

# Bringing Advanced Air Mobility (AAM) to Brisbane, South East Queensland (SEQ), Australia

Identifying and Implementing the Opportunities AAM Presents for SEQ

February 2023



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# Foreword

## MESSAGE FROM BRISBANE LORD MAYOR ADRIAN SCHRINNER AS CHAIR OF THE COUNCIL OF MAYORS (SEQ)

Brisbane 2032 Olympic and Paralympic Games presents an opportunity for South East Queensland (SEQ) to showcase to the world our unique region and lifestyle offering, with its diverse wilderness, enviable climate and inclusive culture. Council of Mayors (South East Queensland) is committed to embracing the Brisbane 2032 Games to build on South East Queensland's success to ensure our region emerges as a leader in connectivity, inclusivity, innovation and sustainability.

We have committed to a climate-positive Games and, to achieve this, we must adopt sustainability at the centre of our decision-making. We must invest in projects and initiatives that have a positive impact. Likewise, as we prepare and plan for Brisbane 2032, we must bring our people and places closer together, as we prioritise fit-for-purpose infrastructure, services, economic growth, diversity, inclusion, and a clean and safe environment.

We must build a region that is connected by fast regional infrastructure. We must support residents and businesses by providing access to world-leading information technology and communication networks; and we must be future-focused through creativity and innovation.

I am proud that Councils across SEQ are leading the way when it comes to Games preparedness. We are acutely aware of the task ahead of us and we are approaching that task with vigour and enthusiasm. Council of Mayors (SEQ) partnership



with Wisk, a world leader in Advanced Air Mobility technologies, demonstrates that our preparations are under way.

This partnership represents a new way forward — where governments collaborate with industry to deliver new technologies, new investments and new jobs for our region. Advanced Air Mobility (AAM), as a new and emerging aviation sector, promises to deliver greater connectivity, sustainability and inclusiveness across SEQ and this Paper details the possibilities that can be realised for the betterment of SEQ.

As we embark on our AAM journey, governments, industry and the community must work together. We must collaborate in the planning of this new and exciting technology to ensure future air-taxi services are integrated into our transport networks, thereby providing greater access and choice for businesses and residents alike.

As we prepare for our future, we look forward to working with our local communities to ensure Advanced Air Mobility improves the lifestyle of South East Queenslanders by improving how we conduct business, how we move throughout our region and how we live our daily lives.

An exciting future awaits us all and we're excited to work together to make it a reality for our region.

## MESSAGE FROM WISK CEO, BRIAN YUTKO

A new chapter in aviation is on the horizon, with the combination of social dynamics, sustainability goals and breakthroughs in technology.

Advanced Air Mobility (AAM) is poised to bring personal and accessible flight to more people.

Advancements in technology, autonomy, and electric propulsion are creating a wave of inspiring inventions which have the potential to change transport forever — the likes of which haven't been seen since the invention of the car.

Wisk is at the forefront of this change, as the first Advanced Air Mobility company from the United States to design, build and fly an all-electric, self-flying air taxi. We are anchored in more than 12 years of shaping and participating in the emerging global AAM industry, and we are thrilled to collaborate with the South East Queensland Council of Mayors on the shared goal of bringing AAM to the region.

Wisk's mission is to deliver safe, everyday flight for everyone. Our focus is not just on certification of the aircraft (making sure it's safe to fly), but also on the broader regulatory and operating environment (creating an ecosystem where everyday flight is a reality). Our mission is also to deliver an unmatched customer experience that is accessible and affordable to everyone.



Having established a Memorandum of Understanding with South East Queensland's Council of Mayors in July 2022, we are excited to work with them towards a whole-of-industry approach to realising the benefits of AAM in South East Queensland.

Wisk's partnership with Council of Mayors (South East Queensland), combined with Wisk's broader global efforts and partnerships, is advancing the AAM industry. Our global effort provides the opportunity to develop world-leading infrastructure, invent new social norms, and build on the aviation successes of the past, all while continuously improving safety and efficiency.

We look forward to making safe, everyday flight a reality for everyone.



# Overview

## **A New Concept for South East Queensland**

Advanced Air Mobility (AAM) is a transformational concept of air transport that utilises electric, often highly autonomous, aircraft for the movement of passengers and freight.

South East Queensland has a growing population and high transport demand. This challenge provides government and industry with an opportunity to consider innovative solutions to improve the connectivity of the region, while reducing environmental impact and travel times.

## **A Strong Partnership**

To support the future growth and success of the region, The Council of Mayors, South East Queensland (CoMSEQ) have entered a strategic partnership with AAM company Wisk, who are dedicated to delivering safe, everyday flight for everyone through their highly autonomous air taxis.

This partnership is anchored in shared commitments to safety, accessibility and equity, sustainability and innovation, and community benefit.

## **A Chance to Revolutionise Transport**

Although autonomous flight may sound ambitious, it leverages the same proven technology used in commercial aviation services today, such as the frequent use of autopilot. Safety is at the heart of AAM, and Wisk aircraft are designed to the highest possible safety standards.

AAM will complement existing infrastructure development and connect with existing modes of transport, such as bus and rail networks.

A successful AAM ecosystem will have many component parts and players — from vehicles and their operators to digital communication systems that will oversee and monitor flight paths and operations. This includes the development of infrastructure where aircraft can take off, land, be maintained, and charge.

## **A Great Place to Be**

The geographic distribution of urban and regional centres throughout SEQ presents significant opportunities for air taxi services, including bringing improved accessibility and resilience to remote and underserved communities.

AAM also provides economic opportunities, job creation and environmental benefits for the region.

## **A Transformative Brisbane 2032**

As SEQ prepares to host the largest sporting event in the world, the Brisbane 2032 Olympic and Paralympic Games, the use of AAM services, supported by transformational technologies in energy storage, can provide a lasting legacy for the people of SEQ by delivering a region that is connected, diverse, innovative and sustainable.

# About AAM

## WHY AAM, WHY SOUTH EAST QUEENSLAND?

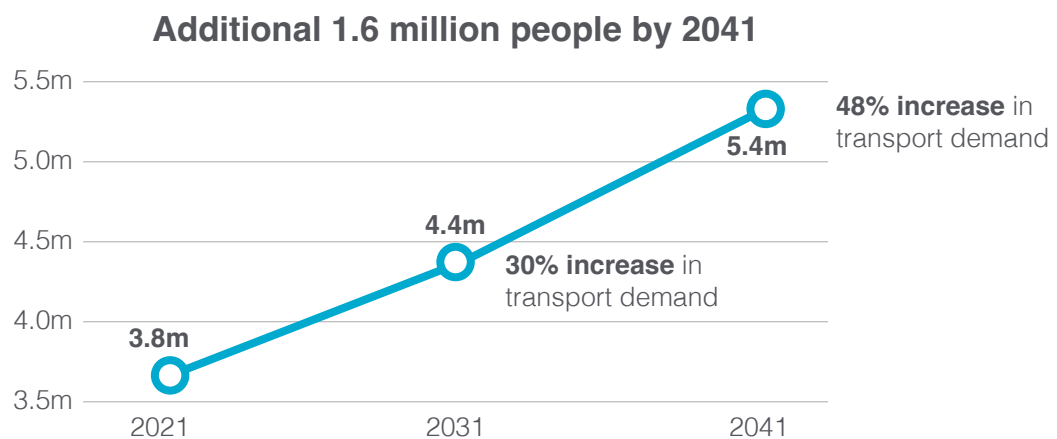
Across Australia and worldwide, consumers are increasingly turning away from private ownership and are opting to share and access goods and services. Rideshare services have transformed the way ground transportation is viewed and used throughout the world, including in South East Queensland (SEQ).

The use of electric vehicles across SEQ is increasing, as consumers attempt to curb the environmental impact of internal combustion engines. However, urban congestion continues to grow, increasing cost and inconvenience to businesses and the community. Likewise, as SEQ continues to be one of the fastest-growing regions in Australia, demand for transport services continues to grow. By 2031, demand for transport is projected to increase by 30%, which will place further pressure on existing infrastructure and services.<sup>1</sup>

To support a growing population and transport demand, it is critical that governments and industry consider new and innovative solutions to improve the way we move, while also reducing our environmental impact and travel times.

The goal of any future transport solution must be to spend less time getting there and more time at our final destinations. This is where Advanced Air Mobility (AAM) has a role to play.

As SEQ looks to the coming decade and the region prepares to host the largest sporting event in the world, the Brisbane 2032 Olympic and Paralympic Games, the use of AAM services, supported by transformational technologies in energy storage, will become an increasingly important part of SEQ's transportation network.



Source: SEQ People Mass Movement Study (2019)

<sup>1</sup>South East Queensland (SEQ) People Mass Movement Study, Council of Mayors (SEQ), 2019

Covering an area of 35,248 square kilometres, stretching 240 km north-south and 140km east-west, SEQ is an emerging global region, boasting a diverse and growing economy and unique lifestyle offering. With the region expected to be home to more than 5.4 million residents by 2041, governments across all levels have an opportunity to work with industry to plan for the future to support an increasingly future-focused region — one that is connected, innovative and sustainable.

AAM includes a range of predominantly electric aircraft types which will transport passengers and freight across and within the urban and regional areas of SEQ. It is envisaged AAM will complement existing infrastructure development, like the fully electric fleet from Brisbane Metro and Cross River Rail, and connect with existing modes of transport, such as bus and rail networks.

In regional communities such as Scenic Rim, Somerset, Toowoomba and Lockyer Valley, AAM can enable shorter travel times from the city fringe and regional areas to major metropolitan centres and transport hubs. AAM can also provide regional, remote and island communities with enhanced mobility options at significantly lower infrastructure cost.



Redlands Coast



## WHAT IS AAM?

AAM is a transformational concept of air transport, utilising electric vertical take-off and landing (eVTOL) aircraft for the movement of passengers and freight between locations, including those that are not currently served by safe, regular and affordable transport.

AAM air taxi services will utilise both crewed and uncrewed (autonomous) aircraft, and will operate between fixed locations known as vertiports. After taking off vertically from an origin vertiport, air taxis will fly on predetermined flight paths, up to 1.5 km above the ground, before descending and landing vertically at a destination vertiport.

Wisk specialises in autonomous passenger aircraft, which fly with no pilot on board. While Wisk aircraft are self-flying, human oversight remains a core part of the overall operation and all Wisk flights will be monitored from a ground control station by a human supervisor.

This unique combination of autonomous flight with human oversight improves sustainability and efficiency while ensuring the safety of passengers, the aircraft, other airspace users, and communities.

More information on Wisk's self-flying first approach can be found on [Wisk's website](#) and in the company's [How it works: Autonomy Explained](#) video.



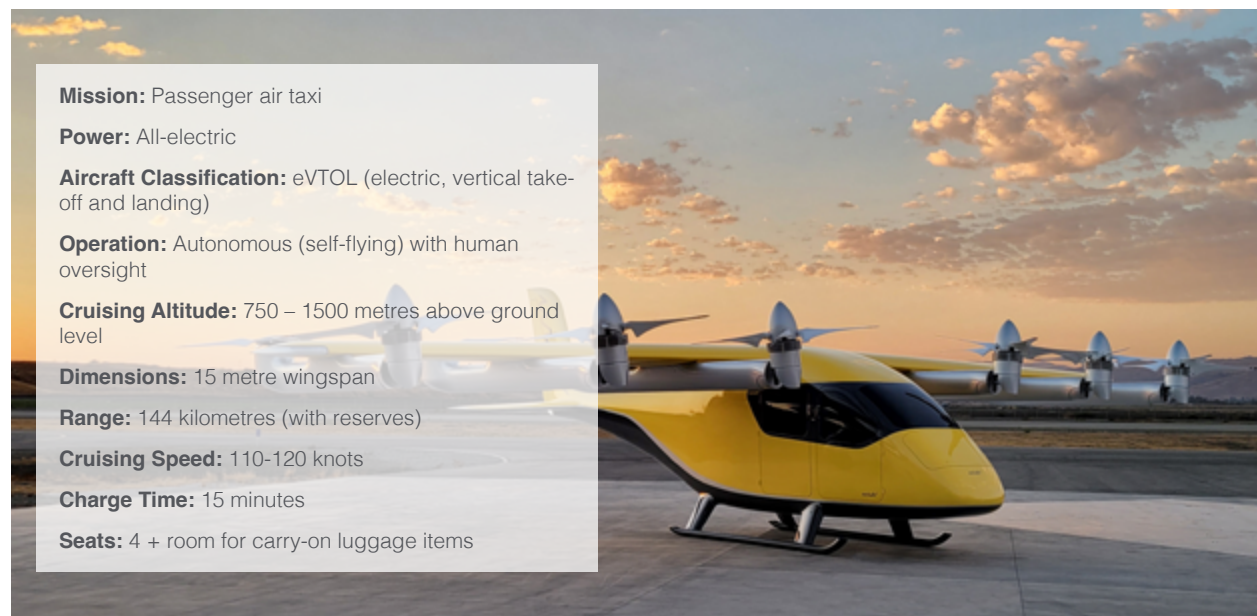
## AIRCRAFT TECHNOLOGY & AUTONOMY — WISK'S GENERATION 6 AIR TAXI

The AAM sector is ushering in a range of new aircraft technologies including eVTOL aircraft that operate on battery electric power, with no emissions and are comparable in size to, but significantly quieter than, helicopters.

One example of this new aircraft technology is Wisk's 6th Generation air taxi. Wisk's Generation 6 air taxi was revealed in October 2022 as the world's first all-electric, autonomous, four-seat eVTOL air taxi designed for passenger transport. This new air taxi provides space for passengers and their luggage, ensures that AAM services are accessible for people with disabilities, and minimises the noise impacts of aviation on communities.

Although autonomous flight may sound ambitious, it leverages the same proven technology used in commercial aviation services today. 93% of traditional pilot functions on commercial flights are already performed by computers; such as autopilots, precision navigation, flight management systems, and more.

The addition of innovative new sensors, and automated safety systems combined with human oversight from the ground, will ensure that Wisk's autonomous air taxi exceeds the high safety standards already set by commercial aviation.



**Mission:** Passenger air taxi  
**Power:** All-electric  
**Aircraft Classification:** eVTOL (electric, vertical take-off and landing)  
**Operation:** Autonomous (self-flying) with human oversight  
**Cruising Altitude:** 750 – 1500 metres above ground level  
**Dimensions:** 15 metre wingspan  
**Range:** 144 kilometres (with reserves)  
**Cruising Speed:** 110-120 knots  
**Charge Time:** 15 minutes  
**Seats:** 4 + room for carry-on luggage items

Wisk's 6th Generation aircraft was designed for Advanced Air Mobility

## SAFETY FIRST, ALWAYS

Safety is the number one priority for implementing AAM services. Aircraft such as Wisk's Generation 6 air taxi will need to meet strict safety and regulatory guidelines, including certification by Australia's Civil Aviation Safety Authority (CASA) before they can take to the skies.

Commercial aviation is already the safest mode of transport. Wisk's 6th generation aircraft is being designed to exceed rigorous aviation safety standards.

Approximately 80% of aircraft accidents can be attributed to human error,<sup>2</sup> a statistic that autonomous systems can help reduce. Autonomy is a key component of Wisk's safety-first approach that will ensure air taxi services continue to increase aviation safety standards to new levels.

**The benefits of a shared and automated mobility future are immense: Improved safety, accessibility and productivity are achievable in conjunction with reduced costs, congestion and emissions.<sup>3</sup>**

Safety is a core principal at Wisk and there are four pillars that form Wisk's safety approach:



### **Highest Possible Safety Standard:**

Wisk design aircraft and services using the highest possible safety standard.

That means there is a one in a billion chance of an issue.



### **Autonomous Flight with Human Oversight:**

With industry leading autonomy in the air and human

oversight on the ground, Wisk's self-flying first approach leverages the best of both worlds to increase safety.



### **Simplified Design:**

By simplifying designs, Wisk have decreased the total number of safety — and flight-critical moving parts. Fewer moving parts means fewer points of failure.



### **No Single Point of Failure:**

In addition to a simplified design, Wisk has designed-in multiple redundant systems and engineered out all single points of failure.

<sup>2</sup>[MEDA Investigation Process](#), Boeing

<sup>3</sup>Transforming Mobility. A regulatory roadmap for connected and automated vehicles, Inquiry into automated mass transit Submission 27 — Attachment 1: NRMA, Keolis Downer, PWC, Nov 2017, page 2.



## INFRASTRUCTURE & URBAN PLANNING

Creating an AAM environment means developing infrastructure where aircraft can take off, land, be maintained, and charged. The introduction of AAM would likely require new considerations for urban planning to ensure successful integration within cities and urban areas.

### **Take-Off and Landing**

Air taxi services will take off and land at vertiports. A vertiport is a collective term referring to areas designed specifically for AAM aircraft to take off and land, much like a heliport is a designated area for helicopters.

Each vertiport location will include facilities for passenger check in, boarding and arrival, and equipment for charging, cleaning and maintaining air taxis. It is important vertiports are situated in the best locations to ensure air taxis provide maximum benefit to communities with minimal disruption.

Industry, all levels of government and the community must work together to ensure vertiports are properly designed and located to ensure they are integrated into the multi-modal transport ecosystem. Urban planning regulations will need to be fit-for-purpose to guide land use, height limits and routes, and to ensure appropriate integration with other land uses, biodiversity and community.

### **Charging**

Electricity supply infrastructure will be critical to enable the charging of all-electric air taxis. AAM vehicles will require megawatt size chargers, over ten times more powerful than typical EV fast chargers. Planning for AAM in the design of electricity distribution, energy supply systems, and energy storage is critical in ensuring sufficient renewable energy is available at vertiports to power the industry.

### **Aircraft Maintenance**

Much like traditional transport vehicles, air taxis will also need places to park overnight and be maintained. Maintenance facilities and maintenance personnel in each operating area will be needed. However, unlike traditional aviation, AAM services are more limited in range and so maintenance and overhaul services are likely to be placed frequently throughout the operating network, creating jobs and new industries throughout regions hosting AAM services. To ensure appropriate access to aircraft maintenance, careful and thoughtful planning is required.

Overall, the infrastructure needed to support the operation of AAM will depend on a variety of factors, including the specific technology being used and the operating environment. It will be important for industry and regulators to carefully consider these factors as they work to bring air-taxi services to market.

# A Foundation for Collaboration and Partnership

To support the future growth and success of the region, CoMSEQ has entered a strategic partnership with Wisk, which represents a new approach by local government to embrace new opportunities and attract global businesses and innovative industries to SEQ. Through this unique collaboration, CoMSEQ will work with Wisk and the AAM industry to support the introduction of safe, all-electric and autonomous flights to SEQ, improving connectivity and sustainability throughout the region. The partnership brings together both government and industry representatives who will work together to realise the benefits of the emerging AAM sector and ensure SEQ is at the forefront of the new technology arriving to Australia and the benefits this can have to local economies and communities.

## About the Council of Mayors (SEQ)

Council of Mayors (SEQ) (CoMSEQ) is Australia's largest regional local government advocacy organisation, representing more than one in seven Australians who call SEQ home. CoMSEQ has a track record of working together with industry, member councils and other tiers of government to deliver outcomes that respond to SEQ's challenges and capitalise on the region's opportunities. Today, there are 11 local government members from across SEQ, with the Mayor of each member council constituting CoMSEQ's Board.

CoMSEQ's mission is to consistently deliver better regional funding, policy and collaborative outcomes for the communities of SEQ by focusing on the following value areas:

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**CoMSEQ's Mission:** To consistently deliver better regional funding, policy and collaborative outcomes for the communities of South East Queensland.



### We are the voice of SEQ

Representing one in seven Australians who call South East Queensland home.



### We are thought leaders

Exploring new ways to solve South East Queensland's challenges and maximise its opportunities.



### We are partners in SEQ's future

Forming strategic alliances and delivering tangible outcomes for South East Queensland.



### We are innovative, agile and motivated

Adding value for South East Queensland councils and communities.

## About Wisk

In 2010, a team set out to explore the possibilities of developing an electric, vertical take-off and landing aircraft. In 2019, that team and its five generations of aircraft became Wisk through a joint venture between The Boeing Company and Kitty Hawk Corporation.

Wisk is an AAM company dedicated to delivering safe, everyday flight for everyone. Wisk's self-flying, eVTOL air taxi, will make it possible for passengers to skip the traffic and get to their destination faster.

With more than 12 years of experience and more than 1,600 test flights, Wisk is shaping the future of daily commutes and urban travel, safely and sustainably.

Wisk is headquartered in the San Francisco Bay Area, with locations in Atlanta and around the world including Australia, New Zealand, and Canada.





## TRANSFORMING MOBILITY IN SOUTH EAST QUEENSLAND

Although AAM is often referred to as Urban Air Mobility, it is anticipated eVTOL technology will be sustainably used throughout SEQ to support existing transport networks by connecting urban and regional centres, and bringing improved accessibility and resilience to remote and underserved communities.

Importantly, the geographic distribution of urban and regional centres throughout SEQ presents significant opportunities for air taxi services. Advanced aircraft, such as Wisk's Generation 6 air taxi, will unlock new opportunities that have the potential to transform mobility such as:

- Connecting travellers at Brisbane Airport to the Sunshine Coast in only 22 minutes, saving at least an hour sitting in traffic,
- Opening new tourism possibilities with flights from Brisbane CBD to the islands of Moreton Bay, or to the pristine wilderness areas of the Scenic Rim, in under 15 minutes, and
- Improving health outcomes for regional communities by connecting communities in the regional communities to medical services in major centres in less than 25 minutes.

Queensland Government modelling suggests that by 2036, skies across SEQ could host hundreds of daily passenger and freight services. Existing aviation infrastructure, such as Brisbane Airport, Sunshine Coast Airport and Wellcamp Airport, and heliports, are likely to be key locations in SEQ's AAM network.<sup>4</sup>

Importantly, among global markets, Australia is poised to lead in the global AAM revolution. KPMG's global Air Taxi Readiness Index places Australia among the top ten countries in terms of preparedness for air taxi adoption, with infrastructure a key advantage.<sup>5</sup> Through industry-leading partnerships and collaborative infrastructure investment such as the SEQ City Deal, SEQ has a clear opportunity to lead the introduction of AAM in Australia in the lead up to the Brisbane 2032 Games.

**Congestion on roads, lost productivity, environmental awareness and cost of living pressures have partly led to a transition away from individualised forms of transport. Growing trends around the world point to increasing levels of ride sharing, bike sharing, carpooling, on demand services and public transport use.”<sup>6</sup>**

<sup>4</sup> Conceptual Modelling of Drone Transport | Scenarios for the future Department of Transport and Main Roads WSP.

<sup>5</sup> KPMG Air Taxi Readiness Index 2022.

<sup>6</sup> Transforming Mobility, page 7.

## HOW AAM WILL BE INTRODUCED TO SOUTH EAST QUEENSLAND

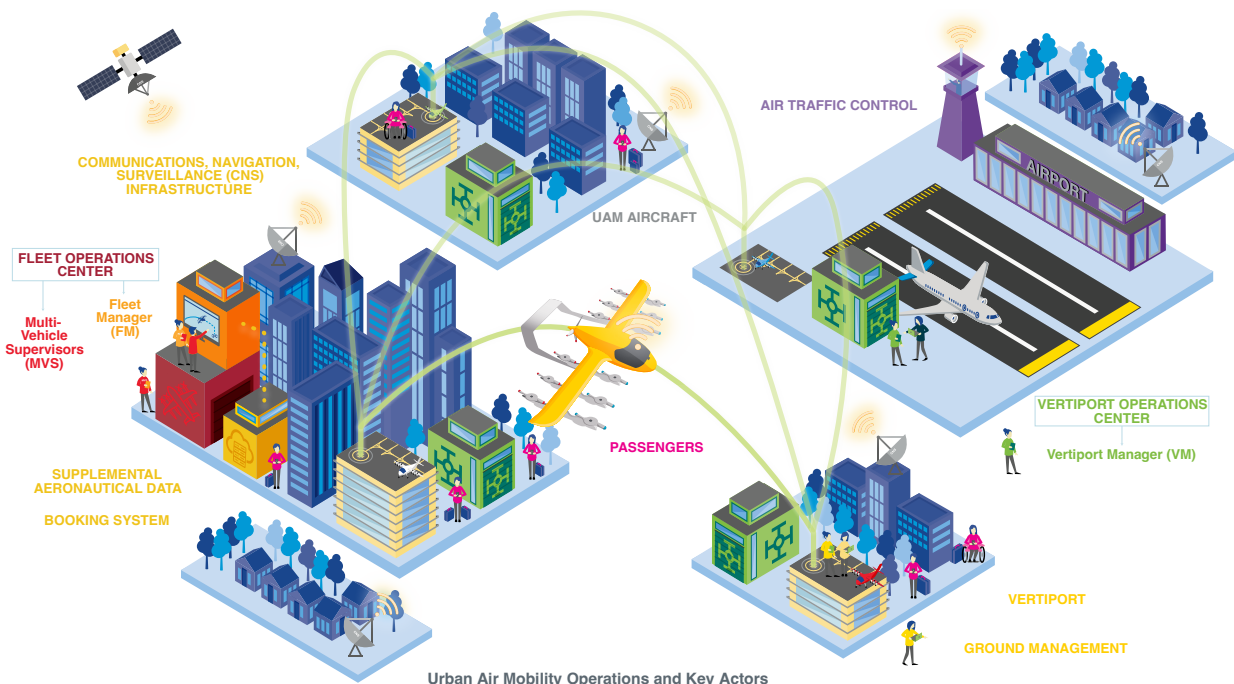
To make AAM flights a reality in SEQ, technology must be supported by an ecosystem that supports air-taxi services to deliver greater connectivity for businesses and residents, underpinned by strong public support, safety and sustainable outcomes.

A successful AAM ecosystem will have many component parts and players — from vehicles and their operators to digital communication systems that will oversee and monitor flight paths and operations. A mature ecosystem will also include supporting physical infrastructure that will enable goods and customers to access flight services and a strong regulatory environment that guarantees safety and minimises impacts on local communities.

Wisk and Boeing have jointly produced the diagram below that illustrates the future AAM ecosystem:

To catalyse the growth of the AAM ecosystem in SEQ, CoMSEQ will be instrumental in bringing together the relevant government and community stakeholders to make AAM flights a reality. Meanwhile, Wisk will lead engagement with industry and regulators to facilitate the supporting ecosystem and regulatory environment. In planning the future AAM sector in SEQ, CoMSEQ and Wisk will develop a **Future Advanced Air Mobility SEQ Roadmap** that will inform priority actions and future steps for the design and development of the AAM ecosystem across SEQ. It is anticipated the roadmap will prioritise the following areas:

- Supporting Infrastructure
- Operating Environment
- Legal & Regulatory (planning, integration, safety) Considerations
- Trust and Community Confidence



Source: Boeing and Wisk Concept of Operations for Uncrewed Urban Air Mobility (2022)

## **Supporting Infrastructure**

Infrastructure includes physical infrastructure that will be used to access AAM flights and supporting digital infrastructures that will enable flight operations. Careful planning is needed to determine landing locations, which will be informed by flight routes, community impact, customer demand, regulatory requirements and existing facilities and services. Over the next 12 to 24 months CoMSEQ will support its member councils to work with Wisk and vertiport providers to identify where vertiports could be located and to plan for future flight routes across the region.

## **Operations**

The future operating environment for this new and emerging technology is multifaceted. It will include airspace requirements such as flight routes, rules and procedures, complex data and real-time information services and interconnected digital communication systems. Flight operators such as Wisk and regulatory authorities such as CASA and Air Services Australia will be responsible for developing the operational environment for AAM flights to become a reality. Importantly, CoMSEQ, along with its member councils, will collaborate with industry and regulators to plan for the future AAM sector in SEQ including local needs and considerations which need to be taken on board by industry and regulators looking to operate in SEQ.

## *Legal & Regulatory*

Safety is the paramount consideration in bringing AAM technology and air taxi services to SEQ. Strong safety standards and requirements will ensure there is broad community support for AAM services and that flights can operate under the most rigorous of safety standards and protocols. Australian Government agencies will be pivotal in determining the applicable safety requirements for the operation of AAM flights.

Both Wisk and CoMSEQ are committed to the delivery of a safe and successful AAM sector in SEQ and will work closely with Airservices Australia and CASA in the evolution of regulation and airspace design to make AAM services accessible to everyone.

The Queensland Government is also a key player to delivering the AAM sector and ecosystem. Relevant State legislation may affect and regulate the future delivery of AAM flights includes the Transport Operations (Passenger Transport) Act 1994 and the Transport Planning and Coordination Act 1994. Equally, many planning considerations must be undertaken in the design and implementation of SEQ's AAM ecosystem, especially for supporting infrastructure such as vertiport facilities. To support the growth of the AAM ecosystem and sector in SEQ, CoMSEQ will work with, and support engagement between member Councils, industry, and the Queensland Government to plan for the future of AAM flight routes and the design and location of vertiports throughout the region.

## Trust & Confidence

The success of AAM will depend, in part, on the willingness of the public to accept and use this technology. It will be important for operators, developers and regulators to engage with the public and address any concerns or issues that may arise.

As highlighted in this Paper, the AAM sector currently exists as a nascent but quickly emerging sector. Wisk and CoMSEQ are committed to supporting the AAM sector in SEQ and to provide air-taxi services that improve connectivity, accessibility and sustainability and enhance communities across the region. However, to be successful, community support and confidence is essential. Accordingly, government and industry will need to engage with local communities regularly and proactively across the region.





# Benefits of AAM to South East Queensland

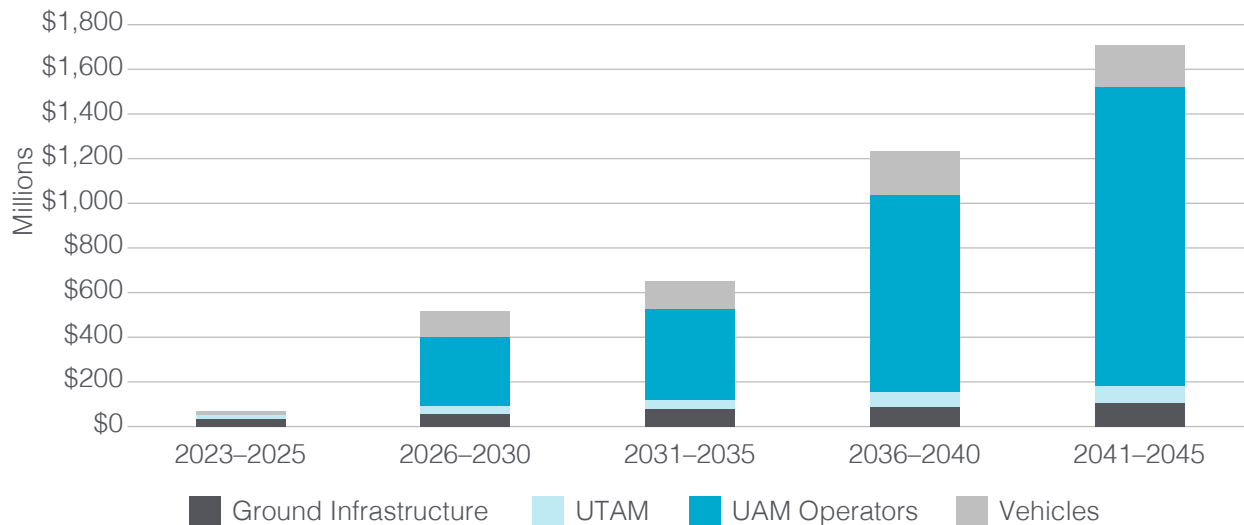
## OVERALL ECONOMIC IMPACT

In addition to reducing congestion and supporting greater connectivity, the AAM sector also has the potential to have a positive economic impact and grow the economy. Morgan Stanley projects the global market for AAM will be worth over \$AUD2.2 trillion by 2040.<sup>7</sup> With Australia poised to capture around 3% of the global AAM market, according to a recent Roland Berger study<sup>8</sup>, it is projected that AAM could contribute over \$AUD66 billion, or 3.1%<sup>9</sup> of national GDP, to the Australian economy by 2040. A recent Nexa Capital study (December 2022)

has identified, with the adoption of AAM, the SE Queensland GDP will increase by an estimated \$3.7B (US) over the coming 25 years.<sup>10</sup>

The revenue forecast for AAM services in the SEQ region over the next 12-15 years is expected to be significant: driving major investment in infrastructure, job creation and advances in technology. Forecasts are for an AAM industry with a combination of passenger, business aviation, urban and regional air mobility to receive revenues of up to \$1.7B US by 2045.<sup>11</sup>

**South East Queensland Advanced Air Mobility Business Model Forecasts 2023–2045**



Source: Nexa Capital Report, SE Qld, Dec 2022, page 17.

<sup>7</sup> eVTOL/Urban Air Mobility TAM, Morgan Stanley 2021

<sup>8</sup> Advanced Air Mobility: Market study for APAC Manfred Hader, Global Head of Aerospace & Defense, Roland Berger

<sup>9</sup> Based on GDP projections from: The World in 2050, PWC 2017

<sup>10</sup> UAM Geomatics (A Nexa Capital Company), Report: Infrastructure to Support AAM in SE Queensland, December 2022, p23.

<sup>11</sup> UAM Geomatics (A Nexa Capital Company), p17

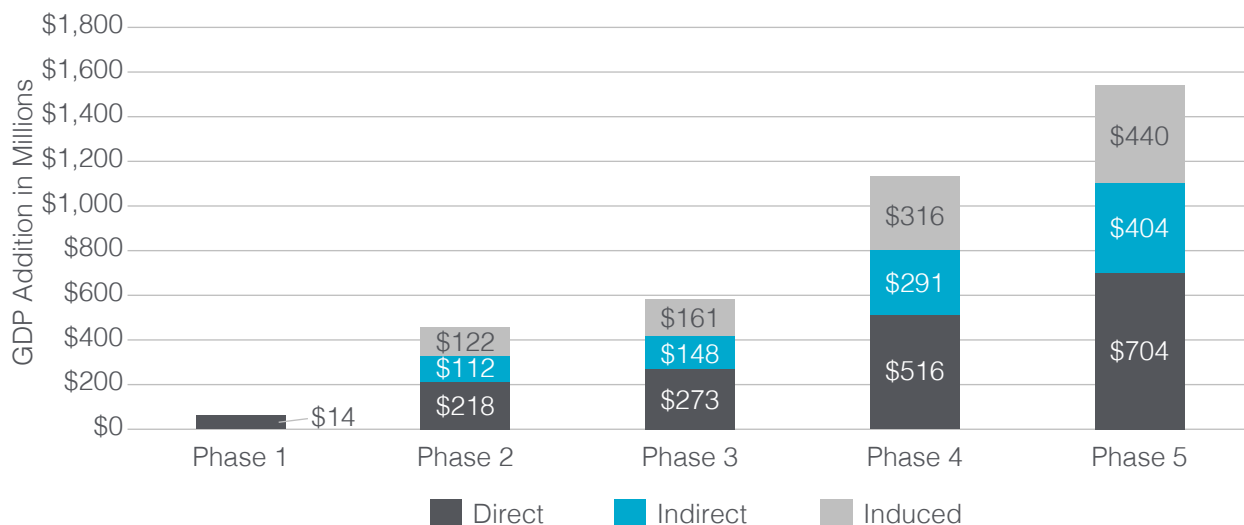
## CREATING NEW CONNECTIONS

With Queensland’s historical connection with the aviation dynamic aerospace industry, a strong aerospace skills training sector, and historic investment in infrastructure such as the SEQ City Deal, the state and the SEQ region are ideally placed to capitalise on the economic opportunities presented by AAM. In doing so, many high paying aerospace and aviation jobs could be created across the region, including, investment in supporting infrastructure and appropriate infrastructure and regulatory settings that lead to the safe integration of autonomous flight. By 2045, the AAM industry is expected to have created over 4600 new permanent jobs across the SEQ region.<sup>12</sup>

Traffic can be a major bottleneck in urban areas, leading to delays and lost productivity. By providing an alternative mode of transportation that can bypass traffic and integrate with existing transport services, AAM could help alleviate some of these issues and provide alternative means of connections throughout the region.

Another potential benefit of AAM is its ability to provide access and connectivity to underserved areas. In many cases, traditional modes of transportation may not be practical or cost-effective for reaching certain destinations, such as remote or rural areas and islands. Air taxi services could provide a convenient, efficient, and bespoke way to connect these areas with the rest of the transportation network.

### AAM Contribution to Brisbane GDP



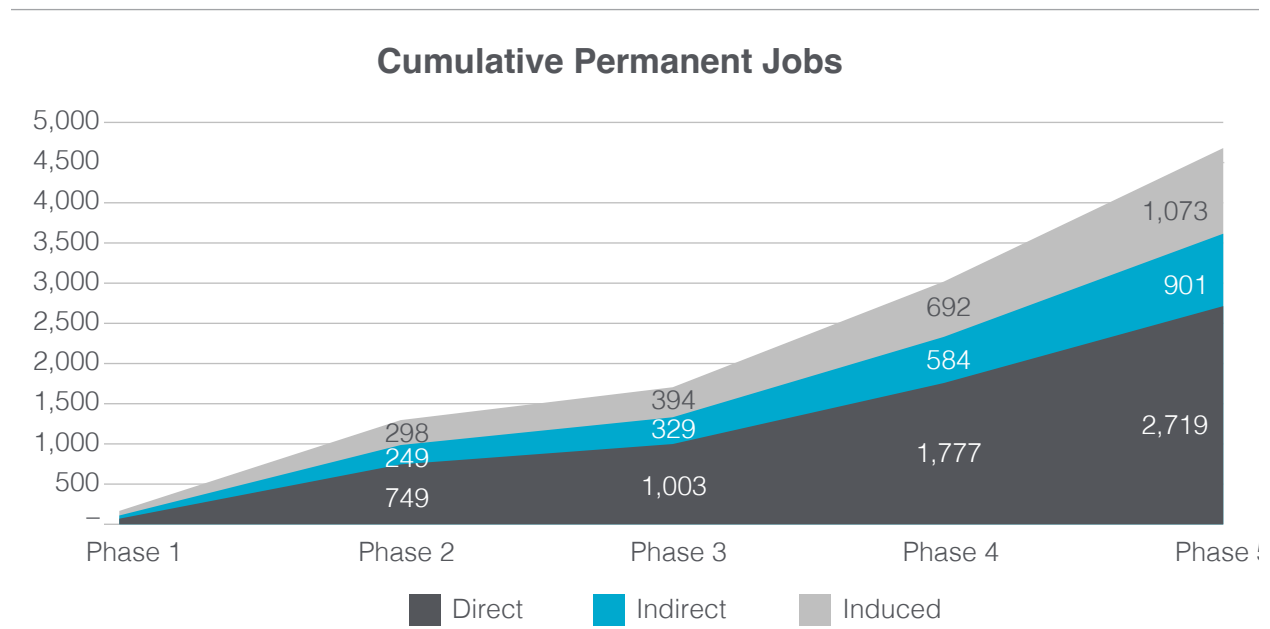
Source: Nexa Capital Report, SE Qld, Dec 2022, page 23.

<sup>12</sup> UAM Geomatics (A Nexa Capital Company), p23

## JOB OPPORTUNITIES

As an industry with the potential to contribute more than 3% of Australia's national GDP in economic value by 2040, AAM is poised to create an array of exciting, highly skilled and sustainable job opportunities in Queensland. For the AAM sector to flourish, it will require a broad range of skills, particularly focused on science, technology, engineering and mathematics (STEM) capabilities. Accordingly, it is imperative governments invest in education and training programs that up-skill existing capabilities and focus on developing young people's interest and expertise in areas of STEM.

AAM also offers the potential for increased workforce diversity, bringing in people who traditionally have not had access to the aviation industry. Job opportunities created by AAM will support existing programs aimed at increasing diversity and inclusion in aviation and supporting sectors, such as the Australian Government's Women in the Aviation Industry Initiative.<sup>13</sup>



Source: Nexa Capital Report, SE Qld, Dec 2022, page 23.

<sup>13</sup> [Women in the Aviation Industry Initiative](#)

There are a variety of jobs that may be associated with the flying taxi industry, including:

**Engineers:** Engineers will be responsible for designing and developing the aircraft and systems that power flying taxis. They may work on areas such as propulsion, avionics, and structural design.

**Technicians:** Technicians will be responsible for maintaining and repairing vehicles, as well as conducting inspections to ensure that the aircraft are safe and reliable.

**Operators:** Operators will be responsible for managing the day-to-day operations of air taxi services, including coordinating flights, managing schedules, and handling customer service.

**Regulators:** Regulators will be responsible for developing and enforcing the rules and regulations that govern the operation of air taxis. This may include developing safety standards, issuing licenses, managing technology and conducting inspections.

**Sales and marketing professionals:** Sales and marketing professionals will be responsible for promoting and selling air taxi services to potential customers. They may work to develop marketing campaigns, identify target markets, and negotiate contracts with customers.

**Customer service representatives:** Customer service representatives will be responsible for answering customer questions and providing support to air taxi passengers.

In the early phases of establishing an AAM industry in Queensland, a focus on infrastructure development will see a variety of jobs created to plan, design and build vertiports, communication infrastructure, aircraft maintenance facilities and software for operations.

Filling these jobs is likely to require expertise in software development, mechanical, electrical and structural engineering, qualified construction tradespeople, such as electricians, builders and welders, and city/town and transport planning experts. These jobs will not only be needed for initial construction of AAM supporting infrastructure, but for an extended duration as the AAM network scales up, and later requires significant asset management and maintenance. With AAM services throughout SEQ, employment opportunities will be spread across urban and regional centres to deliver the skills and capabilities required for region wide air taxi operations.

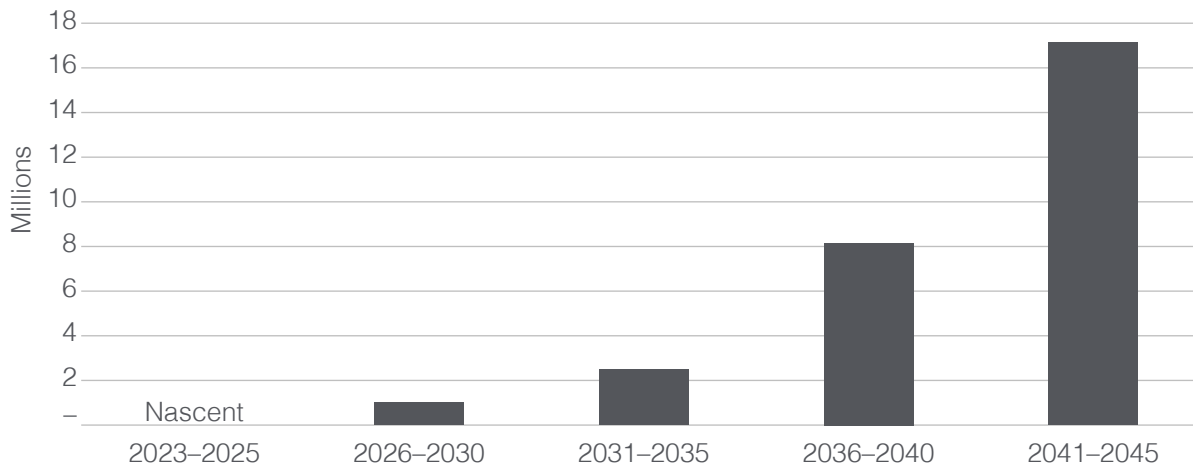


Once initial infrastructure is in place and AAM operations begin to take flight in Queensland, an array of specialised jobs will be created to support these transformative aviation operations. Multi-vehicle supervisors and fleet managers will be required to control and monitor AAM aircraft while in flight, planners and schedulers will need to ensure aircraft are optimally positioned to serve the community's demand for mobility, customer service representatives and ground handling teams will staff vertiports, while marketers and business managers will be needed to communicate new transport options to communities, and maintenance engineers will ensure air taxis remain airworthy and safe. A significant number of job opportunities will also be created in the development and delivery of

training programs for these roles, many of which will involve technology and skills new to the aviation industry.

As demand for air taxi services builds throughout Australia, local aircraft production and advanced manufacturing facilities may open to build and assemble AAM vehicles. Aerospace manufacturing opportunities associated with AAM would bring an additional layer of highly skilled manufacturing jobs to Queensland's urban and regional centres, including a wide variety of engineering roles, avionics and composite manufacturing technicians, battery and electric motor experts and logistics and supply chain coordinators.

### South East Queensland Passenger Demand by Phase



Source: Nexa Capital Report, SE Qld, Dec 2022, page 18.

## DELIVERING BENEFITS TO INDUSTRY IN SEQ

In planning and implementing the AAM sector in SEQ, it is important that governments and industry work to support and turbo charge the region's priority industries to grow the region's productivity, sustainability and liveability.

Importantly, AAM will be able to serve many different use cases, not only passenger air taxi services. For example, AAM flights could be used for medical transport, inspecting infrastructure and natural ecosystems, providing emergency response and transporting goods.

Through coordinated and strategic planning, AAM can also support the priority industries that have been identified by the Queensland Government as economic advantages for SEQ into the future. For example, AAM can:

- Support our tourism sectors by enabling greater access to the many tourism locations across the region. For example, AAM services could provide fast access to Moreton and Stradbroke Islands direct from the Brisbane CBD or Brisbane Airport, while also opening up access to other smaller islands located throughout the bay. Likewise, AAM could service wilderness areas across the region including throughout the Scenic Rim and Somerset local government areas.

- Complement existing and emerging transport and logistic routes by offering new integrated services, greater choice and enhanced connectivity.
- Facilitate the provision of more timely medical services by transporting patients, professionals, equipment and medical samples between locations more quickly.
- Deliver goods and equipment to locations throughout the region, including areas with limited or no transport connections.
- Provide a vital connection for fresh produce to arrive at major transport and distribution hubs more quickly and improved access to local and export markets.



## ENVIRONMENTAL BENEFITS

From the adoption of sustainable design principles, to monitoring environmental footprint and future impact, Wisk is committed to improving environmental impacts in the aerospace industry. Caring for people and the environment not only responsible business, but also good business. Circular design ensures that companies get maximum value out of a product at all stages of its life cycle, prioritising the efficient use of materials reduces the cost of waste, and utilising renewable energy reduces energy cost and increases security of supply.



Scenic Rim

### Carbon Reduction and Net Emissions

Air taxis such as Wisk's 6th generation aircraft are fully battery electric, meaning flight operations have zero direct emissions. To ensure there are no indirect emissions, it's imperative that energy can be sourced from renewable resources, such as solar, wind and hydroelectricity. This will require sustained private and public sector investment in programs such as the Queensland Government's Energy and Jobs Plan, which sets a 70% renewable energy target for 2032.<sup>14</sup> Likewise, the Brisbane 2032 Olympic and Paralympic Games will be a carbon positive games, a world first.<sup>15</sup> Similarly, Councils across SEQ have a range of local environmental and sustainability goals and ambitions.

To help achieve these commitments, new modes of sustainable transport are needed and embracing AAM is a great way to improve access to mobility, while also making a greater portion of the mobility ecosystem sustainably powered.

<sup>14</sup> [Queensland Energy and Jobs Plan, 2022](#)

<sup>15</sup> [Queensland Government Climate Action](#)

### **Power Sourcing and Batteries**

At scale, air taxi operations will require the Megawatt Charging System to facilitate fast turnaround times and efficient use of vertiport real estate. Queensland has the potential to ensure that the energy used to charge air taxis comes from sustainable sources. In addition, battery powered air taxis offer significant opportunities for investment in the re-use and recycling of battery and composite materials. Once batteries have completed their inflight service life, there is often still battery life remaining, which can be used for other applications, such as supporting peaks in industrial electricity demand and banking solar energy for use overnight. As the AAM sector develops in SEQ, circular economy opportunities for the innovative re-use and recycling of equipment can be further investigated and realised.

### **Noise Pollution**

One of the most significant barriers to community acceptance of regular helicopter operations over urban and suburban areas is noise. Noise created by helicopters is inherent in their design and is therefore exceptionally difficult to meaningfully reduce. However, air taxis and the AAM industry will help to change this paradigm. Leveraging advancements in battery technology that enable electric propulsion systems with multiple distributed rotor blades, as opposed to the single large rotor blade design used by helicopters, eVTOL aircraft will have significantly lower total noise impact than helicopters. Additionally, flight routes in SEQ will be designed with noise impacts front of mind. For example, future routes will be planned in consultation with local government, industry and communities, to ensure mobility benefits are maximised and noise and amenity impacts are minimised.



# Brisbane 2032 Olympics & Paralympic Games

As the region plans and prepares for Brisbane 2032, SEQ is in a unique position to capture opportunities that can only be realised as a future games host region. CoMSEQ and its member Councils want to ensure the Brisbane 2032 Games provides a lasting legacy for the people of SEQ by delivering a region that is connected, diverse, innovative and sustainable. To achieve this, governments, industry and the community must work together to deliver real and meaningful investment that improves SEQ for generations to come. Together, there is an opportunity to embrace new and emerging technologies; to look for new partnerships; and to transition to new and innovative thinking that is required to be a successful global destination.

As planning for the Brisbane 2032 Games gets underway, SEQ has the potential to emerge as a global leader in innovation, connectivity and sustainability. This is why CoMSEQ is committed to not only helping prepare the region for the Brisbane 2032 Games, but for success that stretches beyond 2032 and supports the region's long-term growth challenges.

CoMSEQ's enterprising partnership with Wisk represents a new way forward to deliver new initiatives and ideas to the region and to bring world-leading technology to SEQ. CoMSEQ and Wisk envisage a future SEQ where AAM flights exist as an integral and integrated personal transport service within the broader transport network, using safe, sustainable and affordable technology and services. And it is only through this partnership that our vision can become reality.



IOC President Thomas Bach announces Brisbane as the host city for the XXXV Olympiad – Credit IOC/ Greg Martin

# Next Steps

This Paper represents the first step in outlining the AAM opportunity for SEQ and the challenges and opportunities that await as we plan for the establishment of this emerging and innovative sector across our region. To help inform future planning and investment decisions CoMSEQ and Wisk will develop a Future Advanced Air Mobility SEQ Roadmap that will identify priority actions, key enablers for AAM and the future next steps for establishing AAM services and supporting an ecosystem in SEQ.

## GUIDING PRINCIPLES FOR THE SEQ PARTNERSHIP

As Wisk and CoMSEQ work with government, industry and the community to support the establishment of a thriving AAM sector in SEQ, our efforts will be informed by the following guiding principles:

- **Safety.** Before any flights take to the skies, we must be certain that AAM flights are safe. Safety is CoMSEQ's and Wisk's paramount consideration. A safe AAM sector will not only protect our people, but our assets and our environment and it will build confidence and trust in the AAM sector. By guaranteeing safety, governments and industry can plan for the future of AAM services, with the trust and confidence of the broader community.
- **Accessibility and Equity.** AAM must improve accessibility and connectivity to everyone across SEQ. This is not simply an offering for those that live within metropolitan areas. Rather, AAM flights can deliver personal transport options to areas that currently have no or limited access to transport services. A key motivation for embracing AAM in SEQ is

to bring all residents, businesses and places closer together and any future sector must deliver on the promise of greater accessibility and connectivity across the entire region.

- **Sustainability and Innovation.** AAM must be environmentally and economically sustainable. That is, services in SEQ must achieve net-zero carbon emissions, with all supporting infrastructure and other associated services having a minimal impact on our environment and public amenity. Likewise, AAM flights must be economically sustainable. That is, flights must be affordable for residents and there must be sufficient services to meet demand and sustain the AAM sector in SEQ for the long term. The AAM sector must leverage further investment opportunities in SEQ, while delivering new business opportunities, growing skill capability across the region and creating more jobs.
- **Community Benefit.** To be successful, the community must share in the benefits of AAM. That is, the community must have access to affordable flying taxi services; they must realise the benefits that come from greater consumer choice and connectivity; and they must be able to share in the success of this new and innovative sector. Careful planning of AAM flight routes is essential to ensure AAM services enhance, rather than derogate from local amenity. Together, there must be careful planning for the future AAM sector to ensure it enhances SEQ communities. To achieve this, CoMSEQ will work with industry and member councils to ensure local communities plan for the future design and implementation of AAM services, and the supporting ecosystem throughout SEQ.

## COMMUNITY ENGAGEMENT

As noted throughout this Paper, the AAM sector and associated ecosystem, offers an innovative pathway to better connect our communities, our people and our places. However, community support and inclusivity are vital to establishing a long-term and sustainable AAM sector in SEQ. To support the successful introduction of AAM in SEQ, CoMSEQ will support and facilitate collaboration and engagement between member Councils and government, industry / private sector, and local communities.

Similarly, Wisk is committed to being a responsible member of the communities in which we live and will eventually serve. The partnership between Wisk and CoMSEQ provides a connection between Wisk as an air taxi manufacturer and operator, and future passengers. Wisk has already begun displaying air taxi models in public outreach events and will continue to identify opportunities for ongoing community engagement, consultation and participation.







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