



# BUILDING A FUTURE-READY INFRASTRUCTURE WORKFORCE

William Phillips



# Acknowledgement of Country

Roads Australia acknowledges Aboriginal and Torres Strait Islanders as the Traditional Owners and Custodians of this land and waterways.

We acknowledge and pay respect to their ancestors and Elders both past and present.

Roads Australia is committed to reconciliation amongst all Australians.

# About Roads Australia (RA)

In the context of a \$230 billion pipeline, Australia's infrastructure sector is facing a crisis if it continues to overlook workforce development and resilience. Supporting this challenge calls for collaboration across the sector to ensure workforce development is aligned with, and informs, national infrastructure planning while complementing the work already underway through initiatives such as BuildSkills Australia.

As the peak body for roads within an integrated transport system, Roads Australia unites government, industry, and community stakeholders to shape the future of the country's transport and mobility networks. Its membership spans the full delivery chain, including federal and state transport agencies, road owners, major contractors, consultants, material suppliers, service providers and technology firms.

Roads Australia is committed to building a safer, more inclusive and future-focused sector: one that delivers tangible economic and social benefits. Its mission is to strengthen people, projects and policy through a connected, sustainable transport network.

While demand in the civil infrastructure sector continues to grow, the industry is struggling to attract, retain and develop early career professionals, especially those under 30-years old. Workers across trade and professional pathways frequently report unclear expectations, poor onboarding, limited access to capable mentors or leaders, environments that lack psychological safety and clear opportunities for growth. These issues are driving attrition, exacerbating skills shortages, and eroding the industry's capacity to develop its next generation of leaders. Left unaddressed, these gaps will undermine the sector's long-term ability to deliver on Australia's infrastructure ambitions.

This report brings together insights from apprentices, graduates, union representatives, executives, and senior industry leaders across the country. It identifies the most urgent challenges facing early career professionals and showcases practical, proven solutions already making a difference in parts of the sector.

These findings offer a clear roadmap for government, industry and contractors to strengthen capability, retain talent and build a workforce ready to lead Australia's infrastructure into the future.



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# Introduction

This report is delivered through Roads Australia's Emerging Leaders Program which recognises, rewards and profiles the transport sector's high performers. The Program provides unique opportunities for young professionals to build sector knowledge, grow their network and supercharge their careers.

The recipient of Roads Australia's annual Emerging Leader Award participates in a 12-month industry ambassadorship, gaining first hand insights into how senior leaders operate, make strategic decisions and influence outcomes. They also contribute to the ongoing development and reach of Roads Australia's Emerging Leaders Program.

In 2024, William Phillips was named the Emerging Leader Award recipient. As a Construction Advisor at BMD Construction Group, William is passionate about driving positive change within industry. Over the past year, he has focused his efforts on one of the industry's most pressing challenges: attracting, retaining, and equipping early career professionals with the tools, structure and guidance needed to thrive.

William began his career as a civil labourer, working on-site and operating machinery before moving into an office-based role. This dual experience has shaped his commitment to improve the experience of young people entering the industry. He is an active member of BMD's Working Inclusion Group, which promotes equitable access to career opportunities and supports BMD's leadership in inclusive workforce practices.

He also leads the not-for-profit Wellness in Infrastructure Young Professional Working Group, which advocates for practical improvements to early career experiences across the sector, guided by a 'fair go' ethos. William has contributed to Roads Australia's Insider magazine, highlighting opportunities to improve entry-level pathways and build long-term workforce capability.

Emerging Leader Award  
Recipient 2024  
William Phillips





As part of his ambassadorship, William led a research project to examine gaps in career development, workplace engagement, and planning for the next generation of infrastructure workers. This report presents his findings and makes recommendations to strengthen industry capacity.

This report does not suggest that infrastructure construction should be “softened” or stripped of its rigour. However, it highlights that to attract more young people the industry needs to be ready to support them. Otherwise, we risk overwhelming new talent before they develop.

The insights presented are intended to be constructive. Many leaders are already driving change across the sector and this report offers an assessment of the current challenges, drawing on perspectives from people across all levels of the industry. Strong teams are grounded in mutual respect, trust, and personal integrity. They give individuals the opportunity to contribute, grow, and be recognised. This does not require lowering expectations, it requires consistency, clarity, and leadership that is both firm and fair.

There is no one-size-fits-all solution. This report presents a practical suite of actions that organisations can adopt, adapt, or set aside depending on their circumstances. This is not a case for making things easier, it is a case for removing unnecessary friction, strengthening interpersonal capability, and creating conditions where high standards can be achieved and sustained.

Mentoring, onboarding, and inclusive leadership are not aspirational extras. They are practical mechanisms that directly influence safety, performance, and retention. Importantly, mentoring does not always require a formal program or significant investment. In many cases, a short check-in, coffee, or taking time to listen and have a conversation can make a difference. While larger initiatives have their place, it is often informal and sincere connection that has the most lasting impact.





# The Infrastructure Workforce Challenge

Australia's infrastructure sector stands at a critical juncture. While significant focus is placed on the size and ambition of the forward pipeline, a more fundamental question remains: who will deliver it?

Major projects cannot succeed without a capable, stable, and future-ready workforce. Without targeted investment in people, even the most well-funded programs risk capacity constraints.

Although many organisations take positive steps to support early career professionals, approaches across the sector can be fragmented, reactive, or disconnected from the lived experience of both site-based and professional roles. Persistent structural challenges, including a national skills shortage, flatlining productivity, and rising delivery costs, continue to place pressure on project outcomes and overall industry sustainability.

Encouragingly, momentum to foster workforce resilience is growing. A wide range of organisations are stepping up to address challenges through practical, people-focused initiatives. Roads Australia's Emerging Leaders Program builds visibility and leadership capability among the next generation, while the Civil Contractors Federation's targeted programs support training, retention, and regional development across the contracting landscape. Groups such as Young IPWEA, Young Engineers Australia, and Engineers Without Borders offer structured exposure and technical upskilling to help young professionals gain capability and confidence.



Other organisations across the industry, including unions, tier-one and -two contractors, training bodies, and not for profits also deliver important work. Many are piloting new onboarding models, building mental health supports into site practice, investing in supervisor training, and trialling innovations in flexible work practices. These efforts represent progress and demonstrate that change is possible.

However, the challenge is to move from isolated success stories to coordinated, scalable and consistent delivery. Many early career professionals are ready to step forward. What they need is structure, clear onboarding, capable supervision, and a culture that values growth, as well as collaboration alongside smarter ways of working. The strength of Australia's infrastructure future will not be defined by capital investment alone, but by how effectively the sector cultivates and retains its people.

The challenges and opportunities identified in this report closely align with the findings from Roads Australia's 2024 Future Leaders' Forum report. The data points to a generation navigating high pressure environments, often impacted by burnout, mental health concerns and a lack of inclusivity. Despite these obstacles, early career professionals are eager to contribute, innovate and help shift workplace behaviour from within.

Roads Australia is committed to hearing and acting on the concerns raised by emerging leaders across the sector. In addition, Roads Australia is working with its member organisations across government and industry to improve diversity and inclusion throughout the transport sector. To drive lasting change, Roads Australia highlights the importance of cross sector collaboration and practical knowledge sharing.



# Research Methodology

To gain a detailed understanding of the experiences and challenges faced by young professionals in the infrastructure sector, a mix of qualitative and quantitative research methods were used, focussing on issues such as mental health, work-life balance, career progression and industry retention. This included:

- **Interviews:** A total of 47 in-depth one-on-one interviews were conducted with professionals spanning a wide array of roles and backgrounds. Participants included both blue- and white-collar workers, ranging from CEOs to apprentice mechanics. By engaging individuals from different career levels and sectors, the interviews uncovered a detailed representation of perspectives on the challenges and opportunities within the industry.
- **Academic Collaboration:** A partnership was established with Professor Luke Downey, a Professor of Psychiatry at Swinburne University in Melbourne. This collaboration provided access to a dataset of 180 individuals aged 19 to 29, offering robust quantitative insights into the mental health and workplace experiences of young professionals within the infrastructure industry. The dataset also allowed for comparative analysis across different demographic and professional groups.
- **Diverse Industry Representation:** Efforts were made to capture a broad spectrum of experiences within the infrastructure sector. The interview pool included individuals from corporate offices, construction sites and mechanical workshops, warranting that the findings represented the realities of professionals working in varied environments and roles.
- **Holistic Perspective:** This mix of firsthand experiences and academic insights highlights both the barriers young professionals face and the opportunities to grow their success. The study aimed to move beyond documenting challenges to uncover actionable strategies that could foster a healthier and more encouraging work environment.



# Interview Insights

The series of in-depth interviews with stakeholders across the civil construction industry including apprentices, labourers, graduates, union representatives, and senior executives has revealed a consistent message: the next generation of workers is not seeking shortcuts or special treatment.

Among site-based workers, particularly apprentices and labourers, onboarding processes were frequently described as procedural rather than purposeful. Safety documentation such as Safe Work Method Statements (SWMS) and Job Hazard Analyses (JHAs), while essential, were described as delivered in a manner that felt disconnected from practical site reality.

There is a broader cultural norm in some workplaces where early questions or expressions of uncertainty can be misinterpreted as a lack of capability. This unspoken pressure often leads early career workers to stay under the radar during their first few weeks. As one participant shared with honesty and humility: “You don’t want to put a red cross on your back.”

This comment is not a criticism of any one individual or organisation, but rather a reflection of a wider workplace dynamic that can discourage early engagement or open curiosity.

What emerged across multiple interviews was the critical role that culture plays in shaping early experiences of young workers. A cohesive, respectful team where individuals feel safe to ask questions, observe best practice and contribute without fear is often the difference between early engagement and early exit. There was a shared view that small, low-cost actions such as a site walk through with a team leader, or regular check ins from a trusted supervisor can have an outsized impact on confidence, safety and development.

**Young professionals are asking for structure, mentorship (someone they can trust and speak to) and visible career pathways that allow them to contribute with purpose and grow with confidence.**



Senior executives participating in the study echoed these insights from an organisational perspective. There was a strong consensus that traditional workforce development models are no longer sufficient to meet the expectations of today's emerging workforce. Key gaps were identified in areas such as communication, emotional intelligence and people management particularly at the frontline and middle management levels.

Leaders advocated for a shift toward horizontal development, broadening early career exposure beyond technical tasks to include project delivery, commercial operations and stakeholder engagement. This approach was seen as important in helping young professionals understand the broader business context and make more informed decisions about their future direction.

Graduates in white-collar roles shared similar reflections. While they appreciate early responsibility and the opportunity to contribute, many described a lack of clarity around role expectations, limited access to senior leadership, and minimal structured feedback. Onboarding processes were described as operational, with little attention paid to broader organisational structure, internal navigation, or long-term development pathways. As one graduate put it, "I understood my tasks, but I didn't know where I fit or where I could go next".

Apprentices consistently called for the Certificate III in Civil Construction to be embedded from the beginning of their employment. More than a credential, it was viewed as a marker of genuine investment in their future. They also expressed a strong preference for practical, site-based learning over theory heavy content and highlighted the importance of having their goals monitored and supported by supervisors.

**In high performing teams, apprentices described a culture in which development plans were tracked, experienced staff provided informal mentoring and opportunities were aligned with individual goals.**



As one apprentice explained, “When an opportunity comes up, they check our goals, and they don’t forget us.”

Union representatives reinforced many of these themes, placing particular emphasis on the importance of psychological safety and inclusive decision making. Key proposals included the appointment of formal mental health representatives on site akin to safety officers and the introduction of confidential feedback mechanisms, such as QR codes, that allow early career workers to raise concerns or contribute to enterprise discussions without fear of repercussion.

Mentorship emerged as the most consistently valued yet inconsistently delivered element of early career development. Participants across all roles described the profound impact of having a mentor who was technically capable and personally invested. The most effective mentors offered informal, regular support, helped to build confidence, provide perspective, and offer direction.

In contrast, assigned mentors with limited engagement were viewed as symbolic rather than impactful. As one executive succinctly observed, “We don’t lose people because they’re not capable, we lose them because no one asked where they wanted to go.”



**Mentorship emerged as the most consistently valued yet inconsistently delivered element of early career development.**



From these interviews, several practical and low-cost recommendations emerged:

- Set goals at onboarding and ensure progress is visible to both line managers and mentors.
- Encourage informal mentoring independent of direct delivery teams, focused on development rather than performance.
- Structure site-based induction practices, including walk throughs and informal peer support for apprentices and labourers.
- Hold face-to-face onboarding sessions that complement digital modules and focus on culture, values and organisational navigation.
- Embed formal mental health representatives within site teams, equipped and empowered to provide support.
- Implement targeted leadership development for frontline managers, with a focus on coaching and people leadership.
- Ensure clear communication during induction regarding role expectations, available support networks and long-term career progression.

These recommendations do not represent a radical overhaul. Rather, they call for the consistent application of practices already proven to be effective across high-performing teams. The most successful organisations are not necessarily those with the most sophisticated systems, they are those where leaders take the time to engage, listen and act with intention.





# Key Challenges

## Work-Life Balance

Work-life balance dissatisfaction is significantly higher in infrastructure than in the general workforce, with 40% of respondents reporting dissatisfaction versus 20% nationally. Among professionals aged 20-24, dissatisfaction rises to 47% (Downey, 2023), highlighting a disconnect between workplace expectations and personal wellbeing. Figure 1 shows the dissatisfaction rates throughout the infrastructure industry compared to the general workforce.

White-collar workers reported double the dissatisfaction (42%) compared to blue-collar workers (22%), likely due to project-based deadlines, administrative load and stakeholder pressure. Additionally, 32% of all respondents work more than 50 hours per week, a figure heavily skewed toward younger staff eager to prove their capability. This overcommitment is a key driver of burnout and disengagement.

Senior leaders also highlighted the importance of recognising that work-life balance evolves across different stages of a person's career. For many young professionals, the early years represent a "building stage" where learning, proving capability, and establishing professional credibility naturally require greater intensity and focus. As individuals become more established, the intensity of work may reduce and priorities often shift toward broader life balance, family, and sustainability. Each stage carried different demands and organisations should support people through these transitions rather than applying a one-size-fits-all view of balance. While balance remains important, there must also be an understanding that people cannot have everything at once; it is about alignment between effort, opportunity, and stage of life.



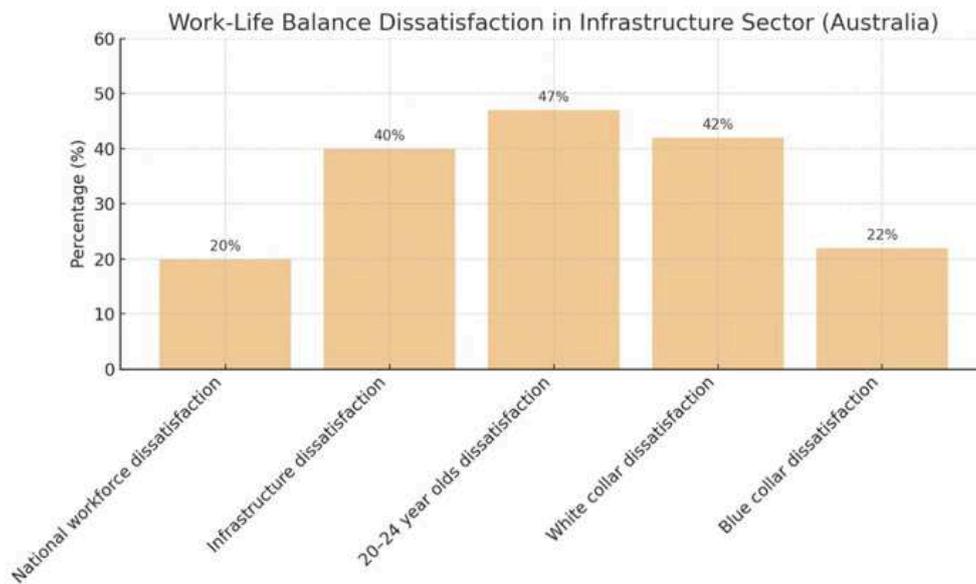


Figure 1: Data from Swinburne University & RMIT University

Although women reported slightly higher satisfaction with work-life balance, their elevated anxiety, and stress levels suggest a gap between perceived balance and lived experience driven by unaddressed structural pressures.

## Physical & Psychosocial Safety Onsite

Young people in construction face elevated health and safety risks. Figure 2 shows the health and safety risks for young workers in Australia. Research shows that workers under 25-years old suffer disproportionately high injury rates compared to older workers (RMIT University, 2024). In Australia, this age group comprises about 17% of the workforce but accounts for 20% of workplace injuries (RMIT University, 2024). The danger is especially pronounced in construction: although the industry employs only around 9% of Australia’s workers, it is responsible for roughly 16% of all work-related fatalities (SafeWork Australia, 2019).





Construction apprentices are particularly vulnerable, often starting on worksites without adequate safety training or guidance (RMIT University, 2024). Many young workers feel unable to speak up about hazards due to fear of judgment, retaliation, or being labelled “weak,” so safety issues frequently go unreported (RMIT University, 2024). Mental health outcomes are equally concerning construction apprentices experience higher than average psychological distress, and young male construction workers have a significantly higher suicide rate than their peers (RMIT University, 2024). Unfortunately, seeking help is often stigmatised in the male dominated construction culture (RMIT University, 2024).

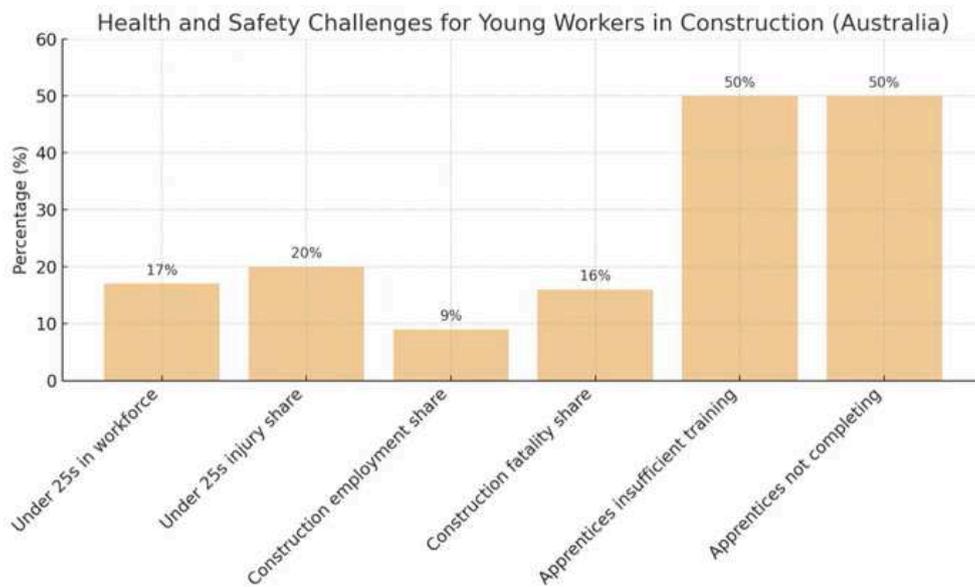


Figure 2: Data from Swinburne University & RMIT University





These compounding problems contribute to low retention. Half of apprentices feel their on-the-job safety training is insufficient, and almost one in two never complete their apprenticeship - commonly citing workplace bullying, unmanageable stress, or disengaged supervisors as key factors (RMIT University, 2024).

For young women in trades, additional barriers such as exclusion, harassment, and lack of support are prevalent, and women make up only about 3% of construction apprentices nationally (Horn, 2024). Inconsistent training, poor site safety culture, and ineffective leadership are driving many capable young people out of the industry, undermining the skilled workforce that Australia's infrastructure sector will need over the next decade (RMIT University, 2024).



**Inconsistent training, poor site safety culture, and ineffective leadership are driving many capable young people out of the industry.**



# Key Challenges

## Workforce Wellbeing & Sector Stability

The findings from Professor Luke Downey at Swinburne University in Melbourne suggest the stress and pressure revealed in the series of interviews is consistent with sector-wide data indicating ongoing mental health concerns that directly affect retention, particularly for younger workers considering long-term careers in infrastructure.

Those in pre-contract or temporary roles are particularly at risk, with just 57% reporting normal stress levels compared to 70% across the broader workforce (Downey, 2023). These entry points, traditionally seen as launching pads for career growth, appear to carry some of the heaviest mental loads emphasising the need for targeted intervention early in the professional journey.

Mental health challenges impose a significant financial burden on Australia's construction sector. A 2023 analysis by BIS Oxford Economics estimated that work-related mental ill health in construction costs the industry about \$643 million per year (BIS Oxford Economics, 2023). These costs encompass lost productivity from psychological distress, injury, and tragically, suicide.

The construction workforce faces double the suicide rate of the general population (BIS Oxford Economics, 2023). In fact, one construction worker takes their own life every second day on average. Each such case carries substantial economic toll. Research in New South Wales indicates around A\$2.1 million lost per suicide when factoring in lost output, healthcare, and other impacts (Hunter Medical Research Institute, 2016). By comparison, the Cost of Doing Nothing report calculated that the excess suicide incidence among male construction workers (versus other industries) costs over \$500 million annually in broader economic losses (BIS Oxford Economics, 2023). These figures underscore the human and financial imperative to address mental health in the sector.

A robust pipeline of civil infrastructure projects is underway in Australia, valued at approximately \$230 billion over the next five years (Infrastructure Australia, 2024). However, delivering this ambitious program is challenged by acute skilled labour shortages. Infrastructure Australia's 2024 market capacity report warned of a shortfall of about 229,000 infrastructure workers (full-time equivalents) as of late 2024 (Infrastructure Australia, 2024).



This gap concentrated in engineering, technical and trades roles represent a major capacity constraint on construction, transport, energy, and other public works. The worker shortage, if unaddressed, risks compounding project delays and cost overruns at a time when Australia is also striving to build 1.2 million new homes and accelerate the clean energy transition (Infrastructure Australia, 2024). Industry leaders, including Infrastructure Australia's CEO, have urged urgent action to boost the talent pipeline in construction via training, migration, and productivity improvements (Karp, 2023).

Within the construction industry, mental health issues like anxiety, depression and burnout are reported at especially high rates among white-collar professionals (e.g. project managers, engineers). Blue-collar workers often voice greater concern about physical safety and job security. Frontline construction roles are exposed to Australia's highest workplace risks, for example, construction, transport and agriculture consistently lead in fatal accidents (Safe Work Australia, 2019), making safety a daily priority.

Young workers, especially those without strong peer networks or secure employment, often feel compelled to remain silent rather than raise concerns about their mental health or safety. Although awareness of mental wellbeing in the workplace is growing, many sites still lack clearly defined roles or embedded processes to support early intervention. In some cases, perceived workplace politics or fear of reputational damage can deter individuals from speaking up particularly when concerns are minimised or dismissed by those in leadership positions. This dynamic can deepen feelings of isolation and undermine trust, compromising individual wellbeing and undermining the sector's ability to cultivate a resilient, future ready workforce.

Additionally, the project based, sometimes precarious nature of construction employment fuels worries about job insecurity among tradespeople and labourers due to long hours, job uncertainty, and transient work. (Keogh, 2023). Together, these insights highlight the dual imperative for firms: strengthening psychosocial support for professional staff while continuing to improve on site safety and employment stability for the broader workforce.

### **KEY OBSERVATIONS**

- Women face higher rates of stress and anxiety despite marginally better reported work-life balance; pointing to unaddressed systemic pressures that require targeted reform.
- Early career professionals (20-24) report the highest dissatisfaction with work life balance, which could impact future retention.
- Burnout affects one in three young professionals, with the highest prevalence in the 25-29 age group: underscoring the urgent need for initiative-taking strategies to reduce long term risk.

“The research confirms what many in the industry are already seeing, early career professionals are experiencing elevated psychological distress, especially in roles with limited structure or support. Mental health outcomes are not just personal issues; they reflect systemic conditions around supervision, clarity of role and site culture. If we want to retain talent and prevent burnout, these structural drivers need to be addressed early and consistently.” **PROFESSOR LUKE DOWNEY, SWINBURNE UNIVERSITY MELBOURNE**

# Key Challenges

## Economic Consequences of Turnover & Injury

Attrition in the civil infrastructure sector comes at a high cost. Losing a trained apprentice or graduate can result in tens of thousands of dollars in recruitment, onboarding, and productivity losses as well as disruption to team continuity and delivery outcomes. Frequent turnover also erodes organisational memory, forcing already stretched senior staff to cover knowledge gaps and provide reactive supervision.

Simultaneously, preventable workplace injuries often caused by poor communication, insufficient training, or chronic fatigue drive up compensation claims, trigger compliance reviews and delay project timelines. These issues undermine profitability, threaten contractor pre-qualification and reputational standing. In a commercial landscape where margins are thin and timelines are unforgiving, failure to stabilise the workforce is a risk the sector can no longer absorb.





# Key Opportunities for Reform

Addressing the above challenges is no longer a choice, it is a commercial, moral, and operational imperative. The cost of inaction is clear: higher attrition, delayed projects and a workforce that is increasingly difficult to attract, retain and rely on.

By investing in structured early career development, workplace mental health infrastructure and environments that prioritise safety and accountability, the sector can realise measurable benefits in performance, reputation, and long-term resilience.

Despite ongoing challenges from high attrition to outdated workplace norms there are clear, proven efforts across civil construction that are driving change. People led reforms from organisations willing to challenge the status quo are delivering results.

## **CHANGE-ORIENTED LEADERSHIP & PEER DRIVEN DEVELOPMENT**

One of the most encouraging shifts is the growing number of individuals reshaping the industry from within, particularly women in leadership and frontline professionals leading peer-based development. When early career staff see leaders who combine clarity, empathy, alongside technical competence and who challenge outdated behaviours without apology it sends a clear message: there are diverse, credible ways to succeed in infrastructure construction. These role models do more than inspire; they improve team cohesion, performance, and retention. Respect and results can go hand in hand.

Peer-based development is especially effective when grounded in consistency and trust, rather than imposed hierarchy. In regional teams with work flatter structures, young workers report greater confidence to ask questions and admit uncertainty critical for growth. When learning is grounded in regular, respectful interaction, capability builds faster, and retention improves. It does not require a formalised program; it only needs to be genuine.



## CROSS SECTOR PARTNERSHIPS

Promising collaboration between industry, universities and government is beginning to bridge the longstanding gap between education and practice. Some universities are now codesigning coursework with civil contractors, incorporating site visits, and bringing in industry professionals to share practical insights. For example, Victoria University's Bachelor of Engineering (Honours) (Civil Engineering) uses a problem-based learning approach with local engineering examples, includes site visits, brings in external industry-based lecturers, and mandates a 12-week industry placement to ensure students graduate job-ready.

As a result, students enter the workforce with clearer expectations and a better understanding of real project environments.

Government initiatives are also beginning to take shape; co-funding cadetships, piloting early career programs, and supporting diversity and regional inclusion. For example, Victoria's Big Build Engineering Pathways Industry Cadetship (EPIC) Program offers 18-month paid cadetships for engineers from refugee and asylum seeker backgrounds, providing practical on-site experience on major infrastructure projects through partnerships with civil contractors and structured industry mentoring. These actions have opened doors for individuals who may not have otherwise found a pathway into the sector.

When done properly, these partnerships go beyond improving "pipeline" numbers. They build mutual understanding between sectors that have historically operated in silos.

## SMART TECHNOLOGY THAT BUILDS CAPACITY

Digital tools are starting to be deployed in ways that directly enhance workforce development. Technologies like VR (Virtual Reality) are no longer limited to project modelling; they are now being used to train workers more effectively.

For example, VR site simulations are helping apprentices and graduates visualise sequencing, recognise safety risks and gain familiarity with site conditions before setting foot onsite. For those new to the industry especially those without prior exposure through family or schooling, these tools help level the playing field.

Elsewhere, AI powered platforms are reducing administrative burdens by automating reporting, streamlining compliance tasks, and freeing up junior engineers to focus on project work. The best technology is not there to replace people; it is there to give them back time and cut through the noise that too often drowns out early career confidence. When applied strategically, technology improves efficiency and builds confidence and capability from the outset.

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## FEDERAL SUPPORT & LEADERSHIP

Correspondence dated the 31<sup>st</sup> of January 2025 from the Hon Catherine King MP, Minister for Infrastructure, Transport, Regional Development and Local Government, offers strong validation of the themes addressed in this report. In her written correspondence to William Phillips on the subject of this report, the Minister underscored the Australian Government’s commitment to advancing workforce development as a core component of infrastructure delivery, writing that “Clearly defined career, training and development pathways are crucial to addressing Australia’s infrastructure workforce shortages and ensuring long-term industry sustainability”.

This policy stance is formally embedded within the Infrastructure Policy Statement (IPS) and the 2024 - 2029 Federation Funding Agreement Schedule (FFAS), which set clear expectations for states and territories to optimise procurement frameworks in ways that deliver broader social, economic, and cultural outcomes. These include measurable actions to increase the participation of trainees and apprentices, improve workplace diversity and flexibility, and lift the overall culture and wellbeing of the construction industry.

Minister King further highlighted the establishment of Build Skills Australia as a strategic mechanism to ensure training systems remain responsive to emerging industry needs. “Build Skills Australia will work directly with industry to develop world class qualifications and training programs,” she noted, signalling a clear policy direction that places capability building at the centre of national infrastructure planning.

These statements make clear that workforce development is no longer a peripheral consideration. It is a central delivery metric, backed by federal policy, and now embedded in co-investment agreements with jurisdictions. As the Minister observed, “Reducing workplace injuries, mental illness, long work hours, and improving diversity would all significantly improve productivity.” The message to industry leaders is unambiguous: structured support for early career professionals is commercially prudent and is a strategic obligation aligned with national policy and future delivery expectations.

**“Clearly defined career, training and development pathways are crucial to addressing Australia’s infrastructure workforce shortages and ensuring long-term industry sustainability”**

**HON CATHERINE KING MP, MINISTER FOR INFRASTRUCTURE, TRANSPORT, REGIONAL DEVELOPMENT AND LOCAL GOVERNMENT**



# Recommendations to Build a Future Ready Workforce

Addressing workforce challenges in civil infrastructure requires coordinated action across every level from site labourers to senior executives. Retention, innovation, and performance are grounded in clarity of role and the systems that enable success and how effectively organisations enable them to succeed. This section outlines 10 role specific actions that reflect this report's findings with an emphasis on structure, communication, skills development and leadership accountability.

## Upskill & Empower Blue-Collar Professionals

Labourers and operators are the backbone of project delivery. These team members should have streamlined access to formal qualifications, such as the Certificate III in Civil Construction, with costs covered and onsite assessment options available where possible. For plant operators, progression into advanced competencies such as GPS systems or licensing across multiple pieces of plant should be encouraged.

Informal knowledge transfer from experienced crew members can build confidence and improve performance across the team. Likewise, empowering labourers to raise issues during daily pre-start not as a procedural task but as a two-way conversation helps surface risks early and fosters ownership. When direction is clear, input is valued and growth is supported, retention improves and risk declines.

### RECOMMENDATION ONE

Provide labourers and operators with access to formal qualifications, such as Certificate III in Civil Construction or licensing across multiple pieces of plant.

### RECOMMENDATION TWO

Empower labourers to raise issues during daily pre-start.



## Identify & Support Emerging Talent

Supervisors and leading hands serve as the link between crews and management. Their influence on day-to-day delivery, safety and behaviour are substantial. These roles require targeted leadership training in task management, communication, conflict resolution and team development.

Supervisors are also key to workplace wellbeing as they are well positioned to notice fatigue, check in during toolbox talks and intervene early when disengagement appears. Their role is not purely about output; it is about sustaining team performance over time.

Leading hands should be encouraged to identify emerging talent and offer short, informal check-ins that promote on-the-job learning.

### RECOMMENDATION THREE

Encourage supervisors and leading hands to identify emerging talent and to offer informal check-ins.

## Engage Early-Career Professionals in Core Project Functions

Graduate engineers, site coordinators and advisors should be engaged in core project functions such as ITPs (Inspection Test Plans), budgeting and sequencing within their first 12 months. Too often, junior staff are left managing administrative overflow rather than building technical and strategic understanding.

Early exposure to planning sessions, design reviews and innovation trials (such as low carbon materials, or revised staging models) helps build business awareness and technical breadth. Assigning cross functional mentors and ensuring feedback loops are in place further accelerates development. These professionals are current contributors whose value increases with the right foundations.

### RECOMMENDATION FOUR

Engage graduate engineers, site coordinators and advisors in core project functions within their first 12-months.

### RECOMMENDATION FIVE

Assign cross-functional mentors and ensure feedback loops are in place to further accelerate development.



## Uphold Standards & Retention

Project and construction managers play a central role in shaping team performance and cohesion. Their responsibility extends beyond budget and program and includes onboarding quality, development planning, and day to day engagement.

Structured onboarding templates with assigned mentors and quarterly training reviews should be executed consistently.

Weekly pulse checks and informal debriefs allow managers to spot issues before they escalate. Managing workload through effective rostering and leave planning is equally important not as part of broad wellbeing initiatives, as a day-to-day operational discipline. Construction managers must lead by example, creating collaborative environments where team feedback drives improvement.

### RECOMMENDATION SIX

Implement structured onboarding, with assigned mentors, weekly pulse-checks and quarterly training reviews.

### RECOMMENDATION SEVEN

Manage workload through effective rostering and leave planning.





## Ensure Senior Leaders are Accountable

Executives and directors determine whether workforce systems work in practice. Their responsibility is to ensure development, progression and inclusion are built into business operations and declared as values.

Organisations should track key workforce metrics such as retention, onboarding effectiveness, and professional development outcomes. Leadership advancement should be tied to tangible performance in these areas. While diversity remains important, the focus should be on team level accountability and

ensuring that individuals from all backgrounds who show potential have access to structured and merit-based development opportunities.

Procurement policies can also serve as a strategic lever. Leaders should support contracts that reward workforce outcomes such as skills development, staff retention and sound people management practices. Investment in capability requires protecting training budgets, embedding learning into day-to-day operations and allocating time for employees to acquire new job relevant skills.

### RECOMMENDATION EIGHT

Track key workforce metrics, such as retention, onboarding effectiveness, and professional development outcomes and tie leadership advancement to tangible performance in these areas.

### RECOMMENDATION NINE

Support procurement contracts that reward workforce outcomes such as skills development, staff retention and sound people management practices.

## Ensure Organisational Structure is Clear & Expectations are Transparent

Each role in infrastructure construction influences project success, culture and future capability. Sustained improvement relies on clarity, people knowing their role, being equipped to succeed and being accountable for how they show up.

When structure is embedded, expectations are transparent and communication runs both ways, teams strengthen at every level.

### RECOMMENDATION TEN

Ensure organisation structure is clear, so that people have clarity of their role and how it contributes to organisation success.



# Recommendations to Retain a Future Ready Workforce

Direct feedback from apprentices, graduates and early career site professionals across the civil construction sector highlights a clear message: young people want straightforward, useful changes that address workplace barriers. The following 13 recommendations for industry are grounded and focused on outcomes that improve retention, capability, and motivation.

## Focus on Sustainability

Sustainability is also a growing area where younger workers expect to have input and often feel frustrated when they don't. Many of them care about whether the work they're doing has broader value and they notice when sustainability is treated as an afterthought. Companies that involve younger staff in things like material selection, waste reduction strategies, or local community engagement get buy-in because it gives people a sense that their work matters beyond the project scope.

Involving early career professionals in sustainability initiatives doesn't require a restructure; it means being willing to listen to their ideas and let them contribute where there's opportunity. Some of the best suggestions from smarter procurement choices to practical site-based changes can come from people in their first few years on the job because they have an ability to see things differently and are not conditioned by habit.

### RECOMMENDATION ELEVEN

Involve junior staff in sustainability decisions, like material selection or waste reduction, to harness fresh ideas and increase engagement.

# Build Mental Health & Wellbeing into Daily Practice

In most workplaces, mental health is often acknowledged symbolically through posters or campaigns but not consistently embedded into day-to-day practice. Every major site should have a peer-nominated mental health contact who is visible and trained in mental health first aid. Toolbox talks should include short, structured check-ins once a fortnight to raise issues like fatigue, stress, or how to support a colleague in difficulty.

Rather than introducing additional forms of leave, organisations should focus on improving education, communication and early intervention to prevent issues from escalating. When supervisors are equipped with the right understanding and tools, they can help normalise conversations around wellbeing while maintaining a strong focus on productivity and performance. This approach encourages responsibility, builds awareness and ensures that support for mental health is proactive not reactive.

## RECOMMENDATION TWELVE

Ensure every major site has a peer nominated mental health contact.

## RECOMMENDATION THIRTEEN

Provide ongoing education and visible support around mental health and fatigue management ensuring leaders and supervisors are equipped to identify and respond to early signs of stress.





## Embed Consistent & Practical Mentoring

Many younger workers report being left to figure things out on their own. Every early career team member whether apprentice or graduate should be paired with a “buddy” who isn’t their direct supervisor, ideally someone one level ahead in their career who checks in monthly and helps them work through typical onsite and office challenges.

Supervisors must also be equipped to guide young staff: understanding how to provide constructive feedback, explain concepts clearly and distinguish between inexperience and disengagement. Job shadowing should be embedded one day a month following a senior engineer, foreperson, or commercial lead which offers insight into broader project decisions and builds commercial understanding from the outset.

### RECOMMENDATION FOURTEEN

Pair early careers team members with senior team members and ensure scheduled check-ins.

### RECOMMENDATION FIFTEEN

Provide training for supervisors to understand how to provide constructive feedback, explain concepts and distinguish between disengagement and inexperience.

### RECOMMENDATION SIXTEEN

Implement job-shadowing one day per month, for early career professionals to gain insight into broader projects decisions and commercial outcomes.

## Implement Reverse Mentoring

Reports of isolation among women and culturally diverse professionals highlight the need for stronger team integration based on capability and contribution.

Leaders should also establish structured feedback channels with junior staff to stay informed on team dynamics.

Reverse mentoring where early career professionals share insights with senior leaders should be used as a practical way to lift leadership awareness and improve workplace culture based on project experience.

### RECOMMENDATION SEVENTEEN

Implement reverse mentoring, where early career professionals share insights with senior leaders.



## Offer Flexibility to Match Modern Working Conditions

Rigid start times, long hours and last-minute roster changes were repeatedly flagged as key reasons why young people consider leaving. Simple changes can make a big difference. Trialling a 9-day fortnight or offering task-based flexibility for salaried staff allows capable young workers to manage their time while still delivering outcomes.

Site based staff should receive at least two weeks' notice of any roster change, as anything less risks undermining trust. A flexible start window of even 90 minutes would allow workers to better manage commuting, family commitments, or part time study without affecting productivity or safety.

### RECOMMENDATION EIGHTEEN

Embed workforce flexibility, this may include a 9-day fortnight, offering task-based flexibility, or a flexible start window of 90 minutes.

### RECOMMENDATION NINETEEN

Provide at least two weeks' notice of any roster changes.





## Offer Training to Match Career Stage & Desired Pathways

Most early career employees want to build skills but many feel that training is either irrelevant or out of reach. Companies should commit to offering two training opportunities per year for all junior staff: one technical (e.g. in the case of an engineer; understanding scopes, basic procurement, or concrete testing) and one interpersonal (e.g. giving feedback, conflict navigation, negotiation or stakeholder communication).

Each new starter should have a training log or development tracker that is reviewed quarterly with their mentor. In addition, companies should run “skills sprints”, short and targeted workshops (online or onsite) covering basics like reading plans,

writing ITPs (Inspection Test Plans) for evaluating subcontractor quotes. These sessions should be scheduled in advance and built into the rhythm of the project.

For early career blue-collar professionals, the same structure can be applied through hands-on workshops focused on foundational site skills such as interpreting drawings, understanding quality and safety documentation or learning how different trades and disciplines interact. These sessions build capability to show a clear pathway for those looking to grow into leading hand, supervisory roles or even a plant operator.

### RECOMMENDATION TWENTY

Commit to offering junior staff two training opportunities per year.

### RECOMMENDATION TWENTY ONE

Implement training logs or development trackers that are reviewed on a quarterly basis with a mentor.

### RECOMMENDATION TWENTY TWO

Implement “skills sprints”, short, targeted workshops that cover basic skills. Workshops should be aligned with rhythm and progress of the project.



## Remove Friction with Technology

Younger staff aren't requesting tech for the sake of it; they want tools that make the job easier. AI could be used to streamline routine tasks like daily diaries, permit management and procurement workflows. VR (Virtual Reality) simulations can accelerate learning around complex or high-risk tasks like crane lifts, confined space entry or working in constrained environments especially for those without prior industry exposure.

Access to live project dashboards and cost data should be extended to junior staff, along with a short induction on how to interpret it. This approach builds commercial literacy early and helps young professionals understand the broader context of their work and assigned tasks.

### RECOMMENDATION TWENTY THREE

Extend access to live project dashboards and cost data to junior staff, with a short induction on how to interpret it.



# Recommendation to Improve Early Career Outcomes in Construction

Improving early career outcomes in civil construction requires targeted reform across three areas: government policy, industry leadership and consistent accountability. The following 7 recommendations are designed to be specific, implementable and to directly address the challenges raised by both early career professionals and senior decision makers across the sector.

## Use Tax Benefits to Encourage Career Development Initiatives

At the federal level, the government should introduce a dedicated tax offset for companies that implement structured early career development initiatives. This would incentivise organisations to invest in workforce capability without relying on inconsistent funding cycles.

Eligible activities should include a minimum of three hours per month of paid one on one mentoring for junior employees, deployment of trained mental health first aid officers on site and enrolment of staff in nationally recognised training programs such as the Certificate III in Civil Construction.

The offset could mirror the structure of the R&D tax incentive and be capped at a per employee threshold to ensure broad accessibility and prevent misuse. Claims would be submitted through existing BAS processes and supported by verifiable records such as enrolment confirmations or mental health officer registers.

### RECOMMENDATION TWENTY FOUR

Introduce a dedicated tax offset for companies that implement structured early career development initiatives.



## Enforce Workforce Development Provisions

All publicly funded infrastructure projects exceeding \$5 million should include enforceable workforce development provisions. These should mandate accredited training for early career staff within 30 days of commencement, accompanied by mentoring frameworks in some capacity and measurable retention outcomes.

Tender evaluations should reward bidders who submit auditable workforce development plans, including actions around retention, career visibility, onboarding processes and wellbeing interventions such as scheduled mental health check ins.

### RECOMMENDATION TWENTY FIVE

Require workforce development provisions, such as accredited training for early career staff within 30 days of commencement, for all publicly funded infrastructure projects exceeding \$5 million.

### RECOMMENDATION TWENTY SIX

Tender evaluations should reward bidders who submit auditable workforce development plans.

## Support Early Career Professionals Through Procurement Policies

Government procurement policy should also adopt elements of the UK's British Employment Program. Under this approach, a minimum percentage (e.g. 5%) of total project labour hours should be allocated to individuals under 25-years old or those undertaking a recognised qualification.

Exemptions would only be permitted with substantiated reasoning such as remote delivery constraints or limited local labour availability. Failure to comply without justification would result in financial penalties or eligibility impacts for future tenders. This approach places clear responsibility on Tier 1 and Tier 2 contractors to contribute to future capability.

### RECOMMENDATION TWENTY SEVEN

Update procurement policies to require a minimum percentage of total project labour hours to be allocated to individuals under 25-years old or those undertaking a recognised qualification.



## Fund a Cross-Industry Onboarding & Mentorship Program

Implement and fund a standardised onboarding and mentoring framework that includes tools such as a Day 1 induction checklist, 30- and 90-day goal setting templates and mapped role expectations for different disciplines. The framework should be made publicly available and promoted across the industry with implementation progress reviewed annually.

Human Resources onboarding coordinators and mentoring facilitators (or any leader) could service multiple worksites in a local area. The model would operate under a co-funding structure: 50% subsidised by government and 50% covered by per head contributions from participating businesses. This would allow best practice workforce development approaches to reach beyond major projects and into smaller firms where gaps are often greatest.

### RECOMMENDATION TWENTY EIGHT

Implement and fund a standardised onboarding and mentoring framework.

## Collect & Publish Data on Early Career Support & Development

To ensure accountability, all reforms must be backed by data. At a minimum, companies should track and report early career retention at 6, 12, and 24 months; participation in mentoring, onboarding, and training programs; and satisfaction scores on clarity of role, supervision quality, and wellbeing. Workforce composition by age, gender, and background should also be captured. These metrics should be submitted at the project level and aggregated into an industry-wide dashboard, managed by the Department of Infrastructure, Transport, Regional Development, Communication, Sport and the Arts.

This will allow for benchmarking, targeted support, and transparent reporting across the sector. These measures are aimed at creating measurable progress that builds capability over time and strengthens long-term delivery outcomes. These recommendations are designed to build long term industry capability through realistic, measurable actions. Structured development, consistent onboarding and recognition of early career contribution are proven levers for retention and performance.

### RECOMMENDATION TWENTY NINE

Collect and publish data on early career support and development to track long term industry capability and resilience.



# Recommended Next Steps for Roads Australia

Roads Australia can lead national implementation efforts by establishing a cross sector working group that includes contractors, unions, young professionals and educators. This group should codesign a practical, standardised onboarding and mentoring framework that includes tools such as a Day 1 Induction Checklist, 30- and 90-day goal setting templates and mapped role expectations for different disciplines. The framework should be made publicly available and promoted across the industry with implementation progress reviewed annually.

Alongside structured learning and data informed decisions, the industry must recognise the young professionals already driving change. Awards like the Roads Australia Emerging Leader Award send a clear message that initiative, leadership, and innovation from early career contributors are valued and encouraged.

Recognition has a multiplier effect. It sets performance benchmarks, motivates peers, and reinforces the behaviours the industry wants to foster. Public celebration doesn't need to stop at awards. Peer nominated shoutouts, internal acknowledgements and spotlighting contributions at company meetings can all drive morale and strengthen team engagement if done consistently and sincerely.

In parallel, Roads Australia should publish a rolling case study series highlighting effective early career interventions across its membership base. These short, evidence-based reports would outline what was implemented, how it was received and what measurable changes occurred. Sharing these lessons reduces duplication and accelerates improvement across the sector.

## RECOMMENDATION THIRTY

Publish a rolling case study series highlighting effective early career interventions.

Collectively, these recommendations offer a practical framework for shifting how young professionals enter, engage with and grow within the infrastructure industry. The focus is not on perfection, but on embedding fair standards, measuring what matters and rewarding those who invest in people.



# International Case Studies of Success

While Australia continues to grapple with early career workforce attrition in infrastructure, several countries have already implemented structured development models that are delivering measurable results. These examples aren't drawn directly from infrastructure construction; however the lessons they offer are highly transferable especially as Australia looks to build a future-ready, stable delivery workforce. They share one thing in common: clear structure, accountability and a long-term view of workforce capability.

## GERMANY: STRUCTURE THAT PRODUCES SKILLED WORKERS

Germany's dual track apprenticeship system is one of the most structured vocational models in the world. Young people split their time between paid on the job learning and vocational school, culminating in a nationally recognised qualification.

This approach applies across hundreds of trades, including construction related roles such as plant operation, carpentry and technical site supervision (Cedefop & BIBB, 2022).

### OUTCOMES

- The outcome is a pipeline of job ready workers with consistent standards and practical experience.
- Youth unemployment is among the lowest in Europe (Cedefop & BIBB, 2022).
- Employers' benefit from a workforce that enters with a proven skill set and work ethic.

### LESSONS LEARNED

Australia's infrastructure sector can take a clear lesson: embed practical development from day one, backed by nationally aligned standards and close industry input and the industry can achieve higher retention and stronger delivery.



## THE NETHERLANDS: ALIGNING EARLY CAREER WORK WITH REAL WORLD CHALLENGES

The Dutch government has aligned early career training with the country's sustainability targets.

Apprentices and new graduates in construction adjacent roles are placed directly into roles supporting energy transition and circular economy goals (Cedefop, 2023).

### OUTCOMES

- Courses in solar installation, green building and EV infrastructure are being run in partnership with industry and government and they're filling thousands of vacancies in a shrinking workforce (Cedefop, 2023).

### LESSONS LEARNED

Australia doesn't need to replicate the model exactly. But the idea is clear: put young workers where they'll gain relevant, in demand experience and back it with structured support.

We don't need more "future workforce strategies" we need systems that give people something to do, someone to learn from and a reason to stay.

## SINGAPORE: EARLY CAREER STAFF TRAINED TO USE THE TOOLS OF TOMORROW

Singapore has taken a direct approach to digitising construction by training early career professionals in digital delivery tools from the start.

Site engineers, coordinators and graduates are taught how to use data dashboards and digital asset tools as a normal part of doing the job (Tay 2020; BCA, 2020).

### OUTCOMES

- The government provides grants, digital skills frameworks and retention bonuses tied to structured development (BCA, 2020).
- The output: a workforce that isn't being left behind by technology and junior staff who can contribute and spend time with more senior employees.

### LESSONS LEARNED

For Australia, if we want innovation, we need to train people in the tools that will drive it. Early career staff shouldn't be stuck on admin while the same few senior people handle all the technology.

## UK AND CANADA: STRONGER SYSTEMS THROUGH PARTNERSHIPS

The UK has embedded early career targets directly into major infrastructure projects like HS2, with over 2,000 apprenticeships tied to project delivery (Fennell, 2023).

### OUTCOMES

- Apprenticeship standards have been updated to include green and digital competencies. Canada's co-op university model also provides a strong example: engineering students graduate with 12-20 months of paid project experience across government and industry through formal rotations (University of Alberta, n.d.).

### LESSONS LEARNED

Australia can adopt early career targets and structured work placements to build a future-ready workforce with green and digital skills.

## A Challenge to the Australian Sector

None of these systems are perfect but they work because they're deliberate. They focus on structure, relevance and real-world capability. The message for the industry is clear: if we want to retain the next generation, we need to stop waiting for culture to fix itself. We need to build the systems, the structure and the expectations that will keep early career professionals growing and contributing.





# Conclusion

The infrastructure construction sector is entering an important phase. With escalating infrastructure demand, an ageing workforce and tightening project timelines, the need to strengthen workforce capability is no longer a secondary concern, it is a strategic imperative. Attracting early career professionals is not the issue; retaining them and equipping them to contribute is where the challenge lies.

Throughout this project, a consistent message has emerged: early career professionals are motivated to stay and succeed. What they need is clarity around expectations, access to structured development and leadership that sets standards and follows through.

Addressing this challenge demands a coordinated response. Government must embed workforce development expectations into procurement frameworks including structured onboarding, verified training pathways and support for mentoring. Contractors must invest in consistent supervision and embed development practices across projects. Industry bodies, including Roads Australia, are well placed to lead collaboration, set national benchmarks and track progress over time. Shared accountability must underpin every stage of this work.

Measurement, structured development, and recognition must work as a unified system.

Each element reinforces the others: measurement identifies gaps, development addresses them, and recognition sustains momentum. Without that balance, capability programs risk falling flat.

Organisations that can understand this formula correctly will attract stronger candidates, but they will also keep them, grow their impact and build the kind of professionals who raise standards across the sector. To secure the future of Australia's infrastructure delivery, the sector must scale what works, track outcomes with discipline and showcase the young talent already making a difference.

The actions and recommendations outlined in this report reflect proven practices already delivering results in parts of the industry. With consistent application and sector wide alignment, these measures can lift baseline performance across the board improving retention, reducing risk and strengthening delivery outcomes.

The capability of Australia's future infrastructure workforce depends on decisions made today. If we act decisively and together, we will retain emerging talent and shape a generation of professionals equipped to lead with confidence and purpose. What is needed now is implementation, the next decade of delivery depends on it.



# Thank You

Thank you to everyone who generously shared their time, insight, and experience in support of this research. Your openness, honesty and willingness to contribute has shaped this work.

It is my hope that the report offers something practical, grounded and useful to those working within our industry. As Bruce Lee once said, “Absorb what is useful, discard what is not.” Take from it what serves you and thank you again for being part of the process.





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