VSC Victorian Skills Commissioner

Skills Demand Snapshot

Victoria's Civil Sector

March 2020

This document provides a snapshot of skills demand for the civil sector in Victoria. For the purposes of this snapshot, the civil sector includes businesses engaged in land development and site preparation activities as well as the construction and maintenance of roads, bridges, airports, train stations and water and gas supply systems.

VICTORIA
State Government

Prepared by the Office of the Victorian Skills Commissioner for the Minister for Training and Skills, the Hon, Gayle Tierney MP.

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Foreword

This document provides a snapshot of skills demand for the civil sector in Victoria. For the purposes of this snapshot, the civil sector includes businesses engaged in land development and site preparation activities as well as the construction and maintenance of roads, bridges, airports, train stations and water and gas supply systems. This profile provides a genuine understanding of the current and future (1-3 year horizon) skills and training requirements of the sector, with a focus on the element of the workforce using VET courses and their career pathways.

The success of this work relied on insights from experienced employers within this sector to provide a sector-wide view of skills requirements and workforce challenges. A total of nine people across eight employers, spanning a range of services and market segments, were engaged across two separate meetings to develop this skills profile. At both meetings, insights from public data on the civil sector were presented and validated with participants.

The meetings provided the opportunity for civil employers to input their view of priorities and requirements from the VET system in addressing sector skills issues. This profile can be used by TAFE and training providers to better understand the civil sector's priorities in terms of occupation and skill demand to ensure the supply side responds appropriately to VET opportunities.

The Victorian VET system aims to deliver 'real training for real jobs' by providing up to date training for new challenges in the sector. This report is part of a series of sector profiles which will be developed by the Office of the Victorian Skills Commissioner (OVSC). The set of skills demand snapshots will complement the regional skills demand profiles to provide a richer picture of the skills needs of Victorian employers. Insights from consultations will inform Government in terms of where they should be allocating taxpayers money to sectors which value accredited training. A collaborative effort between government, employers and training providers is required to address these challenges.

This profile represents a summary of the views of consulted employers and sector representatives on the current and future needs of the civil sector. As such, the OVSC has prepared the report with care and diligence, based on information provided through consultations. Information in the profile has not subsequently been independently verified or audited.

This profile can be used by TAFE and training providers to better understand the civil sector's priorities in terms of occupation and skill demand to ensure the supply side responds appropriately to VET opportunities.

Acknowledgements

The OVSC would like to acknowledge the time, contribution and insights of participating employers, John Kilgour, Sonya Casey and Faye Doherty of the Civil Contractors Federation Victoria, and Alison Wall of Major Roads Projects Victoria in supporting this process. The findings in this report would not be possible without their shared knowledge, openness, generosity, expertise and commitment.

Table 1: Participating Employers

Member	Organisation
Simon Fuller	Contek Constructions
Salvatore Valvo	Delcon Civil
Neil Cooper	Fulton Hogan
Cliff Smith	Lance Smith Excavations
Julie Atkinson	Newnham Earthmoving
Ben Noel	Newnham Earthmoving
Laurice Temple	Ripple Affect
Helen Christo	Rokon
Stuart Jacquet	Winslow

Summary

Victoria's civil sector

Approximately **40,000 workers** directly employed in the sector

Above average sector growth over the past 10 years

$20 billion turnover in 2018

Over **$115 billion of civil-related projects** announced

Approximately **4,000 additional workers** required by 2022

Two recommended pathways to employment

Career pathways and training

Note: this diagram outlines the VET qualification pathway. Some civil businesses and workers preference a ticket-based approach to training. Information provided represents standard industry practice. Wages may vary by business and project and can be supplemented by overtime and allowances, with higher rates available on many major projects.

Salary: $120k - $170k+

Superintendent / Area Manager

Experience: 10 + years

Key skills: breadth and depth of civil experience, project management, people management, planning and execution, budgeting, procurement, health and safety focus.

Validated common career and training pathways

Salary: $90k - $130k+

Foreman

Experience: 5 + years

Key skills: civil experience, breadth of civil skills, people management, coordination, health and safety conscious, ability to coordinate work to plans

Salary: $65k - $100k+

Leading hand

Experience: 3-5 + years

Key skills: technical skills and experience in specialist area, leadership, understanding of design documents and drawings, coordination, health and safety planning, communication, problem solving

Salary: $55k - $80k+

Earthworks and plant operation workers

Experience: 1-4 + years

Occupations: plant operator, spotter, dogman, rigger

Salary: $50k - $70k+

Road and drainage workers

Experience: 1-4 + years

Occupations: pipelayer, asphalter

Salary: $50k - $70k+

Concreting and steel workers

Experience: 1-4 + years

Occupations: form workers, concreters, steel drivers

Salary: $55k+

Trades workers

Experience: 4 + years

Occupations: diesel mechanics, electricians, plumbers, carpenters

ON THE JOB TRAINING

Salary: $35k - $60k+

Apprentices

Experience: 0-4 years

Skills: safety focus, physical stamina, versatile, ability to multi-task

Salary: $45k - $70k+

General Labourers

Experience: 0-2 years

Occupations: general labourers, truck drivers, traffic management

Trades workers enter civil from other sector

Recommended training pathway

Enrol in: Certificate III in Civil Construction

Entry level tickets

Such as white card, basic plant operator and traffic management tickets

Other Civil-related courses

There are eight courses across the resources and infrastructure package that are not valued by consulted civil employers. Further assessment is needed to determine the value of these courses to other sectors.

Note: the chart on the previous page shows core entry level roles in the civil sector. Additional opportunities exist for engineers, estimators, surveyors, health, safety, environment and quality advisors, draftsmen, and administration, marketing and sales workers.

Recommendations for VET system

- Victorian Government to request the addition of Civil Construction occupations to the Commonwealth Governments 'Additional Identified Skills Shortage Payment Incentive' (AISS) list.
- Government and Industry collaborate to develop a new skilled pool of labour to the civil sector and TAFEs look to partner with industry and/or existing providers to ensure quality training pathways for new entrants into the civil sector.
- Review the performance of the Major Project Skills Guarantee to assess the likelihood of achieving the additional 500 apprentices in traditional trades required by the civil industry in the forecast'.
- The 22468VIC Course in Civil Construction pathway developed by the OVSC in partnership with CCF and industry is adopted more broadly across the Civil Construction industry, and in particular Major Projects activity as a preferred pathway for new entrants. Workers who transition into a full Certificate III in Civil Construction apprenticeship or traineeship should receive equal credit for prior studies.
- The Victorian Government request via its membership of the Australian Industry Skills Committee (AISC) that a full review of the Civil Construction qualification continuum (inclusive of the Certificate II, III, IV and Diploma) be undertaken.
- For courses not valued by civil employers, assess if the courses are valued by any sector. If not, they may be removed from the funded course list by the Victorian Department of Education and Training.

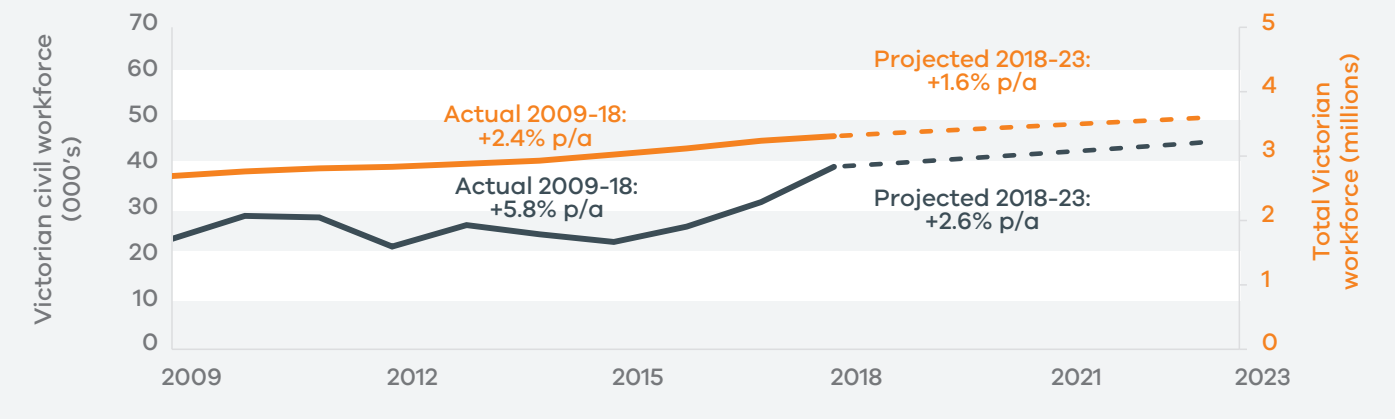
1. Sector overview

Public investment in infrastructure has resulted in high growth in the civil sector over the past 10 years

The civil sector is a segment of the broader construction industry and includes businesses engaged in the construction and maintenance of horizontal infrastructure. Civil work is referred to as horizontal as it is often associated with structures that are longer than they are tall, and includes land development, site preparation activities and construction and maintenance of roads, bridges, airports and train stations. Turnover in the civil sector increased to around $20 billion per year in 2018, with most of it coming from government infrastructure investment of $12 billion[1]. There are around 40,000 workers employed in the civil sector in Victoria.

Analysis of Victoria's heavy and civil engineering construction and land development and site preparation services sectors indicates workforce growth of six per cent per annum over the past 10 years, with more moderate growth of around three per cent per annum projected to 2023 (see Figure 1).

Figure 1: Victorian heavy and civil engineering construction and land development and site preparation services (shown as civil) workforce growth since 2009



Source: ABS Labour Force Survey, 2019.

The civil sector can be segmented into major projects, land development and site preparation, and work with authorities, such as VicRoads, water authorities, airports and councils. More than half of the work in the civil sector comes from major projects, with $115 billion in civil related projects announced or in progress in Victoria[2,3]. Land development and site preparation can be further segmented into residential, commercial and industrial, and the sector has seen strong demand for residential work in recent years.

The organisational structure is highly dependent on the size of the business

There are currently around 2,500 civil businesses operating in Victoria. The organisational structure used is highly dependent on the type and size of the operation. These businesses can be segmented into tiers, and Figure 2 shows the basic structure common for Tier 1 and 2 businesses that compete for major project contracts.

Civil sector workers often operate in crews of 6-12 led by a leading hand, although crew size adapts to the nature of the work at hand. Management layers beyond the leading hand level are influenced by business size and individual project needs. Generally, crews are supervised by a Foreman, who may oversee three to four crews at a time. The standard management roles above the foreman are superintendents, area managers and project managers.

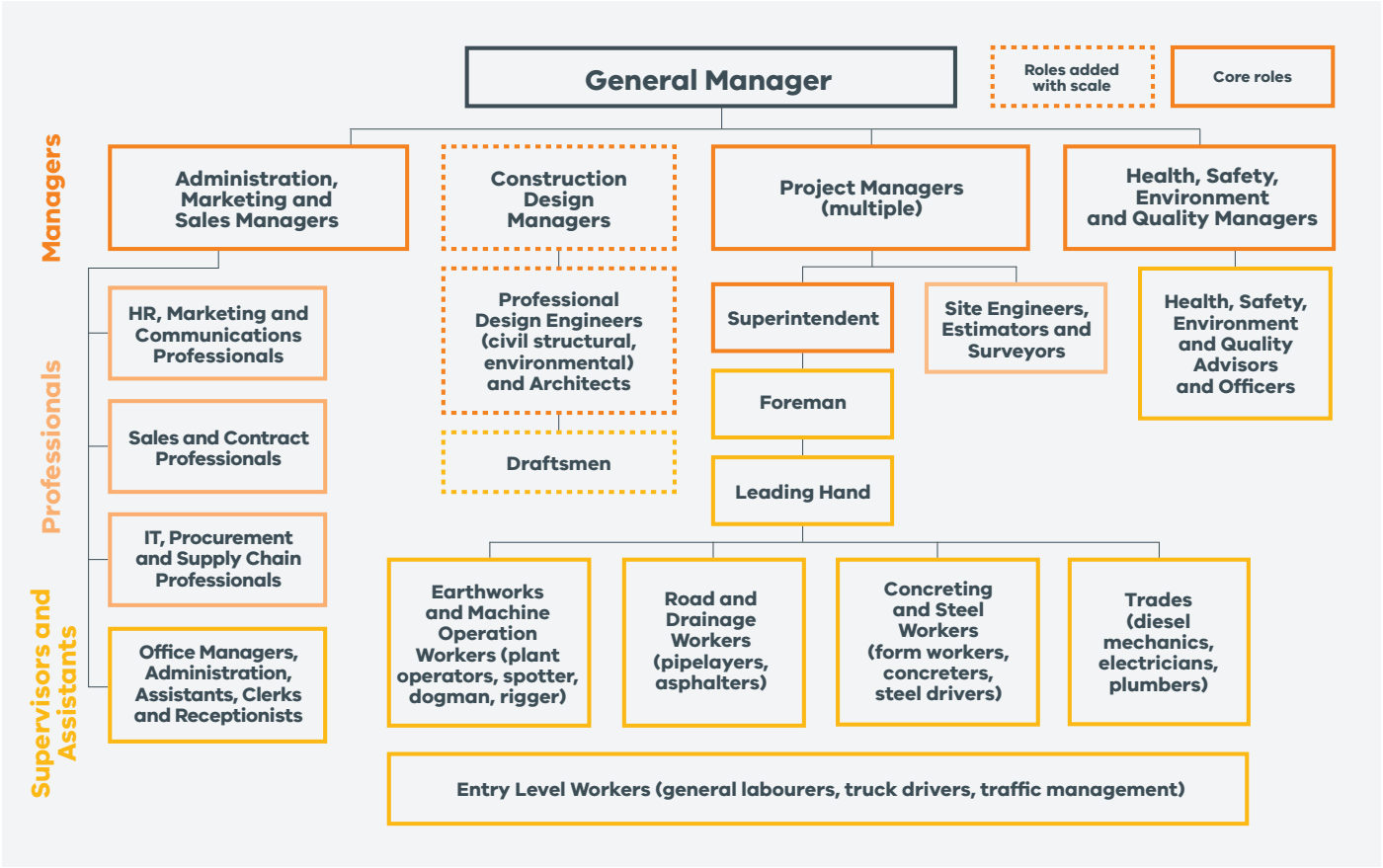
The degree of outsourcing varies among civil businesses. Tier 1 businesses generally outsource labour below the foreman level and have in-house design capabilities. Lower tier businesses outsource their design needs and can supplement their workforce with consultants, subcontractors and labour hire workers depending on the size and complexity of current work demands. Over 90 per cent of civil businesses employ less than 20 people, most of which are consulting, subcontract and labour hire providers that offer workers or expertise into components of the structure in Figure 2. There are also small and medium sized businesses that generally don't use outsourcing and provide the workforce required to complete small-scale projects or discrete parts of larger projects.

[1] Government infrastructure investment, Department of Treasury and Finance, 2019

[2] Victoria's Big Build, 2019

[3] Major Road Projects Victoria, 2019

Figure 2: Indicative civil business organisational structure

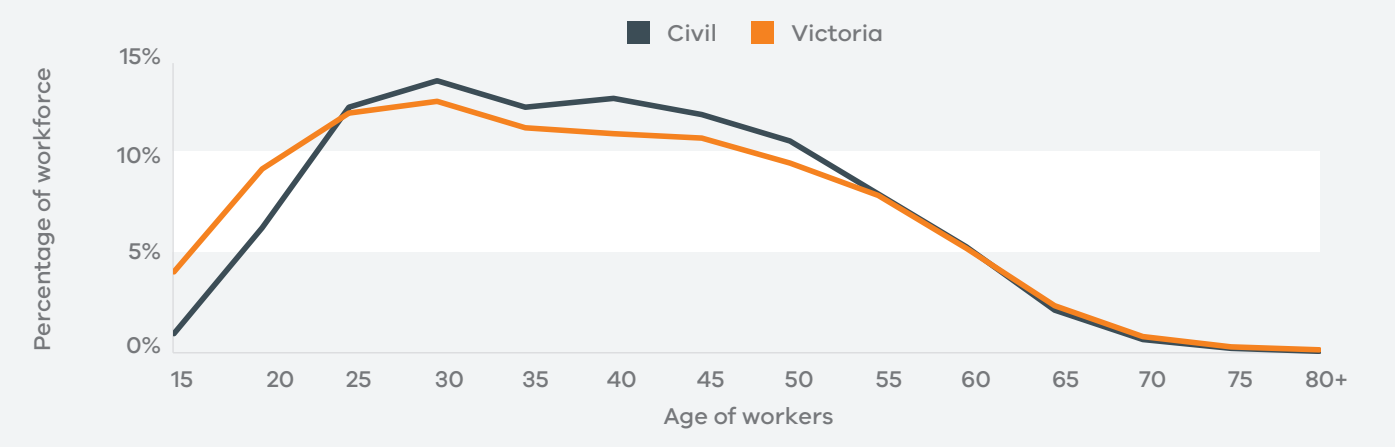


The mix of workers required for civil work is also highly dependent on the type of project and the size of the business. As shown in Figure 2, skilled occupations can be segmented into the workstreams of earthworks and machine operation, road and drainage, concreting and steel, and trades. The balance of workers across the workstreams will vary with individual project requirements. Workers in firms that complete small-scale projects regularly work across these segments, while workers in larger organisations are more likely to specialise.

The workforce is concentrated around metropolitan areas and some businesses face aging workforce issues

The civil sector employs around 40,000 workers in Victoria. The workforce is slightly older than the Victorian average, with a high percentage of workers between 25 and 55 and a median age of 40 to 45 years (see Figure 3). Due to the high-risk nature of major civil projects, most of the sector rely on a workforce with skills and expertise that have been built over many years. Most consulted employers do not face issues with an aging workforce. However, businesses with a high number of plant operators reported some issues due to the older profile of the occupation.

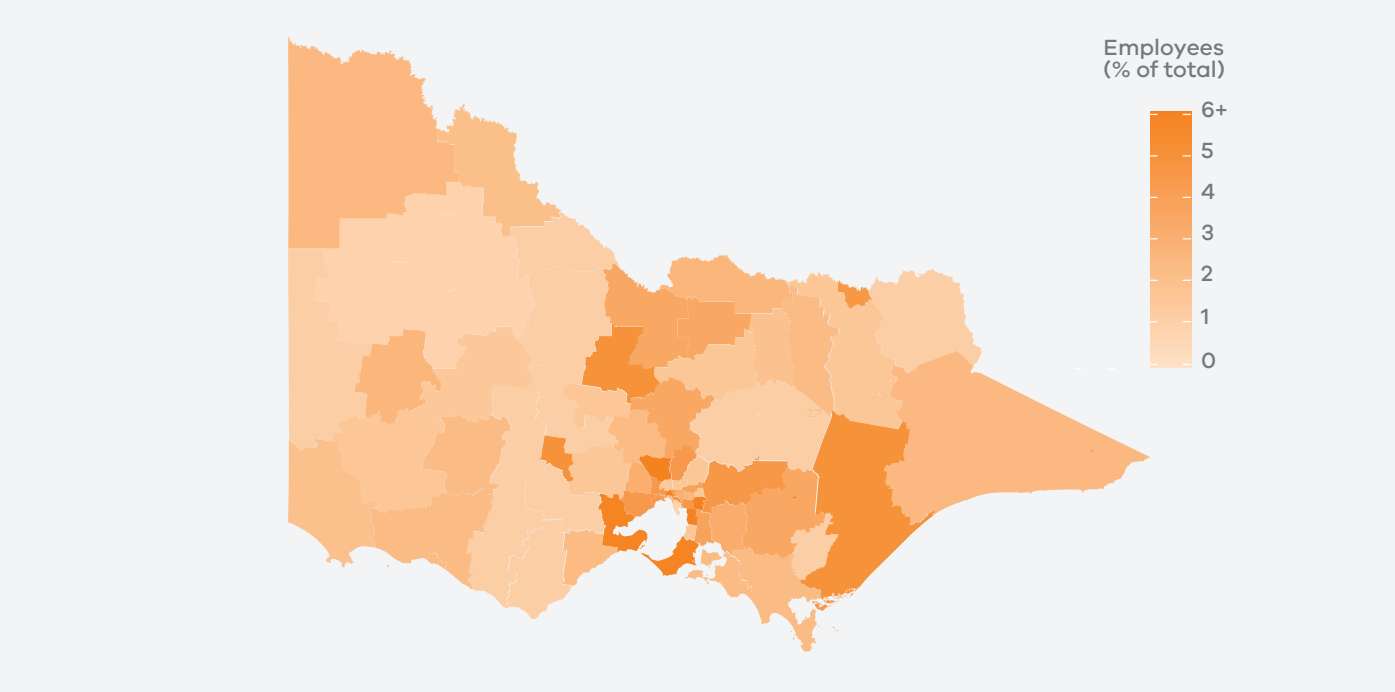
Figure 3: Victorian other heavy and civil engineering construction and land development and site preparation services (shown as civil) workforce age distribution



Source: ABS Census, 2016

The civil workforce is concentrated around metropolitan areas, as population is a driver of civil infrastructure complexity and work requirements (see Figure 4). Employers noted several planned or in progress major projects, such as the West Gate Tunnel and the Melbourne Airport Rail Link, are driving a high concentration of work in Melbourne's western and northern suburbs.

Figure 4: Geographical other heavy and civil engineering construction and land development and site preparation services workforce distribution



Source: ABS Census, 2016

2. Sector outlook and workforce implications

Recommendations for the VET system:

1. Victorian Government to request the addition of Civil Construction occupations to the Commonwealth Governments 'Additional Identified Skills Shortage Payment Incentive' (AISS) list to enable direct payments to Apprentices and Civil trainees of $1,000 at the 12 month point and $1,000 on completion of their apprenticeship or civil traineeship. The addition of Civil construction occupations to the (AISS) list will also enable employers who can demonstrate that they are increasing their usual apprentice/trainee intake to be eligible for an initial payment of $2,000 at the 12 month point and an additional $2,000 on completion of the apprenticeship/traineeship.
2. Government and Industry collaborate to develop a new skilled pool of labour to the civil sector and TAFEs look to partner with industry and/or existing providers to ensure quality training pathways for new entrants into the civil sector.
3. Review the performance of the Major Project Skills Guarantee to assess the likelihood of achieving the additional 500 apprentices in traditional trades required by the civil industry in the forecast'.

Labour demand has exceeded supply for skilled workers

In the past 5 years, demand for the civil workforce has increased with demand for residential land development and public infrastructure investment. Workforce supply has generally kept up with demand for entry level positions, although employers have reported difficulty sourcing skilled pipelayers, diesel mechanics, plant operators and project management.

Businesses can meet their demand for entry level workers, such as general labourers, truck drivers, and traffic management. It's noted that while the current shortfalls are for skilled workers and managers, they largely need to be addressed through the development and retention of less experienced workers.

Businesses cannot meet their demand for pipelayers, diesel mechanics and highly skilled plant operators. Comparatively few entry level workers will choose to specialise in pipelaying as Enterprise Bargaining Agreements (EBAs) and the Building and Construction General On-Site Award incentivise higher paying alternatives that involve less physical work. Diesel mechanics used in civil have typically completed their apprenticeship in other sectors, with employers agreeing that the occupation is difficult to source. Industry highly value capable and experienced operators of heavy and complex plant, particularly on major projects. While businesses can source workers with the tickets required to operate plant, finding these experienced operators proves more difficult. Employers need to provide opportunities for new entrants to gain experience and invest in training and upskilling to address this shortage.

Experienced leadership and project management can also prove difficult to source. This is particularly true for residential subdivision and smaller businesses, as project managers that have come from large organisations are often used to a level of delegation that is not feasible at a smaller scale. Many good leaders are also attracted to the higher pay rates available from Tier 1 businesses, further restricting the pool of labour for smaller organisations.

Employers noted workers frequently move for higher pay and can struggle to adapt to the demanding lifestyle, leading to retention issues in the sector. Civil work is tough and isn't for everyone, with early mornings, six-day weeks, long shifts, physical work and working away from home the norm in many organisations.

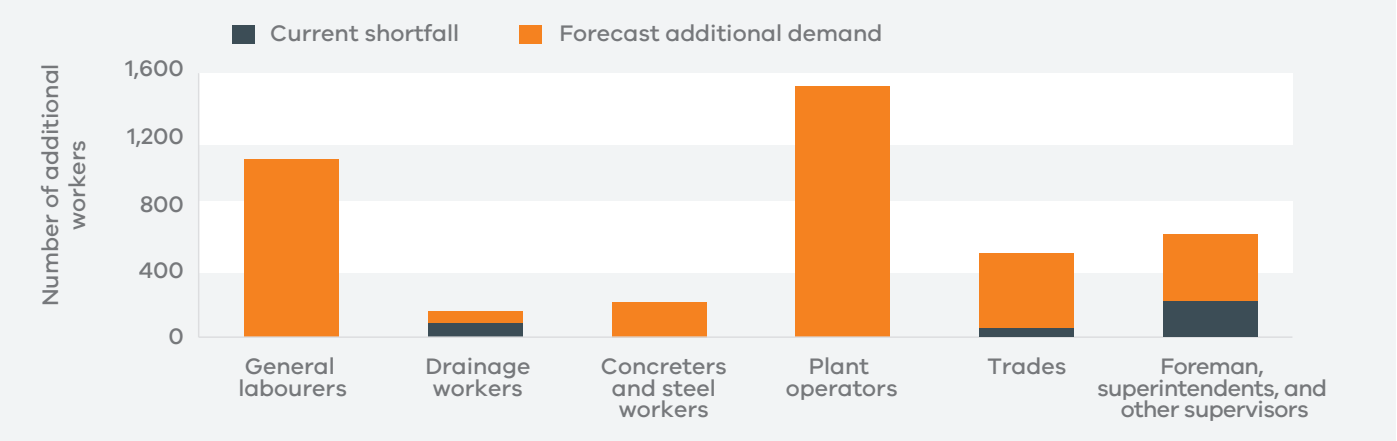
On forecast growth the sector needs an additional 4,000 workers to 2022

Major infrastructure projects and population growth are expected to increase demand for skilled workers over the next three years. Anticipated workforce growth of three per cent per year will result in an estimated 4,000 additional workers being needed by 2022 (See Figure 5 overleaf for breakdown). This includes a current shortfall of around 350 workers, comprised of pipelayers, diesel mechanics and supervisory and project management roles. Demand for workers beyond 2022 is likely to continue to be strong based on the current pipeline of work, which includes the scheduled construction of the airport rail link. Given the outlook and demand profile, employers that are sourcing experienced workers from the existing labour pool will face labour and skills shortages.

It is critical that government and industry work together now to support the training and skilling requirements necessary to meet future demand. An approach by the civil sector which is reliant on sourcing skilled and new labour requirements from the existing available labour pool will at some juncture, reach a tipping point. There is a need for the civil sector to invest in a concerted workforce development plan to train new workers in the skilled and trade qualified occupations required to meet future anticipated project demand. Without this, a diminishing pool of qualified and experienced civil workers will likely lead to cries of skills and labour shortages across the sector. Equally, opportunities for new entrants, particularly young people will be missed.

Plant operators and general labourers with civil related skills (See Figure 2 above for roles) make up the greatest share of future workforce demand. However, there is also an estimated demand for approximately 500 workers from traditional trades that require completion of an apprenticeship. Diesel mechanics to maintain plant and carpenters to support form work are likely to be in greatest demand, with employers identifying an estimated current shortfall of around 45 diesel mechanics. Carpenters, plumbers and electricians are also in demand. While the historical model has been to source traditional trades from other sectors, increased demand will likely require more civil businesses and their subcontractors to offer increased apprenticeship opportunities for the traditional trades required in the civil sector.

Figure 5: Estimated demand for key entry level roles by 2022



Note: forecasts don't include replacement of the current workforce due to turnover.

Civil sector businesses value skills developed on the job

The civil sector relies on workers with skills developed over many years. Employers widely value reliable and experienced workers with a safety focus and the stamina to work the hours required by the sector. Project management skills for major projects are also in high demand.

Tickets are a requirement to perform certain work in the sector and a minimum standard to safely operate on site. All workers must complete an induction to the industry to obtain a white card. Employers agreed that attainment of tickets needs to be in addition to experience, and that holding a ticket is not enough to verify that a worker is competent to perform the work. To develop this experience and ensure completion of relevant and valuable tickets, businesses encouraged workers to engage with employers during the education process. Verification of competency deems workers competent to perform certain tasks and operate certain plant or equipment and is required for most tickets on a 12 month basis. There are prerequisites and limitations on some tickets, such as operator and high-risk work tickets requiring a minimum age of 18.

The key skills and requirements for the common roles of general labourer and plant operator, as well as the in-demand occupation of pipelayer, are outlined in Table 2 below. All civil workers need to safely perform their role, work within timeframes and commit to the often long hours and physical work. In some smaller businesses, workers will also need to be versatile and multi-skilled to perform a range of duties. General labourers often work with tools and complete a wide range of manual tasks. Many general labourers also operate basic plant, such as forklifts, trucks and rollers. Pipelayers require more specialist skills, including understanding ground conditions and plans. The skill requirements for plant operators are largely dependent on the type of plant they operate. Businesses most value experience and competency, although new and entry level workers need opportunity and training to become highly skilled. There is also strong demand for heavy rigid truck licenses and highly adaptable plant operators. Employers advised over 90 per cent of plant operators hold four or more tickets.

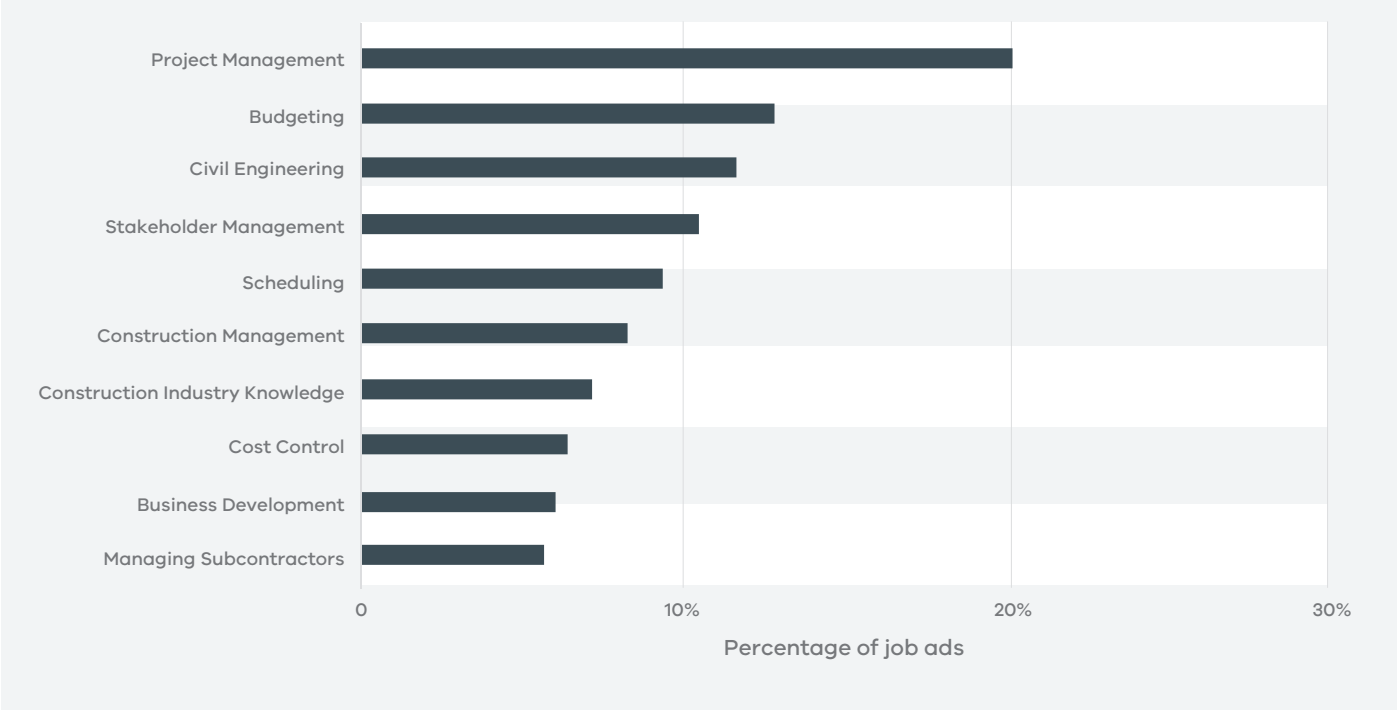
Table 2: Key skills identified by employers

	General labourer	Plant operator	Pipelayer
Key skills	• Digging, trenching and levelling • Pit installation • Manual loading and lifting • Hand and power tools • Forklift, truck and roller operation	• Reliable and keen to learn • Experience and competency operating the plant required • Commitment to equipment maintenance	• Understand ground conditions • Understand and interpret plans • Lay sewer / stormwater pipes • Digging and trenching • Set levels and gradients
Common tickets and requirements*	• White card • Driver's license and own transport • May need traffic management tickets and/or forklift, roller and heavy rigid truck licenses	• White card • Driver's license and own transport • Tickets required vary and can include backhoe, bobcat, bulldozer, excavator, front-end loader, skid steer, asphalt paver, compactor, tip truck, roller and grader.	• White card • Driver's license and own transport • Tickets required vary and can include confined space and excavator tickets.

**Requirements can vary by task, role, project and employer/authority.*

Figure 6 shows the most commonly advertised specialist skills in civil job advertisements.

Figure 6: Most common skills identified in Melbourne civil job advertisements



Source: Nous analysis of data from Burning Glass job advertisements

Most of the top ten skills align to management roles for Tier 1 businesses and major projects, including project and construction management, budgeting and cost control, and managing subcontractors. Employers noted that entry level and skilled staff are often sought through networks and referrals, reducing the quantity of public job advertisements for these roles.

Safety, productivity and regulation trends are driving new innovations and skills needs in some occupations

Employers identified several emerging trends for the civil sector based on safety and productivity. Technology is experiencing increased adoption due to its ability to reduce risk and improve productivity of labour. Similarly, innovation in plant and attachments is increasing demand for multi-skilled and experienced plant operators, as their use becomes more common.

Technology trends include GPS technology, drone technology and autonomous plant have had varying levels of adoption. GPS is valued by the sector for its accuracy and cost effectiveness, and can be used in conjunction with screens, plant and other equipment to determine grade, pile position and structure placement. Drone technology is increasingly prevalent in the civil sector, and is targeted over time to reduce the need for workers to operate in confined spaces or perform dangerous activities, such as sewer inspection work. Drone operation is becoming a required skill for many surveyors.

Skilled and entry level workers are also increasingly using technology to perform their duties. For example, diesel mechanics frequently use computers for diagnostic purposes. Looking further forward, over the next five years Tier 1 and 2 businesses in Victoria are likely to lead autonomous plant adoption in Victoria.

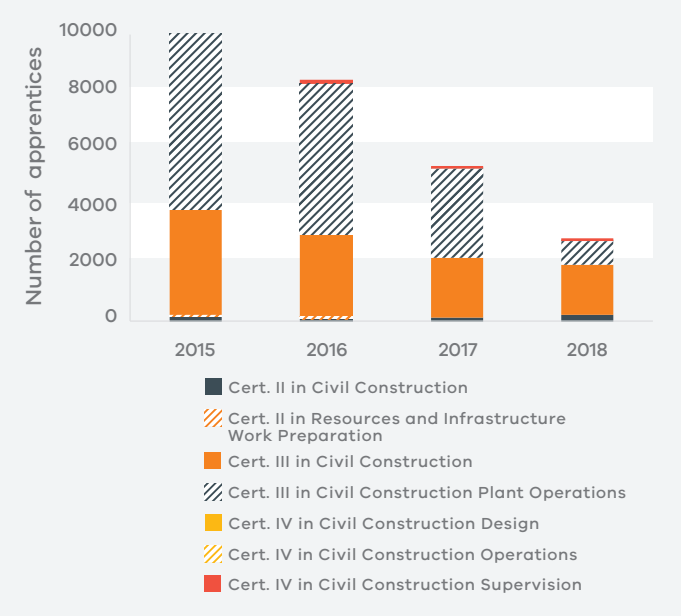
In addition, employers noted that plant operators are increasingly required to be multi-skilled and select, fit and work with different attachments. Attachments can make plant multi-purposed, and include buckets, winches, scoops, blades and rock breaking hammers.

Procurement and enterprise bargaining practices incentivise different employment practices

Procurement and enterprise bargaining practices are reshaping the way employers hire, employ and train their workers. Tickets and labour hire were identified as increasingly standard practice to meet labour needs.

Data on qualification enrolments in Figure 7 show that despite an increase in the civil workforce of 71 per cent between 2015 and 2018, training enrolments have declined by 73 per cent. Employers noted that this is likely due to increased use of labour hire and EBAs with financial incentives for completing ticket-based work rather than qualifications, mainly to cover the work on major projects.

Figure 7: Resources and Infrastructure Industry VET qualification enrolments

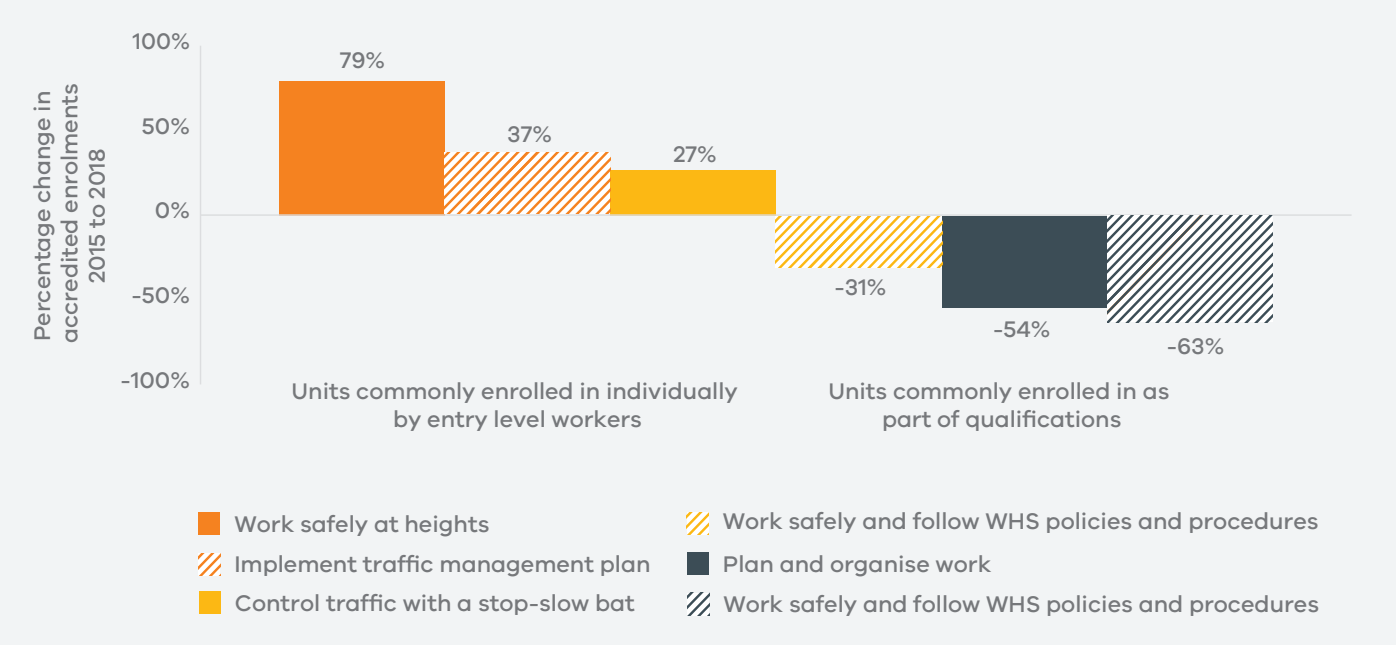


Source: NCVER, Government funded students and courses, 2018

Employers noted that while labour hire is not conducive to employing apprentices and trainees, they expect its use to increase over the coming years as businesses pursue workforce flexibility. This is likely to contribute to increased casualisation and further reductions in the number of apprentices. The continued preference of some businesses to use labour hire rather than develop the skills of their own workforce increases dependence on sub-contractors and competitors for skilled labour, a practice that may intensify skills shortages.

There are also notable trends in unit enrolments within nationally recognised qualifications. Units of competency (units) can be completed individually as short courses or as part of qualifications and are the smallest unit that can be assessed and recognised. Between 2015 and 2018 total civil related unit enrolments have declined 30 per cent. However, units that directly relate to an individual's ability to work and have a clear line of sight to a job have increased by as much as 79 per cent. Figure 8 highlights the wide variation at the individual unit level. This reflects the shift in the industry towards tickets rather than qualifications to meet technical skill needs.

Figure 8: Change in unit of competency enrolments from accredited qualifications 2015 to 2018



Source: NCVER, Government funded students and courses, 2018

Employers raised questions as to whether the Victorian Government's Major Projects Skills Guarantee (MPSG) requirements are driving the desired response in industry. The MPSG mandates all projects valued at or over $20 million are required to use Victorian apprentices, trainees or cadets for at least 10 per cent of the total estimated labour hours. Cadetships for university students were reported as the most popular category in the MPSG group, and they are commonly used for safety advisors and white-collar roles rather than areas of skills shortages. Despite the significant growth in major projects, Figure 7 above illustrates that the same opportunities are not necessarily being provided for VET trainees and apprentices.

Employers also reported that many contract holders are pushing the MPSG requirements down to subcontracting firms, as they are included in the 10 per cent total. However, with a more uncertain pipeline of work these small to medium businesses report they find it difficult to invest in apprentices, while some have used group training as an option with varying success.

Large Tier 1 and 2 businesses are the only organisations in the sector with the capacity to bid for major project contracts. Employers noted that these businesses have the capacity to pay a premium for labour and are reluctant to use inexperienced workers on their sites. It was suggested that if the government were to bundle work in smaller packages it would allow smaller local businesses who train their own workers to compete for contracts on major projects. Government could bundle smaller packages directly or promote greater engagement between primary contract holders and other operators. Consulted employers feel that smaller work packages would increase competition, reduce the use of labour hire and increase training in the civil sector. Some small and medium sized employers also noted that increased incentives would help overcome current financial constraints and encourage them to take on more apprentices.

Finally, some employers reported barriers for less experienced workers to gain the experience required to access major project sites, especially plant operators. In order to meet project demand for new workers in the civil sector, more focus needs to be applied to ensuring new entrants can gain appropriate off-site experience to ensure they can enter sites and work safely. Current barriers for new entrants need to be overcome in order to meet labour and skills demand for the civil sector going forward.

3. The role of training

Recommendations for the VET system:

4. The 22468VIC Course in Civil Construction pathway developed by the OVSC in partnership with CCF and industry is adopted more broadly across the Civil Construction industry, and in particular Major Projects activity as a preferred pathway for new entrants. Workers who transition into a full Certificate III in Civil Construction apprenticeship or traineeship should receive equal credit for prior studies.
5. The Victorian Government request via its membership of the Australian Industry Skills Committee (AISC) that a full review of the Civil Construction qualification continuum (inclusive of the Certificate II, III, IV and Diploma) be undertaken. This should include consideration of:
    - the complexities of one qualification purporting to represent the training requirements of eight industry subsectors and one general apprenticeship stream
    - training delivered in the context of industry awards, EBAs and regulatory practices
    - the relationship with structured skill sets that support entry and progression within the sector.
6. For courses not valued by civil employers, assess if the courses are valued by any sector. If not, they may be removed from the funded course list by the Victorian Department of Education and Training.

Tickets and on the job experience are the preferred model of training for most civil businesses

There are differences in the way that employers engage with training in the civil sector. Many larger civil businesses value on the job learning supported by the tickets required to complete work requirements, and do not value nationally recognised qualifications. However, some small and medium-sized firms still value the training, cross-skilling and retention of apprentices through to management pathways.

The ticket-based approach to training is used by most civil organisations, including Tier 1 organisations, as formal incentives in the civil sector don't support growth in apprenticeships. Workers enter the sector as a general labourer by completing tickets to build the foundation skill sets that are valuable to employers. The most common option is to obtain a white card (1 day) and basic traffic management and plant operator tickets, such as 'control traffic with a stop slow bat' (1 day) and 'conduct roller operations' (2-3 days). An alternative entry is to acquire the white card and truck (1-2 days) and/or forklift (1-2 days) driving licenses.

After gaining employment and a few months industry experience workers will acquire more tickets to progress, including additional plant operation tickets, a spotter ticket (1 day) and the license to perform dogging (5 days). At this stage, workers e.g. dogmen can be paid more than a third-year apprentice (see Table 3), despite only undertaking around 10 days of training in as little as 6-12 months. After this, workers can look to acquire further tickets to increase pay and specialise in an area of interest, such as plant operation, pipelaying, asphalting or concreting.

Table 3 sets out the base hourly rates in the Building and Construction General On-Site Award. Noting that many workers are paid above award and receive special rates, penalties, overtime and allowances, the rates are indicative of the challenges outlined above.

Table 3: Hourly pay rates in the Building and Construction General On-Site Award

Occupation	Time in sector	Training requirements	Hourly pay
Civil construction apprentice 	1st year	**White card, Certificate III in Civil Construction**	$14.28
	2nd year	**White card, Certificate III in Civil Construction**	$18.86
	3rd year	**White card, Certificate III in Civil Construction**	$22.29
General labourer 	0 - 6 months+	**Common option 1: white card, basic traffic management and plant operation tickets (e.g. control traffic with a stop slow bat, conduct roller operations)** **Common option 2: white card, truck license, forklift license**	$21.53+
Dogman 	6 - 12 months+	**General labourer tickets (above), additional plant operation tickets (e.g. front-end loader, skid steer, tip truck), spotter ticket, license to perform dogging**	$23.74

Source: Building and Construction General On-site Award [MA000020], Fair Work Ombudsmen

Note: special rates, penalties, overtime and allowances are not included in the above figures.

The Office of the Victorian Skills Commissioner has previously considered the Civil Construction industries preference for workers to obtain individual Units of Competency or Skill Sets to meet High Risk licensing and WorkSafe site management requirements. The development, piloting and subsequent funding of 22468VIC Course in Civil Construction Pathway in partnership with CCF seeks to address industries immediate training requirements. It is designed to assist inexperienced worker develop the skills and knowledge to go on site and provide a common pathway for new entrants into the sector. Equal credit towards the full Certificate III in Civil Construction in either the general Apprenticeship or multiple traineeship modes is available for workers who wish to take the next step in their training to broaden their range of skills.

Apprenticeships and traineeships are not highly valued by these organisations outside roles that require qualifications or specialist skills to meet licensing requirements, such as diesel mechanics, plumbers and electricians. As qualifications are not commonly used for the roles that comprise the bulk of the entry level workforce, such as track labour and traffic protection, there may be challenges achieving MPSG objectives in the civil sector. Some large organisations using the ticket-based training approach pay higher rates to attract workers that are already skilled, leaving the training of new and entry level workers to other businesses in the sector. This worsens current and future skills shortages, with greater commitment to training and upskilling required to address the issue.

In contrast, many small to medium employers value apprenticeships as the preferred model to employ, train and retain new workers. Regional businesses are also more likely to take on apprentices, with Victorian regional areas making up 39 per cent of enrolments in the Certificate III in Civil Construction between 2015 and 2018, while they constitute 34 per cent of the workforce[4][5]. One regional employer using this approach noted that over 20 per cent of their workforce are apprentices. These organisations typically require cross-functional staff to complete a wide range of duties to meet current work requirements and do not perform work on major projects. These businesses will often employ new workers as general labourers to assess suitability for long-term employment before enrolling them in an apprenticeship.

Once skilled, there are opportunities for workers to progress into leadership roles regardless of the training model adopted. The transition from entry level worker to leading hand can take around three to five years as workers complete training and build confidence, experience and leadership skills. Rather than progress into leadership, many plant operators choose to purchase their own plant and start their own contracting business. Supervisor and manager roles beyond this point are highly dependent on the employer, with progression from foreman to superintendent or area manager roles the next step in many businesses. Most trades workers will be used on an ad hoc basis by employers, and there are limited entry level pathways for these workers within the sector. Consulted employers generally do not value post-trade qualifications as a form of upskilling. Civil businesses also provide custom and in-house training for their workers, which does not appear in VET training data.

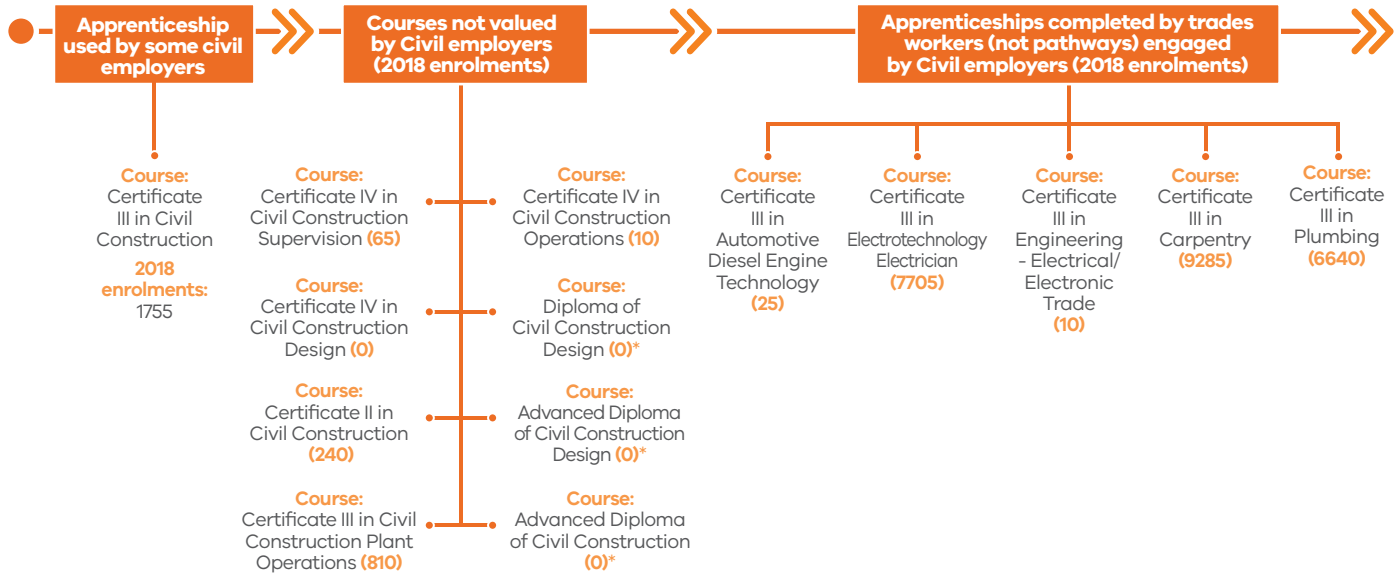
Finally, a high proportion of civil training is through private training providers. Between 2015 and 2018, 87 per cent of civil-related program enrolments in Victoria were through private training providers, while the figure for non-civil programs is only 56 per cent.

[4] Census 2016, ABS
[5] VOCSTATS, NCVER, 2018

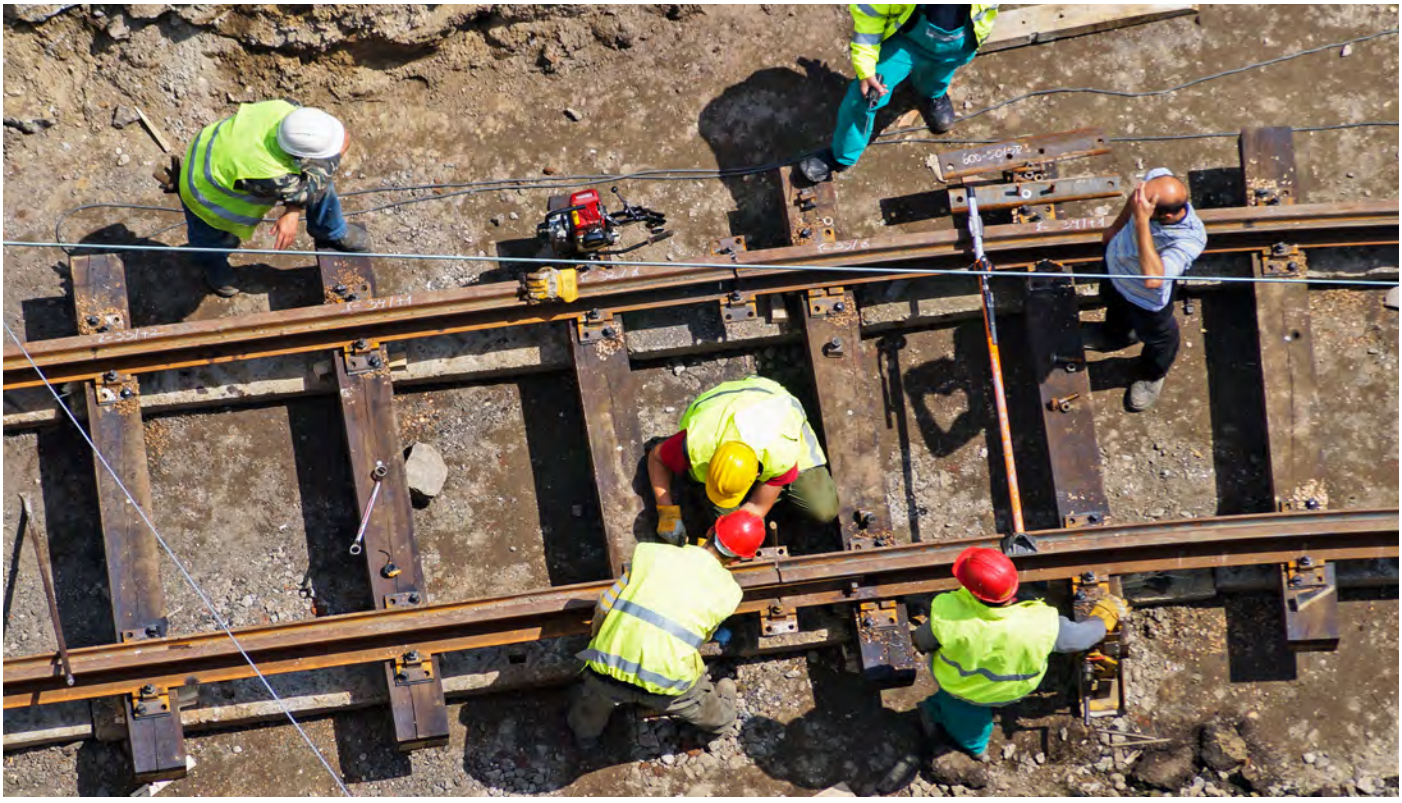
One qualification is used and valued by a segment of employers in the civil sector

Employers generally don't seek candidates that have completed civil-related accredited courses, instead seeking appropriate tickets and skill sets. However, the Certificate III in Civil Construction is valued by some small and medium employers. Trades workers in civil may hold qualifications not specific to the sector, such as the Certificate III in Automotive Diesel Engine Technology, Certificate III in Carpentry and Certificate III in Plumbing. However, these qualifications are generally obtained in other sectors. There are eight other courses on the funded course list that are not valued by consulted employers, three of which have had zero enrolments between 2015 and 2018.

Figure 9: Civil-related VET courses on the funded course list (Total VET Activity)



** Courses with zero enrolments between 2015-18*



There are opportunities to optimise course offerings and training delivery in the civil sector

The quality and uptake of VET training in the civil sector could increase with adjustments to training and delivery. Some businesses noted the opportunity to better align the Certificate III in Civil Construction to the needs of the sector and lift completions of the qualification. However, supply-side solutions will not work without greater employer commitment to training and upskilling. As businesses working on major projects use the ticket-based approach to training, there is also value in clearly outlining the skill set and ticket requirements of the civil sector.

Several employers noted that the quality and frequency of training and assessment of competency in the sector has been in gradual decline. In the past, training providers would closely collaborate with workers in the field and go through training materials one-on-one. One employer noted that trainers previously visited for a day a month, and now only irregularly visit around once per quarter. In addition, there is less assessment of competency and the service offered is more transactional, with workers often required to complete materials independently.

The complexity of the Certificate III in Civil Construction presents another significant barrier to take up. Specifically, employers highlighted the challenges in navigating the qualification which covers eight industry sub sectors and associated traineeships and one general apprenticeship stream. Further the maximum duration for the eight Traineeships and one Apprenticeship are the same at 36 months. Employers noted there is potential for the Certificate to be a valuable qualification pathway for civil workers. However, changes are required. As the key qualification in the sector, the Certificate should more closely align to industry needs. Addressing these concerns will require a full review of the Civil Construction qualification continuum (inclusive of the Certificate II, III, IV and Diploma) to be undertaken. The civil sector should come together to agree on a small number of training pathways they support. This would provide greater clarity for new entrants and scale for training organisations subject to a clear commitment by employers to increase skill development.

There is also an opportunity to consider the relationship between the Certificate III in Civil Construction and the award or EBAs. Currently, the rewards for completing individual tickets are higher than for the Certificate III in Civil Construction, making it difficult for employers to attract and retain apprentices. Some employers suggested that adjustments to incentives, including in the EBAs and the Award, would likely lead to increased use of the Certificate and overall training in the sector.

Other VET offerings to the sector can also be optimised. There are eight courses in the resources and infrastructure training package on the funded course list that are not valued by consulted civil employers, although further assessment is needed to determine their value to other sectors. Some employers also noted the lack of clear training requirements for pipelayers, and that a more tailored training pathway could be in place for the occupation.

Finally, ticket-based pathways and training guidelines for occupations in the civil sector are not clearly articulated. As most of the sector use this approach to training, outlining the skill sets and tickets required to enter the sector and progress through each occupation and pathway is of value for both workers and employers. These could take the form of matrices, such as the Australasian Railway Association's Railway Industry Worker matrices that are standardised requirements that have been agreed by major rail operators in the National Rail Industry Worker Governance Committee (NRIWGC).

There are eight courses in the resources and infrastructure training package on the funded course list that are not valued by consulted civil employers, although further assessment is needed to determine their value to other sectors.

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