



11

Services
Infrastructure

11.1. Introduction

Services infrastructure is a key component of Adelaide Airport's operations both now and into the future. It comprises the power, water, sewer, telecommunications and stormwater networks that service aviation and non-aviation related developments across the Airport Business District.

The reliability, efficiency and sustainability of these networks and supply arrangements are the key objectives for Adelaide Airport when planning for services infrastructure. AAL works closely with external utilities providers to ensure these essential services are available to support the operation and growth of the airport.

11.2. Overview

- Services infrastructure at Adelaide Airport will continue to expand 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:
 - Potential relocation of the 750 millimetre water main which transects the airport site
 - Expansion of networks to supply new areas of development
 - New services infrastructure to the Airport East Precinct



Figure 11-1: Installed Solar Photovoltaics on Multi-Storey Car Park Roof

11.3. Recent Developments

Improvements to the services infrastructure that have been implemented since Master Plan 2014 include:

- Installation of a 1.17MW solar photovoltaics on the roof of the multi-level car park (Figure 11-1). It is the second largest 'non-generator' system in South Australia, and the largest airport solar photovoltaic installation in Australia, reducing the airport's carbon footprint by approximately 8.5 per cent
- Terminal 1 heating and cooling analytics service which monitors and identifies improvements in real time
- Replacement of car park light fittings with LED fittings as part of an ongoing sustainability initiative
- Connection to the underground aquifers located along the southern boundary of the airport for use by the Terminal 1 cooling towers
- Flood protection to identified critical power and sewer infrastructure nodes across the airport site
- New and/or upgraded services to new developments across the airport site



C11

11.4. Electrical Network

Adelaide Airport owns and operates an embedded (private) electricity network on the airport site, which is serviced by a network of high-voltage electricity mains and substations located around the periphery of the airport, owned and operated by the South Australian Power Network (SAPN) as shown in Figure 11-2. On-site electricity is also generated from the two solar photovoltaic installations located on the roof of the multi-level car park and the Terminal 1 building.

To support future growth and development, the internal network will continue to be expanded, underpinned by Adelaide Airport's objectives to:

- Optimise and maintain electricity infrastructure to ensure continuity of supply and meet development needs
- Support carbon-reduction goals in energy infrastructure and framework management decisions
- Ensure regulatory compliance
- Maintain commercial viability of the embedded electricity networks
- Drive continuous improvement

The forecast electrical demand associated with expansion of Terminal 1 and development of the office park within the Terminals & Business Precinct indicates that an increase in supply may be required. The development of the Airport East Precinct will require a new SAPN high-voltage feed. AAL will continue to work closely with SAPN to ensure that growth can be supported in line with the objectives of Adelaide Airport.

In an ongoing effort to minimise energy consumption, AAL will continue to:

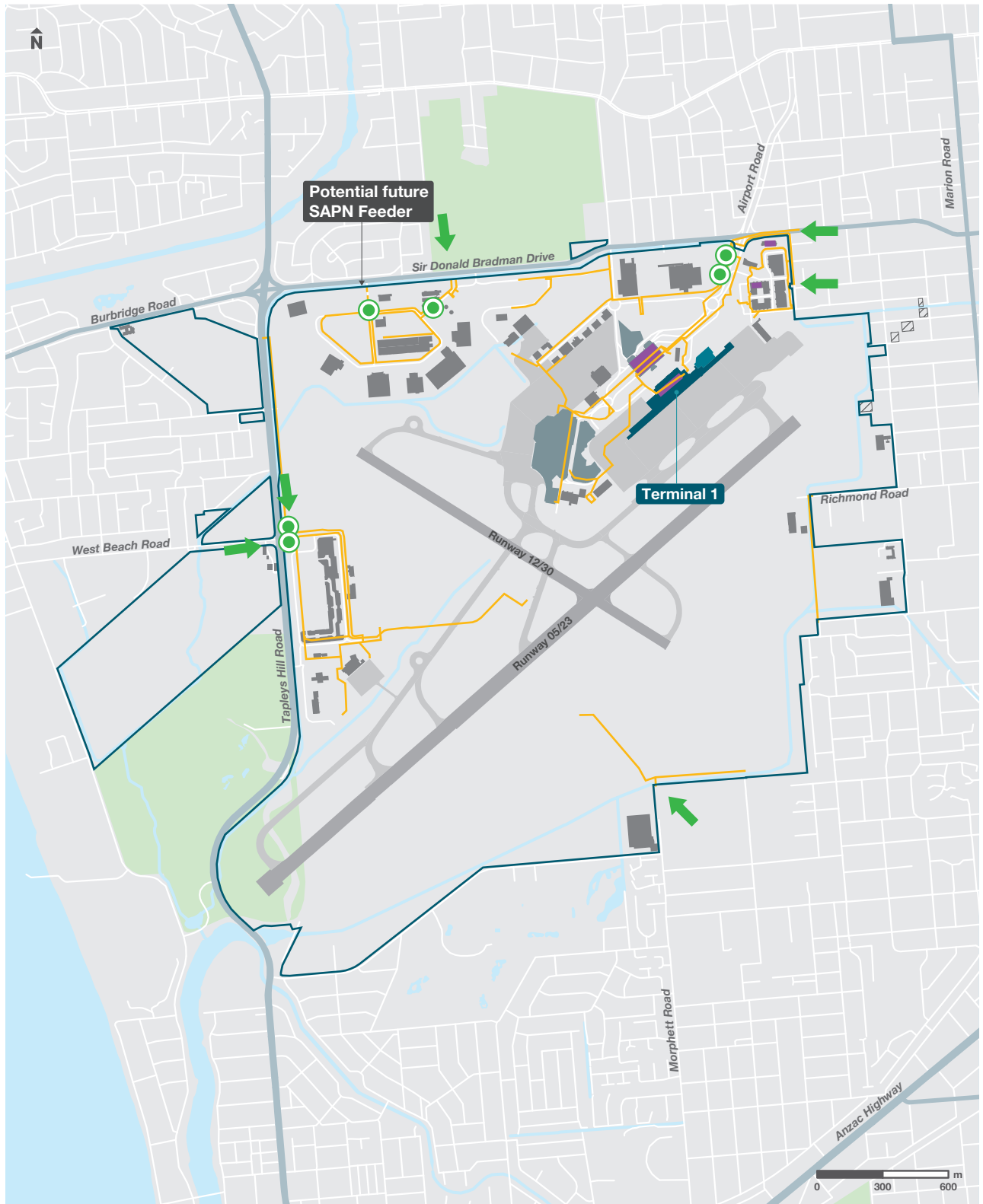
- Upgrade existing lighting to LED fittings (sensor-operated where appropriate)
- Identify and implement cost-effective energy reduction projects
- Expand the preventative maintenance program in alignment with development
- Educate employees and tenants on energy efficiency practices
- Identify opportunities to increase renewable-energy generation onsite

11.5. Telecommunications

Telecommunications infrastructure within the airport site is owned and managed by AAL and various telecommunications providers. AAL will continue to facilitate improvements and expansion of the telecommunications infrastructure including the rollout of NBN, upgrades to the Terminal 1 in-building communications system and system upgrades to align with technological advances and demand.

AAL is also exploring GigCity network technology for future proposed developments, which currently connects innovation precincts, co-working spaces and business districts across Adelaide via an ultra-fast internet service.

AAL will continue to facilitate improvements and expansion of the telecommunications infrastructure to meet customer needs and in response to changes in the communication industry. This will include upgrades to the fixed and wireless telecommunications infrastructure within Terminal 1 and airport wide technologies that allow high-speed connectivity both within Adelaide and across South Australia.



LEGEND

Airport Boundary	Airport Car Parks	High Voltage Intake Station
Freehold Land	Parks, Forests and Reserves	High Voltage Electricity Line
Runways	Watercourses	SAPN Feeder
Taxiways/Aprons	Arterial Roads	Solar Panels
Buildings	Local Roads	
Airport Terminal		

Figure 11-2: Existing Electrical network

11.6. Water

11.6.1. Potable water and fire water

Adelaide Airport's potable water and fire water supply is primarily sourced from a 750 millimetre diameter water main that traverses the site from north to south which is owned and operated by SA Water. Water is also supplied from a series of SA Water mains surrounding Adelaide Airport. The internal network of pipelines connected to the SA Water mains supply and reticulated to airport sites and tenancies is owned and managed by AAL. Figure 11-3 shows the existing potable water network for Adelaide Airport.

SA Water has advised that there is a sufficient network of water mains adjacent to the Airport to supply the planned developments within each precinct. To support future growth and development, extensions and expansions of Adelaide Airport's water supply network will continue. AAL will continue to consult with SA Water regarding the impact of any major developments on the 750 millimetre diameter water main, including options for potential relocation and redundancy to the water network.

11.6.2. Recycled water

Adelaide Airport is committed to reducing its reliance on potable water sources through the expansion of non-potable water alternatives, including the use of:

- Recycled water supply from SA Water via a pipeline from the Glenelg Wastewater Treatment Plant and through reticulated recycled water pipelines on the western, northern and southern boundaries of the airport site. Recycled water is used for irrigation of lawns and gardens and toilet flushing within Terminal 1
- Stormwater run-off from the roof of the multi-level car park which is used within the Terminal 1 cooling towers
- Treated stormwater, stored in the on-airport aquifer, which supplements the supply to the Terminal 1 cooling towers
- Drought-tolerant plants for landscaping to aid the reduction of water usage across the airport site

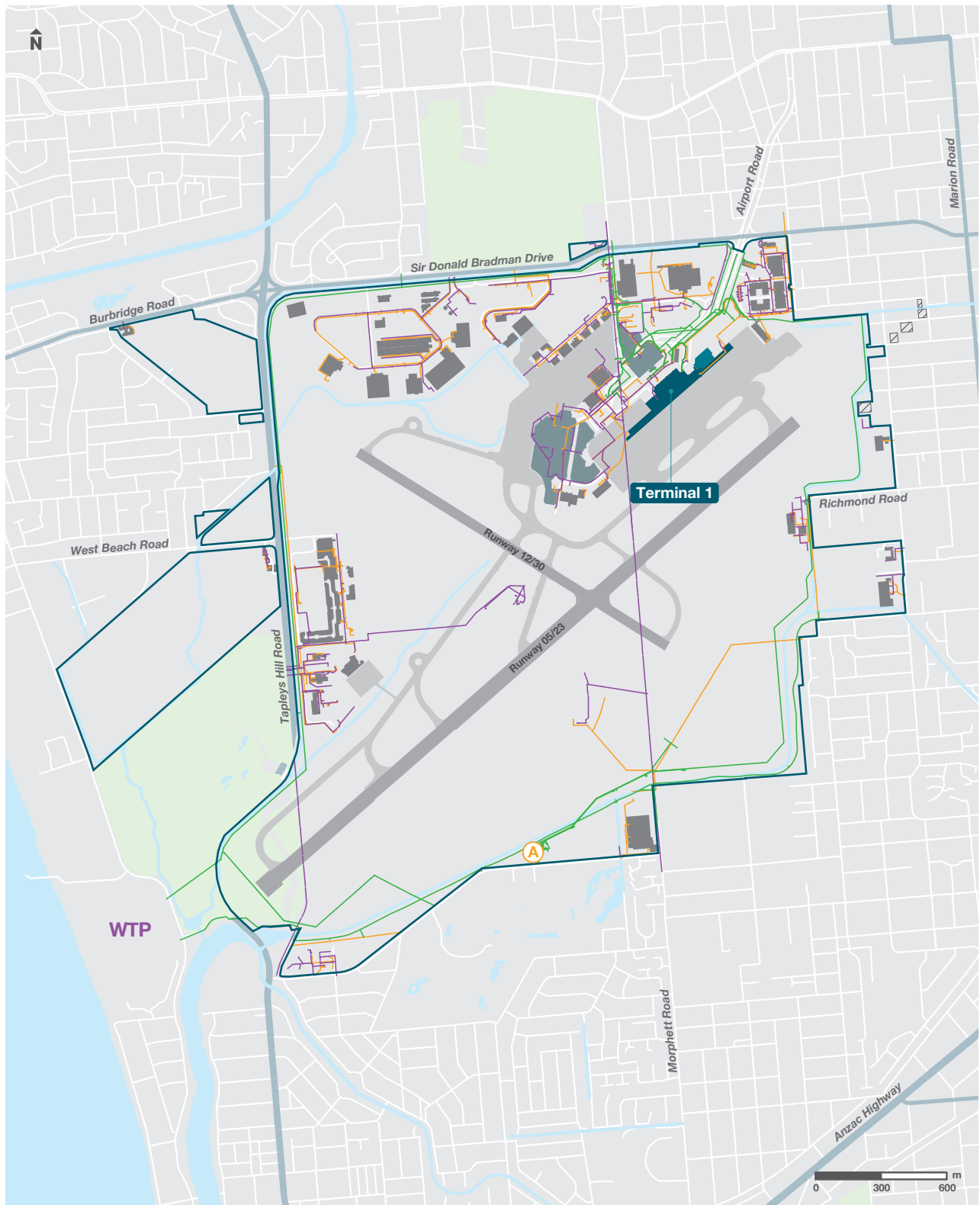
The existing recycled water infrastructure, shown in Figure 11-3, has sufficient capacity for planned development at the airport.

11.6.3. Wastewater

The airport's wastewater system is comprised of a network of gravity and pumped mains, which is owned and maintained by AAL. There are 16 wastewater connections to the SA Water network along the airport boundary. Figure 11-3 shows the existing wastewater network for Adelaide Airport.

The internal wastewater system will require upgrades, additional reticulation and/or expansion to accommodate the future Terminal 1 expansion and other planned developments. New wastewater infrastructure will be required in the Airport East Precinct. Additional connections to the SA Water network are also likely to be required.

AAL will work with SA Water to continue investigating efficiencies that can be made in the existing and future wastewater network.



LEGEND

Airport Boundary	Airport Car Parks	Water Main
Freehold Land	Parks, Forests and Reserves	Recycled Water Main
Runways	Watercourses	Waste Water Main
Taxiways/Aprons	Arterial Roads	Aquifer
Buildings	Local Roads	WTP SA Water Glenelg Wastewater Treatment Plant
Airport Terminal		

Figure 11-3: Existing Water and Wastewater

11.7. Stormwater Drainage

Adelaide Airport is located within the Patawalonga Catchment of metropolitan Adelaide, downstream of major urban stormwater catchments. All stormwater discharges to networks which bound the Adelaide Airport site and drain to the Gulf St Vincent via the Barcoo Outlet, including:

- The Cowandilla-Mile End Drain: Its catchment of 6.5 square kilometres extends to the suburbs to the north and east of Adelaide Airport and discharges into the Patawalonga Creek which flows to the Barcoo Outlet. The drain is located along the perimeter of the airport boundary to the north and north-west, with some sections located on airport land licensed to, and under the control of, the City of West Torrens.
- Keswick Creek: Its catchment of 31 square kilometres extends to the Adelaide Hills and multiple suburbs of Metropolitan Adelaide. Keswick Creek is located within the airport boundary through an easement with SA Water and drains into Brown Hill Creek via the Watson Avenue Detention Basin in Netley
- Brown Hill Creek: Its catchment of 35 square kilometres extends to the Adelaide Hills and various suburbs of Metropolitan Adelaide and discharges to the Barcoo Outlet. Brown Hill Creek is located within the airport boundary through an easement with SA Water
- Airport Drain: Its catchment is located entirely within the airport and is the responsibility of AAL. It discharges to the Barcoo Outlet

Figure 11-4 shows major stormwater catchments for Metropolitan Adelaide.

Figure 11-5 shows the major drainage systems at and adjacent to Adelaide Airport.

The stormwater management arrangements on the airport are governed by an agreement formed in 1964 when parts of the airport's drainage system were transferred from the Commonwealth to the respective State and Local Governments to aid upstream water flows. This was made on the basis that the airport's stormwater flows, both current and future, could continue to flow into the Keswick Creek, Brown Hill Creek and the Cowandilla Mile End drain, could be crossed as necessary, and would be maintained by the respective authorities. These agreements have been used as the basis for the overall stormwater management arrangements at Adelaide Airport, and subsequent agreements with relevant authorities.

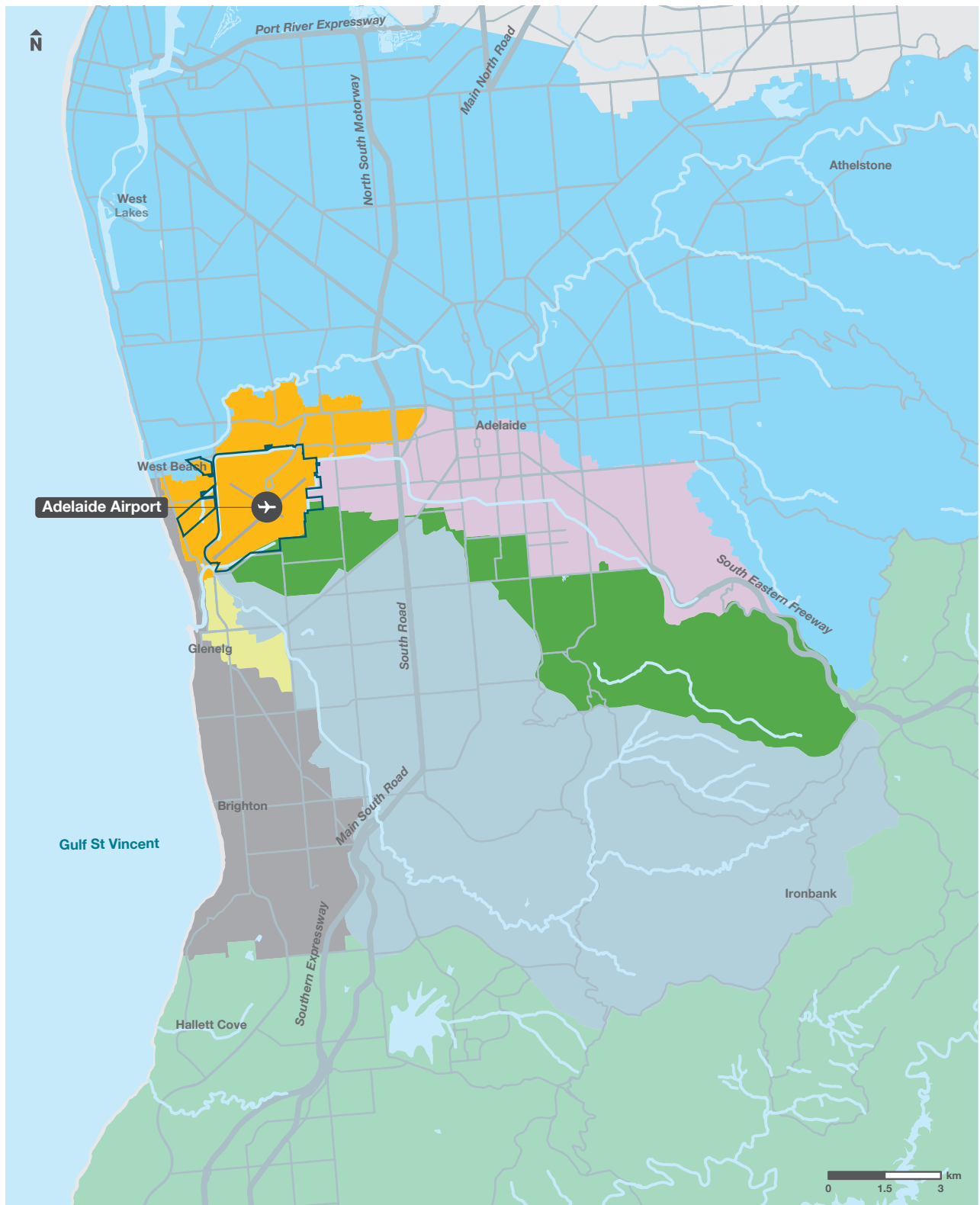
Upstream catchment flows independent of the airport have not been suitably upgraded to the levels consistent with the capacity of the existing drainage systems. While several projects have been carried out along the Brown Hill and Keswick Creek catchment in recent times to reduce the risk of flooding across the catchment, the project which will have the greatest effect on Adelaide Airport flood levels, and has not yet been undertaken, is the Flow Diversion of Keswick Creek to Brown Hill Creek. AAL will continue to work with relevant authorities and support the progression of this project.

Relevant flood-mitigation measures will continue to be implemented by AAL on the assumption that the benefits associated with the Flow Diversion of Keswick Creek to Brown Hill Creek project will not be realised for some time. This recently saw the upgrade to critical airport power and sewer infrastructure nodes across the airport site to address flood risk. AAL will also continue to work with the City of West Torrens to remove sediment within the Patawalonga Creek, as required, to improve the capacity of the creek and reduce the flood risk to Adelaide Airport and adjacent suburbs.

The effect of climate change on Adelaide Airport is being assessed through AAL's Climate Change Adaption Plan which responds to the effects of increased occurrences of extreme weather events and sea-level rise on stormwater runoff and the performance of infrastructure and drainage.

AAL owns and maintains the stormwater network within the airport site which includes underground pit and pipe drainage networks, open swale channels and detention basins. Water-quality treatment devices such as gross pollutant traps and oil and water separators treat stormwater prior to discharge. Water quality is monitored at strategic locations throughout the catchment to measure the effectiveness of the water-quality treatment devices. Adelaide Airport is also working in collaboration with the South Australian Environmental Protection Agency (EPA) to evaluate the potential impact of pollutants on drain ecology, including the establishment of appropriate water quality targets in accordance with the Australian and New Zealand Environment and Conservation Council (ANZECC) Guidelines for Fresh and Marine Water Quality.

Future expansions and developments at Adelaide Airport will continue to be reviewed and assessed to ensure incorporation of the principles of water-sensitive urban design including the management of water quantity and quality.














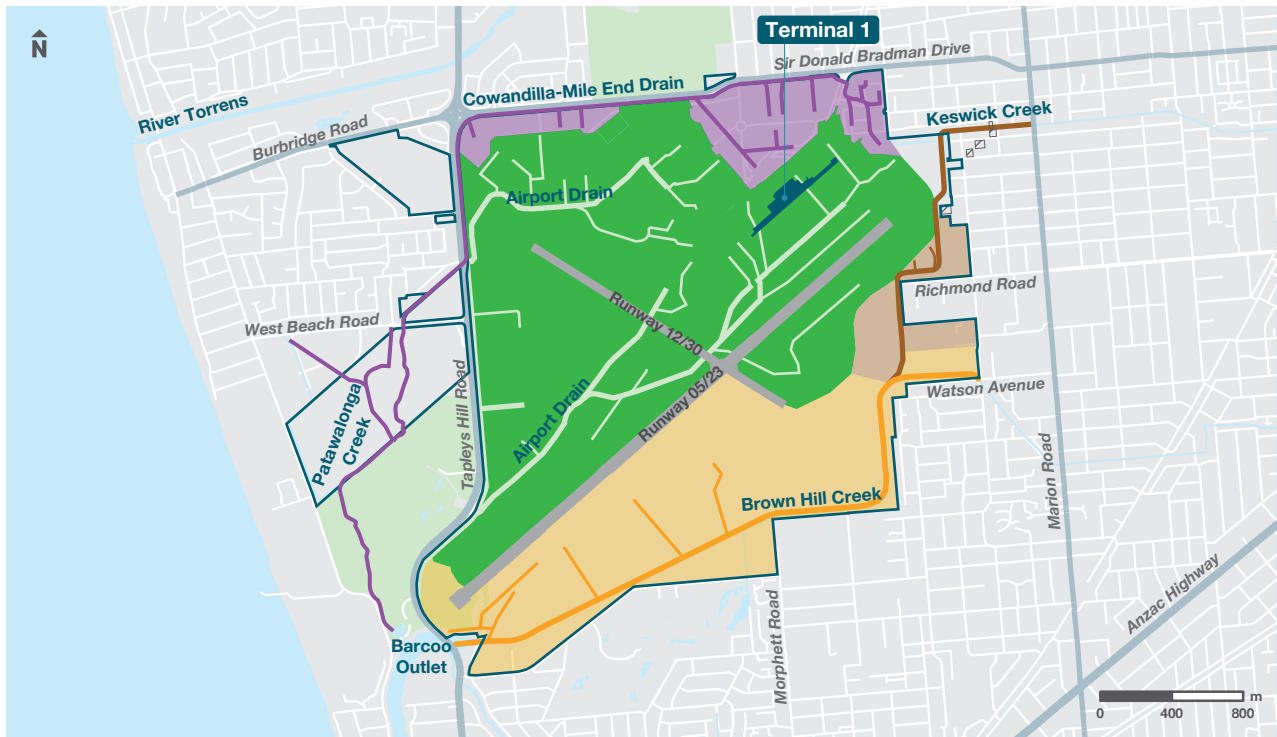
LEGEND		STORMWATER CATCHMENTS			
	Airport boundary		Brown Hill Creek		Onkaparinga
	Runways		Coastal		Patawalonga
	Major Transport Routes		Cowandilla-Mile End		Sturt River
			Keswick Creek		Torrens

Figure 11-4: Major Adelaide Stormwater Catchments



LEGEND

Airport Boundary	Parks, Forests and Reserves
Freehold Land	Watercourses
Runways	Arterial Roads
Airport Terminal	Local Roads

DRAINAGE

Airport Drain
Brown Hill Creek
Cowandilla-Mile End Drain- Patawalonga Creek
Keswick Creek

CATCHMENTS

Airport Drain
Brown Hill Creek
Cowandilla-Mile End Drain
Keswick Creek

Figure 11-5: Adelaide Airport Major Drainage Systems



11.8. Gas

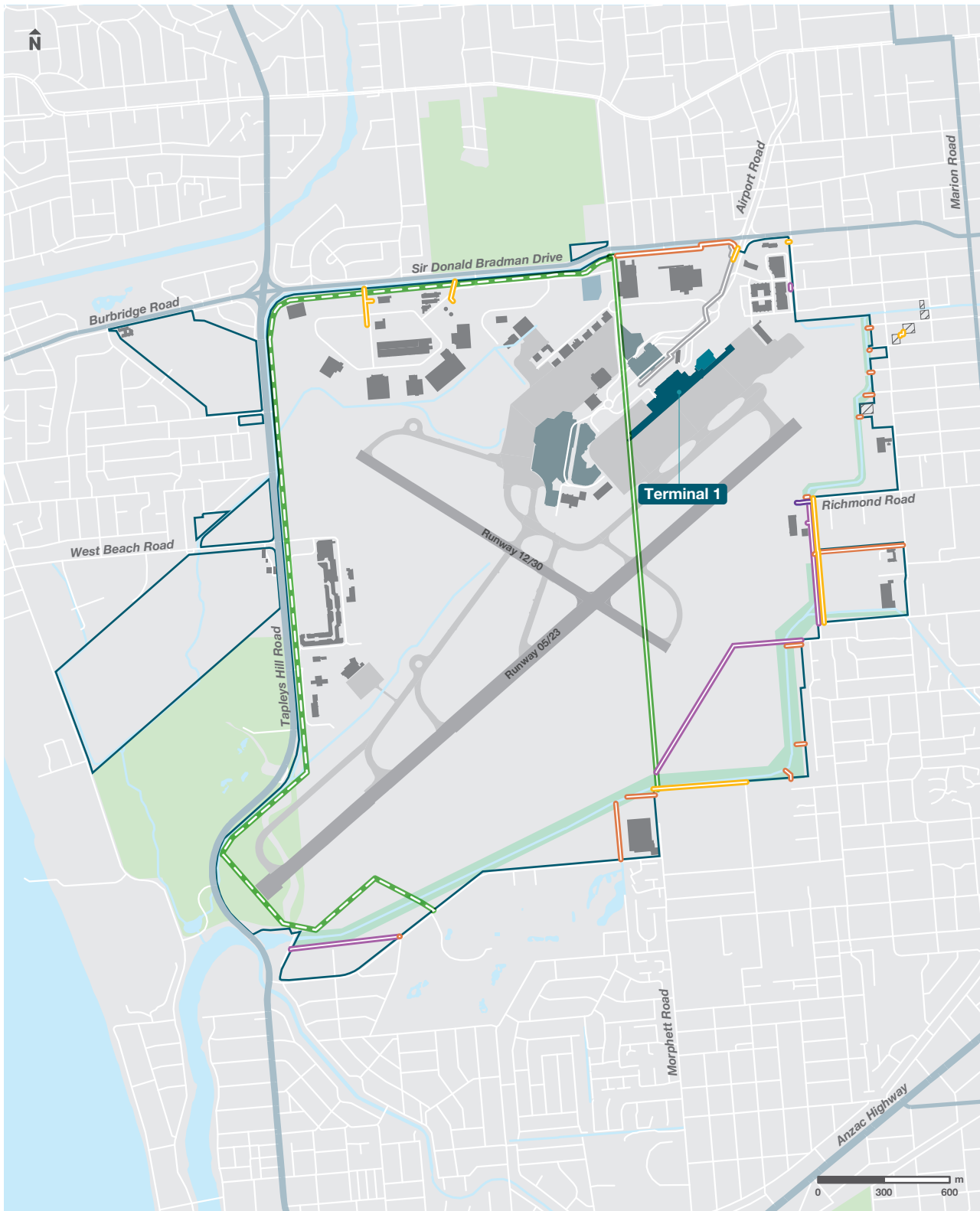
APA Group owns and manages the natural gas supply and the internal and external infrastructure at the airport. A major high-pressure gas main runs through the airport site from Sir Donald Bradman Drive and reticulates gas through the site, including Terminal 1 and the General Aviation area.

The existing gas supply is sufficient to service the existing and future development within the Terminals & Business Precinct and the Airport East Precinct. Adelaide Airport will work with the APA Group to investigate extending natural gas infrastructure to service other precincts should the demand for gas supply to these areas arise.

11.9. Easements

There are several existing easements over the airport site which are shown in Figure 11-6. In any proposal for future development on airport land, AAL will act consistently with the obligations or interests that exist with service providers.





LEGEND

	Airport Boundary		Airport Car Parks
	Freehold Land		Parks, Forests and Reserves
	Runways		Watercourses
	Taxiways/Aprons		Arterial Roads
	Buildings		Local Roads
	Airport Terminal		

EASEMENTS

	Keswick Brown Hill Creek		Sewer
	SA Water		Electrical
	Recycled Water		Gas
	Council Drainage		Right of Way

Figure 11-6: Existing Easements on the Airport Site