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# 5.0

## TERMINAL DEVELOPMENT CONCEPT



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## Key points

- The development concept in the PDMP includes substantial reconfiguration and expansion of terminal infrastructure, creating integrated terminals for international, domestic and regional passenger operations.
- Two integrated terminal precincts servicing a mix of international, domestic and regional passengers will:
  - Improve the door-to-door passenger experience, including enhanced ground transport access
  - Improve passenger connectivity by reducing inter-precinct transfers
  - Enhance airline efficiency in the terminal by reducing minimum connection times, and improving aircraft utilisation
  - Optimise the use of terminal infrastructure by introducing swing gates that can accommodate international, domestic and regional aircraft
  - Increase the flexibility of the infrastructure to respond to changing airline business models
  - Maximise airport capacity, including terminal capacity beyond the 2033 planning horizon.
- Investment in next-generation technologies will enhance the passenger experience, improve total journey times and increase the efficiency of passenger processing.

**The aviation industry is constantly evolving technology in order to deliver service and environmental improvements and expand its product offering to remain competitive.**

Sydney Airport must also be flexible and adaptable in order to meet passenger expectations and the changing requirements of its airline partners. This will ensure that Sydney Airport remains Australia's international gateway and continues to attract global aviation business.

After significant consultation with stakeholders, Sydney Airport has developed a transformational plan to reconfigure and expand the existing terminals and precincts to create two integrated terminal precincts for international, domestic and regional operations.

The proposed terminal concept can comfortably accommodate the projected passenger, aircraft and ground transport traffic flows to 2033 and beyond.

The passenger experience will be improved through enhancements to ground transport, terminal and passenger processing facilities. In particular those transferring between international and domestic/regional flights will benefit from improved connectivity by the reduction of inter-precinct transfers.



The terminal concept also delivers other tangible improvements through enhancement of the multimode transport facilities in the terminal precincts to provide airport user access to reliable transport options. Further information is provided in Chapter 7.

One of the key benefits of the development concept is the ability to service aircraft demand through the use of swing gates that can accommodate both international and domestic/regional aircraft in each of the terminal precincts.

By facilitating Code F international aircraft (such as the A380) operations in the North East Sector as well as the current North West Sector, Sydney Airport will have the ability to substantially increase its capacity to accommodate Code F aircraft well beyond the PDMP planning period.

Further, the ability to provide swing gates at both of the proposed terminal precincts provides additional opportunities to efficiently increase Sydney Airport's capacity to handle the growing demand for Code E (such as A330 and B787) aircraft. Where possible the larger gates will also be configured to accommodate multiple smaller aircraft.

Significant improvements will be made to the road flows in and around both terminal precincts as a result of the reconfiguration and expansion of the terminal facilities. The rebalancing of passenger numbers between the terminal precincts is predicted to ease congestion inside and outside the terminals during peak periods.

The proposed development concept for the expansion of the terminals will:

- Improve the passenger experience through enhancements to ground transport, terminal and passenger processing facilities
- Reduce transfer times and promote the efficient use of infrastructure through mixing of international, domestic and regional passengers
- Improve gate utilisation, flexibility and increase airline aircraft utilisation by incorporating swing international/domestic/regional gates
- Enhance and maximise flexibility of existing facilities and infrastructure by promoting common use principles while supporting specific product differentiation requirements from our airline partners
- Improve service levels through the provision of additional contact gate capacity
- Increase the flexibility to accommodate multiple smaller aircraft on larger category/code stands
- Adopt new technologies for passenger processing to improve the passenger experience and reduce processing times
- Provide for an expanded and targeted retail and food offering to meet the range of passenger needs
- Increase the capacity and flexibility of the two terminal precincts to accommodate larger Code E and F aircraft on contact gates

- Integrate sustainable technologies, design and operations that deliver environmental solutions, particularly energy and water efficiencies, and enhance passenger experience and comfort.

### **Significant benefits from reduction in inter-precinct transfers**

A primary benefit of the terminals concept is the reduction in inter-precinct transfers.

Under this PDMP the number of inter-precinct transfer passengers is projected to decrease from 3.3 million in 2012 to 2.5 million in 2033, due to the benefits of creating the integrated precincts. In the absence of the two integrated precincts it is forecast that inter-precinct transfers would increase to approximately 7.1 million in 2033<sup>1</sup>.

The current system of inter-precinct transfers has the potential to impact on airport operations in a number of ways. On the airfield, the current transfer process may contribute to delays to aircraft flight schedules given the time required for passengers and bags to move between the precincts. In addition, millions of people transferring landside during the peak periods each year contribute to road congestion in and around the airport.

Some airlines provide a passenger transfer operation between the terminal precincts. Passengers not travelling with these airlines currently use the Sydney Airport TBus or public transport modes such as rail, bus or taxi to transfer between the domestic and international precincts.

## **5.1 Inter-precinct transfers**

While the vast majority of transfers will be intra-precinct under the development concept, an airside transfer product is proposed to be continued for passengers requiring an inter-precinct transfer.

A dedicated airside transport corridor is proposed between the terminal precincts, which will be able to accommodate buses or other modes of transport. Dedicated transfer lounges are proposed in each terminal precinct.

The existing landside pedestrian links to the international and domestic train stations and between T1 and T2/T3 respectively are planned to be maintained and enhanced.

Sydney Airport will work with the NSW Government and the private infrastructure owners of the airport rail link stations to investigate options that could be undertaken to make better use of the existing rail link between T1 and T2/T3.

### **5.1.1 Enhanced landside services and facilities associated with T2/T3**

The concept is designed to provide for the connection of the integrated terminals to a redeveloped ground transport interchange, expanded multi-level car parking facility, hotel and other commercial buildings.

These improvements in passenger facilitation are expected to contribute to enhancing the overall passenger experience at Sydney Airport. Further details on ground transport and commercial developments are provided in chapters 7 and 10 respectively.

## **5.2 Proposed terminal concepts**

This section provides details of the proposed future terminal developments at Sydney Airport.

Efficiency improvements including the introduction of new technologies and service systems are expected to occur over the next few years, offering passengers greater choice and improved service level standards. Such systems are also envisaged to assist airlines in offering product differentiation and achieve operational efficiencies.

The terminal developments are proposed to be equipped with the technology required to offer improved passenger facilitation and choice. The security and border control facilities are likely to also see ongoing improvements in technology and automation which should facilitate improvements in efficiency and passenger processing times.

In the same way that automation and technology improvements are seen as important customer service initiatives, the advent and roll-out of these systems also provides greater opportunity to achieve improved building floor space efficiencies and minimise the requirement to undertake capital-intensive terminal expansions.

### **5.2.1 Terminal 1 concept – international, domestic and regional passenger precinct**

Under the proposed terminal concept, domestic and regional aircraft operations will be incorporated into T1.

The concept provides for changes to the terminal infrastructure, improvements to passenger facilitation and supports the changing needs of airline partners.

#### **Changes to terminal infrastructure**

- Reconfiguration of the existing T1 Pier C to facilitate handling of international, domestic and regional passengers
- Development of a new terminal pier by extending T1 to the south west to provide additional capacity and flexibility

<sup>1</sup> 3.5 million arriving transfer passengers and 3.5 million departing transfer passengers

- Development of swing international-domestic gates
- Development of gates that can service multiple aircraft types
- Apron reconfiguration to cater for the greater variety of operating aircraft, including implementation of a dual Code C taxiway to increase the handling capacity for domestic and regional aircraft operation.
- Improved contact gate capacity across the airport to accommodate the larger international Code F aircraft and increased flexibility to accommodate the up-gauging of domestic aircraft to Code E

#### **Passenger facilitation improvements**

- Additional passenger and baggage processing facilities
- Improved check-in systems
- Infrastructure to stream-line domestic passenger flows and processing
- Opportunities to share terminal infrastructure between international, domestic and regional operation
- More efficient use of gates for passengers

#### **Supporting aircraft utilisation and airline service delivery**

- Accommodating airline product differentiation
- Improved capacity of the terminal to accommodate contact gates, minimising the need to bus aircraft, particularly in peak periods

#### **Departing passengers concept**

The development concept allows departing passengers to directly access the terminal from new multi-level car parking facilities. Multiple public transport options are also provided, with facilities in close proximity to the terminal.

Provision is included for the introduction of new technology check-in facilities, reducing the future growth in demand for development of new traditional check-in counters. Introduction of domestic passengers into T1 is likely to see a change in demand. Efficiencies and improved processing rates at the check-in are likely to require provision to be made for expansion of the baggage handling system.

The layout provides for enhanced emigration and security facilities to manage future international passenger demand, including the use of new technologies assisting border control processes.

All current known security requirements, such as body scanning, have been taken into account in the proposed terminal concepts. Any future security requirements involving passenger or non-passenger screening point design including enhanced inspection points, changed technology, screening facilitation or intervention rates

could result in different spatial outcomes, although it is envisaged that any such different spatial outcomes should be able to be accommodated within the proposed expanded footprints of the terminals.

Once through security, it is planned that all passengers will proceed through to retail area offerings, other services, airline lounges and gate lounges.

#### **Arriving passengers concept**

The separation of arriving and departing international passengers is planned to continue in order to meet security and border control requirements. Border control facilities will be expanded and it is expected that new border control technologies will improve efficiency and processing times.

It is proposed to work with the government agencies to accommodate the customs and quarantine processing requirements to meet forecast demand.

Border control, customs and quarantine processing facilities are the responsibility of government agencies. Those services grow in line with passenger demand. The PDMP does not anticipate growth ahead of forecast. However the physical location of services may be required to be enhanced.

Domestic and regional passengers will be provided with streamlined facilitation, as they currently enjoy, with inbound security screening required for transferring passengers entering the terminal from unscreened destinations.

The baggage reclaim hall is proposed to be enhanced with new baggage reclaim units being added to meet demand within this planning period and incorporate segregated domestic operations.

Transfer facilities for passengers transferring between international, domestic and regional flights for passengers other than those that will be transferring between these services within T1 are planned to remain (see Section 5.2) immediately adjacent to the terminal. Arriving passengers will continue to have the full choice of transport modes including trains, buses, taxis, limousines, rental cars and public parking facilities.

The terminal development concept has been planned to integrate with the proposed landside developments.

#### **Inter-terminal transfer passengers concept**

Inter-terminal transfer facilities for international travellers transferring or transiting within T1 will use the existing transit screening points within Pier B and Pier C, with facilities being enhanced as required to meet future demand. Passengers transferring between international and domestic/regional flights operating from the T1 precinct shall transfer internally within the integrated terminal.

### 5.2.2 Terminals 2/3 concept – international, domestic and regional passenger precinct

Under the proposed development concept international operations will be incorporated into the expanded T2/T3 precinct.

The concept provides for changes to the terminal infrastructure, improvements to passenger facilitation and supports the changing needs of airline partners.

#### Changes to terminal infrastructure

- Linking of the two existing terminal cores on the western and eastern sections of the terminals, with new larger aircraft gates developed along the western link. The eastern link is proposed to provide passenger and baggage handling facilities which integrate the proposed new T2 Pier C with the eastern expansion of T3
- Additional terminal processing facilities to cater for the processing of international passengers
- A new passenger pier in an area currently occupied by the existing engineering facility area to cater for the larger Code E and F aircraft
- New T2 piers to the east of current Pier A in T2 to cater for Code C and larger Code E aircraft
- Development of gates that can service multiple codes of aircraft such as a large Code E or Code C aircraft
- Some gates capable of handling both domestic, regional and international operations with the development of swing international-domestic gates
- Apron reconfiguration to cater for the greater variety of operating aircraft, including implementation of Code E and dual Code F taxiways to increase the handling capacity for international, domestic and regional aircraft operation
- Integration of sustainable technologies, design and operations that deliver environmental solutions, particularly energy and water efficiencies, and enhance passenger experience and comfort

#### Passenger facilitation improvements

- Additional passenger and baggage processing facilities
- Additional and improved check-in systems
- Centralised immigration and baggage examination lines for international passengers
- More efficient use of gates and logical flow paths for passengers.
- Augmentation of existing terminal facilities to incorporate international operations into the terminals

- Opportunities to share terminal infrastructure between international, domestic and regional operations

#### Supporting airline aircraft utilisation and service delivery

- Opportunities for airline product differentiation
- Sufficient area to develop the terminal to provide the required processing facilities for projected peak hour operations

#### Departing passengers concept

The development concept allows departing passengers to access the terminals from existing and new roadways and multi-level car parking facilities. Multiple public transport options are also provided, with facilities in close proximity to the terminal.

At the departures level, introduction of international passengers into the precinct will see augmentation of check-in and baggage facilities. Developments of additional or improved processing rates at the check-in are likely to require provision to be made for improved capability of the baggage handling system.

To ensure passengers can transfer between terminals before and after the check-in and security processes, the landside and airside concourses of each terminal are proposed to be linked at the western and eastern ends.

The proposed concept provides for centralised emigration and security facilities to manage future international passenger demand, including the use of new technologies assisting border control processes. It is envisaged that domestic and regional passengers will continue to be processed in a streamlined manner.

All current known security requirements have been taken into account in the proposed terminal concepts. Any future security requirements involving passenger or non-passenger screening point design including enhanced inspection points, changed technology, screening facilitation or intervention rates could result in different spatial outcomes, although it is envisaged that any such different spatial outcomes should be able to be accommodated within the proposed expanded footprints of the terminals.

Once through security, it is planned that all passengers will proceed through to retail and food offerings, other services, airline lounges and their gate lounges.

#### Arriving passengers concept

The separation of arriving and departing international passengers is planned to continue in order to meet security and border control requirements. Border control, customs and quarantine processing facilities are also proposed for the international passenger facilitation. It is proposed to work with the various agencies to deliver an efficient service.

Domestic and regional passengers are proposed to be provided with streamlined facilitation, with inbound security screening required for passengers transferring through the terminal from unscreened destinations.

Baggage reclaim halls are proposed to be expanded with new baggage reclaim units being added to meet demand within this planning period and incorporate segregated international and domestic operations.

The development concept incorporates a reservation for a proposed airside transport corridor to provide a direct airside link between the T2 and T3 apron areas. The proposed corridor may also allow for the movement of baggage between the terminals.

Transfer facilities for passengers transferring between international, domestic and regional flights for passengers other than those that will be transferring between these services within T2 and T3 are planned to be kept (see Section 5.1) immediately adjacent to the terminal, arriving passengers will continue to have the full choice of transport modes including railway, buses, taxis, limousines, rental cars and public parking facilities.

The terminal concept has been planned to integrate with the proposed landside developments.

#### **Inter-terminal transfer passengers concept**

New inter-terminal transfer facilities will be incorporated into the proposed terminal expansion for international travellers transferring or transiting within the T2/T3 precinct. Passengers transferring between international and domestic/regional flights within the T2/T3 precinct will transfer within the integrated terminals, with proposed new airside and landside links provided between the T2/T3 terminal buildings.