitive motions	\$1,491
	Handypersons	148	Strong	<b>3 core skill gaps:</b> Measurements, calculations and assessments (including performing computations); Quality systems and procedures; Provide on-the-job training	Practical and hands-on; Wear protective/safety equipment; Outdoors exposed to weather; Using hands to handle, control or feel; Frequent decision making	Teamwork; Spend time standing; Working at heights; Making repetitive motions; Health and safety of others	\$1,068
	Office Managers	918	Moderate	<b>1 core skill gap:</b> Customer Service	Spend timing sitting; Frequent decision making; Being exact or accurate; Contact with people; Time pressure	Enterprising; Administrative; Helping others; Teamwork; Lead or coordinate a team; Indoors heat controlled; Conflict situations	\$1,490

1 Regional data sourced from Faethm ([www.app.faethm.ai/login](http://www.app.faethm.ai/login))

2 Data sourced from the Australian Government National Skills Commission ([www.joboutlook.gov.au](http://www.joboutlook.gov.au))

3 Data sourced from the National Training System ([www.training.gov.au](http://www.training.gov.au))

## Persona 2: Job role mapping

The following table provides a summarised view of the job role mapping process for an Earthmoving Plant Operator (Persona 2) transitioning into the construction industry. Based on the top five construction job roles with the greatest % job fit as reported in Faethm, this table provides additional information to support workers to determine the pathway options and job roles best suited for them.

Mining job role	Construction job roles	FTE <sup>1</sup>	Projected growth <sup>2</sup>	Core competency gaps <sup>3</sup> (based on relevant qualifications and core units of competency)	Key similarities in the work environment <sup>2</sup>	Key differences in the work environment <sup>2</sup>	Weekly salary <sup>2</sup> (compared to \$1,491)
Earthmoving Plant Operators	Earthmoving Plant Operators	177	Stable	N/A	Outdoors exposed to weather; Wear protective/safety equipment; Using hands to handle, control or feel; In an open or enclosed vehicle or equipment; Teamwork; Health and safety of others; Dangerous equipment	Job contextualisation, including terminology, processes, procedures and licensing requirements	\$1,491
	Office Managers	918	Moderate	<b>2 core skill gaps:</b> Environmental heritage and sustainability; Customer Service	Teamwork; Contact with people; Unstructured work; Being exact or accurate	Leading or coordinate a team; Dealing with business; Less practical/hands on; Indoors rather than outdoors; Helping others; Spend time sitting; Frequent decision making	\$1,490
	Electronics Trades Workers	114	Stable	<b>2 core skill gaps:</b> Environmental heritage and sustainability; Computer applications, hardware and software	Wear protective/safety equipment; Using hands to control, handle or feel; Health and safety of others; Teamwork, Practical and hands-on, Unstructured work; Exposure to contaminants	Indoors, heat controlled; Lead and coordinate a team; Frequent decision making; Not working in an open or enclosed vehicle	\$1,348
	Electrical Engineering Draftpersons and Technicians	47	Stable	<b>1 core skill gaps:</b> Environmental heritage and sustainability	Practical and hands-on; Teamwork; Wear protective/safety equipment; Using hands to handle, control or feel; Health and safety of others	Indoors, heat controlled; Lead or coordinate a team; Frequent decision making; Time pressure; Spend time sitting	\$1,784
	Plumbers	337	Moderate	<b>2 core skill gaps:</b> Gas appliances and ventilation; Welding, reinforcing, cutting and bending metals	Practical and hands-on; Using hands to control, handle or feel; Wear protective gear and safety equipment; Outdoors exposed to weather; Dangerous equipment; Exposure to contaminants	Minor burns, cuts, bites or stings; Time pressure; Cramped work space; Spend time standing; Frequent decision making; Indoors not heat controlled	\$1,894

1 Regional data sourced from Faethm ([www.app.faethm.ai/login](http://www.app.faethm.ai/login))

2 Data sourced from the Australian Government National Skills Commission ([www.joboutlook.gov.au](http://www.joboutlook.gov.au))

3 Data sourced from the National Training System ([www.training.gov.au](http://www.training.gov.au))

# Persona 3: Job role mapping

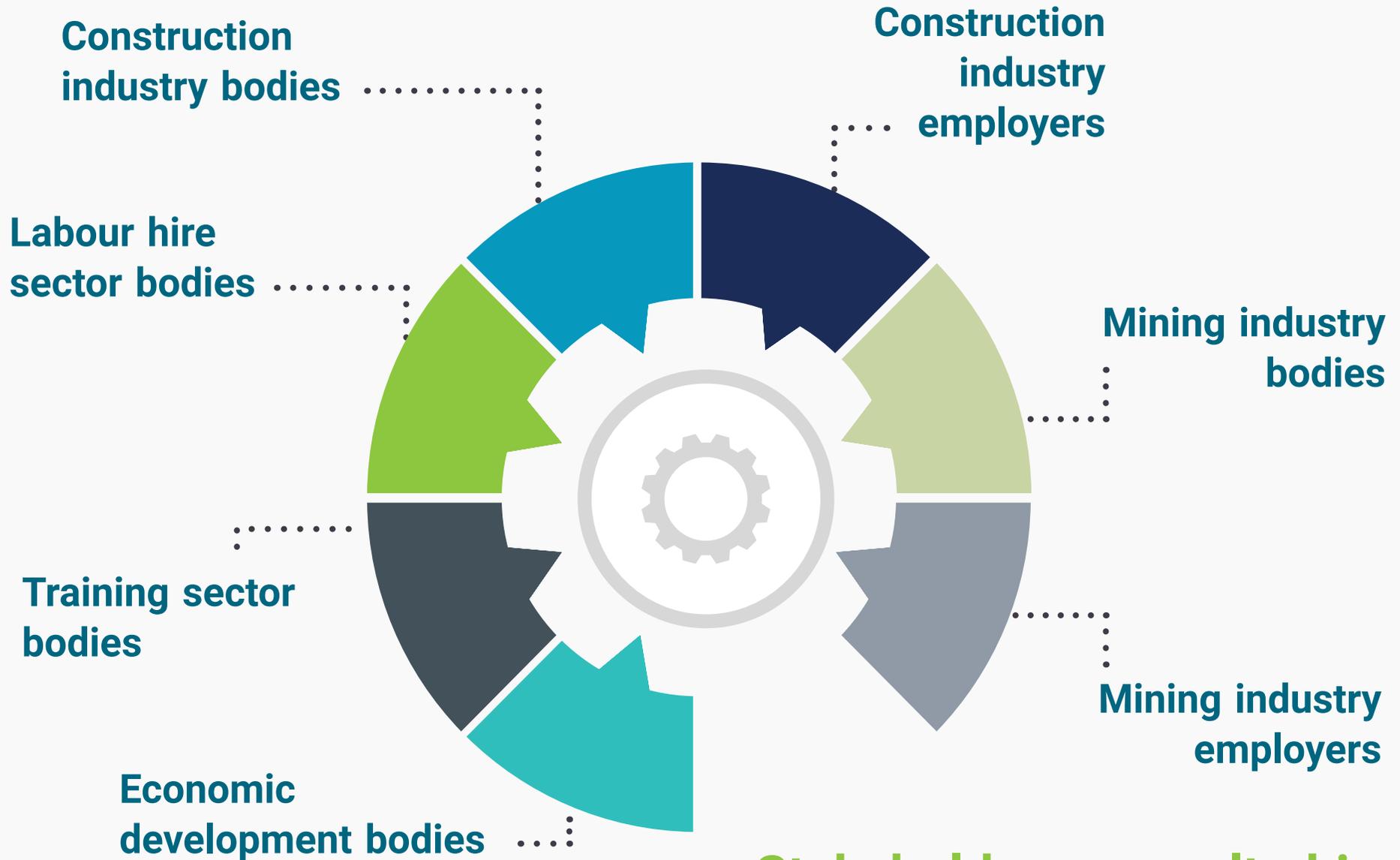
The following table provides a summarised view of the job role mapping process for a Production Manager (Persona 3) transitioning into the construction industry. Based on the top five construction job roles with the greatest % job fit as reported in Faethm, this table provides additional information to support workers to determine the pathway options and job roles best suited for them.

Mining job role	Construction job roles	FTE <sup>1</sup>	Projected growth <sup>2</sup>	Core competency gaps <sup>3</sup> (based on relevant qualifications and core units of competency)	Key similarities in the work environment <sup>2</sup>	Key differences in the work environment <sup>2</sup>	Weekly salary <sup>2</sup> (compared to \$2,258)
Production Manager	Office Managers	918	Moderate	<b>1 core skill gaps:</b> Customer service	Helping others; Teamwork; Lead or coordinate a team; Frequent decision making, Indoors, heat controlled; Conflict situations; Time pressure	Spend time sitting; Not required to wear protective/safety equipment; Not exposed to loud or uncomfortable sounds	\$1,490
	Construction Managers	333	Strong	<b>1 core skill gaps:</b> Technical drawings and plans	Team work, Indoors, heat controlled; Time pressure; Wear protective/safety equipment; Lead or coordinate a team; Conflict situations; Frequent decision making; Health and safety of others	Practical and hands-on, Not exposed to loud or uncomfortable sounds	\$3,450
	Civil Engineering Professionals	163	Very Strong	Civil Engineering Professionals require at least a <b>Bachelor's Degree in Civil Engineering</b>	Teamwork; Indoors, heat controlled; Time pressure; Frequent decision making; Lead or coordinate a team	Practical and hands-on; Serious consequences for error; Spend time sitting; Outdoors exposed to weather; Working in an enclosed vehicle or equipment	\$1,962
	Electrical Engineering Draftspersons and Technicians	47	Stable	<b>1 core skill gaps:</b> Measurements, Calculations and Assessments	Teamwork; Indoors, heat controlled; Lead or coordinate a team; Time pressure; Wear protective/safety equipment; Health and safety of others; Frequent decision making	Practical and hands-on, Using hands to control, handle or feel; Repeating same tasks; Spend time sitting	\$1,784
	Human Resource Managers	219	Very Strong	<b>3 core skill gaps:</b> Provide on-the-job training and support; Recruitment and onboarding; HR functions and processes	Indoors, heat controlled; Teamwork; Frequent decision making; Lead or coordinate a team; Time pressure; Health and safety of others	Spend time sitting; Not required to wear protective/safety equipment	\$2,464

1 Regional data sourced from Faethm ([www.app.faethm.ai/login](http://www.app.faethm.ai/login))

2 Data sourced from the Australian Government National Skills Commission ([www.joboutlook.gov.au](http://www.joboutlook.gov.au))

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**Stakeholders consulted in the development of this report**

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