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Aviation insights:

Counting the costs of airside construction

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Aviation insights

In this paper, Slattery investigates the cost of delivering construction works in an operational airport environment, the premiums incurred and explores the opportunities for clients to make informed decisions to balance both cost and operational continuity.

Setting the scene

It is widely accepted that "things cost more" in an airside environment. But why do they? The airside operating environment is unique. Airports must take an uncompromising approach to security and safety, ensure operational continuity and meet regulatory obligations. They must build for the future while ensuring a positive experience for passengers today.

In our latest Kaizen paper, Slattery provides a cost model that analyses airside versus non-airport projects to pinpoint the source of specific cost drivers and premiums. Our findings reveal key themes that can help clients better comprehend, communicate and potentially reduce project costs.

Data from the Bureau of Infrastructure and Transport Research Economics (BITRE) reveals Australian domestic commercial aviation carried 5.32 million passengers in March 2024, an increase of 2.8% on the previous year.

With this trend set to continue through to 2050, airports face the exciting, but daunting prospect of providing fit-for-purpose assets and infrastructure to support growth while maintaining operations. Major expansion and refresh programs are in planning or underway at all major airports, with significant growth expected at regional airports also.

This trend continues globally. According to the International Air Transport Association (IATA), passenger revenues were projected to reach US$744 billion in 2024, up 15.2% from $646 billion in 2023. Revenue passenger kilometres (RPKs) are up 11.6% year-on-year. IATA predicts a long-term growth trend of 3.8% year-on-year growth between now and 2043.

Costs are on the up and up

While passenger numbers climb, the aviation sector nevertheless faces a host of challenges. Inflationary pressures, soaring oil prices, net zero targets, regulatory burdens, geopolitical tensions and supply chain bottlenecks are all hitting budgets and bottom lines.

At the same time, Australia's building industry is enduring one of the most tumultuous periods in its history. Construction costs continue to escalate, stubbornly high interest rates persist and skills shortages bite.

Infrastructure Australia doesn't expect supply to match demand for construction labour until the end of 2027, for instance. With recent agreement of new enterprise bargaining agreements around the country, labour costs continue to place upward inflationary pressure on construction pricing. While costs have plateaued for some materials, like steel, other energy-dependent materials like concrete remain on an upward trajectory.

Cost escalation has hit construction hard. More than 3,000 construction industry insolvencies were recorded in 2024, according to ASIC. Constructing in an airside environment is risky business. With airports keen to transfer this risk to the contracting market, there is an inevitable premium to pay to incentivise contractor participation when there are other, less risky opportunities available.

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High flying expenses: Understanding airside cost dynamics

Understanding the cost drivers in airport environments is crucial for effective project planning and budgeting. Below we've outlined some of the primary cost drivers.

Site logistics

- Moving people to and from the job site, including the productivity loss due to screening and travel time.
- Delivering and offloading materials, which involves transportation to and from the airside location, and the horizontal and vertical movement to the work front (such as mobile cranage, services relocations, builders work, temporary protection and making good).
- Establishing remote and multiple site facilities due to limited airside space, often leading to higher preliminaries.

Operational constraints

- Completing works out of hours and subsequent standdown hours to maintain operations, resulting in increased labour rates.
- Lost productivity due to shorter shifts (night works to support last-and-first flight schedules).
- Mitigating and managing dust and Foreign Object Debris (FOD), which can increase costs due to methodology and sequencing of works.
- Limiting vibration and acoustic impacts, which influences methodology, timing of work, and subsequent costs.
- Meeting crane height limitations, which can mean more costly solutions, such as mobile cranes.
- Ceasing or restricting activities during embargo periods in peak travel times, significantly impacting program and adding costs for demobilisation and remobilisation of the site and labour force.

Planning requirements

- Early Contractor Involvement (ECI) during design phases or a two-stage tender process to manage complex logistics, increasing costs by engaging a main contractor before works begin.
- Staged completion increasing administration and management time, raising preliminaries at both sub-contract and main contract levels.
- Integrating building works with specialised equipment (such as baggage handling systems and airbridges), which requires extensive design coordination and planning, resulting in higher preliminaries and professional fees.

Training and safety

- Incurring additional training costs for the main contractor and supply chain leads to increased overheads and job costs.
- Extra safety requirements driven by operational environment (i.e. a spotter for every elevated work platform, traffic management for apron works).
- Maintaining the restricted zone boundary heightens supervision requirements, including safety officers and security guards.

Additional risk factors

- Increasing insurance premiums to cover additional risks, which leads to higher preliminaries.
- Delivering projects in an airside environment, perceived as difficult and risky, can deter contractors who may prefer easier projects or charge a premium for airport work.
- Using nominated or named contractors/sub-contractors familiar with airport operations and requirements may safeguard operational continuity, but can lead to higher costs due to sole source pricing.

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Counting the costs of airport construction

This cost model compares the costs of refurbishing bathroom amenities in an airside environment versus refurbishment in a more typical commercial CBD project. Costs represent an average over a sample size of 11 projects.

By completing this exercise, we can identify the cost premiums incurred, where these are occurring, and start to unpack the drivers behind these.

Table 1

Average elemental building cost breakdown and variance for a bathroom amenity refurbishment in a CBD and airside environment.

Element	CBD refurbishment average $/m2	Airside refurbishment average $/m2	Variance % (+/-)
Preliminaries & margin	$1,100	$3,200	+190%
Demolition & alterations	$410	$450	+10%
Substructure	$0	$370	N/A
Superstructure	$800	$2,400	+200%
Finishes	$1,100	$1,250	+15%
Fitments	$730	$710	-3%
Building services	$3,370	$5,000	+50%
Total (excl. GST)	**$7,510**	**$13,380**	**+78%**

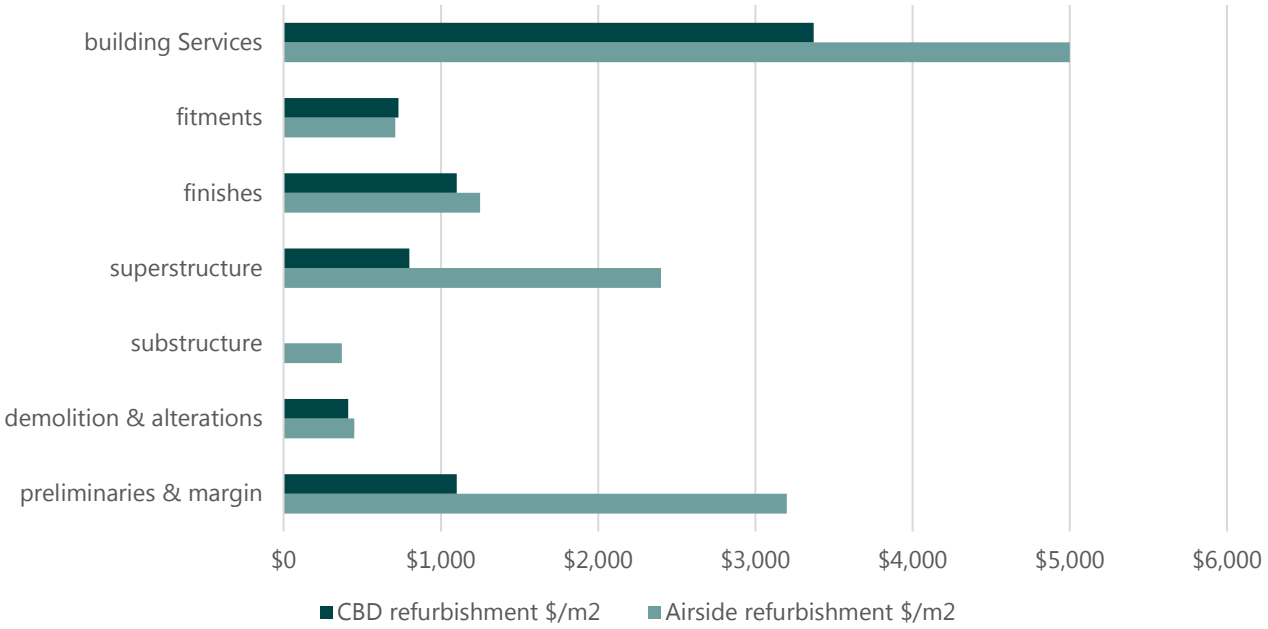

Exhibit 1

Bathroom amenity refurbishment average elemental building costs comparison between a CBD and airside environment.

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Counting the costs of airport construction *cont.*

Preliminaries, overheads and margins on airside projects is often more than 25% of trade costs due to operations (staging, increased program, out of hours, temporary works, insurance costs, inefficiencies in productivity in getting to the job site). This can be more than double that seen in a more traditional delivery environment.

Demolition and alterations represents a small allocation of total project costs (less than 10%). The data identifies an approximately 10% premium to be paid on airside projects, likely due to loss of productivity, out of hours and site logistics (i.e. removal of waste from site).

Substructure costs are unusual for refurbishment projects; however some airside projects have seen slab and footing strengthening to accommodate internal reconfiguration changes to suit passenger requirements. This is not required in more typical projects where capacity and configuration tend to remain unchanged.

Superstructure costs predominately represent internal walls, screens and doors. Cost premiums are minimal (less than 10%) representing increased labour time due to productivity loss and site logistics. As most fitout work is contained, works can be completed in normal working hours, reducing major labour premiums associated with short shifts or night works.

A marked increase in superstructure costs comes where changes in configuration lead to additional structure (lightweight columns or strengthening existing members) modifications to roofs and external walls. Similar to substructure, this is avoided in more traditional refurbishment projects where layout is maintained.

Finishes for walls, floors and ceilings carry an approximately 15% premium compared to non-airside projects. This aligns with the commentary for fitout costs above, with most works being completed in normal working hours.

Fitment costs appear to be similar across the projects. Given that many items in fitments (vanities, mirrors, equipment) have high supply costs with a smaller labour component, this is not surprising.

Building services cost data shows significant premiums, with average airside refurbishments costing approximately $5,000/m2 – around 50% more than more traditional refurbishments. This is hard to unravel, and is partly scope driven by the unique service requirements of the airport.

The biggest culprits are hydraulics (likely due to integrated sanitising, cleaning and drying stations as well as reconfiguration of waste and water points) and fire services (requiring a complex series of drain downs or pipe freezing, fire impairments, temporary supplies and out-of-hours work). The requirement to use named sub-contractors for much of this work may be required to ensure operational continuity, however the true cost premium of this certainty remains to be seen.

Total construction costs for airside amenity upgrades average approximately $13,000/m2, an approximate 78% uplift on the cost of more traditional refurbishment. As always, data should be treated with caution and much of this will be driven by the additional scope to meet the airport's requirements. All projects are unique and premiums will vary from project to project.

The above costs do not allow for security and access requirements for construction activities in an airside environment. While these costs are project and program specific, they may add a further 5% to construction costs.

An extrapolation of this cost analysis, and our experience with large scale air-side projects, tells us that considerable savings can be achieved through a range of strategic initiatives in planning and implementation phases, as detailed in the next section.

Exhibit 2

Bathroom amenity refurbishment average total construction costs comparison between a CBD and airside environment.

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Where to from here?

The bottom line? A brick or tile laid, a cubic metre of concrete poured or an electrical system wired in an airport environment is not the same as the equivalent delivered elsewhere.

Building in 'live' environments brings additional challenges and cost premiums. At airports, stepping past the security barrier immediately incurs additional costs.

How can astute airport managers respond to minimise cost premiums while balancing operational continuity? Here are some of our key takeaways:

- **Smart decisions** during the planning and design phase can de-risk the project by reducing labour and overall project costs. Construction costs are made up of material, labour, and plant and equipment. With materials and plant remaining stable, labour is the volatile commodity that fluctuates subject to working environment.
- **Engaging early** with operational stakeholders will maximise the time and ability to agree a delivery plan that is best-for-project. With more time to plan around the disruption, operational teams can be more accommodating, avoiding the need for night works, shorter shifts, in-turn improving productivity and reducing overall labour costs.
- **Delivery planning** early and thoroughly considered can also reduce labour costs by defining efficient site logistics and temporary works. This includes locating site accommodation close to the job site, planning controlled delivery or movement of materials (i.e. efficiently at the same time each day reducing work safety officer / security costs). Costs plans from an early stage should consider these items to ensure budgets are robust.
- **Modular construction** should be considered for large scale airside developments (see Midfield Satellite Concourse South – MSC) or pre-fabrication of building components should be tested for cost / benefits (pre-cast concrete, curtain walling, structured insulated panels, or SIPs, etc). Reducing labour intensive trades at the job-front should be investigated where possible.
- **Supply chain** investment to increase knowledge and experience of the working environment. This includes market sounding, briefings and project opportunities on 'safe' projects for contractors to 'cut their teeth'. Importantly, clients should articulate the working environment through a clear and detailed set of preliminaries to provide a baseline, allowing contractors to provide competitive pricing without ambiguity and significant risk premiums. Named contractors and subcontractors may make operational continuity sense, but it is important that this coexists with value-for-money outcomes.

Construction airside demands meticulous planning and deep expertise. Proactive management can ensure projects are delivered on time, within realistic budgets, and with minimal disruption to airport operations and passenger experiences. Slattery is here to help.

Smart decisions during the planning and design phase can be made to de-risk the project, reducing labour and overall project costs.

References

Bureau of Infrastructure, Transport and Regional Economics (BITRE) (2023), Domestic aviation summary, retrieved 11 February 2025, https://www.bitre.gov.au/statistics/aviation/domestic

International Air Transport Association (IATA) (2023), Industry statistics, retrieved 11 February 2025, https://www.iata.org/en/iata-repository/pressroom/fact-sheets/industry-statistics/

Infrastructure Australia (2023), Public infrastructure workforce supply dashboard, retrieved 11 February 2025, https://www.infrastructureaustralia.gov.au/public-infrastructure-workforce-supply-dashboard

Australian Securities and Investments Commission (ASIC) (2023), Insolvency statistics – current, retrieved 11 February 2025, https://asic.gov.au/regulatory-resources/find-a-document/statistics/insolvency-statistics/insolvency-statistics-current/

Los Angeles World Airports (LAWA) (2023), Midfield Satellite Concourse South (MSC), retrieved 11 February 2025, https://www.lawa.org/en/transforminglax/projects/midfield-satellite-concourse-south---msc

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About Slattery

Slattery is a property and construction advisory firm specialising in quantity surveying, cost management, early phase project advisory and carbon accounting.

With an outstanding history spanning four decades, and a commitment to excellence, innovation and collaboration, Slattery has earned the trust and respect of clients and project teams around Australia.

We work hand-in-hand with public and private sector clients, as well as with planners, architects and design teams on ambitious projects. We are committed to knowledge leadership, reconciliation, sustainability and achieving great outcomes for the community through the built environment.

About Kaizen

Our Kaizen papers share knowledge, ideas and cost information to move our industry further and faster together. Kaizen is the Japanese word for improvement, reflecting a business philosophy focused on change for the better.

Explore our knowledge base of Kaizens at www.slattery.com.au/thought-leadership

Our aviation capability

Slattery's team has built a strong reputation as a trusted advisory expert in the aviation sector. With more than three decades of experience in Australia and internationally, our experts can offer current market advice, deliver timely insights and address issues as they arise to balance budgets and mitigate risks.

Please contact our Slattery aviation specialists for further information.

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