Section 2

Airport Development Plan


VN-A866
HSBC

7.0 Development Plan Overview

7.1 What is the Airport Development Plan?

The Airport Development Plan contains our plans to accommodate growth at Sydney Airport in accordance with our Vision and Objectives. It outlines our plans for improvements to the airfield, aviation facilities, terminals and infrastructure to support the forecast increase in passenger numbers and aircraft movements to 2039. The Airport Development Plan also outlines the commercial property opportunities that exist in the landside areas of the airport that are complementary to aviation operations and provide economic growth for the local economy.

Details are also provided of the improvements to the ground transport network required to accommodate increased passenger, visitor, staff and freight traffic requirements to 2039. A detailed Five-Year Ground Transport Plan is included in accordance with the requirements of the Airports Act.

Master Plan 2039 (including the **Environment Strategy 2019-2024**) complies with all relevant laws and is consistent with Sydney Airport's obligations under existing leases, including those in respect of the environment, development planning and building works.

The Airport Development Plan is divided into six chapters:

7.0 Development Plan Overview (this chapter)
8.0 Terminal Development Plan
9.0 Airfield Development Plan
10.0 Commercial Development Plan
11.0 Ground Transport Development Plan
12.0 Utilities Development Plan

7.2 Key Achievements Since Approval of Master Plan 2033

Our development plans in Master Plan 2033 outlined a number of key priorities for the initial five year planning period. A number of these priorities have been initiated or completed to improve the efficiency and capacity of the airport to accommodate recent growth in passenger numbers and increases in the number of airlines flying to Sydney Airport.

A list of the key developments and achievements since Master Plan 2033 was approved in 2014 are detailed in Table 7-1. These developments will be crucial to accommodating the forecast growth in the next five years and will be built upon as we plan for 2039.

Image 7-1: Construction in the areas surrounding Sydney Airport

Table 7-1: Key achievements since Master Plan 2033

	Development/Initiative	Year
Terminal	Redevelopment of check-in counter C in T1 to streamline throughput and reduce queuing by increasing the use of technology and further automating the check-in process.	2018
	Departures level increase and upgrade of gate lounge seating and improvement of facilities in T1.	
	T2 Pier B expansion and redevelopment to create space and additional retail amenities.	
	Upgrade to Bay 31 at T1 enabling its use by larger aircraft and dual aerobridges.	2017
	Five new airside buses improving bussing times and capacity at T1.	
	Refurbishment of the Baggage Reclaim Hall at T1 to improve service levels and ambience.	
	Refurbishment and replacement of eight baggage carousels at the Baggage Reclaim Hall at T1 to increase resilience.	
	Bathroom upgrades in T3 and commencement of rolling upgrade program at T2, improving customer experience.	
	Completion of the luxury and lifestyle speciality retail precincts and the Cityview and Marketplace food and beverage areas in T1, providing greater value and choice.	2016
	Expansion of check-in counter A at T1 providing extra capacity.	
	Delivered infrastructure allowing rear door / dual boarding at T3, aiding on-time performance.	
	Major redevelopment at T1 raising the roof to 17 metres at its apex at Pier B, creating a vibrant dwell area, straight paths and improved line of sight as well as providing more space and light and additional seating.	
	Expansion of the Departures T1 bussing capability and increasing capacity and improving the passenger experience with delivery of two new Arrivals bussing lounges.	
	Upgrades to the T2 food court enhancing the overall customer experience.	
	Expansion of the Baggage Reclaim Hall at T1 with the addition of two A380 capable baggage carousels.	2015
	Pier A and Arrivals concourse works at Gates 8, 9 and 10 at T1 to improve functionality, capacity and ambiance.	
	Installation of emigration SmartGates for Departures, in partnership with the Australian Government.	
	Terminal enhancements to wayfinding, seating, sightlines and boarding gate lounges.	
	Improvements to the T1 outbound baggage handling facility, including new baggage make-up capacity, with an additional 50 make-up positions providing more capacity and faster baggage delivery times.	
	Expansion of the lounge offering for airlines, including: • Etihad Airways first and business lounge • Sky Team Alliance lounge • The American Express lounge All three lounges were Australian firsts, further cementing Sydney Airport's position as the nation's gateway airport.	2014
Airfield	Installation of high intensity approach lighting system on Runway 34R to facilitate Special Authorisation Category 2 aircraft, improving safety standards and operational capacity.	2017
	Extensive resurfacing of the airfield including the parallel runway and taxiways.	
	Upgrade and enhancements in the South East Sector to provide better facilities for plane spotters and school children on airport tours.	
	Runway and taxiway works resulting in asset life extension and taxiway fillet widening, resulting in increased capacity by accommodating larger aircraft.	2016
	Asphalt re-sheeting, strengthening and widening of Taxiways A, B and C to increase capacity and accommodate larger aircraft including A380s.	2015
	Full pavement reconstruction of the intersection of Taxiways A and G, including the installation of aeronautical ground lighting within the pavement.	
	Aircraft and passenger boarding performance enhancement with a new aerobridge on Gate 50, facilitating Code E aircraft such as the B777 and A330 and providing more flexibility for airlines.	
	Installation of new centre line lighting to serve Runway 16L and Runway 34R to improve on-time performance during low visibility weather conditions.	

	Development/Initiative	Year
Airfield	Sydney Airport was the first Australian airport to commission satellite-based navigation technology, commissioning SmartPath, in partnership with Airservices Australia, Qantas and Honeywell, resulting in an immediate improvement in operational performance, with more aircraft able to land during low visibility conditions.	2014
Commercial	Acquisition of the Ibis Budget Hotel and development of the new Mantra Hotel in the T2/T3 precinct, delivering additional capacity and choice for on-airport accommodation	2017
Ground Transport	Widening of Qantas Drive between Robey and O'Riordan streets timed with Roads and Maritime's implementation of the first stage of one-way traffic flow change.	2017
	New road at the T1 International precinct separating traffic from Departures Road and recirculating traffic directly onto Centre Road.	
	New exit from the T1 Departures Road and Arrivals Court under the Giovanni Brunetti Bridge and improvements to Marsh Street exit, reducing congestion.	
	New pick-up arrangements at T1 offering more choice for customers, including a priority pick-up zone for use by limousines, pre-booked taxis, ridesharing services and the public.	
	New elevated pedestrian and cycleway linking the T1 terminal to the Cooks River/Alexandra Canal pedestrian and cycle paths.	
	Addition of four new levels on the northern multi-storey car park (P6) in the T1 precinct.	
	New entry from Marsh Street on to Centre Road in the T1 International precinct.	
	New landside bridge that links the Northern Lands Sector to Airport Drive. The bridge provides access to a vehicle storage area and was named after the founder of Sydney Airport, Sir Nigel Love.	2016
	Widened Sir Reginald Ansett Drive from two to five entry lanes providing increased capacity for traffic entering the Domestic precinct. This has eased traffic flows at the intersection of Ross Smith Avenue and Sir Reginald Ansett Drive and complements the one-way exit from the T2/T3 precinct.	
	Introduction of overflow drop-off area at T1 for use during peak periods to increase throughput and assist with on-time performance for airlines.	
	Expansion of parking capacity and new products and services to provide customer choice.	
	New pick-up arrangements at T2/T3 offering more choice for customers, including a priority pick-up zone for use by limousines, pre-booked taxis, ridesharing services and the public.	
	New enlarged express pick-up zone introduced at the P3 multi-storey car park, providing 15 minutes free parking.	
	New express pick-up and drop-off zone, new centre road and a dedicated city exit at T1.	2015
	New one-way exit and extension of Seventh Street providing increased capacity for traffic exiting the T2/T3 precinct. This complements the one-way entry to the precinct.	
	Introduction of fully automated taxi short fare system utilising licence plate recognition.	2014
	Introduction of first three-door Blu Emu Express bus with increased capacity and improved efficiency.	
Utilities	Solar PV system installed on the P6 multi-storey car park providing low-cost clean energy.	2017
	Installation of new lighting in the P2 car park reducing energy usages in the car park by 30 percent.	
	Installation of new energy efficient chillers at T1.	
	Increased capacity of the recycled water treatment plant in the T1 precinct.	
	Refurbishment of the critical sewage pump station serving the North East Sector.	

7.3 Sydney Airport Development Plan Sectors

For ease of reference, Master Plan 2039 divides Sydney Airport into six sectors, which are shown on Map 8:

1. Runways
2. North West
3. North East
4. South West
5. South East
6. Northern Lands

With the exception of the Runways Sector, each sector has an airside and a landside component that is described below. The North West and North East Sectors are also divided into precincts representing existing and proposed terminal developments.

7.3.1 Runways Sector

The Runways Sector covers the three runways at Sydney Airport:

- Main runway 16R/34L
- Parallel runway 16L/34R
- Cross runway 07/25

It also includes the majority of taxiways between the runways, terminals and aprons.

7.3.2 North West Sector

The North West Sector encompasses the land generally to the west of Runway 16R/34L, north of Runway 07/25, south and east of Airport Drive and east of Cooks River.

It includes:

- The T1 International Operations Precinct
- Freight facilities
- Joint User Hydrant Installation (JUHI)
- Ground transport facilities
- Commercial development areas to the west of T1

7.3.3 North East Sector

The North East Sector encompasses the land generally to the east of Runway 16R/34L, north of Runway 07/25, south and west of Qantas Drive and south of Joyce Drive.

It includes:

- The T2 and T3 Domestic Terminals
- The Jet Base
- Freight facilities
- Ground transport facilities
- Commercial development areas along Ross Smith Avenue
- Corporate aviation
- Air Ambulance
- Maintenance facilities

7.3.4 South West Sector

The South West Sector is located to the west of Runway 16R/34L, south of Runway 07/25, east of Cooks River and north of Botany Bay. It includes:

- Remote stands north of the M5 East Motorway / M1 Motorway (General Holmes Drive)
- Airservices Australia facilities (including a fire station)
- Landside areas south of the M1 Motorway (General Holmes Drive)

7.3.5 South East Sector

The South East Sector generally includes Sydney Airport land north and south of the M1 Motorway (General Holmes Drive), east of Runway 16R/34L, south of Runway 07/25, north of Taxiway B10, and west of Mill Stream and Foreshore Road.

It includes:

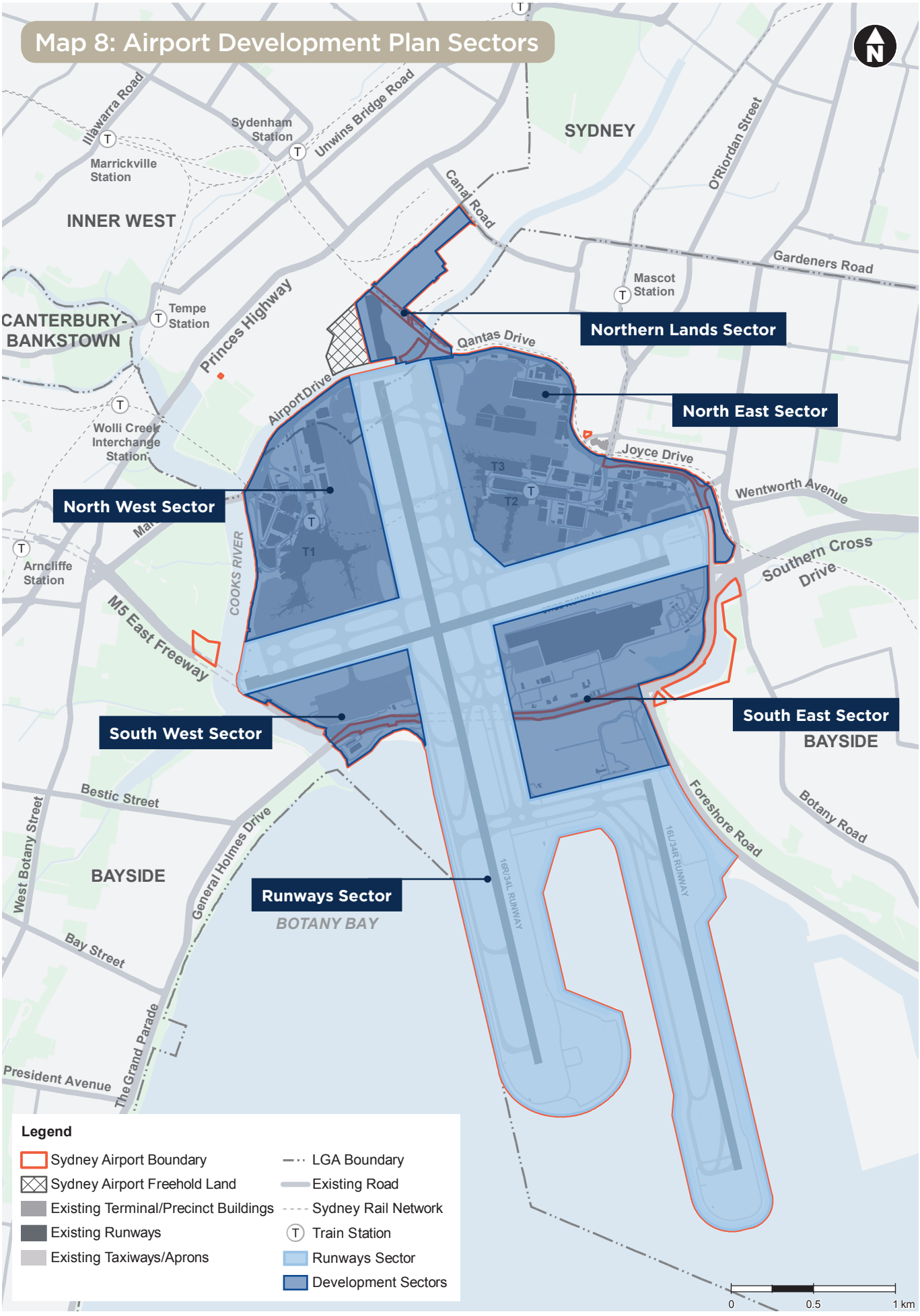
- Ground transport facilities
- Commercial development
- Airservices Australia facilities (including an air traffic control tower and fire station)
- Industrial areas

7.3.6 Northern Lands Sector

The Northern Lands Sector includes leased and freehold airport land located north of Airport Drive.

The Northern Lands Sector is largely undeveloped, with the exception of staff overflow car parking accessed from Airport Drive via the Nigel Love Bridge.

The High Intensity Approach Lighting (HIAL) for Runway 16R/34L is located within the Northern Lands Sector.


Map 8: Airport Development Plan Sectors
N
Illawarra Road
Marrickville Station
Sydenham Station
Unwins Bridge Road
SYDNEY
O'Riordan Street
INNER WEST
Canal Road
Gardeners Road
Mascot Station
CANTERBURY-BANKSTOWN
Tempe Station
Princes Highway
Northern Lands Sector
Qantas Drive
Airport Drive
North East Sector
Wolli Creek Interchange Station
Joyce Drive
T3
T2
T1
Wentworth Avenue
North West Sector
Arncliffe Station
COOKS RIVER
Southern Cross Drive
M5 East Freeway
South East Sector
BAYSIDE
South West Sector
Bestic Street
Foreshore Road
Botany Road
West Botany Street
General Holmes Drive
16R/34L RUNWAY
16L/34R RUNWAY
Runways Sector
BOTANY BAY
Bay Street
The Grand Parade
President Avenue
Legend
Sydney Airport Boundary
Sydney Airport Freehold Land
Existing Terminal/Precinct Buildings
Existing Runways
Existing Taxiways/Aprons
LGA Boundary
Existing Road
Sydney Rail Network
Train Station
Runways Sector
Development Sectors
0
0.5
1 km

7.4 20-Year Airport Development Plan Summary

The following provides a summary of our 20-year development plans for each sector of Sydney Airport. As part of these developments, we will abide by all relevant Commonwealth aviation safety standards, including the National Airports Safeguarding Framework (NASF), during construction and operational phases. We will also consult with, and seek the required approvals from the Department, Airservices Australia, and the Civil Aviation Safety Authority before proceeding with construction of proposed developments.

Detailed information on the potential and/or proposed developments can be found in the following chapters:

- 8.0 Terminal Development Plan
- 9.0 Airfield Development Plan
- 10.0 Commercial Development Plan
- 11.0 Ground Transport Development Plan
- 12.0 Utilities Development Plan

The Airport Development Plan 2039 is shown on Map 9. Embedded within our 20-year development plans are innovative solutions to enhance the passenger experience, improve the operations of the airport, and engage more effectively with our community. Our plans enable the roll-out of 'Smart Airport' technology to deliver a more connected passenger experience. This will ensure passengers are better informed about their journey to, from and through the airport and able to respond in real-time to what is happening in and around the airport. This will include the use of biometrics technology with facial recognition processing, providing a more seamless airport experience to passengers. Technology will allow Sydney Airport to use space and resources more efficiently and respond to unforeseen events more effectively.

7.4.1 Runways Sector

Development of taxiway improvements to reduce taxiing times for aircraft, improve passenger experience and facilitate airline operating efficiency. This includes developments to:

- Facilitate the introduction of international, domestic and regional operations in the North East Sector
- Eliminate runway crossings for arrivals/departures originating from/taxiing to the North East Sector
- Support new apron developments and operations in the South East and South West Sectors

7.4.2 North West Sector

Developments in the North West Sector, incorporating the T1 International Operations Precinct, include:

- Expansion of T1 terminal infrastructure to accommodate:
  - Additional contact gates and associated departure gate lounges
  - Additional airline lounges
  - A dedicated common use premium processing area
  - Check-in and baggage reclaim facilities
  - Security and border passenger processing facilities
  - New outbound baggage handling facility and bussing lounge
  - Passenger dwell and retail areas
- Improved terminal landside areas to improve access and enhance the customer experience
- New apron and stand infrastructure to facilitate active aircraft arrivals and departures, including:
  - Fixed electrical ground power units (FEGPU)
  - Pre-conditioned air units (PCA)
  - Fuel
- Consolidation of air freight facilities
- Ground transport upgrades and utilities improvements
- New hotel, office and commercial developments of up to 120,000 metres square floor space
- An inter-precinct passenger transfer product
- Expansion of the JUHI facility
- Integration of sustainable technologies, design and operations to deliver environmental solutions, particularly energy and water efficiencies, and enhancements to passenger experience and comfort

7.4.3 North East Sector

Developments in the North East Sector, incorporating the T2/T3 Integrated Operations Precinct, include:

- Expansion of T2 to facilitate next generation check-in and security facilities
- Improvements to passenger processing and investment in new technology, along with refurbishment and upgrade of passenger facilities in T2 and T3 to improve the overall passenger experience
- Links between T2 and T3 for passenger and baggage handling facilities
- Facilities to cater for the processing of international passenger operations
- Extensive contact gate capacity, the majority of which are expected to be swing gates for international, domestic and regional operations
- An inter-precinct passenger transfer product
- New apron and stand infrastructure to facilitate active aircraft arrivals and departures, including:
  - FEGPU
  - PCA
  - Fuel
- Improved landside areas to provide better access and enhance the customer experience
- Relocation and redevelopment of aircraft maintenance facilities
- Consolidation of air freight facilities
- Ground transport upgrades and utilities improvements
- New hotel, office and commercial developments of up to 120,000 metres square floor space
- Integration of sustainable technologies, design and operations to deliver environmental solutions, particularly energy and water efficiencies, and enhancements to passenger experience and comfort

7.4.4 South West Sector

Developments in the South West Sector include:

- An airside satellite pier to support the T1 International Operations Precinct, which could include:
  - Contact gates
  - Departure gate lounges
  - Airline lounges
  - Passenger dwell and retail areas
- Infrastructure to accommodate an airside shuttle bus service between the South West Sector and the North West Sector
- New apron and stand infrastructure to facilitate active aircraft arrivals and departures, including:
  - FEGPU
  - PCA
  - Fuel

7.4.5 South East Sector

Developments in the South East Sector include:

- New apron and stand infrastructure to facilitate active aircraft arrivals and departures, including:
  - FEGPU
  - PCA
  - Fuel
- Subject to market demand areas to accommodate:
  - Relocated GA facilities
  - Commercial facilities
  - Car parking
  - Aircraft maintenance facilities
  - Aviation support infrastructure
- A new air traffic control tower
- Ground transport facility expansion and utilities improvements
- Development of an airside satellite pier which could include:
  - Gate lounges
  - Retail
  - Airline lounges
  - Contact stands
- Infrastructure to accomodate an airside connection between the satellite pier and terminal areas
- An inter-precinct passenger transfer product
- Consolidation of air freight facilities

7.4.6 Northern Lands Sector

Developments in the Northern Lands Sector, include:

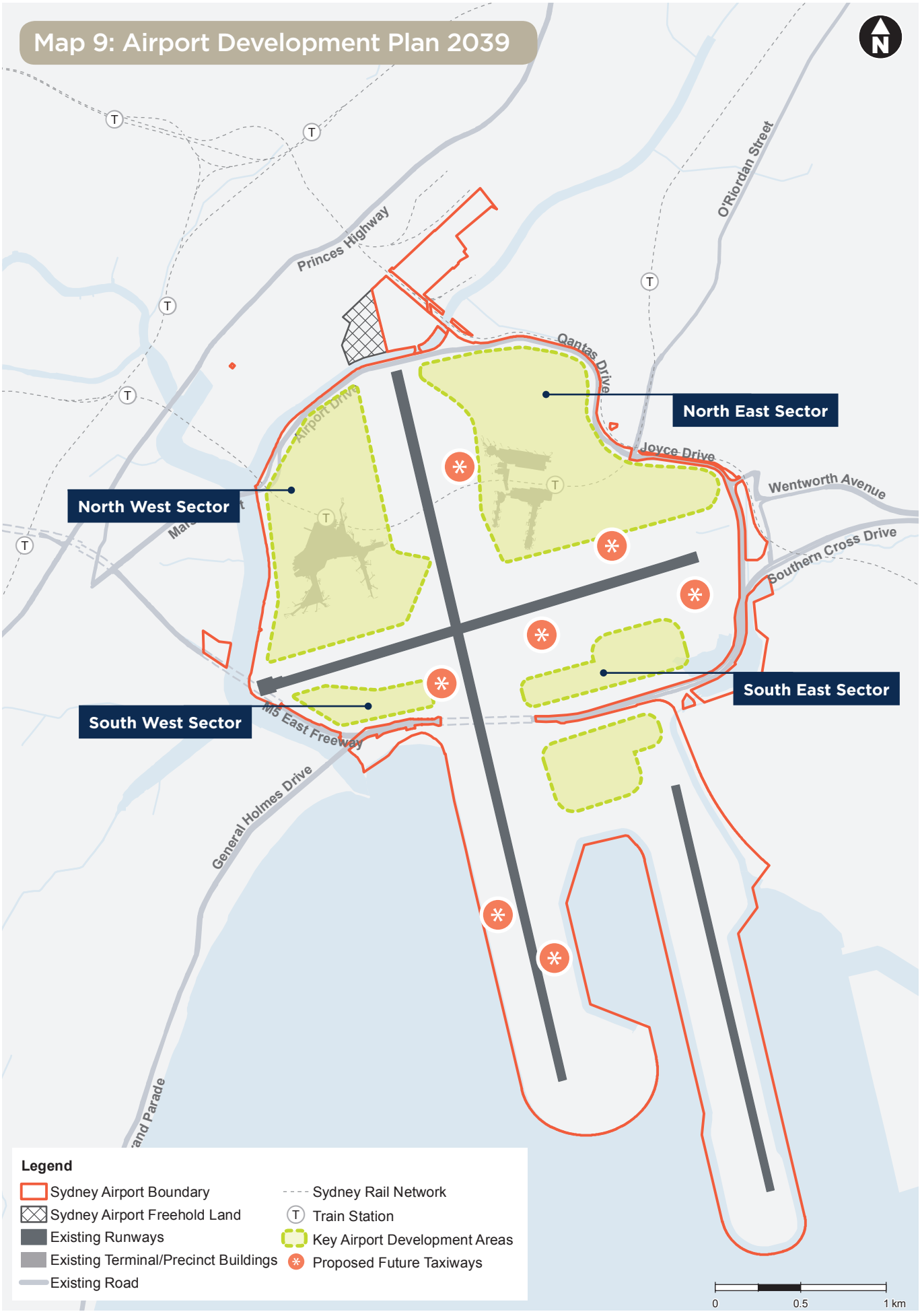
- New airside aviation support activities including:
  - Freight
  - Catering
  - Ground support equipment (GSE) maintenance
  - Truck staging
  - Vehicle storage
- Additional landside and airside access connections and ground transport infrastructure
- New air freight facilities

7.5 Implementation Strategy

Our plans for Sydney Airport are flexible and adaptable to adjust to changing conditions in the aviation and property industries, ground transport conditions and demands on utilities.

We will continue to work with our airline and airport business partners to monitor demand, facilitate product differentiation and enhance the customer experience. Our development plans will evolve in consultation with our stakeholders, including the local community.

As part of these developments, consideration will be given to aviation operation and safety issues, including windshear and turbulence, public safety zones, obstacle limitation surfaces, and noise and air quality both during construction and operational phases. Details of the development strategy are included in Map 9.


Map 9: Airport Development Plan 2039
N
Princes Highway
O'Riordan Street
Qantas Drive
Airport Drive
Joyce Drive
Wentworth Avenue
Southern Cross Drive
North East Sector
North West Sector
South East Sector
South West Sector
M5 East Freeway
General Holmes Drive
Legend
Sydney Airport Boundary
Sydney Airport Freehold Land
Existing Runways
Existing Terminal/Precinct Buildings
Existing Road
Sydney Rail Network
Train Station
Key Airport Development Areas
Proposed Future Taxiways
0
0.5
1 km

North West Sector

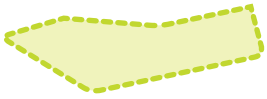
T1 International Operations Precinct

- New terminal infrastructure
- Apron and stand infrastructure
- Ground transport and utilities improvements
- Expansion of JUHI facility
- Air freight facilities consolidation
- Commercial developments of approximately 120,000m^2 floor space

North East Sector

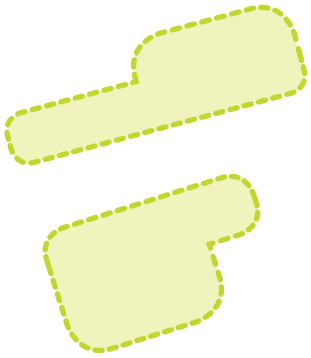
T2/T3 Integrated Operations Precinct

- New terminal infrastructure
- Apron and stand infrastructure
- Ground transport and utilities improvements
- Relocation of aircraft maintenance facilities
- Air freight facilities consolidation
- Commercial developments of approximately 120,000m^2 floor space



South West Sector

- Satellite pier development
- Apron and stand infrastructure
- Airside terminal and satellite pier connections



South East Sector

- Apron and stand infrastructure
- Satellite pier development
- Airside terminal and satellite pier connections
- General aviation facilities relocation
- Aircraft maintenance facilities
- Aviation support infrastructure
- Air traffic control tower
- Ground transport and utilities improvements
- Air freight facilities
- Commercial developments

8.0 Terminal Development Plan

8.1 Overview

The Terminal Development Plan for Master Plan 2039 provides additional capacity at Sydney Airport to meet the forecast passenger demand in 2039 and beyond. It provides flexibility in implementation and is adaptable in order to meet passenger expectations and the changing requirements of airlines. This will ensure that Sydney Airport remains Australia's premier international gateway and continues to attract global aviation business.

To achieve this, we propose integrating international, domestic and regional operations in the current T2/T3 Domestic Precinct. Our plan for a T2/T3 Integrated Operations Precinct, together with improvements to the T1 International Operations Precinct, will improve the experience of passengers, reduce transfer times and enable more effective utilisation of terminal infrastructure.

Efficiency improvements to all terminals will include the introduction of new technologies and service systems that are envisaged to enhance passenger experience, offer product differentiation and achieve operational efficiencies. This will improve passenger facilitation and choice, while reducing queues and wait times.

Security and border control facilities are likely to see ongoing technology and automation enhancements, which should improve safety, efficiency and passenger processing times in line with current and future protocols being put in place by the Commonwealth Department of Home Affairs.

Image 8-1: The luxury fashion precinct at T1 International

8.2 Key Points

The Terminal Development Plan proposes to:

- Expand international capacity in the T1 International Operations Precinct
- Integrate and expand international, domestic and regional operations in the T2/T3 Integrated Operations Precinct
- Provide new infrastructure in both the T1 and T2/T3 precincts to deliver significant additional active stands, including up to:
  - 17 additional contact stands
  - Seven additional bussed aircraft parking positions
- Optimise the use of terminal infrastructure with up to 17 swing gates that can accommodate international, domestic and regional aircraft
- Improve the door to door experience for all passengers with investment in next generation technologies, such as digital technologies, biometrics and self-service, as well as enhanced access to a multi-modal transport facility
- Ongoing development of mobile check-in and passenger assistance technologies for less mobile passengers
- Reduce inter-precinct transfers and improve passenger connectivity by integrating terminal operations
- Enhance airline efficiency by reducing minimum connection times (MCT) and improving aircraft utilisation
- Provide a sustainable inter-precinct passenger transfer product that over time would utilise autonomous vehicles
- Increase the flexibility of the infrastructure to respond to changing airline business models
- Enhanced safety and security with the introduction of advanced screening technologies of passengers and bags

The Terminal Development Plan has been developed considering the customer experience as a whole and taking into account our Disability Access Facilitation Plan.

Image 8-2: New automated check-in and bag drop facilities at T1 International

8.3 Terminal Development Plan

Sydney Airport's proposed Terminal Development Plan has been developed to accommodate the projected passenger, aircraft and ground transport traffic flows over the planning period of Master Plan 2039. Our approach to future terminal development has been consistent with the following objectives:

- Provide an enhanced passenger experience
- Ensure maximum flexibility to shift with changes in the airline industry
- Create operational efficiencies for our airline partners
- Optimise the utilisation of existing and new terminal infrastructure
- Provide enhanced safety and security

The resulting Terminal Development Plan provides additional capacity in 2039 by expanding international capacity in the T1 International Operations Precinct and integrating and expanding international, domestic and regional operations in the T2/T3 Integrated Operations Precinct. This approach will provide for up to an additional:

- 17 contact stands
- Seven active bussed aircraft parking positions

In addition, our approach provides the capability within the T2/T3 Integrated Operations Precinct to service aircraft demand with swing gates that can accommodate international and domestic/regional aircraft. This provides us with the ability to easily respond to fluctuations in demand between international, domestic and regional operations, as well as improve asset utilisation.

It provides additional opportunities to efficiently increase Sydney Airport's capacity to handle the growing demand for Code E aircraft (such as A330, B787, A350 and up to B777).

Where feasible, the larger gates will also be configured to accommodate multiple smaller aircraft, so if demand presents differently, multiple Code C aircraft (such as A320 and B737) can be accommodated utilising the same infrastructure known as multiple aircraft ramp stands (MARS).

The transfer of passengers between the T1 International Operations Precinct and the T2/T3 Integrated Operations Precinct may be improved by incorporating an airside transfer corridor for autonomous vehicles. The proposed airside transfer product will have the added benefit of reducing congestion on the landside road network.

Passengers will still be able to transfer landside between precincts using the Sydney Airport T-Bus or public transport modes such as rail, bus or taxi.

The proposed terminal developments outlined in the following sections could:

- Improve capacity and flexibility with the provision of additional contact and active bussed stand capacity
- Increase the capacity and flexibility to accommodate larger Code E and multiple Code C aircraft on contact gates
- Improve the experience of passengers with the adoption of new technologies for passenger processing
- Reduce transfer times for passengers and promote the efficient use of infrastructure with the integration of international, domestic and regional passengers in the T2/T3 Integrated Operations Precinct
- Improve gate utilisation, flexibility and airline aircraft utilisation by incorporating swing gates for international/domestic/regional operations in the T2/T3 Integrated Operations Precinct
- Enhance and maximise flexibility of existing facilities and infrastructure by promoting common use principles while supporting specific product differentiation requirements from our airline partners
- Integrate sustainable technologies, design and operations that deliver environmental solutions, particularly with energy and water efficiencies

Image 8-3: Sydney Airport aerial

8.4 T1 – International Operations Precinct

The Terminal Development Plan has been prepared on the basis that only international aircraft will operate at T1. International, domestic and regional operations can be delivered at T1 but it is not foreseen within the planning period of Master Plan 2039. This differs from the approach contemplated in Master Plan 2033.

Terminal infrastructure at T1 to meet the needs of airlines and deliver improvements to passenger facilitation over the next 20 years may include:

- Reconfiguration and extension of the existing T1 Pier A to provide more contact gates
- A northern terminal extension to provide additional facilities including:
  - Immigration
  - Baggage reclaim
  - Customs and transfer facility
  - Passenger dwell capacity
  - Oppurtunity for common use premium processing area
  - Overnight accommodation
- A western terminal expansion to provide an additional arrivals and departures area and improved safety and passenger processing.
- A southern terminal expansion to accommodate:
  - A new bag room
  - A new bussing lounge
  - Overnight accommodation
  - Passenger processing facilities
- Development of an airside satellite pier in the South West Sector to support the T1 International Operations Precinct
- Development of MARS gates that can service multiple aircraft types
- Supporting airline needs with improved contact gate capacity to accommodate Code E and Code F aircraft, as well as larger Code E types being introduced into the market
- Improved landside terminal facilities, enhancing the passenger experience and improving access to the terminal from the various ground transport facilities
- Separate premium passenger processing with direct boarding access from airline lounges
- Improved security processing for passengers
- Next generation bag drops and border processing equipment
- More efficient passenger processing using biometrics and enhanced passenger experience
- A sustainable inter-precinct passenger transfer product that over time would utilise autonomous vehicles

These developments will support aircraft utilisation and airline service delivery by accommodating airline product differentiation and increasing the number of contact gates, reducing the need to bus passengers to aircraft, particularly in peak periods.

The T1 precinct can be incrementally expanded to accommodate future demand. Sydney Airport has set out in Map 10 development options. Future development decisions would be made in collaboration with our airline partners, subject to aviation demand and following extensive community consultation.

Map 10: T1 International Operations Precinct Terminal Development Plan 2039

The diagram shows development options for terminal infrastructure, piers and satellite piers.
Future development decisions will be made in collaboration with airlines and subject to aviation demand.

A

Stage Two Pier A:
Further extension to accommodate additional contact gates, airline and departure lounges, retail, food and beverage areas

B

Stage One Pier A:
Extension to accommodate additional contact gates, airline and departure lounges, new central dwell area, retail and food and beverage areas

C

International Terminal A:
Extension to accommodate additional arrival and departure passenger processing, including an opportunity for a common use premium processing area

D

Western Terminal Expansion:
Expansion to increase the capacity and amenity of the landside departures and arrivals halls and forecourt areas

E

Southern Terminal Expansion:
Expansion to accommodate additional outbound baggage handling capacity with potential terminal and commercial facilities, new bussing facility

F

South West Sector Satellite Pier:
New airside satellite pier development with contact gates, airline and departure lounges, retail, food and beverage areas

8.4.1 Departing passengers plan

The development of T1 will allow departing passengers to directly access the terminal in weather-protected walkways from existing and new multi-modal transport facilities. This will also minimise the interface between pedestrians and vehicles.

The introduction of next generation bag drop facilities will reduce the need to provide traditional check-in counters. Further efficiencies and improved processing rates at check-in will be possible with expansion to and improvements of the baggage handling system.

From check-in to boarding, the Terminal Development Plan provides for the inclusion of new technologies at T1, such as biometrics, to improve emigration and security processing to meet future international passenger demand and improve their experience. 'Smart Airport' technology is enabling passengers to be better informed about their journey to, from and through the airport. Passengers will have access to information on optimal travel modes, levels of vehicle and people traffic, anticipated travel and processing times, and other relevant events.

All current known security requirements, such as body scanning and advanced screening technology, have been taken into account in our future plan for T1. Any future security requirements involving passenger or non-passenger screening, including enhanced inspection points, changed technology, screening facilitation or intervention rates, could result in different spatial outcomes. It is envisaged that any different spatial outcomes would be accommodated within the expanded footprint of the terminal.

Once through security, all passengers will proceed to a retail environment with an enhanced offer and dwell zones, airline lounges and gate lounges. Additional departure bussing lounges are also possible at the northern and southern ends of the terminal to support remote active stands.

The southern bussing lounge would operate as a shuttle bus service between the terminal and the proposed South West Sector satellite pier. This satellite pier would provide a passenger product with a similar experience to that provided in the current terminal-connected piers. Subject to airline demand, it could include gate lounges, retail, airline lounges and contact stands.

Airline product differentiation within T1 will be offered through the provision of dedicated departures processing facilities, which may be accessed directly from ground transport facilities. The ability for direct aircraft boarding from airline lounges would also be possible in a northern terminal expansion.

Image 8-4: The departures area of the future at T1 International

8.4.2 Arriving passengers plan

The separation of arriving and departing international passengers at T1 will continue in line with security and border control requirements. Border control facilities will be expanded and it is expected that new border control technologies, such as biometrics, will improve efficiency and reduce processing times.

Border control processing facilities are the responsibility of Australian Government agencies. We will work with the relevant agencies to accommodate their customs and quarantine processing requirements.

'Smart Airport' technology is enabling Sydney Airport to respond in real-time to what is happening in and around the airport, ensuring passengers are directed to the most optimal processing paths, and landside and airside space is used most efficiently and effectively.

The arrivals and baggage reclaim halls, including associated facilities and services, are able to be expanded with additional baggage reclaim units added to meet demand within the planning period.

Transfer facilities for passengers moving between international and domestic/regional flights are intended to remain immediately adjacent to the terminal. These will include processing through a common use transfer lounge and connecting to the T2/T3 Integrated Operations Precinct through a dedicated airside corridor. Terminating passengers will continue to have the full choice of transport modes including train, bus, taxi, rideshare, limousine, rental car and public parking facilities.

8.4.3 Intra-terminal transfer passenger plan

Intra-terminal transfer facilities (for international travellers transferring or transiting within T1) will use transit screening points within Pier B and Pier C. Facilities will be enhanced as needed to meet future requirements.

Image 8-5: Arriving at Sydney Airport's T1 International in the future

8.5 T2/T3 Integrated Operations Precinct

Over the planning period, some international operations are expected to be facilitated from an expanded T2/T3 Integrated Operations Precinct in the North East Sector of Sydney Airport. New infrastructure adjacent to the existing T2 and T3 terminals could deliver significant international and domestic/regional swing contact gate capacity.

Potential changes to terminal infrastructure in the T2/T3 precinct over the next 20 years include:

- New infrastructure to cater for the processing of international passengers
- A new T3 swing/international/domestic/regional passenger pier to the north, which can be achieved through multiple configurations
- A new T2 swing/international/domestic/regional pier to the east
- Development of a satellite pier in the South East Sector
- Development of MARS gates that can service multiple codes of aircraft
- Apron reconfiguration to cater for the greater variety of operating aircraft
- Linking the T2 and T3 terminal buildings on the western side of the precinct to facilitate transfer of domestic/regional passengers and new larger aircraft gates
- Linking the T2 and T3 terminal buildings on the eastern side of the precinct, providing passenger and baggage handling facilitation for international and domestic/regional passengers
- New transfer facilities within the expanded T2/T3 precinct
- Integration of sustainable technologies, design and operations that deliver environmental solutions, particularly energy and water efficiencies

Potential passenger facilitation improvements within the T2/T3 precinct include:

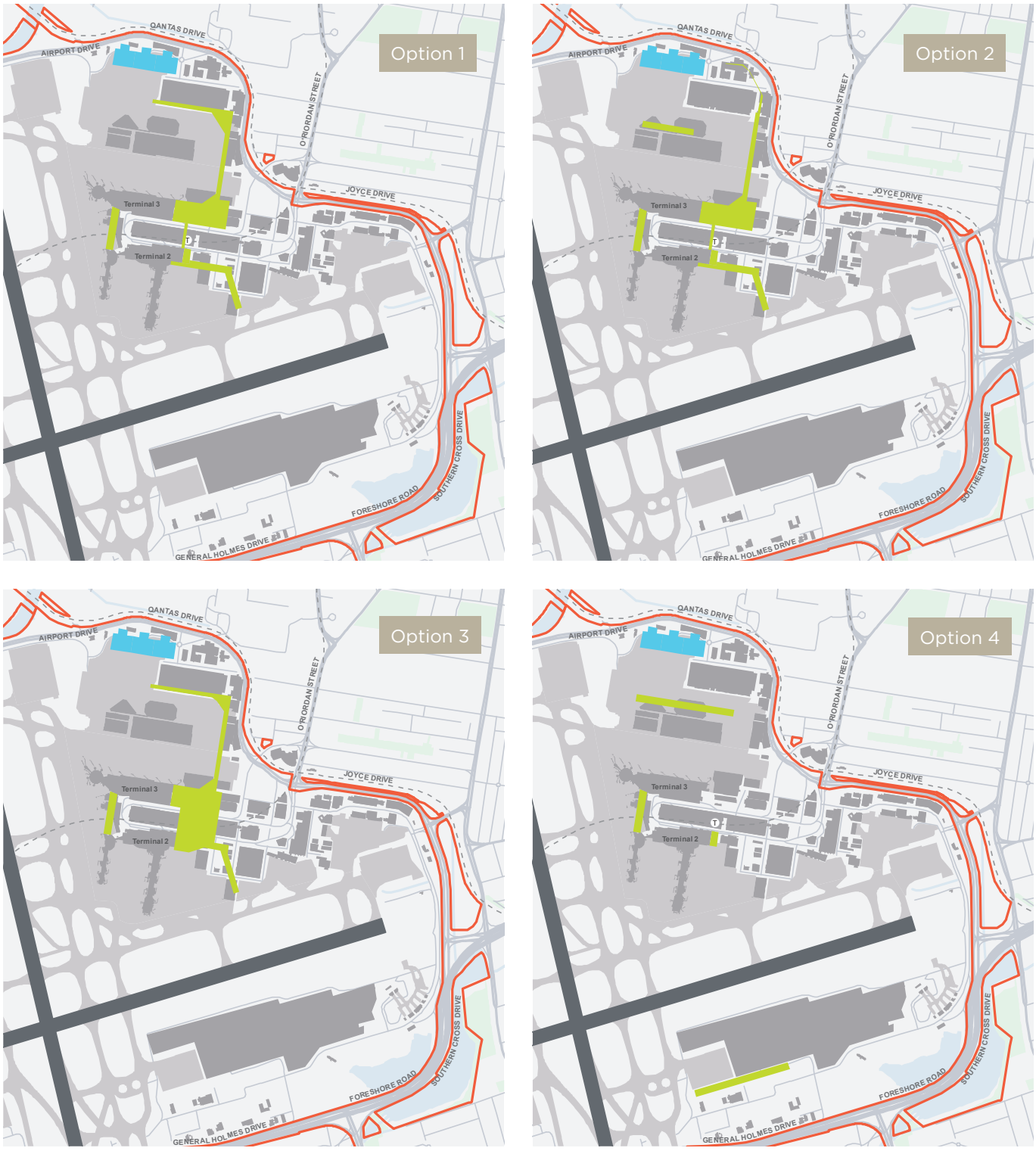
- Investment in next generation technology, and the refurbishment and upgrade of passenger facilities to improve the door to door experience of passengers
- Additional passenger and baggage processing facilities
- Increase in automated passenger facilitation through the use of biometrics throughout the terminals
- More efficient use of gates and logical flow paths for passengers
- Opportunities to share terminal infrastructure between international, domestic and regional operations
- Significantly improved transfer experience for international/domestic/regional passengers
- A sustainable inter-precinct passenger transfer product that over time would utilise autonomous vehicles

These developments are anticipated to support airline aircraft utilisation and airline service delivery through opportunities for product differentiation.

There are a number of different options to expand and integrate international, domestic and regional services in the T2/T3 precinct. Sydney Airport has set out in Map 11 four examples of development options. Future development decisions would be made in collaboration with our airline partners, subject to aviation demand and following extensive community consultation.

Map 11: T2/T3 Integrated Operations Precinct Terminal Development Plan 2039

The diagrams show some of the development options for terminal infrastructure, piers, satellite piers, hangars and engineering facilities. Future development decisions will be made in collaboration with airlines and subject to aviation demand.



8.5.1 Departing passenger plan

The development of the T2/T3 precinct would allow departing passengers to access the terminals from:

- Existing and new roadways
- New Ground Transport Interchange
- Multiple public transport options

It is envisaged that new infrastructure for passengers would allow direct access to the terminals from a new multi-modal transport facility to supplement the current roadways.

At the departures level in the future it is envisaged that security screening requirements for international and domestic passengers will be aligned. This is expected to permit a common departure access level. International passengers will undergo a separate emigration process. New technologies, such as biometrics, will assist border control and processing, facilitating a seamless passenger experience.

To ensure passengers can transfer between terminals at the departures level, the landside and airside concourses of each terminal are proposed to be linked at the western and eastern ends.

It is envisaged that domestic and regional passengers will continue to be processed in an improved streamlined manner through T2 and T3. All currently known security requirements, such as body scanning and advanced screening technology, have been taken into account in the terminal plans. Any future security requirements involving passenger or non-passenger screening, including enhanced inspection points, changed technology, screening facilitation or intervention rates, could result in different spatial outcomes. It is envisaged that any changed spatial requirements would be accommodated within the proposed expanded footprints of the terminals.

Once through security, it is planned that all passengers will proceed to an airside retail and entertainment environment with food and beverage offerings, other services, airline lounges and gate lounges.

Image 8-6: Concept imagery of Sydney Airport's Domestic terminal retail offering

8.5.2 Arriving passenger plan

The continued separation of arriving and departing international passengers will be required in order to meet security and border control requirements. Border control, customs and quarantine processing facilities are also proposed to facilitate international passenger operations. We will work with the various Australian Government agencies to deliver an efficient service.

Domestic and regional passengers will be processed through T2 and T3 utilising next generation processing equipment, with inbound security screening required for passengers transferring through the terminal from any unscreened destinations.

Baggage reclaim halls are proposed to be expanded with new baggage reclaim units being added to meet demand within the planning period for domestic operations, and new facilities developed for international operations.

Transfer facilities for passengers moving between the T2/T3 Integrated Operations Precinct and T1 International Operations Precinct are planned to be kept immediately adjacent to the terminals. Terminating passengers will continue to have the full choice of transport modes including train, bus, taxi, limousine, rental car, rideshare and public parking facilities.

8.5.3 Intra-terminal transfer passenger plan

Transfer facilities for passengers moving between international, domestic and regional flights within the T2/T3 Integrated Operations Precinct are planned to be incorporated into terminal expansions and new infrastructure with proposed new airside and landside links provided between the T2 and T3 buildings.

8.6 Inter-Precinct Airside Transfer Plan

Currently, some airlines provide passengers with an inter-precinct transfer product. Passengers not travelling with these airlines use the Sydney Airport T-Bus or public transport modes such as rail, rideshare or taxi to travel between the precincts.

A benefit of the Terminal Development Plan is the reduction in inter-precinct transfers. The ability to transfer passengers and baggage within the same or adjacent terminal facility is considered to be the most reliable, convenient and efficient method of transfer. Accordingly, a reduction in the MCT to transfer passengers between flights will be possible.

An airside transfer product provides a reliable service as well as avoiding the need for passengers to be processed twice. The transfer product is proposed to be provided to inter-precinct transfers along a dedicated shuttle corridor, which will allow passengers to quickly and comfortably connect between precincts.

Over time, it is anticipated that this inter-precinct transfer product will utilise autonomous vehicles.

8.7 Sustainability Initiatives to 2039

The following sustainability initiatives have been embedded within the Terminal Development Plan for Master Plan 2039:

- Commitment to achieving a minimum 4-Star Green Star Design and As-Built rating for new developments
- New developments designed to be water efficient and include water efficient fittings
- Undertaking an operational efficiency study of the terminal cooling systems to determine ways to reduce peak electricity demand
- Incorporation of water sensitive urban design in the development of landside facilities to improve local water quality and reduce burden on local infrastructure
- Preparation of a baggage handling system master plan

9.0 Airfield Development Plan

9.1 Overview

Airfield developments and enhancements are required to provide sufficient capacity to meet the projected passenger and air traffic demand at Sydney Airport in 2039.

Taxiway developments will be based on safety, efficiency of operation and meeting demand. Planned apron developments respond to proposed terminal developments, enable growth of aviation support facilities and provide layover stands for aircraft parking flexibility.

Together with Airservices Australia, we have undertaken considerable upgrades over the past five years to meet aviation demand and improve safety and operations at the airport. This includes the implementation of new air navigation systems, planning for a new ATC tower, and upgrades to approach lighting and associated infrastructure to improve aircraft operations during periods of low visibility.

Image 9-1: Our Airport Operations Team out on the field

9.2 Key Points

The Airfield Development Plan proposes improvements to airfield and aviation support infrastructure over the planning period to 2039:

- Taxiway improvements, which have been tested with fast time simulation modelling, to improve taxiing times for aircraft, enhance passenger experience and facilitate airline operating efficiency
- Taxiway developments to accommodate expected growth and facilitate integrated operations in the T2/T3 Precinct
- New apron developments across each of the precincts to accommodate aircraft stand demand in 2039, as well as aviation support infrastructure (e.g. FEGPU and PCA) to minimise impacts on the environment and community
- New active remote aircraft parking stands in the North East and South West Sectors to increase the capacity of the airport
- New remote aircraft parking in the South East Sector
- Additional storage areas for GSE and further deployment of FEGPU and PCA at aircraft parking stands
- Flexibility to accommodate new aircraft types being introduced into airline fleets
- Flexibility to respond to aviation industry changes and growth
- A new ATC tower in the South East Sector to be developed by Airservices Australia
- Expansion of the JUHI and extension of apron hydrant systems to serve new terminal infrastructure and remote stands
- Consolidation and redevelopment of freight facilities in the T1 International Operations Precinct and T2/T3 Integrated Operations Precinct
- Development of new freight facilities in the Northern Lands and South East Sectors to provide efficient and effective handling of freight
- Progressive relocation of aviation support facilities within the North East Sector and new aviation support facilities in the South East Sector

Image 9-2: The Instrument Landing System and approach lights at Sydney Airport

9.3 Runways and Taxiways

Sydney Airport has three runways with associated taxiway entries and exits:

- Main runway 16R/34L
- Parallel runway 16L/34R
- Crossing runway 07/25

Airfield improvements within the planning period are limited to taxiway and apron developments. No new runways or runway extensions are planned.

Taxiway enhancements are proposed over the next 20 years within the Runways Sector of Sydney Airport.

Table 9-1 and Map 12 illustrates the proposed taxiway developments in the planning period.

Table 9-1: Taxiway developments

Taxiway developments	
1	Realignment of Taxiways B and C between the Runway 16R threshold and Taxiway L if required to accommodate independent Code F operation on both taxiways
2	Extension of Taxiway J east across Runway 16R/34L to meet a southern extension of Taxiway D crossing Runway 07/25 to improve access to the two terminal precincts
3	Extension of Taxiway K east between Taxiway C and Taxiway D and west across Runway 16R/34L to provide access to the new South East Sector apron
4	Creation of a Code F taxiway to access the reconfigured maintenance and engineering precinct in the North East Sector
5	Extending Taxiway U1 as far as Taxiway B10 to improve flows to/from Runway 16L/34R
6	Development of an additional entry/exit taxiway on Runway 16L/34R between Taxiways T2 and T3 for more efficient regional aircraft operations
7	Extension of Taxiway B to the full length of Runway 16R/34L eliminating runway crossings for arrivals/departures originating to/from the North East Sector
8	Development of an additional runway crossing on Runway 16R/34L between the extended Taxiway B and Taxiway A (south of Taxiway L)
9	Development of an eastern Rapid Exit Taxiway opposite A4 for Runway 16R arrivals heading to the North East Sector
10	Realignment of Taxiway G east of T2 and development of a new parallel Code C taxiway to improve aircraft circulation


Map 12: 20-year Airfield Development Plan 2039
N
Illawarra Road
Marrickville Station
Sydenham Station
Unwins Bridge Road
SYDNEY
O'Riordan Street
Canal Road
INNER WEST
Gardeners Road
Mascot Station
CANTERBURY-BANKSTOWN
Tempe Station
Princes Highway
Qantas Drive
Airport Drive
Wolli Creek Interchange Station
Joyce Drive
Wentworth Avenue
Marsh Street
T3
T2
T1
Arncliffe Station
COOKS RIVER
Southern Cross Drive
M5 East Freeway
07/25 RUNWAY
BAYSIDE
Bestic Street
Foreshore Road
Botany Road
West Botany Street
General Holmes Drive
16R/34L RUNWAY
16L/34R RUNWAY
BOTANY BAY
Bay Street
The Grand Parade
President Avenue
1
2
3
4
5
6
7
8
9
10
Legend
Sydney Airport Boundary
Sydney Airport Freehold Land
Existing Terminal/Precinct Buildings
Existing Runways
Existing Taxiways/Aprons
LGA Boundary
Existing Road
Sydney Rail Network
Train Station
Taxiway Upgrades
0
0.5
1 km

9.4 Aprons and Parking Stands

9.4.1 Apron and parking stand demand

Sydney Airport works closely with airlines and aircraft operators to ensure that aprons are developed to meet demand. Implementation of apron and parking stands is adapted as airline demand changes.

The developments in the T1 International Operations Precinct and T2/T3 Integrated Operations Precinct will be planned with sufficient capacity to accommodate forecast growth (see **Chapter 16.0**). This includes the ability to handle Code E and Code F international aircraft in the North East Sector, which enables us to increase the airport's capacity within the planning period of Master Plan 2039 and beyond.

Swing gates at the T2/T3 Integrated Operations Precinct provide additional opportunities to efficiently increase the airport's capacity and flexibility to handle growth in Code E domestic aircraft (such as A330 and B787), as well as an improved ability to respond to fluctuations in demand between international, domestic and regional operations.

The 2039 representative busy day forecast schedule was used to generate aircraft parking and airfield demand to inform development requirements and options. The aircraft parking stand demand for each aircraft category was determined on the basis of the largest aircraft type using a particular stand over the entire busy day. Larger stands can be configured to accommodate smaller aircraft (potentially multiple smaller aircraft) and will be the subject of detailed project planning.

Image 9-3: A Boeing 787 Dreamliner parked at the stand off bays at Sydney Airport

The forecast apron and parking stand demand in 2039 is summarised in Table 9-2. The stand demand for each category was based on the largest aircraft type using a stand. Larger stands should be able to accommodate smaller aircraft codes subject to detailed project planning.

For the purposes of planning and to maintain future flexibility, domestic/regional Code C stands were sized to accommodate the largest code aircraft type.

The Airfield Development Plan meets this forecast apron demand by:

- Developing swing gates, which can be used in both the international and domestic peaks
- Increasing both the number and average size of aprons

We have conducted sensitivity analysis to demonstrate that the proposed apron and stand developments can respond to variations in future demand, particularly in relation to aircraft gauge. These proposals are also able to accommodate a range of airline grouping scenarios between the North West and North East Sectors.

Table 9-2: Forecast apron and parking stand demand, 2039

Category	T1	T2/T3	Freight (1)
			Active (2)
Code F	8	0	
Code E	27	21	1
Code C/Regional	4	55	
Subtotal	**39**	**76**	**1**
			Layover (3)
Code F		1	
Code E		8	
Code C/Regional		5	
Subtotal		**14**	**0**
TOTAL		**129**	**1**

1: This is the demand for freight stands occurring concurrently with passenger peak stand demand. Dedicated freight aircraft will operate from common use passenger stands.

2: Active stands are those used for actual passenger processing. They can be contact stands (i.e. those served by an aerobridge or walk-up) or passengers can be bussed to and from other locations.

3: Layover stands are those stands where aircraft not carrying out a short turnaround are towed and parked prior to being towed back to an active stand for departure.

9.4.2 Apron and parking stand development

Apron and stand development expansions will be required to meet forecast demand in 2039. The improvements proposed over the next 20 years are described in relation to the different sectors of Sydney Airport.

North West Sector (T1 International Operations Precinct)

- Development to the north of the existing T1 terminal building is proposed to allow for progressive expansion of Code E and Code F contact gates as demand requires
- Gradual consolidation and redevelopment of the current freight facilities

North East Sector (T2/T3 Integrated Operations Precinct)

- More Code E and Code F capable gates are proposed in the expanded precinct north of T3 and east of T2

South West Sector

- Potential progressive extension of Code C and Code E active and contact gates, as demand requires

South East Sector

- Increased remote parking south of Taxiway K to provide capacity for remote active and layover aircraft parking
- A new remote parking area and new development precinct immediately north of Taxiway B10 to provide flexibility to meet future requirements for apron and aviation support (i.e. freight, ground support equipment storage, catering and maintenance)

9.4.3 Ground support equipment

GSE includes a range of vehicles and equipment used to service aircraft between flights while on the apron. Motorised and non-motorised equipment is required while passenger and cargo loading and unloading, maintenance and other activities are carried out on the aircraft. GSE includes:

- Aircraft refuelling vehicles
- Aircraft tugs
- Aircraft waste disposal vehicles
- Baggage carts
- Belt loaders
- Bulk cargo loaders
- Buses
- Cabin service vehicles
- Catering vehicles
- Container dollies, loaders and tugs
- Ground power units
- Passenger boarding stairs
- Potable water trucks
- Tractors
- Unit load devices (ULDs)

Storage and staging of GSE at convenient locations relative to the aprons is important for efficient turnaround of aircraft. The actual area required is dependent on the number of each aircraft type served during peak periods and is provided partly on and partly off the aircraft gate area in dedicated GSE storage areas.

There are many non-airline third party ground handlers who contract to the various airlines to provide aircraft support services and who own and maintain the necessary equipment. Because of the size and nature of GSE, it is necessary to provide some on-airport aviation support facilities to ensure work can be undertaken on-airport.

Image 9-4: Our airport community in action on an A380 engine

The Airfield Development Plan provides for additional GSE storage areas and maintenance facilities to service new terminal, maintenance facilities and remote aircraft parking aprons. This includes new GSE storage areas at each new planned aircraft parking stand in combination with strategically located and dedicated remote GSE parking and storage areas. New storage and GSE maintenance facilities are possible in the South East Sector to replace facilities required to be relocated due to expansion in the North East and North West Sectors. Other satellite facilities will continue to be provided near terminals.

New technologies will continue to be investigated and initiated to provide efficiency gains and improve manual handling and energy consumption. This may include electric equipment with charging stations. The further growth and deployment of FEGPU and PCA systems across the airport will reduce the demand for GSE.

9.4.4 Business, general aviation and helicopters

The business and general aviation industry using Sydney Airport is almost exclusively limited to the premium corporate market, such as business jets, helicopters and commercial flights. Some of these aircraft types are currently unable to be accommodated at other airports in the Sydney Basin on a regular basis. It is recommended that over time these other airports be upgraded to accommodate such aircraft.

RAAF VIP flights operate through one of the fixed base operators and are irregular and low-frequency users of Sydney Airport.

As the need arises to accommodate increased passenger aircraft parking, the business and general aviation support facilities in the North East Sector will be invited to consolidate or progressively relocate to more appropriate precincts such as the South East Sector. The South East Sector could include facilities such as aircraft parking, logistics and aviation support.

Image 9-5: Helicopters parked at Sydney Airport

9.5 Airfield Modelling

Airfield simulation modelling was undertaken to test the capacity and efficiency of the airfield layout proposed in Master Plan 2039 under a busy day traffic scenario in 2039. The modelling assumptions were agreed and outcomes reviewed by Airservices Australia.

The airfield modelling study used a gate-to-gate fast time simulation model, structured around:

- The Airfield Development Plan for the airfield movement area layout in 2039
- The 2039 representative busy day forecast schedule
- Weather assumptions facilitating maximum runway capacity in parallel runway modes of operations (RMO) used during peak demand

The model was initially tested against the existing traffic and movement area configuration for calibration.

When developing the taxiway enhancement plan, consideration was given to the areas where congestion is currently observed. Where congestion could be anticipated in the vicinity of terminal precincts and associated aircraft aprons, racetrack taxiway configurations to minimise taxiing conflicts were preferred to ensure access to the terminal for inbound aircraft under the most demanding conditions.

Overall the modelling demonstrated:

- Improved capability for aircraft departure queues near runway thresholds
- Fewer taxiing delays for arriving aircraft
- Reduction in aircraft taxiing conflicts
- Capability to assist with disruption management
- Capability to accommodate all aircraft types, including Code F aircraft as required, at both terminal precincts
- Elimination of the need for jet aircraft operating from the North East Sector to cross Runway 16R/34L

Image 9-7: Taxiway traffic

9.6 Airfield Supporting Infrastructure

Satellite-assisted navigation technologies continue to be implemented at major airports around the world. On-board aircraft technologies will continue to be progressively introduced to facilitate standard instrument departures (SIDS) and standard arrival routes (STARS). Today, nearly all modern aircraft have the capability to fix their position using a range of air navigation systems, including satellite-assisted navigation technology.

Aircraft rely on a number of other inputs such as global navigation satellite systems (GNSS), other distance measuring equipment (DME) units and precision approach aids provided at Sydney Airport. Consistent with Master Plan 2033, over the past five years we have upgraded airfield supporting infrastructure to meet demand and improve safety and operations, including:

- An upgrade of the airfield to improve low visibility capability in conditions such as fog
- Upgrades of the approach lighting system for Runway 16R
- Installation of approach lighting systems for Runway 34L and Runway 34R
- Upgrade of the Runway 16R and Runway 34L instrument landing systems (ILS) to Category II
- ILS upgrades for Runway 16L and 34R
- Implementation of the ground-based augmentation system (GBAS) to supplement the current ILS equipment
- implementation of the following air navigation systems:
  - Multi-lateration surveillance system (MLAT)
  - Automatic dependent surveillance broadcast (ADS-B)
  - Advanced surface movement guidance and control system (ASMGCS)
- Removal of the Doppler VHF omni-directional range (DVOR) system and relocation of the DME facility to allow expansion of aprons and aviation supporting developments

Image 9-8: Elevated stop bar lights and guard lights to help facilitate taxiing airfield

9.6.1 Air traffic control

During the Master Plan 2039 planning period, proposed developments in the South East Sector will accommodate existing ATC tower sightlines, as well as navigational and radar aids. Airservices Australia has advised that a new ATC tower is required to be developed within the next five years. Any affected aids and associated facilities will be relocated, if required, to ensure that airfield surveillance is maintained.

Given the critical importance of ATC services to all airport users, we maintain an ongoing close dialogue with Airservices Australia on a range of issues, including:

- The impact and timing of any developments in the manoeuvring area
- Protection of potential sites for a new ATC tower and ASMGCS remote units, with appropriate sites to be made available when required

9.6.2 Air navigation

Sydney Airport, Airservices Australia and the aviation industry continue to work co-operatively on the implementation of new technologies as they are complemented by aircraft equipment and regulatory rule changes. The following technologies, which are delivering improvements to air navigation and surveillance, have been implemented for the benefit of airline and airport operations.

Navigation and landing systems

A GNSS is currently used for en-route and non-precision terminal and instrument approach navigation. GNSS approaches and departures will become more widespread to facilitate accurate aircraft tracking. In the more critical phases of flight (approach and landing), the GNSS system requires augmentation to realise the accuracy needed for guidance. These systems are referred to as GBAS or GBAS landing systems (GLS). A GBAS unit is currently operational at Sydney Airport.

Multi-lateration surveillance systems

MLAT is a surveillance system that receives and locates transponder and other transmissions radiating from aircraft on various frequencies, typically 1090MHz – the frequency used by secondary surveillance radar (including Mode S) and ADS-B transponders. All aircraft operating into Sydney Airport are equipped with transponders and nearly all are equipped with transponders capable of interrogation.

A wide area multi-lateration system (WAAM) is currently in use to supplement the terminal area radar and provide precision runway monitoring to enable simultaneous parallel runway operations to be conducted in conditions of reduced visibility.

The WAAM can be augmented to facilitate increased coverage or to facilitate developments in the vicinity of the airport that may otherwise be impossible due to sterilisation of land by on-airport radars or unacceptable reflections from radar transmissions. At Sydney Airport, MLAT receivers are also capable of receiving ADS-B transmissions. This technology enables development of land on- and off-airport, including at Port Botany and in the South East Sector.

Automatic dependent surveillance broadcast

ADS-B is a system that gives aircraft the capacity to automatically and continuously broadcast aircraft position, altitude, velocity and other data. Other aircraft and ATC can access the data on display screens without the need for radar.

Aircraft position is derived from the satellite or internal navigation systems on board the aircraft.

The ground unit is a receiver for the data, which is then integrated into the ATC system. ADS-B units are currently being used by Airservices Australia at Sydney Airport to provide surveillance on the airfield, in the terminal area airspace, as well as the airspace above 30,000 feet over the entire continent of Australia, including areas not currently provided with radar coverage.

Required navigation performance

Required navigation performance (RNP) is a statement of the navigation performance necessary for the operation of aircraft within a defined airspace. Procedures based on RNP provide for approaches to a lower minimum height than non-precision, but typically higher than ILS. Such approaches can be conducted independently of any ground based aids.

Most modern aircraft are capable of performing RNP approaches subject to procedure development and crew training. RNP approaches provide safety and operating benefits by providing pilots with a predictability of operations and further reducing reliance on ground based aids.

Such predictability delivers environmental benefits by reducing aircraft fuel burn and allowing for more flexible tracking in airspace around the airport, thus improving noise outcomes for some communities in the vicinity of the airport.

Advanced Surface Movement Guidance and Control Systems

ASMGCS has been introduced at Sydney Airport. The system comprises surface movement radar, MLAT and an ADS-B system, which in conjunction with stop bars, maximises capacity in low visibility conditions and increases airport safety in all weather conditions.

Image 9-9: The Air Traffic Control Tower at Sydney Airport, managed by Airservices Australia

9.7 Aviation Supporting Infrastructure

Aviation support activities at Sydney Airport enable the core airline business of transporting passengers and freight. Aviation support infrastructure includes:

- Supply, storage and distribution of aviation fuel
- Flight catering facilities
- Air freight facilities
- Aircraft maintenance facilities

Aircraft maintenance, freight, flight catering, GSE storage and aviation fuel facilities will continue to be accommodated on many of the existing sites at Sydney Airport where these activities occur. New developments will primarily be triggered by aviation growth and expansion of terminal and apron areas into these existing sites, leading to expansion and relocation of some aviation support infrastructure.

The Airport Development Plan will permit us to:

- Create new aircraft maintenance and engineering zones
- Create additional aircraft parking
- Increase aviation fuel storage areas
- Provide new GSE storage areas
- Provide areas for maintenance facilities
- Provide areas for additional flight catering facilities
- Provide areas for additional freight handling and transport facilities
- Upgrade the airport's capacity and distribution for utilities and services

Consistent with Master Plan 2033, the existing JUHI facility is expected to remain and be expanded on its current site.

Maintenance and engineering facilities may be upgraded in the North East and South East Sectors to accommodate new generation aircraft, which are provided for within the Airport Development Plan.

9.7.1 Aviation fuel

The JUHI facility is owned and operated by an unincorporated joint venture comprising BP, Caltex, Mobil, Qantas and Viva Energy. It is located in the northern part of the North West Sector.

The JUHI facility contains five storage tanks with a maximum capacity of 29 megalitres (ML) of aviation fuel, which currently provides up to three days' supply for the airport.

In addition to the JUHI, a number of the GA and helicopter operators at Sydney Airport have small refuelling storage facilities and equipment close to their operations.

The area surrounding Sydney Airport contains significant aviation fuel supply and storage infrastructure, with an estimated storage capacity of approximately 196 ML.

The JUHI facility at Sydney Airport is primarily fed by two independently owned pipelines:

- Viva Energy pipeline from Parramatta Terminal
- Caltex pipeline from Kurnell Terminal via Port Botany

Aviation fuel can be pumped through the Caltex pipeline from a number of separate facilities including the Caltex Kurnell facility and the Vopak storage facilities in Port Botany.

The primary source of Jet Fuel supplied to the JUHI facility is via pipeline. Jet Fuel is also supplied to the JUHI facility by Bridger.

Aviation fuel imports are currently handled through Gore Bay and Port Botany Terminals.

Aviation fuel is distributed across Sydney Airport via a number of underground pipelines from the JUHI to apron hydrant outlets adjacent to aircraft gates. 'Into-plane' dispensing is undertaken directly by the fuel companies (or their appointees) at the aircraft parking position. Bulk tanker vehicles are used for the fuelling of some aircraft where hydrant access is not available.

Additional aviation fuel capacity to meet growing demand will require a combination of:

- Upgraded supply throughput
- New storage tanks and related pumping equipment and pipework
- Extended and augmented hydrant lines to service new terminal extensions, aircraft parking configurations and remote active aprons
- Tankering operations to remote aprons where hydrant access is not available

The current JUHI site is capable of incorporating additional storage and it is planned to retain the facility in its current location in the longer term. The site has been provisioned for a further 10 ML tank supplemented with increased Bridger and tankering operations to remote aprons where hydrant access is not available.

The existing apron hydrant systems are proposed to be extended incrementally to serve the expansion of the terminal precincts and remote parking stands.

9.7.2 Flight catering facilities

Flight catering facilities are predominantly located off-airport, with two facilities located on-site (one each in the North East and South East Sectors).

The Airfield Development Plan assumes that flight catering facilities will continue to operate primarily from off-airport locations, with access to the airport via a combination of the public road system and enhanced airside security access points. However, there is potential for new facilities to be located in the Northern Lands Sector, subject to demand.

Image 9-10: Aircraft refuelling at Sydney Airport

9.7.3 Air freight facilities

Air freight is a vital economic activity and Sydney Airport handles about half of Australia's international air freight. Freight provides an important income stream for passenger airlines, which transport approximately 80 per cent of air freight in the cargo hold of passenger aircraft.

Land at Sydney Airport is at a premium and there are many competing demands, with aviation facilities and infrastructure prioritised. Currently, the airport has a number of freight facilities in the North West and North East Sectors, which service the international and domestic freight sectors. These facilities are leased/operated by a variety of companies.

The total on-airport land and building areas (warehouse and office total area) dedicated to freight are outlined in Table 9-3.

Table 9-3: Size of freight facilities at Sydney Airport, 2018

Terminal Precinct	Land Area (ha)	Building Area (m^2)
T1	9.2	37,823
T2/T3	4.5	25,099
TOTAL	**13.7**	**62,922**

There are also a number of off-airport freight facilities surrounding Sydney Airport, which contribute to the volume of freight traffic accessing the airport.

In order to accommodate the forecast growth in passenger numbers, it is important that we are able to provide an efficient and effective freight handling process. However, growth in passenger numbers will also require expansions to passenger terminals in both the T1 International Operations Precinct and the T2/T3 Integrated Operations Precinct. These expansions will require the consolidation and redevelopment of existing freight handling facilities.

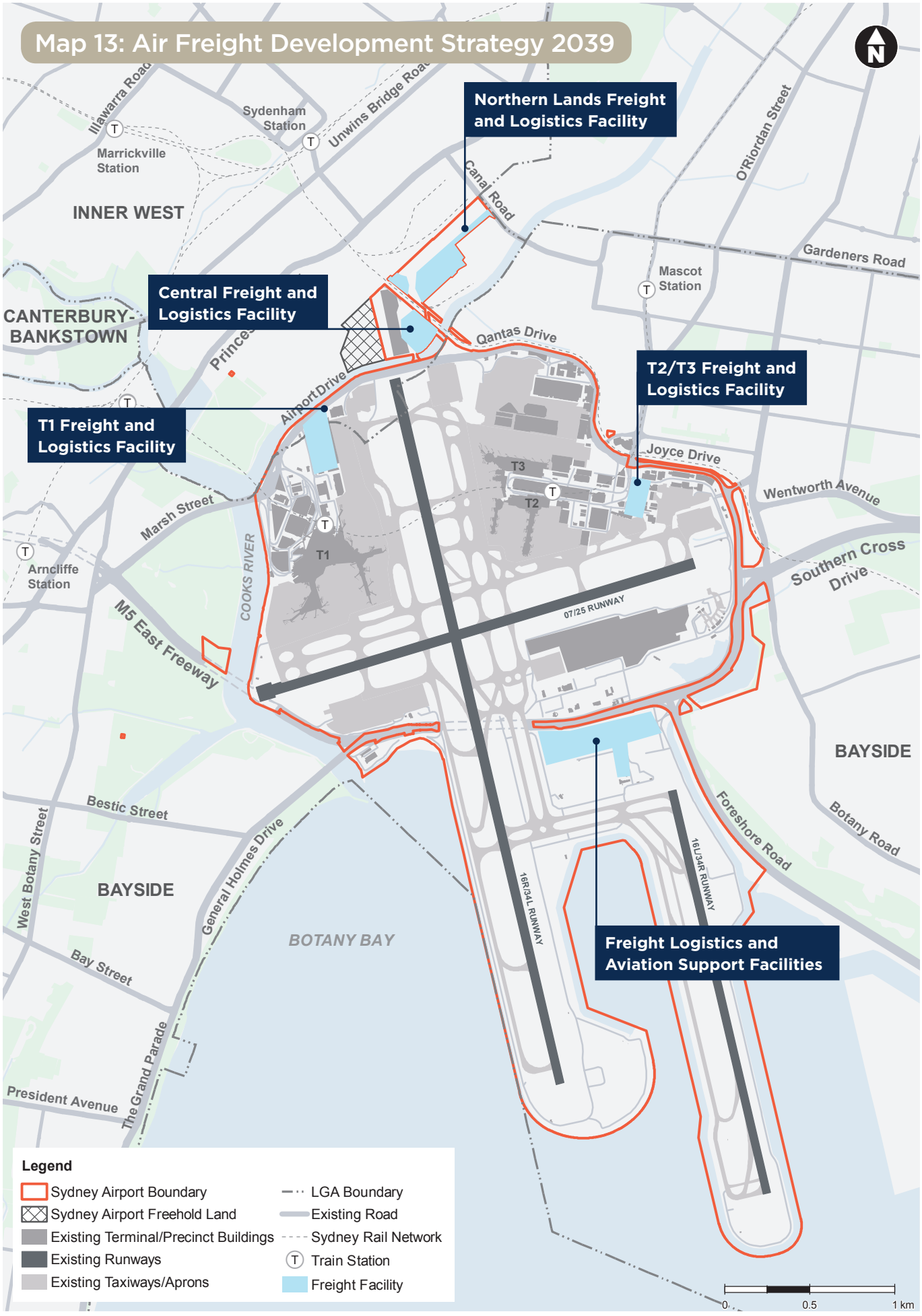
In reviewing potential locations, together with more efficient uses of footprint and processes both on-airport and off-airport, for new freight facilities, we have adopted the following principles:

- Provide sufficient storage buffer and throughput capacity in the vicinity of passenger terminals to support growth in freight volumes (i.e. one million tonnes in 2039)
- Improve the efficiency of airport land and infrastructure used for freight
- Minimise the interface between landside freight and passenger traffic for better safety and reduced congestion

Our freight development strategy proposes to:

- Consolidate freight facilities at the T1 International Operations Precinct and the T2/T3 Integrated Operations Precinct
- Develop new freight facilities in the Northern Lands Sector
- Develop new freight and logistics facilities in the South East Sector (both north and south of General Holmes Drive)

This strategy is conceptually illustrated on Map 13.


Map 13: Air Freight Development Strategy 2039
Northern Lands Freight and Logistics Facility
Central Freight and Logistics Facility
T1 Freight and Logistics Facility
T2/T3 Freight and Logistics Facility
Freight Logistics and Aviation Support Facilities
Illawarra Road
Marrickville Station
Sydenham Station
Unwins Bridge Road
INNER WEST
Canal Road
O'Riordan Street
Gardeners Road
Mascot Station
CANTERBURY-BANKSTOWN
Prince
Qantas Drive
Airport Drive
Joyce Drive
T3
T2
T1
Wentworth Avenue
Marsh Street
Arncliffe Station
COOKS RIVER
Southern Cross Drive
07/25 RUNWAY
M5 East Freeway
BAYSIDE
Bestic Street
West Botany Street
General Holmes Drive
Foreshore Road
Botany Road
16L/34R RUNWAY
16R/34L RUNWAY
BOTANY BAY
Bay Street
The Grand Parade
President Avenue
Legend
Sydney Airport Boundary
Sydney Airport Freehold Land
Existing Terminal/Precinct Buildings
Existing Runways
Existing Taxiways/Aprons
LGA Boundary
Existing Road
Sydney Rail Network
Train Station
Freight Facility
0
0.5
1 km

9.7.4 Aircraft maintenance facilities

Given the proposals for terminal, apron and stand development to cater for forecast growth in passengers and aircraft, the Airfield Development Plan provides for:

- Apron, maintenance and engineering capacity to be developed in several locations at Sydney Airport, including relocation and reconfiguration of the Jet Base in the North East Sector
- Additional aviation support facilities in the South East Sector (both north and south of General Holmes Drive)

New aviation support facilities, to be utilised by airlines, third party service providers and their customers, may include hangars, workshops, offices and staff amenities. These new facilities could cater for three main types of aircraft maintenance activities:

- Line/station maintenance – this occurs during transits and turnarounds and can be performed at the aircraft gate
- Base maintenance – this requires ground-time in a hangar with simple access docking, or at a gate away from the terminal. Some non-routine maintenance and supplemental checks can be carried out at an aircraft parking position in favourable weather conditions. Ground-time periods can range between 20 and 36 hours
- Heavy maintenance – this requires significant ground time in a hangar with extensive docking capability. Ground time periods can range between six and 50 days, depending on the type of heavy maintenance being performed

In addition to hangars, there is a need for workshops, component stores and engine run facilities.

North East Sector

Two areas within the North East Sector currently utilised for aircraft maintenance will transition as the T2/T3 Integrated Operations Precinct is expanded to accommodate forecast passenger growth:

- Areas north of the existing T3 will remain partly available for development of new maintenance and engineering facilities on the northern perimeter of the current site. The remainder of the current site will be progressively redeveloped to meet the expanding demand for passenger aircraft infrastructure
- The current GA precinct in the eastern part of the Sector is proposed to be progressively developed for passenger aircraft infrastructure, with some fixed based operators and Air Ambulance relocating to the South East Sector

South East Sector

Land in the South East Sector will be available to provide new aviation support facilities to relocate displaced facilities and/or to meet demand for new facilities. Developments may include new maintenance facilities (typically for base maintenance), engineering and/or aviation support facilities.

Developments to cater for a range of hangar or ‘canopy’ bays are proposed and would include adjoining aircraft apron parking.

The development of aircraft aprons, maintenance or other support facilities will be planned to maintain the integrity of associated Airservices Australia facilities such as the various radars, navigation aids, fire stations and future ATC Tower requirements over the planning period.

Other existing developments, including contractor compounds, rental car, vehicle maintenance and catering facilities, may be retained in current location or relocated over time to elsewhere on the airport.

9.8 Sustainability Initiatives to 2039

The following sustainability initiatives have been embedded within the Airfield Development Plan for Master Plan 2039:

- Continued expansion of FEGPU and PCA access and commitment to its use
- Aircraft movement efficiencies associated with adjustment and expansion of taxiways
- Operational and transport efficiencies associated with proposed freight handling facilities in the South East Sector
- Relocation and development of new freight facilities to provide significant energy and cost efficiencies

Image 9-11: Sunset on the airfield at Sydney Airport

10.0 Commercial Development Plan

10.1 Overview

The Airport Development Plan allocates the majority of the airport site for aviation activity. The remaining land at Sydney Airport is available for business activity, interim land uses, utilities and environmental conservation.

The Commercial Development Plan identifies the commercial and property developments proposed in landside areas of the airport. These developments are intended to support the efficient operation of the airport and provide facilities and services to passengers, airlines, airport partners and other airport users.

The Commercial Development Plan seeks to provide:

- On-airport commercial facilities for the aviation community including office facilities for government agencies, airlines and other airport service providers and users
- A range of convenient hotel accommodation for all passengers
- A variety of retail and food and beverage premises on-airport outside the terminals
- A range of car parking products for different market segments
- A range of rental car products

We continually seek to improve our offerings to reflect new markets and changes in market and customer expectations, while addressing customer growth requirements in a sustainable manner. Our aim is to maintain flexibility in commercial development planning in order to respond to customer needs as they arise.

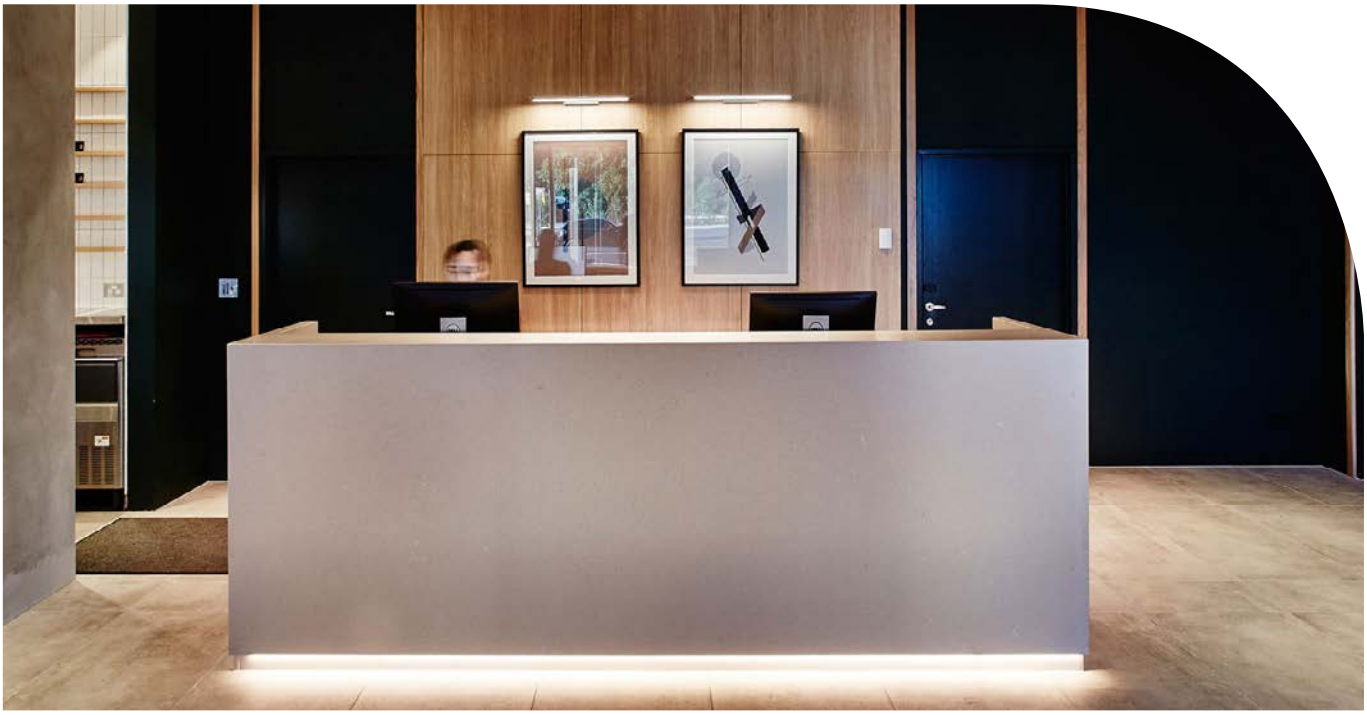


Image 10-1: Inside the Mantra Hotel at Sydney Airport

10.2 Key Points

The Commercial Development Plan for Master Plan 2039 highlights that:

- Proposed terminal and airfield developments are likely to displace some existing commercial developments
- The North West Sector can accommodate demand for up to 120,000 square metres of floor space (excluding the T1 terminal) for hotel and office commercial development
- The North East Sector can accommodate demand for up to 120,000 square metres of floor space (excluding the T2 and T3 terminals) for hotel and office commercial development
- An approved 430 room hotel at Ninth Street will be developed together with a multi-storey Ground Transport Interchange in the North East Sector
- Additional hotels covering a range of product offerings with approximately 200 to 500 rooms could be developed within the North West Sector in the next five years
- Additional hotels covering a range of product offerings with approximately 500 to 900 rooms could be developed within the North East Sector
- Up to 70,000 square metres of freight, logistics and industrial developments could be accommodated in the South East Sector
- Up to 150,000 square metres of freight, logistics and industrial developments could be accommodated in the Northern Lands Sector
- Employment levels at Sydney Airport are forecast to increase to 35,800 jobs by 2023

Image 10-2: Concept imagery of Sydney Airport's hotel development on Ninth Street, Mascot

10.3 Commercial Development Context

More than 100,000 passengers travel through Sydney Airport each day. With this level of daily activity, there are consequential demands for a range of commercial services at the airport including:

- Hotel accommodation
- Offices and serviced offices
- Meeting, conference and function facilities
- Food and beverage outlets
- Medical facilities
- Banking
- Convenience stores
- Recreation facilities
- Staff support services and child care
- Luggage services
- Vehicle services and showrooms
- Pet consignment and boarding
- IT services
- Advertising and commercial signage

The availability of these services and amenities at the airport provides convenience, saves time, simplifies commuter travel and promotes healthy lifestyle choices. Cycling end-of-trip facilities have recently been enhanced to promote active transportation by airport workers.

Our recent commercial initiatives include enhancements to consumer offerings for retail, car parking and the opening of a mid-range Mantra Hotel with 136 rooms in 2017.

With land available for commercial development limited, responsiveness and flexibility of business-to-business and business-to-consumer engagement are key to our commercial planning activities. We engage in customer research to prepare for changing needs and emerging trends, and we seek to respond to customer requests in a timely manner.

Image 10-3: Sydney Airport's North-West Sector encompassing Customs House and parking facilities

10.4 Commercial Development Strategy

Aviation activity remains the priority at Sydney Airport. Accordingly, we will pursue property leasing and development strategies that allow for delivery of the aviation needs outlined in our Terminal and Airfield Development Plans (see Chapters 8.0 and 9.0).

Terminal and airfield developments are likely to require progressive displacement of some existing functions, including some existing commercial activities. A number of activities may be relocated to alternative areas on-airport, facilitated by ongoing occupancy tenure reviews and the consideration and implementation of short or medium term alternative uses for land.

In addition, there are a number of commercial activities that can be located on land that may not be required for aviation activities until later in the planning period, or on land not required for aviation activities.

Our strategy for commercial development is to provide for a range of commercial land uses that both support the airport's primary aviation function and provide a degree of civic amenity. These commercial activities include general commercial, community, office and hotel uses. There is also growing demand from businesses or agencies that require facilities close to the airport or airside (such as administrative offices, airlines, freight and catering businesses, hotels and car parking).

Commercial developments are considered in accordance with the principle of 'highest and best' use and customer value. We will also require increased emphasis on sustainable design in all commercial developments. In particular, we will pursue 4-Star Green Star Design and As Built ratings for all new commercial development, subject to customer and tenant requirements.

10.5 Potential Commercial Development

10.5.1 Commercial development in the North West Sector

The North West Sector includes:

- The T1 International Operations Precinct
- Freight terminals
- Aviation support functions (including aviation fuel storage)
- Ground transport facilities (including multi-storey car parks)
- Hotel accommodation
- Office accommodation for Australian Government agencies, including the Australian Border Force and AFP)

Over the first five years of the planning period, we contemplate the following developments in the North West Sector:

- Further multi-storey structures could be developed, including a new P8 pick-up, drop-off facility of up to 12 levels, to accommodate car parking and other ground transport functions in response to the developing needs of the precinct and Sydney Airport's growing number of users
- Additional hotels covering a range of product offerings with approximately 200 to 500 rooms, the exact locations of which are yet to be determined
- A variety of commercial developments to complement the precinct and T1 forecourt, including offices, hotels, service facilities and advertising signage as part of the Western Terminal Expansion

Over the long term, the North West Sector (excluding the T1 terminal) can accommodate demand for up to 120,000 square metres of commercial floor space, including for further hotel and office development.

This will comprise both the existing built form and potential additions, including:

- Opportunities exist for commercial development facing the waterfront along the banks of the Cooks River, opposite the current Kogarah Golf Course
- The T1 terminal expansion may result in the relocation of existing airline, agency and service provider office accommodation and provide oppurtunities for hotel accommodation and commercial development

Aviation support developments in the North West Sector are expected to include some additional fuel storage facilities and some freight facility displacement, consolidation and redevelopment (refer to Chapter 9.0 Airfield Development Plan).

10.5.2 Commercial development in the North East Sector

The North East Sector includes:

- The T2/T3 Integrated Operations Precinct
- Multi-storey car parking structures in proximity to T2 and T3
- A range of aviation support activities, including:
  - Aircraft maintenance
  - Freight handling and transport facilities
  - Flight catering
  - Vehicle servicing
  - GA operations

In the first five years, we contemplate the following developments in the North East Sector:

- An approved 430 room hotel will be developed at 2 Ninth Street. This is expected to occur together with the approved Seventh Street multi-storey Ground Transport Interchange
- Further hotel accommodation choices along Ross Smith Avenue may be developed with approximately 500 to 900 rooms in total, the exact locations of which are yet to be determined

Over the longer term, planning provision has been made to meet a variety of commercial demands including offices, hotels, service and other facilities, and advertising signage in the North East Sector. Up to 120,000 square metres of commercial floor space can be accommodated in the sector (excluding T2, T3 and any potential terminal expansions).

This will comprise both the existing precinct built form and future additions.

Terminal developments may impact on existing commercial developments (including offices, freight, aircraft maintenance, catering and vehicle servicing). Where this occurs, it is expected that modernised replacement facilities will be developed.

In addition, further hotel accommodation choices along Ross Smith Avenue and incorporated into and adjacent to terminal development will likely be delivered. Approximately 500 to 900 rooms could be developed in the precinct.

10.5.3 Commercial development in the South East Sector

The South East Sector of Sydney Airport will gradually be developed for aviation activities, including aviation support, business and general aviation, freight handling and transport facilities, offices, hangars and aprons.

Airservices Australia has advised that a new ATC Tower is likely to be required within the next five years and it is anticipated that support facilities will be required.

If these developments proceed, they may displace current commercial uses that include rental car support facilities, part of the Blu Emu car park, flight catering and vehicle servicing and other general facilities. Until the aviation use of this land reserve is required, these areas will remain available for commercial development.

In the first five years, existing roadside services to the north of General Holmes Drive may require remodelling and extensions, to support anticipated revised ground access arrangements.

To the south of General Holmes Drive, aviation support facilities, including freight and logistics, are likely to be developed to absorb displaced facilities from elsewhere on the airport.

Roads and Maritime has indicated that it proposes to develop truck inspection facilities along Sydney Airport's Foreshore Road land separated from the airport by the Mill Stream stormwater drainage canal. Sydney Airport also remains interested in establishing an adjacent roadside service centre and related facilities and advertising signage areas in conjunction with any Roads and Maritime development.

Over the longer term, we have indicated that the Botany Bay and Cooks River foreshore may be used for commercial activities.

10.5.4 Commercial development in the Northern Lands Sector

In 2016, the Nigel Love Bridge across Alexandra Canal was completed. This bridge has enabled airport related uses, initially including vehicle storage, to be established in the Northern Lands Sector.

Development in the Northern Lands Sector is likely to be staged, subject to any Sydney Gateway connection.

Any Sydney Gateway connection may facilitate the use of land north of the Alexandra Canal for airside aviation support activities, including:

- Freight
- Catering
- GSE storage and maintenance
- Truck staging
- Vehicle storage

Within the first five years, this may include relocating activities currently undertaken elsewhere on airport land to the Northern Lands Sector. Additional access connections and ground transport infrastructure are expected to be delivered as part of developing this area.

10.5.5 Commercial development on other airport lands

It is possible that we may establish roadside services areas and advertising adjacent to transport routes on Sydney Airport land.

10.6 Impact on Local Employment

For the first five years of a planning period, the Airports Act requires Master Plan 2039 to specify the likely effect of proposed commercial developments on employment levels at the airport and on the local and regional economy.

In relation to the period to 2024, the direct employment levels forecast for the airport precinct are shown in Table 10-1. The economic impact is also shown.

10.7 Sustainability Initiatives to 2039

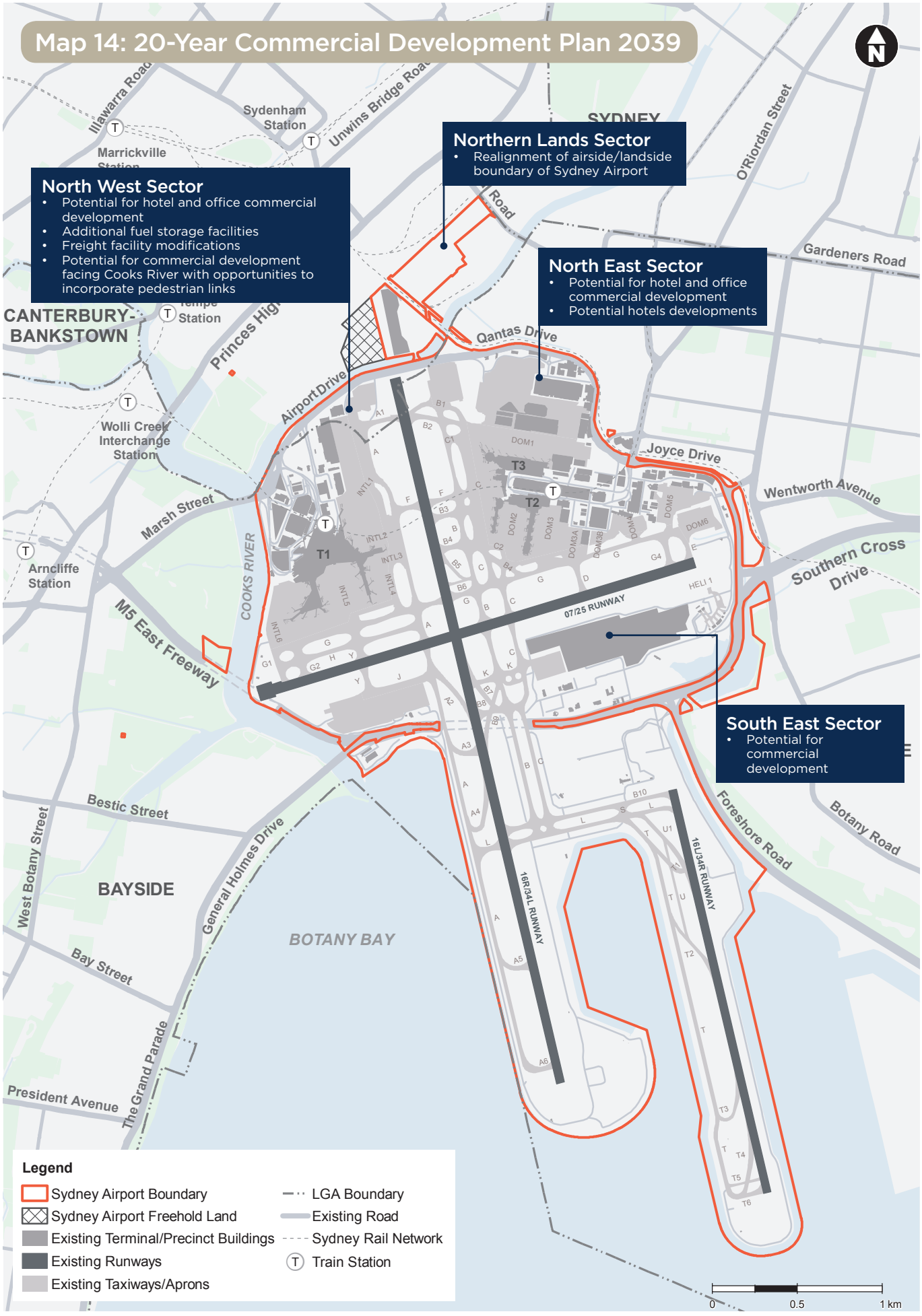
The following sustainability initiatives have been embedded within the Commercial Development Plan for Master Plan 2039:

- Commitment to achieving a minimum 4-Star Green Star Design and As-Built rating for new developments (subject to tenant and customer requirements)
- New developments designed to be water efficient and include water efficient fittings
- Incorporation of water sensitive urban design in the development of landside facilities to improve local water quality and reduce burden on local infrastructure

Table 10-1: Effect on the local economy and impact on employment levels at Sydney Airport

	2019	2020	2021	2022	2023	2024
Jobs (FTE)	32,700	33,500	34,300	35,100	35,800	36,200
Economic impact (billions)	11.4	11.7	12.0	12.3	12.6	12.8

Map 14: 20-Year Commercial Development Plan 2039



11.0 Ground Transport Development Plan

11.1 Overview

Managing ground access in and around Sydney Airport is important for our customers and our local communities. Development and urbanisation in areas around the airport, together with air passenger growth, has increased demand on ground transport infrastructure in the past five years.

More people are travelling to, from and past the airport, with growth in demand from both air passengers and commuters expected to continue over the planning period of Master Plan 2039. This will place increasing pressure on:

- Our internal road network
- Surrounding roads
- The public transport network serving the airport

Our Five-Year Ground Transport Plan and 20-Year Ground Transport Strategy contained in this chapter are designed to improve road network performance in and around Sydney Airport to 2024 and beyond, and accommodate forecast increases in ground transport demand over the planning period.

The ground transport solutions proposed at both T1 and T2/T3 recognise the potential changes in traffic volumes and patterns resulting from the opening of WestConnex and the proposed Sydney Gateway connection. We have been working collaboratively with the NSW Government on the development of ground access solutions.

WestConnex is expected to allow some non-airport traffic to bypass the airport, and will provide the opportunity for road journey times between the Sydney CBD and both terminal precincts to be more reliable.

We welcome the recent growth in rail passenger demand to/from the airport and continue to advocate for further improvements to public transport, including provision of additional and more affordable services.

Image 11-1: Passengers departing the Domestic terminal at Sydney Airport

11.2 Key Points

The Ground Transport Development Plan for Master Plan 2039:

- Builds on the improvements to the internal and external road networks undertaken in line with Master Plan 2033, which have delivered significant additional capacity and enhanced traffic flows across both the T1 and T2/T3 precincts
- Is expected to result in improved road and intersection performance in and around Sydney Airport to 2024 and beyond
- Accounts for substantial changes to the external road network, in particular WestConnex and the proposed Sydney Gateway connection
- Is expected to support the forecast increase in ground transport demand to 2039

T1 Ground Transport Improvements

At T1, the Five-Year Ground Transport Plan proposes a number of ground transport solutions, including:

- Construction of a new integrated multi-storey pick-up/drop-off facility at P8 separating internal traffic and reducing conflicts and delays. It could include:
  - Direct vehicle access from Centre Road with a potential elevated ramp access to P8 to minimise traffic conflicts
  - Direct vehicle exit onto Cooks River Avenue
  - Direct pedestrian connections to the terminal to enable a seamless customer experience
- Elevated ramp access to P6 from Arrivals Court or Departures Plaza, with exit onto Centre Road
- Subject to terminal infrastructure development, reconfiguration of P6 and P7 to incorporate a multi-modal ground transport interchange
- Upgrading Centre Road to accommodate increased vehicle movements
- Widening of Airport Drive up to four lanes in each direction between the precinct and the proposed Sydney Gateway connection
- Additional exit ramp capacity to Marsh Street and Airport Drive to improve conditions for vehicles exiting the precinct
- Reconfigured access to Link Road from the proposed Sydney Gateway connection

T2/T3 Ground Transport Improvements

At T2/T3, the Five-Year Ground Transport Plan proposes a number of ground transport solutions, including:

- Construction of the approved Ground Transport Interchange, providing additional capacity for a range of uses, including for public and private bus operations and rental car operations
- Development of improved connectivity and amenity between the Ground Transport Interchange and the two terminals (including through the existing P1, P2 and P3 car parks)
- Redevelopment of P1 to facilitate improved access to rail, taxis, rideshare, rental cars and a range of parking services
- Improved loading dock facilities for terminal development, which provide ease of access and security
- Improvements to the current road network particularly at the intersections of Sir Reginald Ansett Drive/O'Riordan Street/Joyce Drive and Seventh Street/Robey Street/Qantas Drive
- Widening of Qantas Drive up to three through lanes in each direction between the precinct and any future Sydney Gateway connection
- Continued development of new facilities for vehicle pick-up/drop-off operations

Intersection Improvements

Proposed improvements to the intersections include:

- New dedicated Qantas Drive flyover entry to the T2/T3 precinct
- Improvements to the left turn out of Seventh Street to Qantas Drive (for traffic exiting the precinct)
- Optimisation of traffic signal settings to minimise delays for all traffic
- Improvements to the left turn from Qantas Drive to Robey Street

11.3 Ground Transport Context

Continued air passenger growth at Sydney Airport has resulted in a commensurate growth in ground transport demand as more people travel to and from the airport. Air passenger growth and an associated increase in ground transport demand is expected to continue over the planning period of Master Plan 2039. This will place increasing pressure on:

- Our internal road network
- Surrounding roads
- The public transport network serving the airport

Currently, on busier days at Sydney Airport, the number of arriving and departing passengers is up to 145,000. Of these, roughly 85 percent make a landside journey to or from the airport. The remaining 15 percent transfer to another flight.

Staff movements at the airport are considerable and the number of people who travel to Sydney Airport for work on a typical working day has increased by about 20 percent since 2012. Other visitors, including those meeting and farewelling travellers, add to the daily traffic volume at the airport.

Between 2012 and 2017 the number of vehicles accessing Sydney Airport during peak periods increased at T1 and T2/T3 by more than 50 percent and 25 percent respectively.

There has also been a change in how people travel to the airport. Analysis of a recent Sydney Airport passenger survey and public transport ticket data shows that the modal share of air passengers accessing the airport by rail has grown from 16 percent in 2012 to 24 percent in 2017. Analysis of ABS Census Journey to Work data indicates that the modal share of workers accessing the airport by public transport has grown from 15 percent in 2011 to 21 percent in 2016. The current daily usage at both airport rail stations is over 33,000 trips on a busy day, which is an increase of 45 percent from 2012. The emergence and growth of ride sharing has also changed the modal share of air passengers travelling to and from the airport.

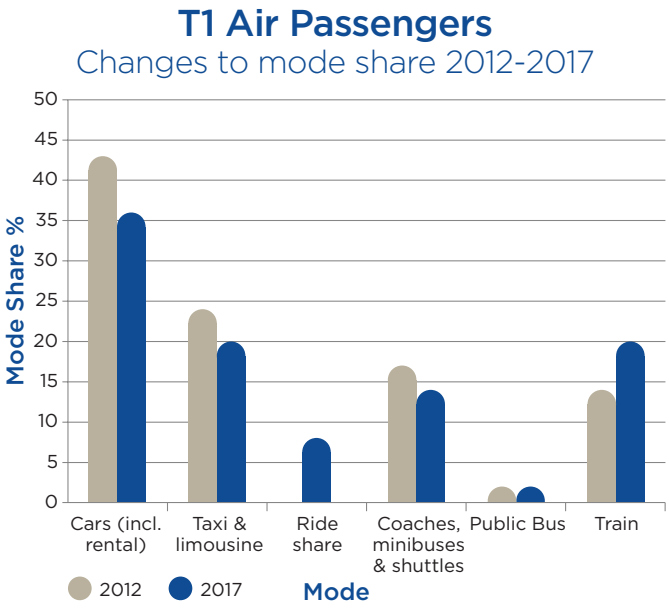


Figure 11-1: *Changes to mode share at T1 - 2012-2017

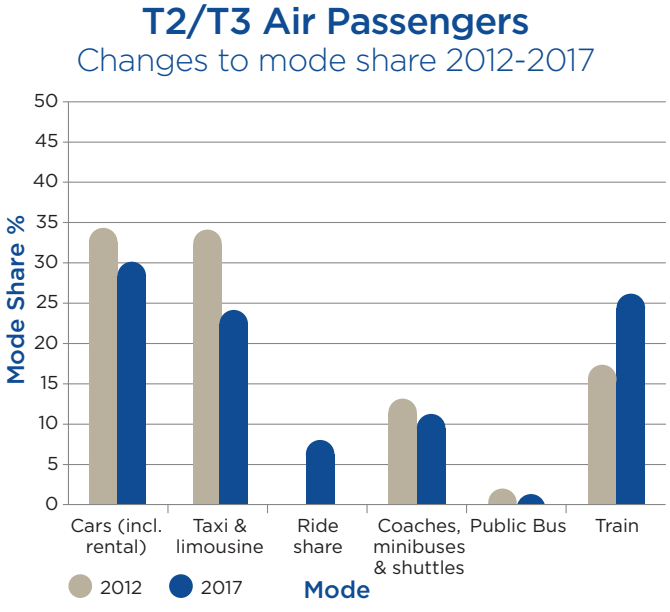


Figure 11-2: *Changes to mode share at T2/T3 - 2012-2017

*Figure 11-1 and Figure 11-2 illustrate mode shares for a representative busy day in 2012 and 2017

On a typical day, around 65 percent of the daily westbound traffic travels past the T1 precinct and around 60 percent of the daily eastbound traffic travels past the T2/T3 precinct. Recent growth in airport related traffic, general commuters and Port Botany related traffic is contributing to delays and congestion on the roads surrounding Sydney Airport. As traffic volumes continue to grow, it is important that measures are put in place to mitigate congestion and ensure reasonable journey times for our customers to and from the airport and other road users on the adjacent network.

Over the 20 year planning period of Master Plan 2039, the following key factors will have a significant impact on traffic volumes and access to Sydney Airport:

- Continued growth in air traffic and passengers
- Integration of international, domestic and regional operations at the T2/T3 precinct
- External road network changes, particularly WestConnex and the proposed Sydney Gateway connection, as well as longer term projects such as the Western Harbour Tunnel, Beaches Link and the F6 Motorway

Image 11-2: New Centre Road entry to T1 International

11.4 Existing Ground Transport Arrangements at Sydney Airport

11.4.1 Roads

Planned changes to the road network outlined in Master Plan 2033 have now been implemented at Sydney Airport. These road network enhancements focused on improving capacity and traffic flow at both the T1 and T2/T3 precincts.

The reconfiguration of the road network and other improvements at T1 have been successful in accommodating significant growth in traffic levels in the past five years and have provided a relatively free flowing traffic corridor along Centre Road. The recently opened Cooks River Road West, and removal of the signalised intersection, together with supporting enhancements to Cooks River Road, has considerably improved the exit for traffic from Departures Road, Arrivals Court and Centre Road.

Further entry improvements have been achieved through the introduction of the new Airport Drive flyover to Arrivals Court that eliminates much of the vehicle weaving movements on the approach to T1.

In the past five years there have been considerable changes to the operation of traffic flow at the T2/T3 precinct, responding to the challenge of managing competing non-airport through traffic and airport-generated traffic at the intersection of O'Riordan Street/Joyce Drive/Sir Reginald Ansett Drive/Qantas Drive. Traffic operation has been improved by the introduction of a one-way entry and exit system through the T2/T3 precinct by extending Seventh Street, which provided a new access road link for traffic exiting the precinct. In late 2017, this improved operation at T2/T3 was complemented by the introduction of a similar one-way system on O'Riordan Street and Robey Street.

Further improvements to the O'Riordan Street/ Joyce Drive/Sir Reginald Ansett Drive/Qantas Drive intersection will be achieved with the completion of the current Roads and Maritime works in the area (Airport North and Airport East works).

11.4.2 Pick-up and drop-off facilities

We continue to provide pick-up and drop-off facilities close to the airport terminals for private vehicles, taxis, rideshare, coaches and mini-buses. These modes provide an important transport choice for customers accessing Sydney Airport accounting for around 75 percent of all passenger trips.

In recent times we have invested in additional parking and pick-up/drop-off facilities at both T1 and T2/T3, including:

- An overflow drop-off facility at P6 to reduce delays on Departures Plaza at T1
- An express pick-up facility at T1, with 47 dedicated spaces
- A priority pick-up facility adjacent to P7 at T1, with 64 dedicated spaces
- An express pick-up facility for T2/T3 immediately east of Seventh Street in the P3 car park, with 91 dedicated spaces
- A priority pick-up facility at T2/T3, close to the terminal exit, immediately east of Fourth Street, with 60 dedicated spaces

These investments have ensured continued efficient operations for all customers being picked up by private vehicle or rideshare.

11.4.3 Car parks

We are committed to providing adequate car parking facilities tailored for the needs of our customers – including long stay, short stay, guaranteed and valet parking. Recent improvements to the provision of car parking include:

- Four additional levels to P6 at T1
- Extension of P3 and provision of additional car park spaces at T2/T3

There are approximately 4,000 public car parking spaces at T1 and 4,200 public car parking spaces at T2/T3.

Additional long stay and staff car parking is provided at the Blu Emu car park in the South East Sector with approximately 4,900 public spaces and 1,000 staff spaces.

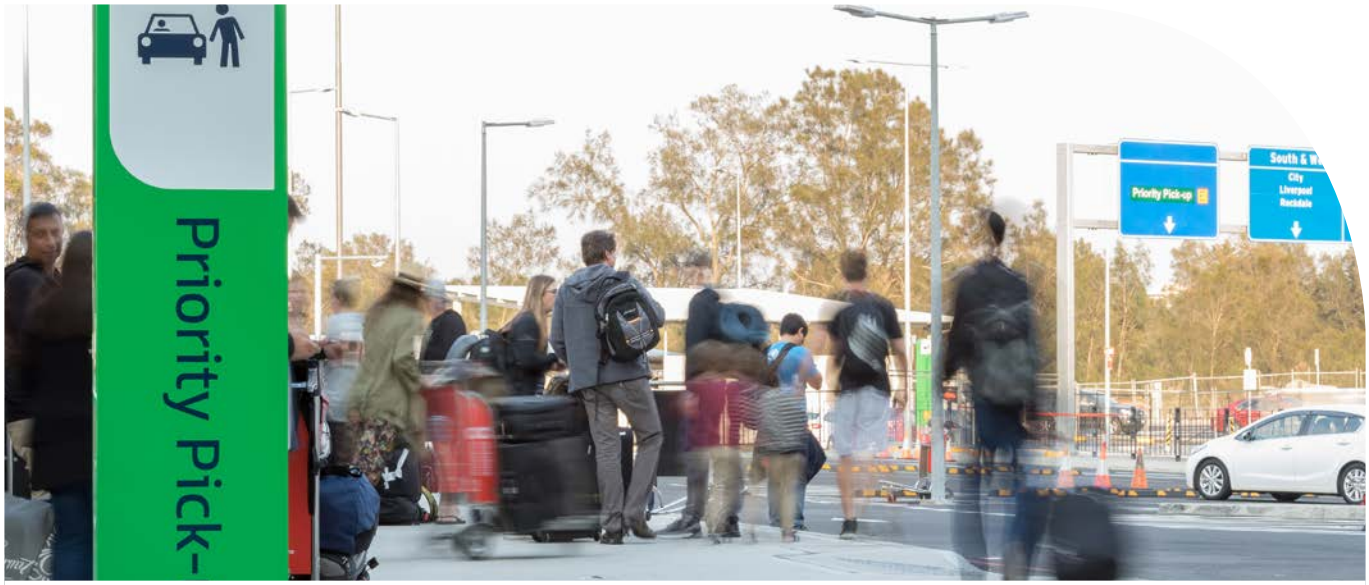
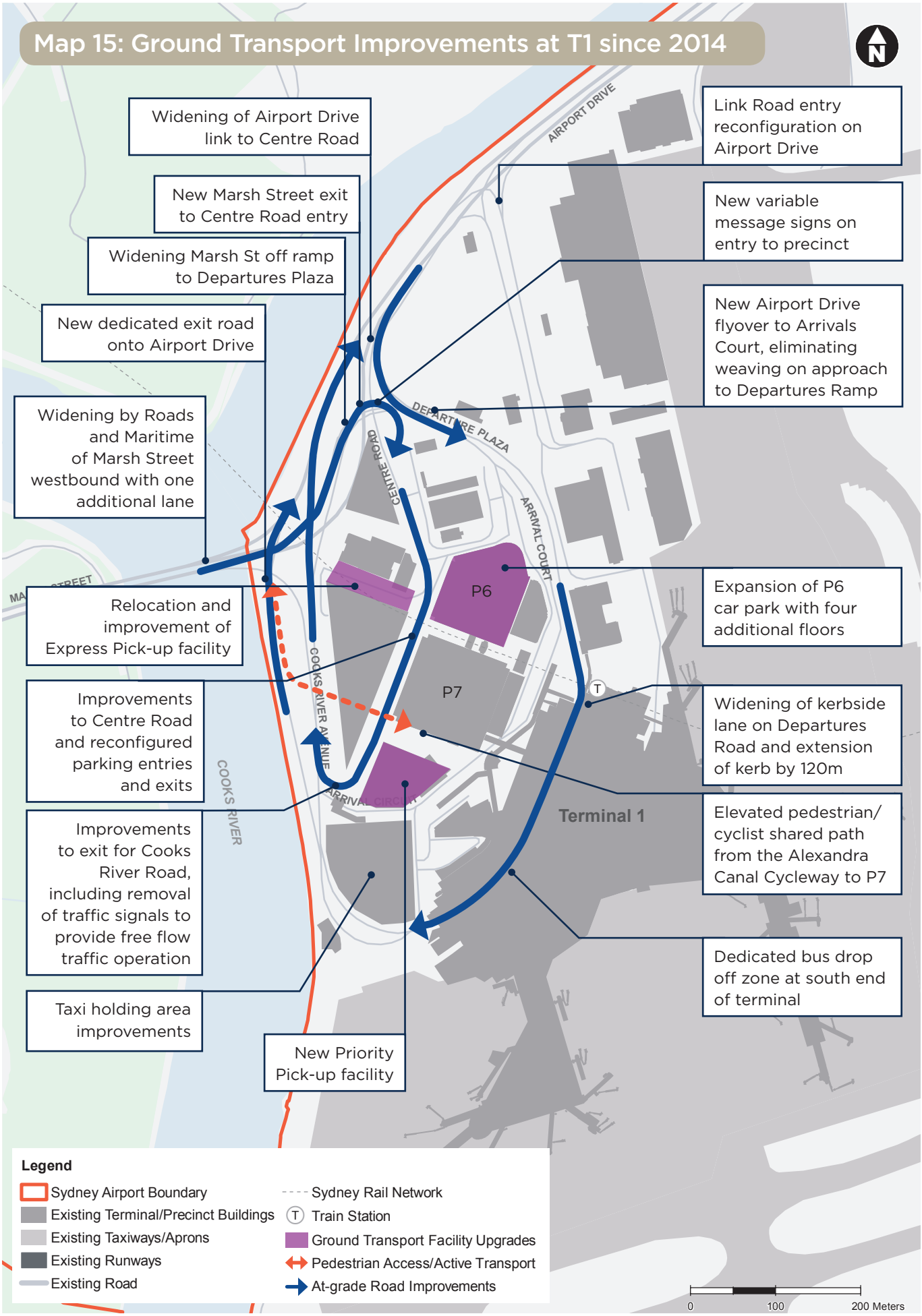
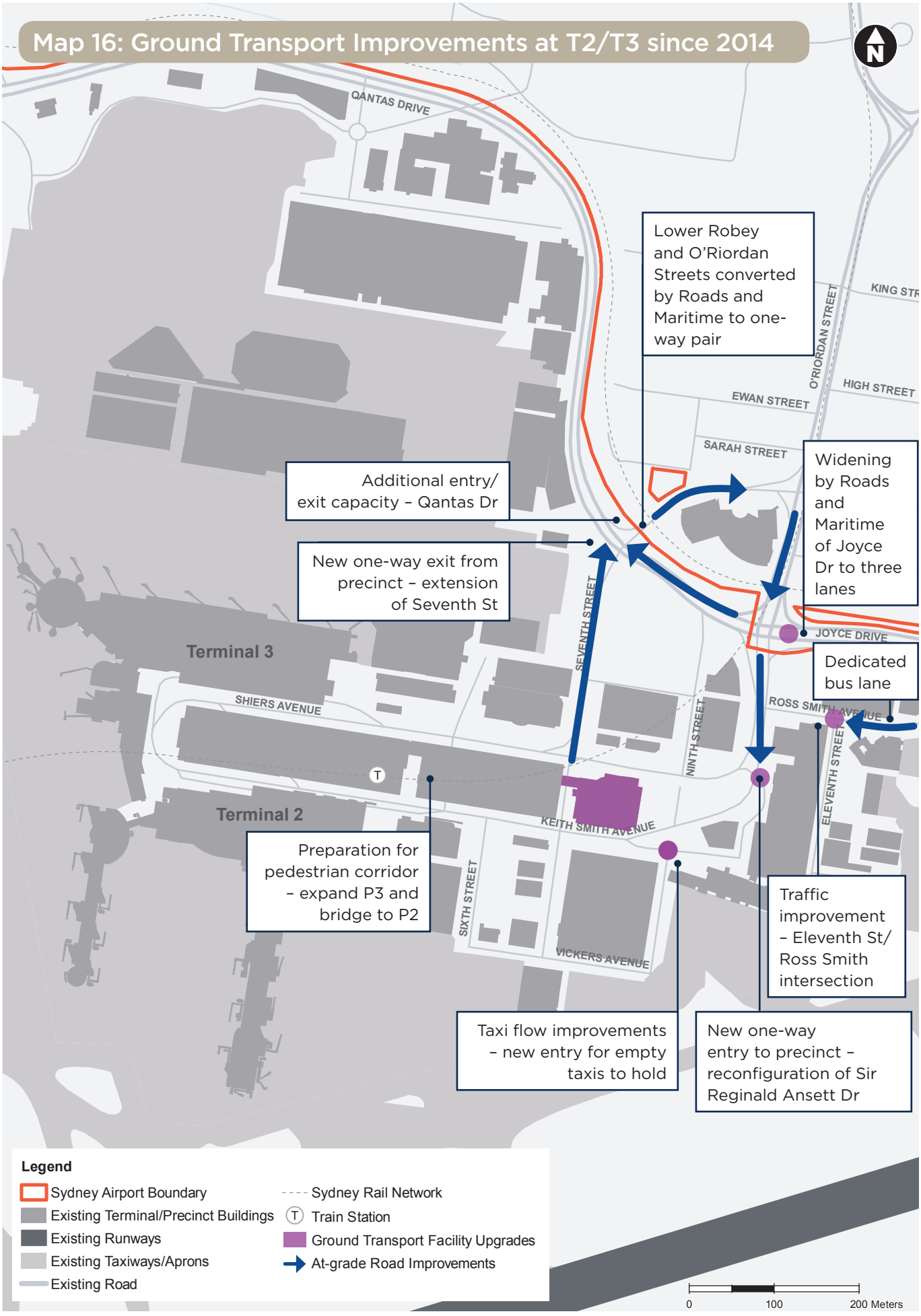


Image 11-3: The newly opened Priority Pick-up at T1 International


Map 15: Ground Transport Improvements at T1 since 2014
N
Widening of Airport Drive link to Centre Road
New Marsh Street exit to Centre Road entry
Widening Marsh St off ramp to Departures Plaza
New dedicated exit road onto Airport Drive
Widening by Roads and Maritime of Marsh Street westbound with one additional lane
Relocation and improvement of Express Pick-up facility
Improvements to Centre Road and reconfigured parking entries and exits
Improvements to exit for Cooks River Road, including removal of traffic signals to provide free flow traffic operation
Taxi holding area improvements
New Priority Pick-up facility
Link Road entry reconfiguration on Airport Drive
New variable message signs on entry to precinct
New Airport Drive flyover to Arrivals Court, eliminating weaving on approach to Departures Ramp
Expansion of P6 car park with four additional floors
Widening of kerbside lane on Departures Road and extension of kerb by 120m
Elevated pedestrian/ cyclist shared path from the Alexandra Canal Cycleway to P7
Dedicated bus drop off zone at south end of terminal
AIRPORT DRIVE
DEPARTURE PLAZA
CENTRE ROAD
ARRIVAL COURT
COOKS RIVER AVENUE
COOKS RIVER
P6
P7
Terminal 1
Legend
Sydney Airport Boundary
Existing Terminal/Precinct Buildings
Existing Taxiways/Aprons
Existing Runways
Existing Road
Sydney Rail Network
Train Station
Ground Transport Facility Upgrades
Pedestrian Access/Active Transport
At-grade Road Improvements
0
100
200 Meters

Map 16: Ground Transport Improvements at T2/T3 since 2014



11.4.4 Public transport

Sydney Airport continues to advocate for improved public transport to the airport, including additional rail and buses to provide improved public transport options for all airport users. We welcome the recent increase in the public transport mode share, in particular rail. Sydney Airport is located just 13 minutes by train from the Sydney CBD with trains running approximately every ten minutes during non-peak periods and every six to seven and a half minutes during the weekday AM and PM peaks on the T8 line. The NSW Government recently increased the number of train services to Sydney Airport. Upgrades to the power supply and safety aspects of the Airport line will allow for services to be increased to up to 20 services per hour.

There are a variety of bus routes servicing the airport on a regular basis (see Figure 11-3). The NSW Government has recently announced new and expanded bus services to the airport. This includes new bus routes 420 and night bus N20 as well expanding the existing 400 bus route to include night services.

The introduction of a bus lane on Ross Smith Avenue has improved bus access to T2/T3, especially for the Blu Emu express bus transferring staff and long-stay passengers from the Blu Emu car park. Further improvements could be achieved through additional dedicated bus priority lanes or bus priority signals on roads leading to the airport.

The approved Ground Transport Interchange between Ninth Street and Seventh Street will facilitate bus services and multi-purpose parking for T2/T3. It will provide faster and more direct access for public and private buses, and will be supported by pedestrian walkways, orientation spaces, wayfinding signage and flight information displays to provide airport users with a customer experience designed to encourage its use.

11.4.5 Active transport

Sydney Airport is committed to improving active transport infrastructure in the airport precinct. A number of initiatives to improve active transport access outlined in Master Plan 2033 have been implemented over the past five years. This includes the footbridge and cycleway connection linking the Alexandra Canal shared use path to P7 and the T1 terminal, in addition to provision of storage facilities and change rooms.

Additional infrastructure to support active transport, such as wider footpaths and additional bike racks, has been installed at T2/T3.

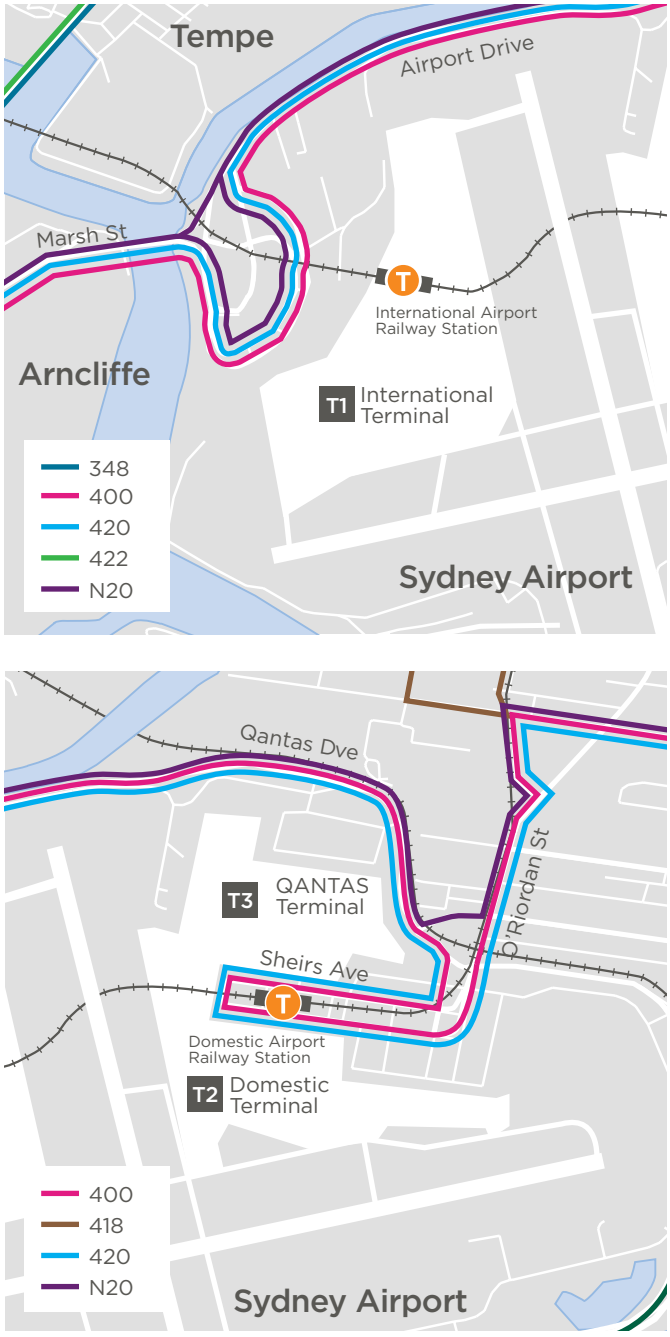


Figure 11-3: Public transport connections to T1 and T2/T3

11.5 Sydney Motorway Network

11.5.1 Working with the NSW Government

We work collaboratively with external agencies, including the NSW Government, to ensure alignment between objectives and planned projects to improve road function, capacity and journey times for all users.

11.5.2 Public transport

Discussions will continue with TfNSW on access fee arrangements for railway stations at Sydney Airport and the potential for new and improved bus and rail services to enhance public transport accessibility and affordability for our customers and employees at the airport.

The NSW Government has indicated that the rail line has the potential to provide greater long term capacity, particularly following completion of Sydney Metro City and Southwest in 2024, which will provide additional capacity on the wider Sydney Trains network (see Figure 11-4). This capacity, along with upgrades to power supply and safety measures outlined in Sydney's Rail Future, has the potential to allow for up to 20 trains per hour on the T8 Airport and South Line beyond 2024.

In its Future Transport Strategy 2056, the NSW Government has also indicated further high capacity *"turn-up-and-go"* services through Sydney Airport.

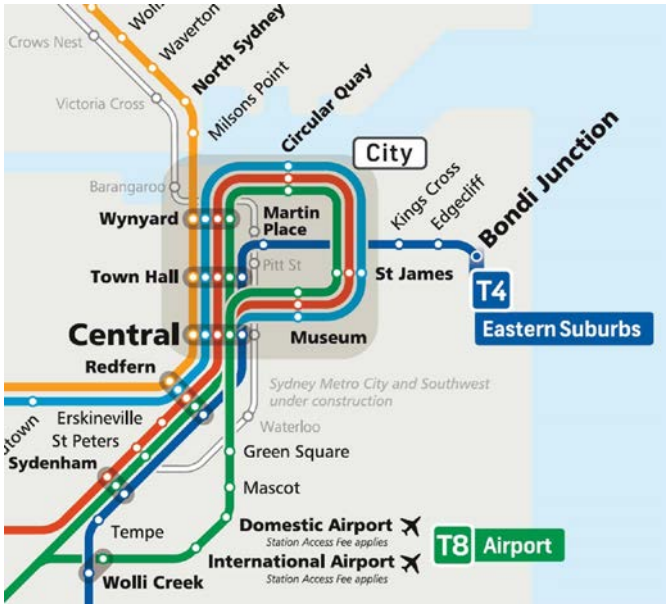


Figure 11-4: Sydney Train Network between Sydney Airport and the Sydney CBD

11.5.3 Roads

Sydney Airport is eight kilometres from the Sydney CBD and is currently accessed from the north via the Eastern Distributor and Southern Cross Drive, the M5 East Motorway from the west and General Holmes Drive from the south. Connection to the T1 precinct is provided by Airport Drive from the east and Marsh Street from the west, while access to T2/T3 is by O'Riordan Street from the north, Joyce Drive from the east and Airport Drive and Qantas Drive from the west.

The NSW Government is upgrading roads to the east, north and west of Sydney Airport to reduce congestion and improve traffic flows and access to the precinct.

Works include:

- Removing General Holmes Drive rail level crossing by constructing a road underpass
- Widening Marsh Street, Arncliffe to three lanes westbound
- Upgrading roads to the north of Sydney Airport

NSW Government road works

The NSW Government is currently constructing the WestConnex Motorway, which has the potential to significantly alter traffic patterns on the Sydney road network. The Sydney Motorway Network (shown in Figure 11-5) includes WestConnex. These are priority projects for the NSW Government.

WestConnex includes the following staged improvements to the motorway network:

- M4 East
- New M5
- New St Peters Interchange
- M4-M5 Link Tunnels
- M4-M5 Link Rozelle Interchange

The NSW Government has also announced studies for Sydney Gateway, the F6 Extension - Stage 1 and future Western Harbour Tunnel and Beaches Link, which would connect to WestConnex.

Figure 11-5: Sydney Motorway Network

NSW Government Sydney Gateway

Sydney Gateway is an Australian and NSW Government initiative to improve road and rail access to Sydney Airport and the Port Botany area.

Sydney Gateway will pass through Sydney Airport land to the north of the airport and create direct motorway access to the T1 and T2/T3 terminal precincts. In addition, the entrance to the T2/T3 precinct will be significantly enhanced by a new dedicated flyover from Qantas Drive to the front door of the terminals.

Sydney Gateway will reduce congestion around the airport. Widening Qantas Drive to three lanes in each direction will substantially improve the experience for people travelling to, from and past the airport. Drivers will be able to travel from Parramatta via the Sydney Motorway Network to the T2/T3 precinct and back without passing through a single traffic light.

Key facts

- Direct and equal travel times to and from the T2/T3 and T1 precincts and the Sydney Motorway Network at St Peters Interchange
- Widening of Qantas Drive to three through lanes in each direction
- New dedicated Qantas Drive flyover entry to the T2/T3 precinct
- The existing Airport Drive will become an internal airside/landside road
- General traffic will continue to be able to travel toll free between the airport precincts
- Improved access for the Northern Lands Sector

Project benefits

Sydney Gateway will help make journeys easier, faster and safer

Easier

- Enable easier journeys to and from Sydney Airport and improved connections between the terminals
- Provide new roads to Sydney Airport to help reduce congestion and cater for forecast growth in passenger and air freight
- Provide access to the airport terminals for over-height vehicles (up to 4.6m), increasing the clearance from 4.3m
- Improve the movement and support the growth of rail freight between Port Botany, freight terminals and logistic centres in Metropolitan and Western Sydney

Faster

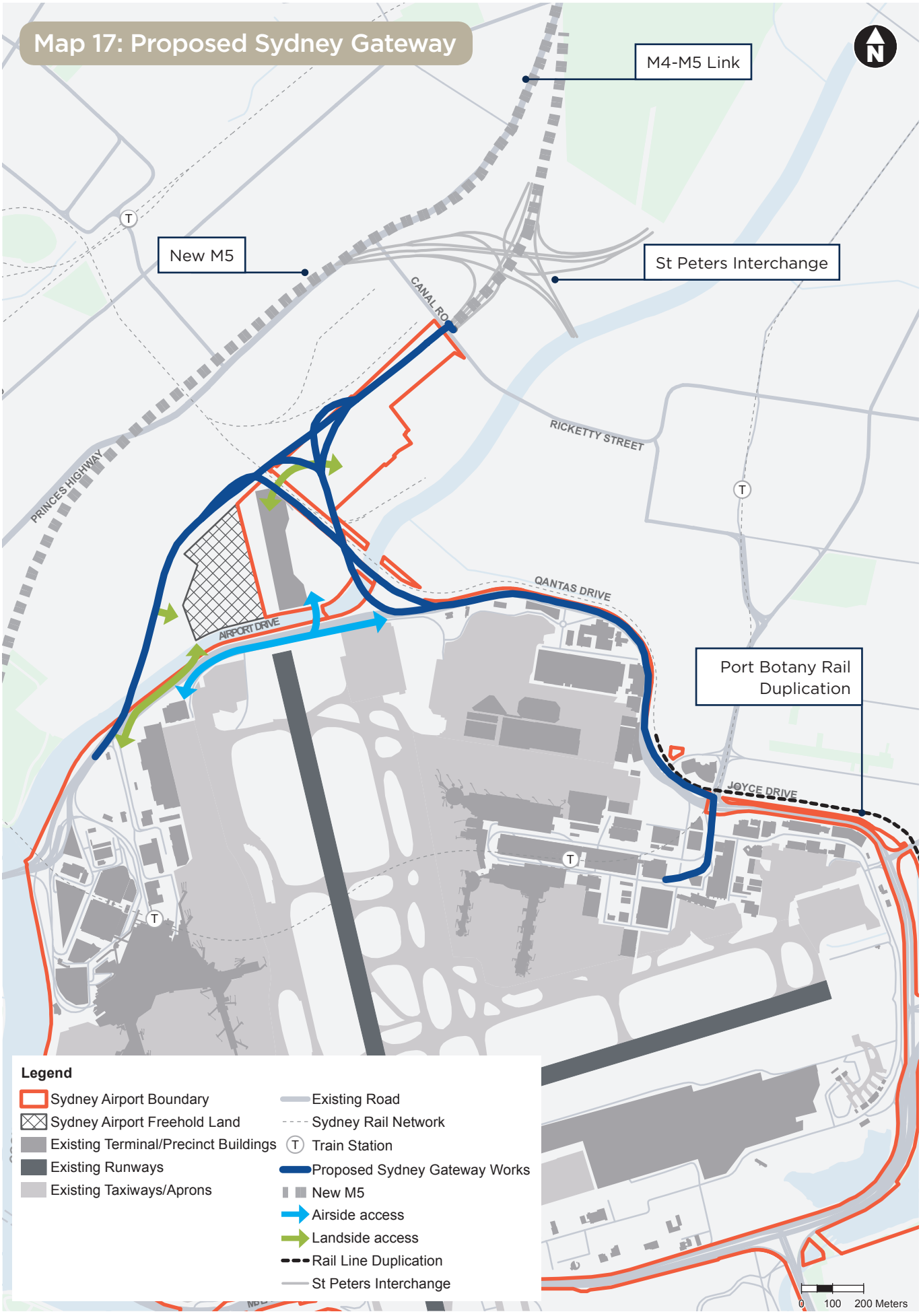
- Will reduce travel times through improved road connections to the T1 and T2/T3 precincts
- Help reduce congestion in Mascot and Botany
- Enable faster rail trips from freight terminals to Port Botany through the network
- Improve the efficiency and increase capacity of the freight rail network to meet future demand
- Reduce travel times when used with other Sydney motorway connections:
  - Save up to 40 minutes during morning peak times travelling between Parramatta and the T2/T3 precinct
  - Save up to 41 minutes during morning peak times travelling between Dee Why and the T2/T3 precinct
  - Save up to 22 minutes during morning peak times travelling between Campbelltown and the T2/T3 precinct

Safer

- Will take trucks off local roads in Botany and Mascot by shifting more freight from road to rail – a freight train travelling to and from Port Botany is equivalent to up to 50 trucks
- Take cars off local roads by providing new roads to the airport from the Sydney motorway network

Active transport

As the existing Alexandra Canal cycleway will be impacted by the proposed Sydney Gateway connection, Roads and Maritime has confirmed that it is a requirement for a replacement cycle connection to be provided once Sydney Gateway is operational. It will also work to ensure an active transport route is available during construction. Sydney Airport is working with Roads and Maritime and other stakeholders to determine viable options for these replacement cycle connections. These options will be assessed by Roads and Maritime as part of the environmental impact assessment process for Sydney Gateway which will include public consultation. The approved cycle connection plans will then be integrated into Sydney Airport's Five-Year Ground Transport Plan. Sydney Airport's Active Transport Forum – on which peak and local bicycle user groups, local government, Roads and Maritime and Transport for NSW are represented – will also monitor progress on this issue.


Map 17: Proposed Sydney Gateway
M4-M5 Link
New M5
St Peters Interchange
CANAL RO
RICKETTY STREET
PRINCES HIGHWAY
QANTAS DRIVE
AIRPORT DRIVE
Port Botany Rail Duplication
JOYCE DRIVE
N
Legend
Sydney Airport Boundary
Sydney Airport Freehold Land
Existing Terminal/Precinct Buildings
Existing Runways
Existing Taxiways/Aprons
Existing Road
Sydney Rail Network
Train Station
Proposed Sydney Gateway Works
New M5
Airside access
Landside access
Rail Line Duplication
St Peters Interchange
0
100
200 Meters

11.6 Forecast ground transport demand and trends

As part of the development of Master Plan 2039, we have worked collaboratively with the NSW Government to assess the transport access needs of the airport and the wider network around the airport.

AECOM, an independent specialist in demand modelling and technical ground transport solutions, has undertaken the ground transport modelling for Master Plan 2039.

11.6.1 Demand forecasts

Through engagement with the NSW Government we have established an integrated modelling framework that utilises existing NSW Government transport models for non-airport traffic, as well as our own detailed demand model that provides landside ground transport forecasts for the airport.

Projected air passenger movements were analysed by time of day to understand the distribution of peak activity at each terminal precinct for a busy day.

These estimates were determined by:

- Application of passenger lead and lag profiles (i.e. how early departing passengers arrive at the airport, and how long after landing passengers leave the airport)
- Development of a detailed modal choice model
- Estimation of vehicle occupancy

Separate estimates of vehicle movements were produced based on:

- Passenger type (international/domestic, business/leisure, arriving/departing)
- Time of travel

Staff, freight, logistics and commercial traffic were also included in the projection of vehicle movements.

In developing future year vehicle projections, we worked closely with modellers from the NSW Government. Critical to the estimates of future traffic volumes was the impact of WestConnex and the proposed Sydney Gateway connection.

Our demand model was calibrated to 2017 observed data so that it provided a clear and realistic representation of current conditions. Accordingly, the demand model provided an appropriate basis from which future year demands for 2024 (the end of the Five-Year Ground Transport Plan period) and 2039 (the end of the planning period) could be derived.

11.6.2 Mode shift

Integral to the ground transport forecasts was the adjustment to future year mode shares to account for anticipated changes in transport networks. The detailed mode choice model incorporated inputs from transport models operated by the NSW Government, which reflect future changes in the road and rail network.

Underpinning the mode choice model was an update to the airport traveller survey carried out in 2017. The survey showed three key changes in traveller behaviour since the previous survey in 2012:

- A significant increase in rail mode share
- A reduction in the proportion of taxi usage with the emergence of rideshare services
- A reduction in the proportion of private vehicle drop-offs

Consistent with these trends, the mode choice model accounted for a continuing underlying increase in rail mode share, but also reflected improved road accessibility resulting from the introduction of WestConnex and an assumed Sydney Gateway connection. Mode choice modelling assumed that the rail station access fee would remain; however, if the access fee were reduced or removed, an additional shift to rail could be expected with a likely positive impact on the performance of the road network, assuming additional rail capacity and services are provided.

11.6.3 Road traffic modelling

As part of the master planning process and the development of the Five-Year Ground Transport Plan and 20-Year Ground Transport Strategy, we commissioned an extensive microsimulation traffic modelling study to understand current traffic challenges on the roads within the terminal precincts and adjacent to the airport, and the mitigating impact of proposed improvement solutions. Microsimulation models (i.e. PTV Vissim) and static intersection models (i.e. LinSig) were developed to assess the infrastructure improvement options and changes in traffic demand. These models were used to ensure that the final ground transport solution could effectively accommodate the forecast traffic volumes.

11.6.4 Reliability of traffic modelling

The traffic modelling methodology adopted for Master Plan 2039 uses the most recently available data and information (at the time of modelling). This includes:

- Updated air passenger forecasts
- Updated observed traveller behaviours based on a 2017 survey
- Detailed analysis of multiple datasets owned by Sydney Airport, including extensive traffic counts and taxi and car park usage
- Incorporation of proposed road network changes within and beyond the airport boundary
- Detailed demand and mode choice model by time of day
- Inputs from Road and Martime's strategic modelling
- Four-hour AM and PM peak traffic modelling
- Calibration of the 2017 passenger demand model and traffic model to observed 2017 conditions to provide a sound base from which to undertake the future year assessments

11.7 Five-Year Ground Transport Plan (2019-2024)

Master Plan 2033 identified a number of infrastructure improvements at both the T1 and T2/T3 precincts that have been implemented and have accommodated a considerable increase in traffic at both terminals over the last five years. However, the projected increase in traffic volumes commensurate with increasing air passenger activity means that the existing infrastructure will be placed under further pressure in future years. Accordingly, this Five-year Ground Transport Plan includes a range of customer focused solutions to reduce congestion and increase the efficiency of landside operations and travel to/from Sydney Airport.

The solutions have been designed to:

- Target existing landside congestion points
- Reflect the significant potential impacts of our long term development strategy
- Complement WestConnex and the proposed Sydney Gateway connection

Within the airport precincts, the emphasis is to reduce traffic conflict points and mitigate congestion by improving end-to-end flow, rather than just moving the traffic bottleneck. Improvements will be achieved through a combination of demand management, infrastructure, technology and policy solutions.

The proposed solutions build on improvements to the internal and external road networks undertaken as part of the Five-Year Ground Transport Plan set out in Master Plan 2033.

The proposed solutions in this Five-Year Ground Transport Plan are designed to result in improved road and intersection performance in and around Sydney Airport to 2024 and beyond.

11.7.1 Sustainable transport and movement

As part of our commitment to achieving a 4-Star Green Star Communities rating, we have developed a customer focussed ground transport plan targeting the following objectives:

- Reducing the dependence on single occupant or purpose vehicle transport for travel, by promoting active movement within the community and the use of public transport
- Creating efficient pedestrian, bicycle and vehicle linkages internally and connections to surrounding urban development (particularly to and from public transport stops, community services and major traffic generators)
- Reducing the physical barriers for pedestrians within the landside areas of the airport
- Improving connections to public transport nodes
- Accommodating and demonstrating consistency with future public transport options/proposals and continuing to advocate for more affordable public transport to the airport

Image 11-4: The Cooks River Avenue exit from T1 International

11.7.2 T1 International Operations Precinct

Recent changes to ground access at T1 have improved the efficiency of traffic operation in the precinct; however, areas of congestion frequently occur during peak periods on the Airport Drive and Marsh Street approaches to the precinct. In the future, with increasing air passenger activity, further problems are likely to occur on the exits from the T1 precinct.

Accordingly, the Five-Year Ground Transport Plan proposes a series of changes to the road network to make it easier to enter, move through and exit the T1 precinct. Ground transport improvements at T1 are illustrated in Map 18.

The primary point of congestion on the Departures Plaza is caused by increasing demand for kerbside drop-off at the terminal, a location where it is not feasible to build additional capacity to accommodate increased activity. Congestion will be reduced through initiatives that separate internal traffic and reduce conflicts and delays. This may include relocation of some drop-off facilities/products to alternative locations within the precinct.

We propose to construct a new integrated pick-up/drop-off facility at P8 south of the existing P7 car park, which would not only increase capacity for vehicular drop-off but would also include a direct pedestrian connection to the terminal through a dedicated pedestrian walkway. The separation of passenger drop-off traffic between the existing kerbside on Departures Plaza and the new P8 would significantly reduce congestion on the approaches to T1 from Airport Drive and Marsh Street.

Subject to terminal infrastructure development, P6 and P7 could be reconfigured to provide a multi-modal ground transport interchange at ground level for public bus services plus shuttle bus, coach and inter-terminal transfer buses. Additional drop off capacity could be provided at Level 2 of P6 with access and egress ramp connections.

Centre Road is proposed to be upgraded to accommodate increased vehicle activity through the precinct, which would include additional traffic lanes and potential elevated ramp access to the new P8 pick-up/drop-off facility. Complementing the Centre Road upgrade would be the construction of a grade separated pedestrian walkway designed to provide a safe and direct connection from the existing express pick-up area through the P7 car park to the terminal, providing a seamless customer experience.

Increased traffic through the precinct will place additional burden on the limited outbound capacity to Marsh Street and Airport Drive. It is proposed that the exit ramps to Marsh Street and Airport Drive be widened to two lanes, each with improvements at the merge point with the external network.

Further improvements could be achieved by providing an additional lane on Cooks River Road between Centre Road and the recirculation lane back into T1, to prevent recirculating traffic causing unnecessary congestion for traffic exiting the precinct.

The existing city-bound exit from the express pick-up area onto Cooks River Road would be closed, with the traffic directed to use the main Centre Road exit. This would further improve the efficiency of traffic exiting the precinct by reducing weaving and merging on Cooks River Road.

There is likely to be an increase in non-airport traffic along Qantas Drive and Airport Drive, which will require those sections to be widened from the current two lanes to up to four lanes in each direction. This is consistent with the planned upgrade identified in the Master Plan 2033. This upgrade will also complement the proposed Sydney Gateway connection.

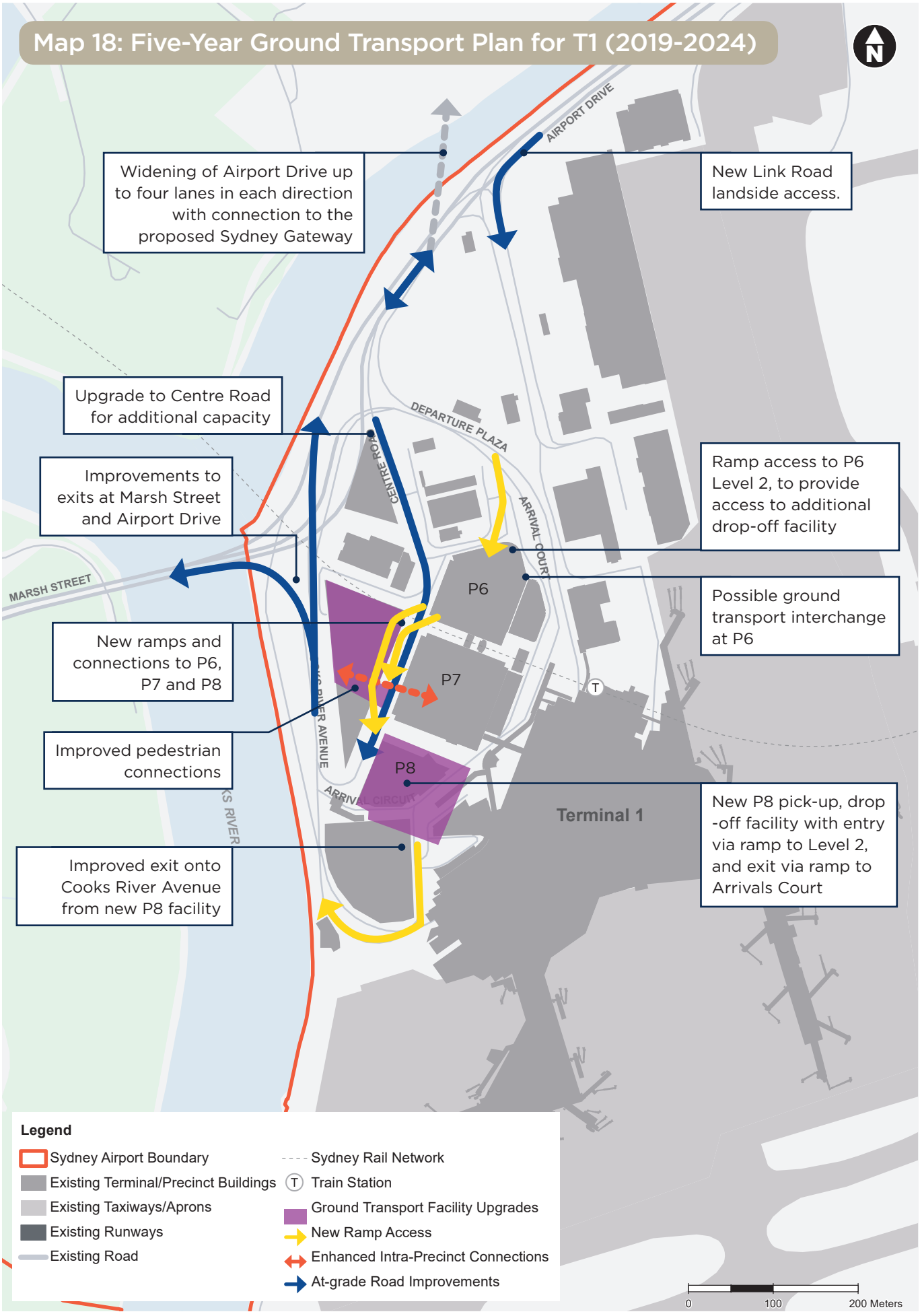
Other improvements to ground transport operation at T1 could include:

- Introduction of a Landside Operational Management System
- An integrated platform that will provide a centralised operational system to:
  - Proactively manage landside transport services and assets
  - Aid decision support
  - Facilitate smart communications to make customer journeys easier
- Additional landside technology initiatives including modern variable message signs to improve wayfinding and driver information
- Improvements to signage for public transport facilities
- Introduction of licence plate recognition technology to minimise delays at entry and exits

Sydney Gateway

Sydney Gateway will pass through Sydney Airport land to the north of the airport with connection points to existing Airport Drive near Link Road and to existing Qantas Drive near Lancastrian Road. It will create direct motorway access to the T1 and T2/T3 terminal precincts and complement Sydney Airport's planned infrastructure improvements.

Map 18: Five-Year Ground Transport Plan for T1 (2019-2024)



11.7.3 T2/T3 Integrated Operations Precinct

The primary challenge at T2/T3 is the interaction between airport traffic and non-airport through-traffic at the intersections with entry/exit roads to the precinct. Continued growth in non-airport traffic along with continued growth in air passengers and associated ground transport movements has resulted in a continued strain on road infrastructure around the T2/T3 precinct.

Traffic operations at the T2/T3 precinct have been comprehensively improved since the approval of Master Plan 2033, including the introduction of a one-way system of traffic both on our internal road network and on the immediate external road network (by the NSW Government).

The entry and exit intersections at the T2/T3 precinct are likely to experience increased demand in future years, with increased traffic volumes forecast/anticipated from the westerly direction as a result of WestConnex.

In the Five-Year Ground Transport Plan we will continue to explore opportunities to improve the performance of these intersections, with a view to reducing delays and improving reliability for travel to and from the T2/T3 precinct.

Sydney Airport is exploring upgrade measures that will improve operational efficiency at the precinct entry and exit intersections, including grade separation of some key movements to improve operational efficiency by reducing conflicting traffic movements. We will continue to work closely with the NSW Government to ensure the transport network is consistent with the road network proposals identified in the Future Transport Strategy 2056. Sydney Airport's planned infrastructure improvements will complement the proposed Sydney Gateway connection.

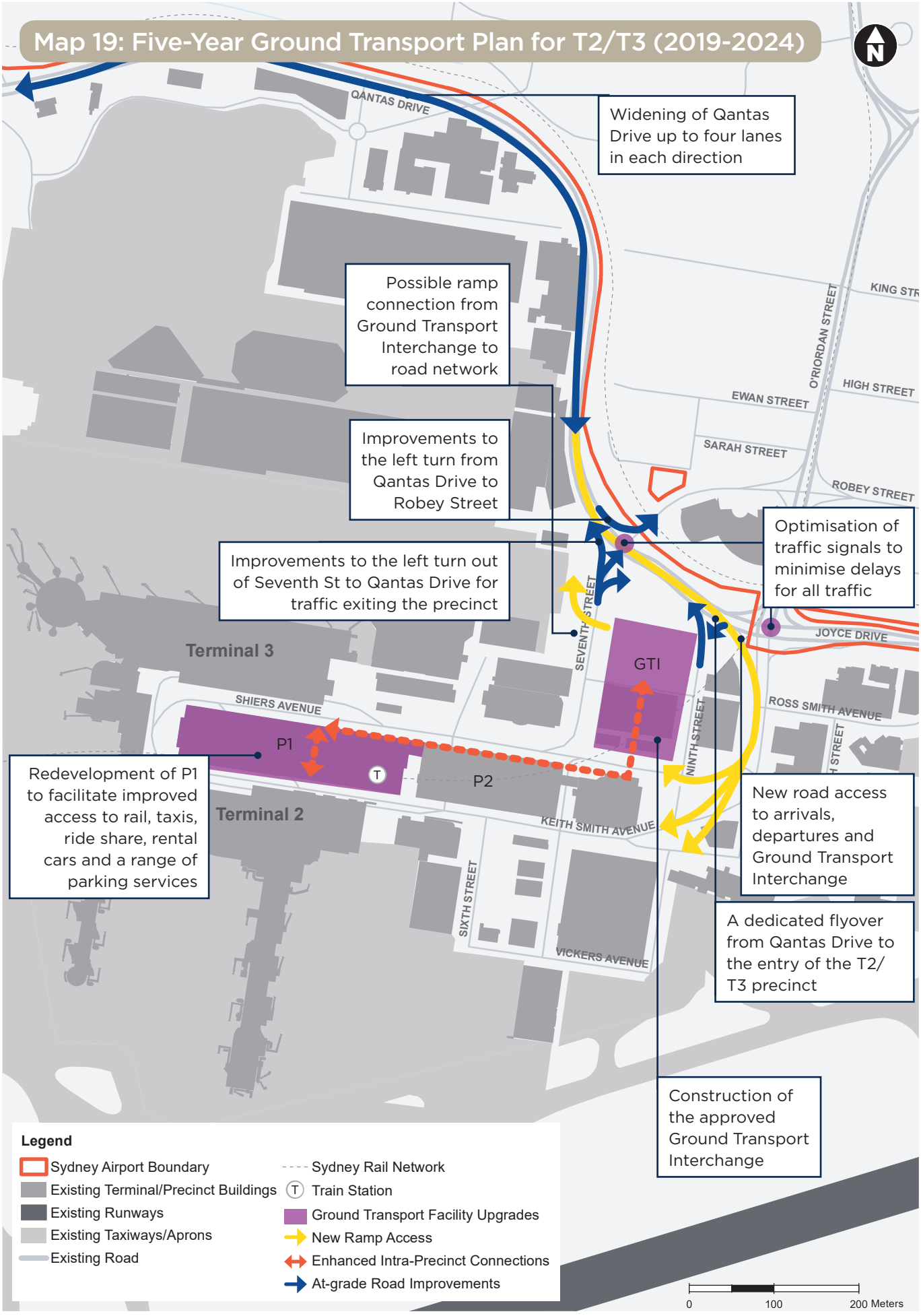
Proposed improvements in the Five-Year Ground Transport Plan are illustrated in **Map 19** and are designed to reduce conflicting traffic movements at the entry and exit of the T2/T3 precinct including:

- Improvements to the left turn out of Seventh Street to Qantas Drive (for traffic exiting the precinct)
- As part of the proposed Sydney Gateway, a dedicated flyover from Qantas Drive to the entry of the T2/T3 precinct
- Optimisation of traffic signal settings to minimise delays for all traffic
- Improvements to the left turn to accommodate the heavy traffic flow from Qantas Drive to Robey Street

Other improvement measures at T2/T3 in Master Plan 2039 include:

- Construction of the approved Ground Transport Interchange between Ninth Street and Seventh Street, which would:
  - Allow for additional and re-routed public and private buses to easily access and exit the T2/T3 precinct
  - Accommodate the provision of additional public bus services to/from the airport
  - Provide additional capacity for a range of uses including rental car operators, valet and limousine storage and general parking
- Development of improved pedestrian connectivity and amenity between the Ground Transport Interchange and the two terminals (including through the existing car parks)
- Improvement to the operation of the Ross Smith Avenue intersection with Sir Reginald Ansett Drive
- Development of new and enhancement of existing pick-up and drop-off facilities
- Improvements to signage for public transport facilities to assist with wayfinding to/from the Ground Transport Interchange and the rail station
- Improved signage and driver information to ensure that passengers, visitors and the public have simple, direct and clearly signposted routes to car parks and pick-up/drop-off areas

Map 19: Five-Year Ground Transport Plan for T2/T3 (2019-2024)



11.7.4 Active transport

Further improvements are identified in the Five-Year Ground Transport Plan outlined in this Master Plan 2039, including measures to improve access to and connectivity of the active transport network at Sydney Airport. We are investigating potential inter-terminal and sub-regional links with TfNSW and local councils, which will improve access to the airport precinct from surrounding transport nodes and major centres.

Improved pedestrian connections at both terminal precincts have been outlined in the Five-Year Ground Transport Plan. Additionally, improved signage and public information will assist with pedestrian wayfinding in both terminal precincts.

11.7.5 Northern Lands and South East Sectors

To facilitate access to the Northern Lands for the planned aviation support precinct (including freight and logistics facilities) and revised car parking arrangements (potentially for staff and/or pick-up and drop-off), new landside and secure airside bridges may be provided to link this precinct.

These links are anticipated to be provided as part of the proposed Sydney Gateway connection. Sydney Gateway will pass through Sydney Airport land to the north of the airport with connection points to existing Airport Drive near Link Road and to existing Qantas Drive near Lancastrian Road. New airside and landside links to the Northern Lands Sector will be facilitated with new roads and a bridge over Alexandra Canal, Airport Drive and the existing railway.

In the South East Sector, it is proposed to develop a bridged airside and landside road connection across General Holmes Drive to improve access between the South East Sectors of the airport for improved operational connectivity.

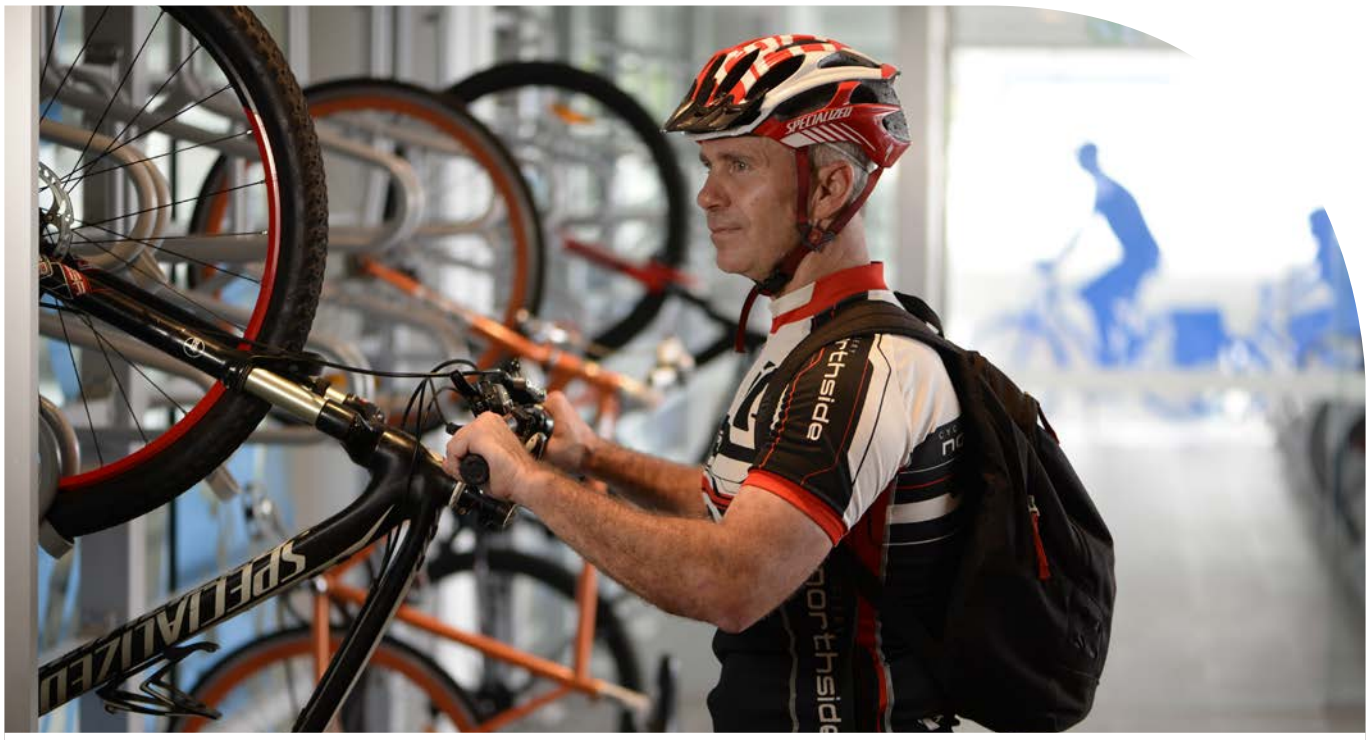


Image 11-6: New bike storage facilities at the T1 International terminal

11.8 20-Year Ground Transport Strategy

As part of our longer term vision for Sydney Airport, we will continue to work closely with the NSW Government to develop a number of road and ground transport upgrades within the airport precincts and the surrounding road network.

This will involve ongoing assessment of the impact of NSW Government commitments to future transport schemes including road schemes – such as the F6 Motorway, the Western Harbour Tunnel and Beaches Link – and public transport improvements such as extensions to the rail network. Moreover, the creation of an integrated international, domestic and regional terminal at the T2/T3 precinct will alter patterns of ground transport demand at both T1 and T2/T3.

11.8.1 T1 International Operations Precinct

The long term strategy for T1 is dependent on two fundamental changes that have been outlined in **Chapter 8.0 Terminal Development Plan**:

1. Integration of some international, domestic and regional airline operations at T2/T3
2. Possible closure of Departures Plaza and Arrivals Court for the expansion of T1

Closure of Departures Plaza and Arrivals Court to traffic will necessitate important changes to traffic operation within T1. The 20-Year Strategy includes the following proposed initiatives:

- Continued focus on P8 as a pick-up/drop-off facility
- Provision of additional public drop-off capacity at existing facilities (for example at P6, Level 2)
- Provision of additional car park capacity through the vertical expansion of existing car parks (for example at P7 or the Express pick-up area)
- Proposed elevated ramp access to new and existing facilities

The closure of Departures Plaza and Arrivals Court may mean that access roads need to be realigned to provide access to car parks and multi-storey pick-up/drop-off facilities; however, this measure will improve traffic flow efficiency by centralising ground transport facilities within each structure and reducing the volume of circulating traffic on the precinct's road network.

Closure of the existing road links will improve pedestrian amenity by creating a pedestrian-only zone between the multi-modal ground transport facility, pick-up/drop-off areas, car parking areas and the terminal, in addition to the continued provision of safe pedestrian walkways from the express pick-up area.

11.8.2 T2/T3 Integrated Operations Precinct

The potential integration of international, domestic and regional operations at T2/T3 is forecast to result in a more efficient distribution of traffic in the T2/T3 precinct, as domestic and international peak departure and arrival times are complementary. The number of transferring passengers between T1 and T2/T3 would reduce, with increased transfer activity within T2/T3.

Nevertheless, changes are envisaged to accommodate the growth to 2039. While the existing 'horseshoe' roadway is expected to continue to operate in 2039, the 20-Year Ground Transport Strategy includes the following improvements:

- Consideration of further grade separation at the entrance and exit of the T2/T3 precinct
- Provision of increased on-site car parking facilities to cater for increased demand. Possible locations include Sir Reginald Ansett Drive and Ninth Street and facilities remote from the terminal in the South East Sector
- Operation of a dedicated transfer product connecting the South East Sector facilities with the T2/T3 precinct

To improve the efficiency of traffic movements, sections of the existing multi-storey car parks may be replaced with a multi-modal transport facility incorporating:

- Rail
- Taxis
- Ride sharing
- Rental cars
- Limousines
- Valet
- Premium parking
- General parking

Passenger pedestrian amenity for circulation and wayfinding would be improved by providing centralised taxi holding and pick-up facilities at the arrivals level and reducing the need for taxis to circulate on precinct roads.

Image 11-7: Arriving via train to Sydney Airport's Domestic terminal

11.8.3 Northern Lands and South East Sectors

The Northern Lands Sector is expected to operate as outlined in the Five-Year Ground Transport Plan above, with improved landside and airside connectivity between the Northern Lands Sector and other sectors of the airport site.

In the South East Sector, the expansion of the remote vehicle facilities will require improved access to the local area. We will work closely with the NSW Government and other stakeholders to explore opportunities for providing improved access capacity to the South East Sector, as well as ensuring optimal traffic operation for non-airport and Port Botany traffic.

These improvements may include:

- Grade separation of additional movements at the intersection of General Holmes Drive and Foreshore Road
- Upgrade to the intersection of General Holmes Drive and access to the existing South East Sector to provide an additional entry and exit point

11.9 Sustainability Initiatives to 2039

The following sustainability initiatives have been embedded within the Ground Transport Development Plan for Master Plan 2039:

- As part of our commitment to achieving a 4-Star Green Star Communities rating, we are undertaking a people-focused transport assessment
- Continued implementation and expansion of the electric bus network and electric GSE to reduce carbon emissions
- Commitment to investing in options to improve active transport and sustainable transport alternatives across the airport
- Commitment to working with the NSW Government to increase bus and train services to and from the airport
- Identifying and adopting opportunities for vehicle demand management along terminal access roads
- Managing landside developments to manage vehicle congestion and investing in initiatives to optimise existing infrastructure
- Continued implementation of the Ground Transport Development Plan including establishment of the T2/T3 Ground Transport Interchange

12.0 Utilities Development Plan

12.1 Overview

We own and maintain an extensive network of utilities to supply the various developments across Sydney Airport with power, water, sewer, natural gas, telecommunications and stormwater. We work closely with the various external utility authorities to ensure that these essential services are available in sufficient quantity and reliability to support the operation of the airport.

Substantial investments have been made in our utilities networks in recent years, aligned with our objectives to:

- Continue to support projected growth at the airport
- Improve the reliability and redundancy of the utility networks
- Improve the sustainability of the supply arrangements

Demand management and investigation of alternative supply arrangements will play a key role in ensuring that the utility networks are able to efficiently and sustainably support the growth projected at the airport. We have implemented a range of such initiatives in recent years including expansion of the current recycled water facility, installation of rooftop solar and implementation of the energy and water savings action plans.

Image 12-1: The solar panel installation at Sydney Airport's T1 International terminal car park

12.2 Key Points

Utility networks at Sydney Airport will continue to be expanded to meet increases in demand across the airport, arising from increased passenger movements and new developments.

Augmentation of the existing utility networks will likely include:

- Upgrade to the key electrical feeds
- Increase in recycled water treatment capacity
- Trunk drainage improvements
- Expansion of networks to supply new areas of development

New utilities infrastructure will be provided to the South West Sector and the Northern Ponds area of the North East Sector to facilitate aviation operations, including:

- FEGPU
- PCA

Image 12-2: The chilled water system used for air conditioning at Sydney Airport

12.3 Electrical Network

Sydney Airport is connected to the external electrical grid by Ausgrid at two locations. These external points of supply, in the North West and North East Sectors, feed an internal reticulation network that we own and maintain. The external supply comprises a number of diverse feeders, which provide a high level of redundancy for the lead-in supply.

In addition to the mains electrical networks, Sydney Airport has a back-up power supply in accordance with Civil Aviation Safety Authority (CASA) and International Civil Aviation Organization (ICAO) requirements, to ensure supply for essential aviation facilities and operations is maintained in the event of a mains outage.

Substantial works have been undertaken to improve the capacity, reliability and redundancy within the electrical network including:

- Reconfiguration of reticulation networks to eliminate single points of failure
- Replacement and/or retirement of aged equipment
- Expansion of the reticulation network, particularly to the South East Sector and Northern Lands Sector

12.3.1 Energy sustainability

We have recently made substantial investments in sustainability and the management of energy usage. As part of our commitment to energy savings and efficiency initiatives, we became Airport Carbon Accredited by the Airports Council International (ACI) in 2014 and now have Level 3 certification. This is part of a broader commitment to improving our energy efficiency, as documented in our *Energy and Carbon Strategy 2013+* and *Energy Savings and Carbon Reduction Plan*.

Specific recent investments into demand side management, installation of energy efficient equipment and alternative generation sources include:

- 560 kilowatt (kW) roof top solar installation at the P6 car park at T1
- Installation of solar hot water in T1
- Installation of new energy efficient chillers at T1
- Installation of new lighting in the P2 car park reducing energy usage by 30 percent
- A tri-generation plant at T3, which is currently being commissioned and which may supply electricity to T3 once operational

As part of ongoing development of the electrical networks to support growth, we will continue to implement demand side management options and to monitor the feasibility of expanding the current alternative supply options.

12.3.2 New electricity infrastructure

As development occurs across the airport, the electricity network will continue to be reinforced and expanded to meet increasing demand.

We regularly consult with Ausgrid to ensure that projected growth in electrical demand can continue to be supported from the external grid. Ausgrid has advised that the lead-in supply to the North East Sector will need to be upgraded to meet the projected demand and maintain required levels of redundancy. This upgrade is currently planned to occur in 2019.

In addition to the lead-in supply capacity, the internal electrical network will continue to be reinforced to ensure that growth can be supported while maintaining the required reliability and redundancy of supply. Network augmentation requirements are based on detailed planning of network growth, including consideration of the role that demand side management and sustainability initiatives will play.

Key considerations for the development of the electrical network include:

- Upgrade to the North East Sector lead-in supply and zone substation transformers
- Upgrade to the North West Sector zone substation transformers
- Ongoing replacement and retirement of aged equipment
- Improved interconnectivity between sectors to enhance redundancy
- Augmentation of the reticulation network capacity to supply proposed developments
- Alignment of the electrical network development with broader sustainability initiatives, such as expansion of ground power and preconditioned air to aircraft parking positions
- Resilience planning to respond to network outages

12.4 Water Supply

Sydney Airport is supplied with potable water from the external Sydney Water network at multiple locations at the perimeter of the site. Within the North West and North East Sectors, this external supply is used to feed a Sydney Airport owned and operated potable water network comprising storage tanks, pump sets and a reticulation pipe network. Within other parts of the airport, developments are typically supplied directly from the Sydney Water network.

In addition to our potable water network, we operate a recycled water treatment plant in the North West Sector, which supplies non-potable water for toilet flushing and air conditioning cooling towers throughout the T1 International Operations Precinct. This reduces our reliance on the potable water network.

To ensure the efficiency and reliability of our water supply networks, we have recently undertaken studies into the operation and condition of these assets to target future investment in the infrastructure.

12.4.1 Water sustainability

We have implemented a Water Savings Action Plan and are committed to reducing the total water consumed per passenger. Reductions in water usage have been achieved through a range of water conservation and reuse options, including installation of water efficient fittings, leak detection and implementation of alternative supply arrangements.

As part of our commitment to improving the sustainability of the airport, the capacity of the North West Sector recycled water treatment plant has recently been upgraded to a capacity of 960,000 litres per day (from 750,000 litres per day). This upgraded capacity is capable of meeting more than 60 percent of the overall airport demand within the T1 precinct.

Sustainability will play a key role in the efficient development of the water networks to meet the increase in demand as the airport grows, particularly by ensuring that new developments are water efficient and consider water recycling. We will continue to monitor the feasibility of further expanding the North West Sector recycled water treatment plant capacity and introducing recycled water treatment capacity into other areas of the airport.

Image 12-3: The drinking water system at Sydney Airport

12.4.2 New water infrastructure

We regularly consult with Sydney Water to ensure that the projected growth in potable water demand at Sydney Airport can continue to be supported from the external network. In addition to ensuring that the external supply is sufficient to meet the growth in demand, to enhance water supply reliability, a minimum of two diverse points of connection to the external Sydney Water network is being pursued for the North West and North East Sectors.

While water savings initiatives and ongoing expansion of the recycled water production capacity will partially offset demand growth for potable water, it is anticipated that the internal potable water network will continue to require augmentation to ensure that growth can be supported while maintaining the required reliability and redundancy of supply.

Development of the water supply networks will include consideration of:

- Increasing the recycled water capacity as demand for non-potable water increases
- Upgrading the supply arrangement to the North East and North West Sectors, including improving reliability
- Providing an additional lead-in water supply to the North West Sector to improve redundancy
- Increasing the storage capacity within the North East and North West Sectors
- Potential additional or augmented connection to the South East Sector
- Continued investment in the network to improve reliability and efficiency
- Expanding the reticulation network to support development where supplies are limited

12.5 Stormwater

Sydney Airport is bounded by water bodies on all sides, including:

- Alexandra Canal to the north
- Engine and Mill Ponds and Mill Stream to the east
- Botany Bay to the south
- Cooks River to the west

These water bodies are typically tidal adjacent to the airport, and each comprises a substantial upstream catchment. Significant increases in water levels occur during flood events.

Sydney Airport has 11 main internal sub-catchments, with all stormwater from the site ultimately discharging into Botany Bay. The airport site is relatively self-contained with only very small external areas contributing to runoff in the airport catchment.

We own and maintain extensive stormwater drainage networks located across the site, which incorporate a range of water quality controls including:

- Gross pollutant traps
- On-going water quality monitoring
- Flame traps on aprons
- Emergency shut-off valves for spill containment and spill response

We are currently undertaking a flood study to improve our understanding of the performance of the stormwater network and the level of flood protection provided. This study will be used to assess proposed development, identify network improvements required and inform resilience planning.

Increased rainfall intensity and elevated sea levels resulting from climate change will affect the performance of the stormwater drainage networks and level of flood protection provided on the airport. We are undertaking studies into the potential influence of climate change on Sydney Airport assets, which will inform our investment in stormwater infrastructure and resilience planning.

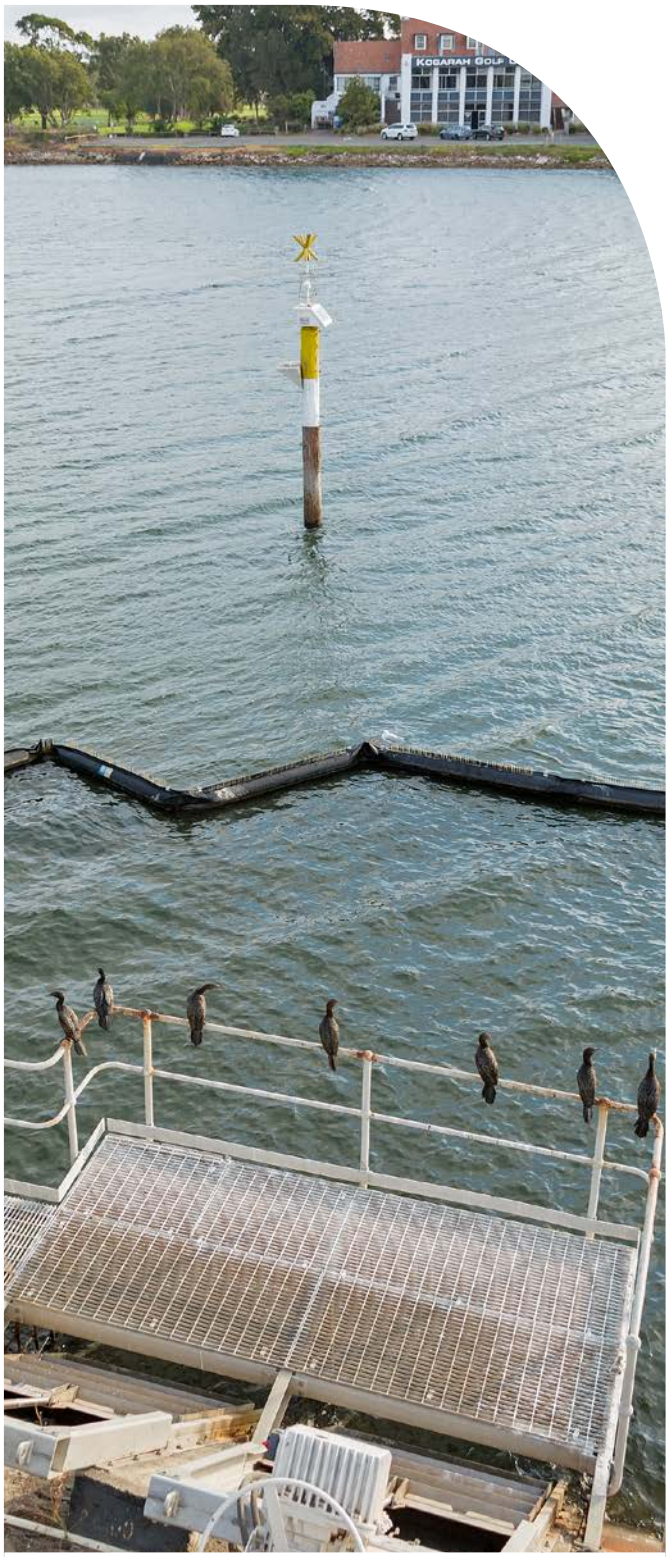


Image 12-5: The flood gate in Cooks River, part of the airport's stormwater system

12.5.1 New stormwater infrastructure

Development of new facilities and aircraft parking positions will require the augmentation of existing, or installation of additional, stormwater systems as required. As much of the site on which development is proposed already comprises impervious surfaces, it is unlikely that proposed development will increase the amount of stormwater discharge from the site. However, as part of each development, the requirement for mitigation measures for water quantity and quality will be assessed to ensure no adverse off-site impact.

The potential role of water sensitive urban design and rainwater harvesting will be considered as part of sustainability initiatives for future developments. This will allow Sydney Airport to meet the following water cycle commitments:

- All water used in public open spaces and public realm areas will be supplied from alternative sources
- All existing terminal and airport buildings will have access to alternative water sources
- The quantity of key pollutants discharged to stormwater is reduced when compared to untreated stormwater (refer to **Chapter 14.0 Environment** and **Environment Strategy 2019-2024**)

Proposed developments will be required to achieve minimum flood immunity criteria by establishing appropriate floor levels and associated infrastructure. In addition, where existing flooding issues are identified through analysis of flood modelling, the feasibility of implementing infrastructure works to mitigate these issues will be assessed.

12.6 Sewerage

We operate an internal sewerage network comprising a range of gravity mains and pump stations that ultimately connect to the external Sydney Water network at multiple locations. The local Sydney Water network discharges to the Southern and Western Suburbs Ocean Outfall Sewer, which traverses the southern sectors of the airport, ultimately extending to the Malabar Waste Water Treatment Plant (WWTP).

A substantial proportion of the sewage discharged from the North West Sector is diverted to the Sydney Airport-operated recycled water treatment plant prior to discharging to the external Sydney Water network. Recent augmentation of our sewerage network has focused on improving the reliability and redundancy of the network, including the refurbishment of the critical pump station serving the North East Sector. Major pumping stations are provided with emergency storage and redundant electrical supplies to ensure that operations can be maintained during network outages.

12.6.1 Recycled water

A recycled water treatment plant diverts a large proportion of the sewage generated within the North West Sector away from the external sewerage network. Approximately 50 percent of the sewage discharged from the North West Sector is recycled, reducing the load on the external network and the volume of effluent discharged to the WWTP.

The reduction in intensity of water usage achieved through proposed demand management measures and the Water Savings Action Plan will similarly reduce the volume of sewage discharged from the airport and ultimately requiring treatment and disposal.

12.6.2 New sewerage infrastructure

Growth across Sydney Airport will require the augmentation of the existing gravity mains, and an increase in the capacity of the existing sewerage pump stations, associated emergency storage and rising mains. This will include ongoing engagement with Sydney Water to ensure that the external network is capable of supporting the projected growth.

Key considerations for the development of the sewerage network will include:

- Reconfiguration of the network and external discharge arrangements to facilitate the connection of any additional development within the North East Sector
- Minor extensions of the reticulation network and diversions of small sections of network to facilitate new development footprints
- Installation of a new sewage pumping station within the South East Sector to enable connection to the external Sydney Water network

12.7 Natural Gas

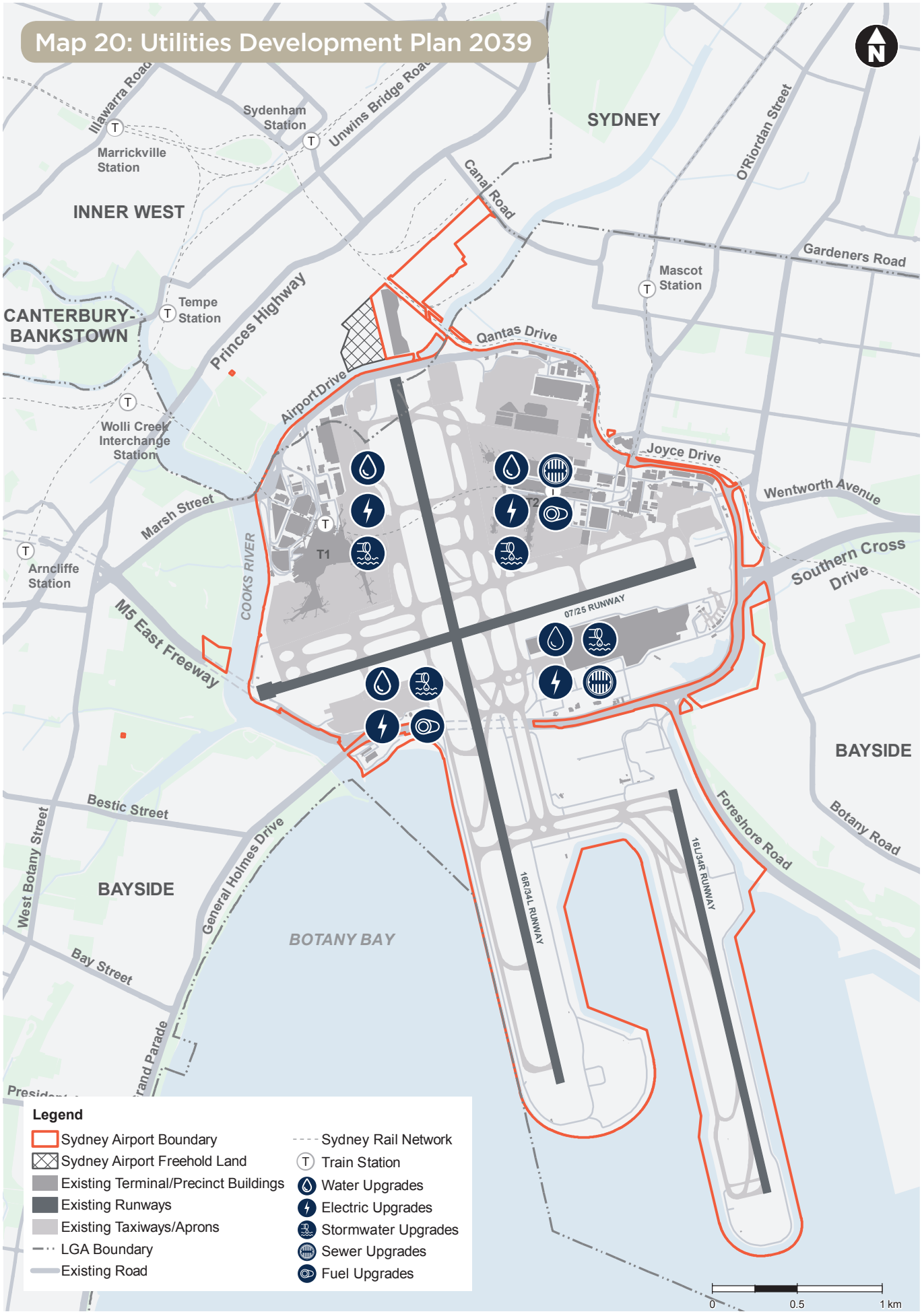
Sydney Airport is supplied with natural gas by Jemena through high pressure mains to facilities in the North East, North West and South West Sectors. The gas supply does not currently extend into the other airport sectors.

The external natural gas supply is used to supply the tri-generation facility currently being commissioned at T3. While there are no plans to expand the provision of tri-generation, we will continue to monitor the role of tri-generation in meeting the increasing demand for electricity at the airport.

12.7.1 New natural gas infrastructure

The natural gas network will be expanded as required to support demand growth across the airport. We regularly consult with Jemena who has advised that projected demand growth can be supported where economical to do so.

Image 12-6: The airport's gas infrastructure


Map 20: Utilities Development Plan 2039
N
Illawarra Road
Marrickville Station
Sydenham Station
Unwins Bridge Road
SYDNEY
O'Riordan Street
INNER WEST
Canal Road
Gardeners Road
Mascot Station
CANTERBURY-BANKSTOWN
Tempe Station
Princes Highway
Qantas Drive
Airport Drive
Wolli Creek Interchange Station
Joyce Drive
Wentworth Avenue
Marsh Street
T1
T2
COOKS RIVER
Arncliffe Station
Southern Cross Drive
07/25 RUNWAY
M5 East Freeway
BAYSIDE
Bestic Street
Foreshore Road
Botany Road
West Botany Street
General Holmes Drive
16R/34L RUNWAY
16L/34R RUNWAY
BOTANY BAY
Bay Street
Legend
Sydney Airport Boundary
Sydney Airport Freehold Land
Existing Terminal/Precinct Buildings
Existing Runways
Existing Taxiways/Aprons
LGA Boundary
Existing Road
Sydney Rail Network
Train Station
Water Upgrades
Electric Upgrades
Stormwater Upgrades
Sewer Upgrades
Fuel Upgrades
0
0.5
1 km

12.8 Communications

We are rolling out a new campus communications network and core network to improve resilience and enhance technology services throughout the airport.

Optical fibre communications networks are installed across Sydney Airport, to facilitate the use of the Airport Management System, including critical operational and security functions. A second secure optical fibre network has been installed to the airside areas of the airport for airfield lighting control and monitoring. This network interfaces with operational equipment including transmission meters and security systems.

These networks are supplemented by Airservices Australia's communication systems associated with its navigational aids.

We manage the installation of telecommunications including cabling (i.e. voice, video and data), mobile telephone and wireless technology infrastructure across the airport, and provide commercial access to third parties on the external network.

12.8.1 New communications infrastructure

The existing and planned communication networks, including NBN, are proposed to be extended into new developments as these are constructed. In addition, we will continue to support the incorporation of emerging technologies as part of the growth of the communication infrastructure networks at Sydney Airport.

12.9 Sustainability Initiatives to 2039

The following sustainability initiatives have been embedded within the Utilities Development Plan for Master Plan 2039:

- Expand the capacity of the recycled water treatment plant at T1 following evaluation of projected passenger growth to gauge demand
- Provide recycled water to T2 and T3 through development of a new recycled water treatment plant subject to feasibility investigations
- Installation of smart metering throughout new terminal developments to enable better understanding of energy usage patterns
- Opportunity to install solar PV systems on new precinct buildings subject to feasibility studies