

Summary Report
October 2010

SA Water's Long Term Plan for Yorke Peninsula

(including the Upper Paskeville, Warooka
and Lower Paskeville water supply systems)



Government of
South Australia



SA Water

WATER  **GOOD**

Forward

SA Water's long term plans provide a proactive approach to planning the strategic direction for augmenting SA Water's assets with particular reference to ensuring infrastructure and resources have capacity to meet customer requirements into the future.

SA Water's Long Term Plan for Yorke Peninsula considers the potable water supply within the areas defined by SA Water's existing Upper Paskeville, Warooka and Lower Paskeville water supply systems over a study period of 30 years (i.e. 2007/08 – 2037-38).

An outcome of the plan is to guide the scheduling of capital works for the Yorke Peninsula region.

Integral to the development of SA Water's Long Term Plan for Yorke Peninsula was the level of stakeholder engagement in identifying key issues, assessing water security options and reviewing the draft version.

As part of the engagement process, an External Project Reference Group was established comprising representatives of the:

- District Council of Yorke Peninsula
- Northern and Yorke Natural Resources Management Board
- Yorke and Mid-North Regional Development Australia committee
- Murray Darling Association (region 8) and
- SA Water.

At the last meeting of the External Project Reference Group the Minister for Water tabled this final version of SA Water's Long Term Plan for Yorke Peninsula. In response, the External Project Reference Group developed the following position statement:

'The Yorke Peninsula Long Term Plan External Project Reference Group supports SA Water's Long Term Plan for Yorke Peninsula. In doing so, the Reference Group supports the recommendations of the plan, highlighting the flexibility they will provide, in particular that these recommendations will not preclude other sources of water being considered in the future (i.e. desalination). For the recommendations of the plan to be implemented successfully, the Reference Group recognise that funding must be made available.'

'The Reference Group acknowledges the importance of the annual review process as it will accommodate any future changes to demand projection scenarios and available / suitable water sources. The annual review will therefore ensure that the plan remains valid, up to date and a 'living document'. The Reference Group emphasises the importance of continued stakeholder involvement in the annual review process.'

The views of other stakeholders are captured in SA Water's Long Term Plan for Yorke Peninsula – Community Response Report.

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Glossary

Dry allotments	Parcels of land without a connection to the potable water supply system.
Potable water	Water which is suitable for drinking as per the Australian Drinking Water Guidelines.
Prescription	Prescription of water resources establishes a water allocation and licensing system by which a resource can be protected from overuse. It also ensures that water users are not adversely affected by others.
Prescribed resource	A water resource that its use is controlled via a water allocation plan. Users of a prescribed resource are licensed to use a specified volume of water per annum.

Acronyms

GL	Gigalitre (1 GL = 1 000 000 000 L)
GL/a	Gigalitres per year
KL	Kilolitre (1 KL = 1 000 L)
km	Kilometre
L	Litre
L/s	Litres per second
m	Meter
ML	Megalitre (1 ML = 1 000 000 L)
ML/a	megalitres per year
mg/L	Milligrams per litre
NRM	Natural Resources Management
SA Water	South Australian Water Corporation

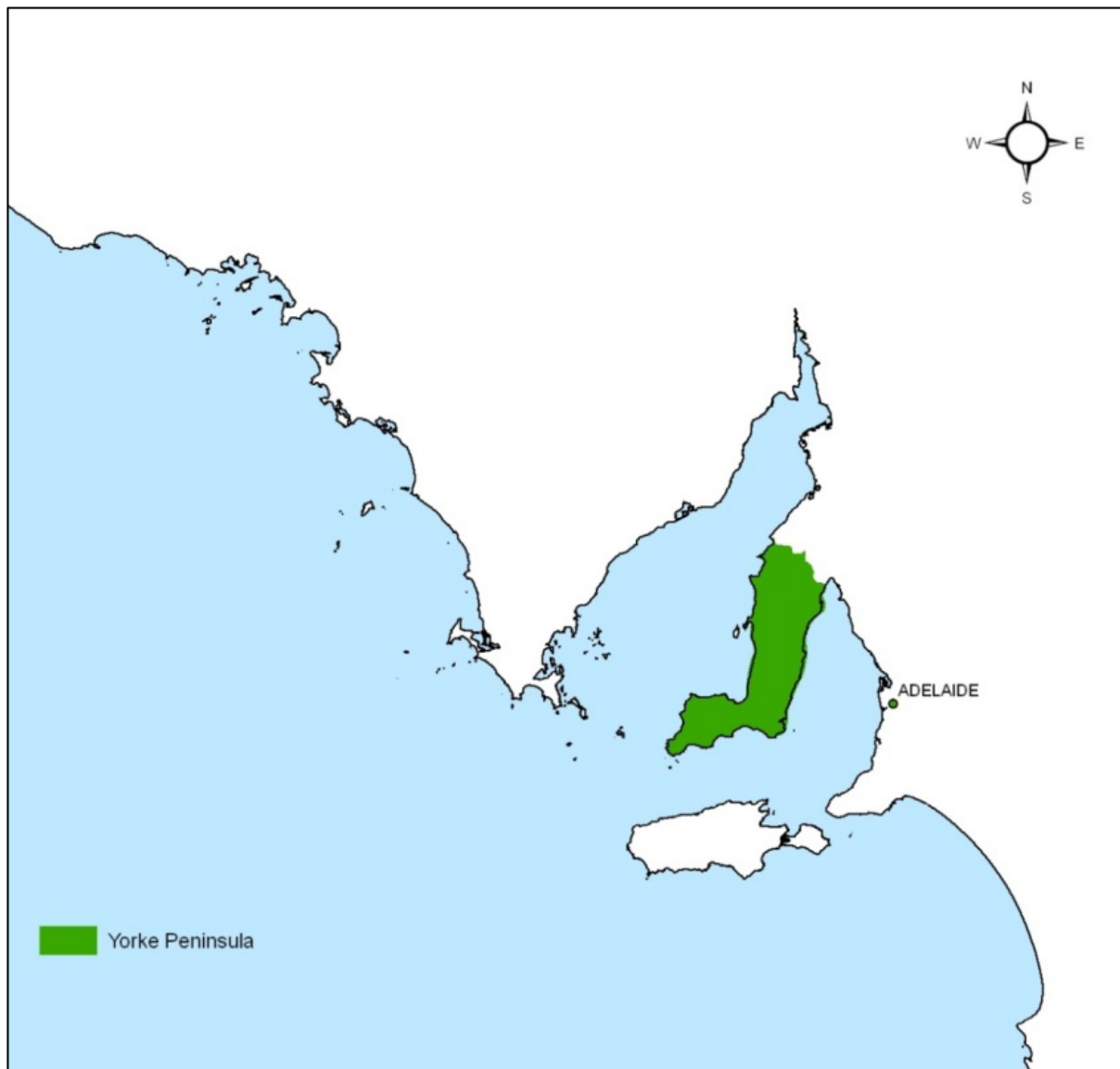
SA Water's long term planning

The South Australian Government is committed to sustainable water resources for the State's regions and undertakes long term planning to ensure water supplies can meet demand for the future.

SA Water's Long Term Plan for Yorke Peninsula considers the current and projected potable water demand and supply, the state of water resources from which the potable supply is drawn and options for the future to ensure demand can be met for the next 30 years.

This is a summary of the long term plan.

History of water supply to the Yorke Peninsula



Summary Figure 1 Yorke Peninsula region – based on the long term plan study area

Regional snapshot

The economic prosperity of the Yorke Peninsula region has been – and continues to be – largely dependent on agricultural production and mining potential. However, the region is also a popular tourist destination. The South Australian Tourism Commission reports that in 2007 a total of 435,000 people visited the Yorke Peninsula region staying one or more nights. And, that a further 644,000 day trip visits were made to the region.

The Yorke Peninsula population has been slowly increasing at a rate of approximately 1.6% per annum over the past 10 years. Based on the Australian Bureau of Statistics 2006 Census the total estimated residential population for the Yorke Peninsula region – based on the District Councils of the Copper Coast and Yorke Peninsula – is 23,469.

Census data shows the Yorke Peninsula region has a high portion of unoccupied dwellings, which are likely to be used by holiday makers and seasonal workers. It is estimated that in some coastal areas within the region 40% or more of housing is made up of holiday homes.

Reticulated water

Beetaloo and Bundaleer reservoirs, completed in 1890 and 1903 respectively, were used to provide the first reticulated water supply to areas of the mid north and upper Yorke Peninsula, including the Copper Coast townships of Kadina, Moonta and Wallaroo. At this time the Copper Coast was a significant source of economic prosperity for South Australia due to copper mining.

In 1925 the Warren trunk main was constructed to bring water into the Yorke Peninsula region from the Warren reservoir located near Williamstown in the Mount Lofty Ranges. The reticulated water supply then reached as far south as Ardrossan.

The limited supply capacity of the Beetaloo and Bundaleer reservoirs and the increased demand from industry and agriculture led to construction of the Morgan Whyalla pipelines, which pump water from Morgan on the River Murray west to Whyalla. The first of the two pipelines was completed in 1944.

In the late 1940s the then Engineering and Water Supply Department (now SA Water) began investigating expansion of the reticulated water supply system to supply the greater part of the Yorke Peninsula. During the 1950s and 1960s the Yorke Peninsula water supply system was constructed.

After the reticulated system was established a large proportion of the water was used by property owners for livestock.

The Yorke Peninsula water supply system included the construction of the Bundaleer trunk main that extended south to the Upper Paskeville storage and supplied the Peninsula with a combination of River Murray and reservoir water.

The system extended further through the centre of the Peninsula to Yorketown and Edithburgh, with several auxiliary branches extending east and west to service farmlands and coastal areas along the way. This alignment met the needs of the primary land use of the time and the system did not extend west to Warooka as it was decided there were adequate groundwater resources to supply to this part of the region.

During the mid 1950s the Warooka water supply system was established. This discrete system sourced water from bores located in the Para Wurlie groundwater basin, approximately 20 kilometres west of Warooka, and supplied farmlands and townships between the bores and Warooka.

The Swan Reach Stockwell pipeline was completed in 1969. This connected in with the Warren trunk main providing additional River Murray water to the region.

In 1970 the second Morgan Whyalla pipeline was constructed, providing even greater capacity to supply the mid-north of the state.

At about this time the region's popularity as a tourist destination started to grow, leading to an increase in housing development and an associated demand for more water for human consumption and household use. In more recent years the coastal areas of the region have seen the greatest increase in housing numbers as well as an expansion of caravan parks and holiday accommodation.

Farming practices have since evolved to more continuous cropping and less livestock and, as such, water use for agriculture has also changed.

Improved drinking water quality to the northern areas was achieved with the commissioning of the Morgan Water Filtration Plant in 1986 with supply via the Morgan Whyalla pipelines.

The Beetaloo and Bundaleer reservoirs continued to be used to supplement the water supply to areas serviced by the Morgan Whyalla pipelines until 1997 when off-takes ceased due to SA Water's commitment to higher standards of drinking water quality. These reservoirs remain as contingency storages and part of SA Water's State Disaster and Emergency Management Plan.

By 2002 in-ground, lined and covered storages had been constructed at Upper Paskeville and Lower Paskeville to replace open storages and improve water quality.

Other recent water supply system changes have seen improvements in coastal towns, including the construction of in-ground, lined and covered town storages at Port Vincent and Stansbury.

Due to the increasing demand for water in coastal areas and the historical configuration of the water supply system there are existing constraints within the water supply system.

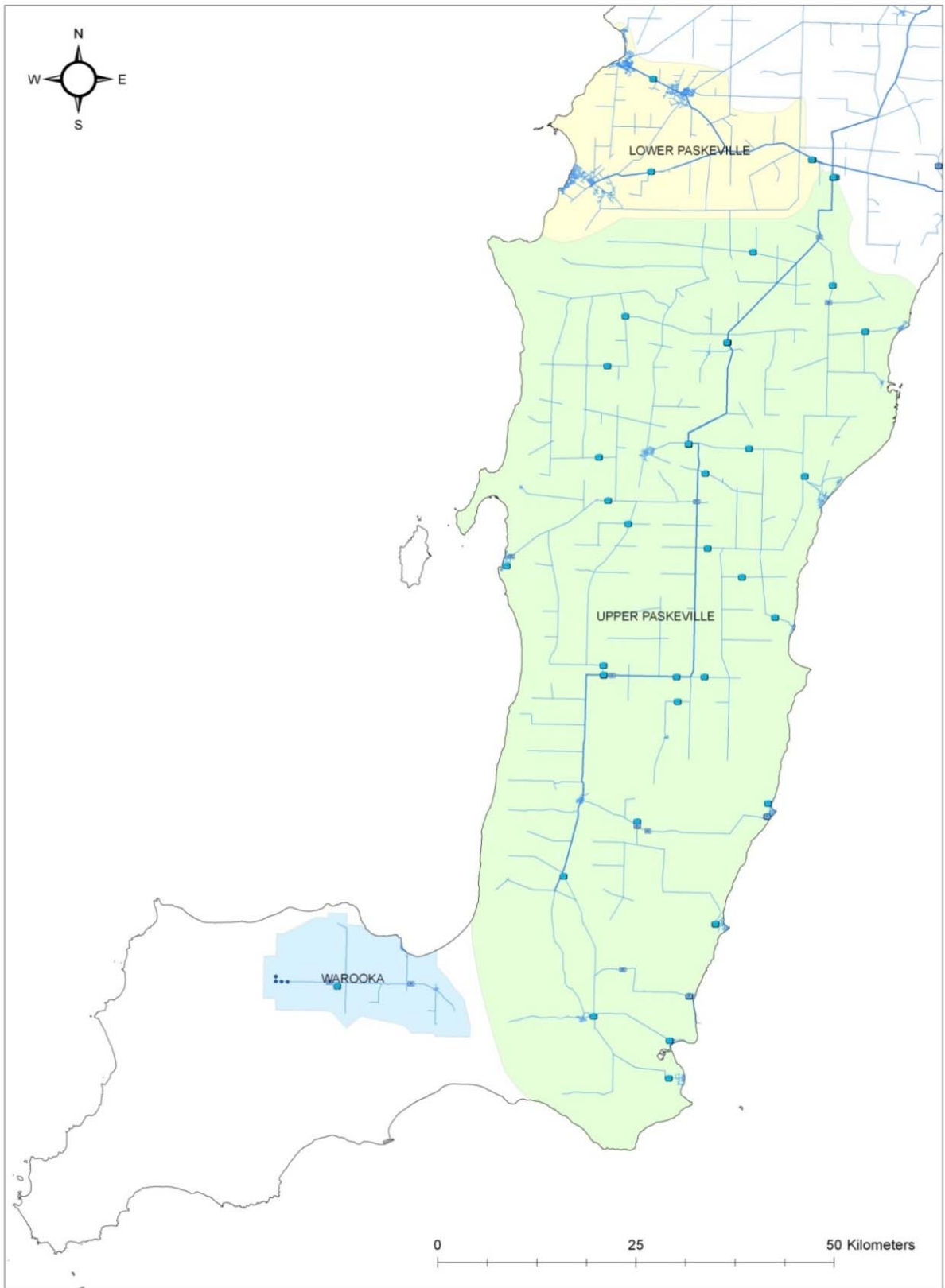
In addition to the SA Water reticulated water supply network there are several towns serviced by privately operated water supply schemes. These schemes have historically been set up by the local council or resident's groups in coastal areas and predominantly source their water through the SA Water system.

Current SA Water potable water supply systems

Water supply on the Yorke Peninsula is sourced from two resources: the River Murray and the Para Wurlie groundwater basin.

The current SA Water potable water supply to the Yorke Peninsula region consists of three water supply systems:

- The Upper Paskeville system provides River Murray water to the majority of the region south from Paskeville;
- The Warooka system supplies water from the Para Wurlie groundwater basin to the townships of Warooka and Point Turton and surrounding farmlands;
- The Lower Paskeville system supplies River Murray water to the Copper Coast area including the townships of Kadina, Moonta and Wallaroo.



Summary Figure 2 Water supply system location map

South Australia's water security plan

Water for Good

In June 2009 the South Australian Government released *Water for Good*, the State's plan to secure water supplies for our future.

Water for Good details policies and actions to secure sustainable water supplies for South Australia to 2050, taking into consideration population growth and the impacts of climate variations. One of the key action outcomes of *Water for Good* is to 'ensure regional water demand and supply plans are in place for all regions throughout the State'.

These regional water demand and supply plans will be developed to secure adaptable, efficient and enduring water supply and management options to support economic prosperity, population growth and an enhanced quality of life for all South Australians.

The regional water demand and supply plans will build on other water planning processes and consider all water resources within a region. The Department for Water will develop these plans with support from key organisations including:

- SA Water
- Department of Water, Land and Biodiversity Conservation
- Environment Protection Authority
- Natural Resources Management Boards
- Local council

SA Water's long term plans will form a part of the overall water security planning process. The Department for Water aims to complement existing plans and, in the case of SA Water's long term plans, will do this by introducing new strategies to address those issues not within the scope of SA Water's infrastructure planning process.

Strategies to provide a secure water future may include the diversification of water supplies to include more non-potable water usage through the capture and use of stormwater and rainwater and recycling of wastewater.

Within the Yorke Peninsula region non-potable schemes are generally run by local council or the community.

Water for Good also includes various measures to improve the way our communities and businesses use water, building on current initiatives such as permanent water conservation measures, the Business Water Saver Program, building regulations and rebates for water efficient devices. Further information on *Water for Good* is available at: www.waterforgood.sa.gov.au.

Long term planning

Scope

SA Water's Long Term Plan for Yorke Peninsula considers the potable water supply within the area defined by the Upper Paskeville, Warooka and Lower Paskeville water supply systems over a study period of 30 years (2007-08 to 2037-38).

The plan focuses on the townships and areas currently serviced by SA Water infrastructure. Townships and settlement areas not connected to the SA Water potable supply system are discussed in the context of possible future demand scenarios, system augmentation and SA Water's approach to mains extension. Reference is also made to non-potable schemes.

Embedded within the long term planning process is a review which allows SA Water to ensure that assumptions made during the plan's development remain valid and applicable. It is the intention of SA Water to review major assumptions annually and to undertake a complete review of the plan every five years.

The plan will guide the scheduling of capital works for the Yorke Peninsula region.

In line with current policy, any extension of SA Water's existing potable water supply systems or system upgrades required to accommodate development will be subject to SA Water's commercial policies.

Stakeholder engagement

Integral to the development of the plan was the level of involvement from external stakeholders, in particular the community, in identifying issues and ideas regarding water security and infrastructure development across the region.

In the initial stages of the community engagement all property owners and / or residents on Yorke Peninsula were given the opportunity to contribute to the planning process via written feedback. Feedback forms were received from 630 property owners, raising a number of issues including stormwater harvesting, water for development, infrastructure augmentation and private water harvesting schemes (rainwater tanks). Six community information sessions were subsequently held to canvas issues and seek feedback on various infrastructure options relative to the planning process. Forums were held in Yorketown, Minlaton, Maitland, Kadina and Adelaide (two sessions).

To support the community engagement process and ensure contribution from local council and other key stakeholders an External Project Reference Group was established.

The External Project Reference Group, chaired by Mr Robert Schulze, former Mayor of the District Council of Yorke Peninsula, comprised members from:

- District Council of Yorke Peninsula
- Murray Darling Association (Region 8)
- Northern and Yorke Natural Resources Management Board
- SA Water
- Yorke and Mid-North Regional Development Australia Committee

As the infrastructure issues for the two local council areas within the plan study area differed, it was considered appropriate to establish separate arrangements for each. Meetings were therefore held with relevant council staff from the District Council of the Copper Coast independent of the External Project Reference Group as required throughout the development of the plan.

In addition, SA Water engaged relevant government agencies, mining companies and other stakeholders as required to ensure future demand scenarios could be adequately developed and key issues relating to the potable water supply were suitably addressed.

The process of stakeholder engagement included a final stage in which the External Project Reference Group, District Council of the Copper Coast and the broader community were provided with the opportunity to review and comment on SA Water's Draft Long Term Plan for Yorke Peninsula.

Community feedback

Of the issues raised, the subject of desalination was referred to in over 100 feedback forms, was discussed at length in all community information sessions, and referred to in several written submissions regarding the draft plan. Interestingly, opinions were divided as to whether desalination should be seriously considered for Yorke Peninsula.

About half of the feedback forms which mentioned desalination were in favour of using it to supply Yorke Peninsula. The majority of these respondents however, expressed the view that should desalination be considered as an alternative source of supply for Yorke Peninsula environmental impacts must be assessed and well managed. Many suggested they were in favour of desalination only if solar and wind power were used and if the waste saline concentrate was not discharged to the ocean but rather reused to commercially harvest salt.

The remaining half of feedback forms were against or unsure about the use of desalination to supply Yorke Peninsula. The main reasons for this opinion were the perceived potential for environmental damage to gulf waters regardless of what management measures were put in place, the impact on the fishing industry, high energy use and high cost.

These opinions were restated in the community information forums in the second stage of the engagement process.

Many participants in the community information forums were, however, in favour of an alternative supply such as desalination to be considered as an option beyond 30 years for the whole of the lower Yorke Peninsula (including the Warooka water supply system). The community suggested that in their opinion a location south of Edithburgh would be an appropriate place for a desalination plant both in terms of environmental sustainability and operability of the existing network.

Water demand

Historical demand

Historical SA Water annual data for the period 1996-97 to 2007-08 indicates there has been growth in the number of customer connections for each of the water supply systems.

In spite of this growth in customer connections the data shows indications of a downwards trend in demand in recent years. Although it is difficult to assess, it is assumed that this trend has arisen as a consequence of changing community attitudes to water management and conservation. The impact of drought and the introduction of water restrictions have contributed to an increase in sustainable water management practices across the State. Local stormwater harvesting and wastewater recycling projects have been substantially progressed by the local councils and property owners continue to install rainwater tanks all of which contribute to a reduction in demand on the potable water supply system.

This historical data is used within the plan to calculate the demand per connection.

Projected demands

The plan includes – for each of the SA Water potable water supply system supplies – three future demand projection scenarios for the 30 years to 2037-38.

In preparing these projections an analysis of the connections within each water supply system was first undertaken. Future growth in connections has been projected by:

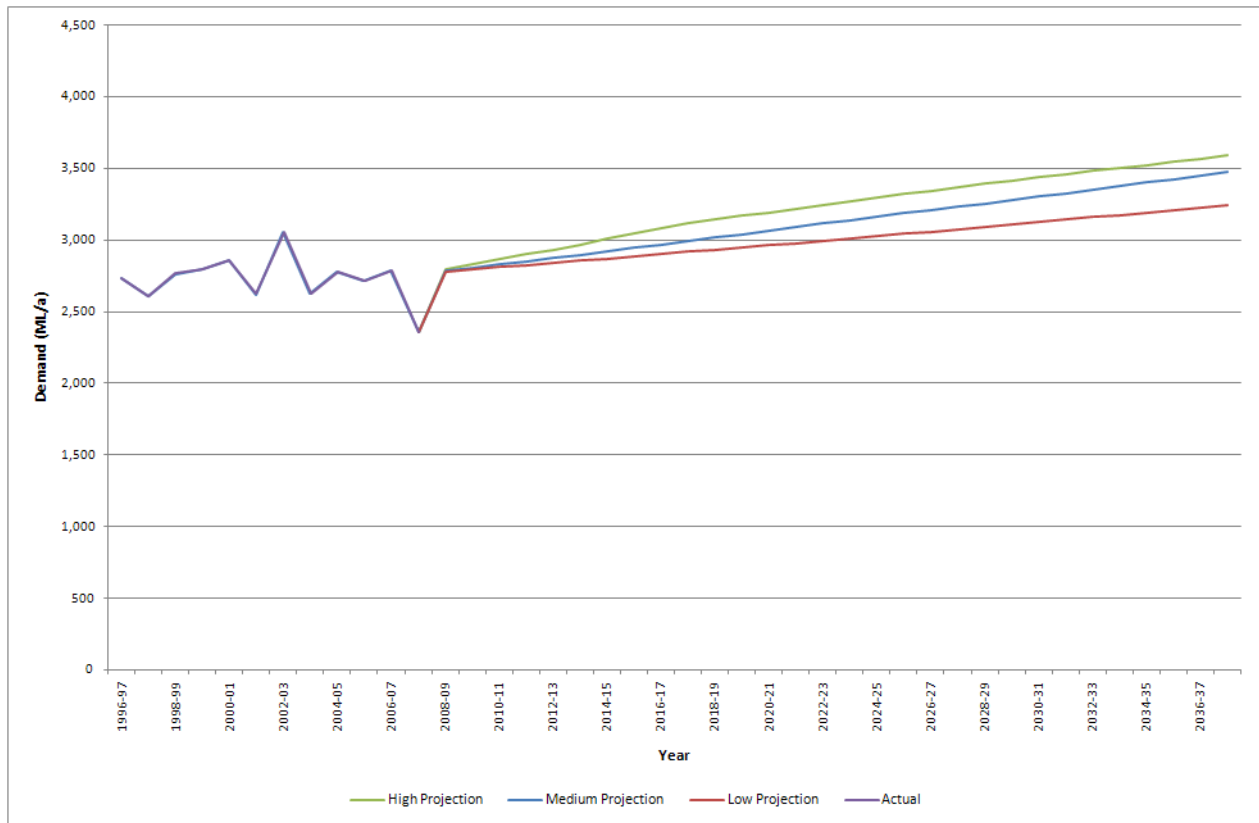
- Assuming the increase in township connections has to date corresponded with population growth
- Applying historical connections growth rates
- Estimating connections based on allowable allotment size and current / potential land zoning

Using the future connection projections and demand per connection, future demand projections were prepared.

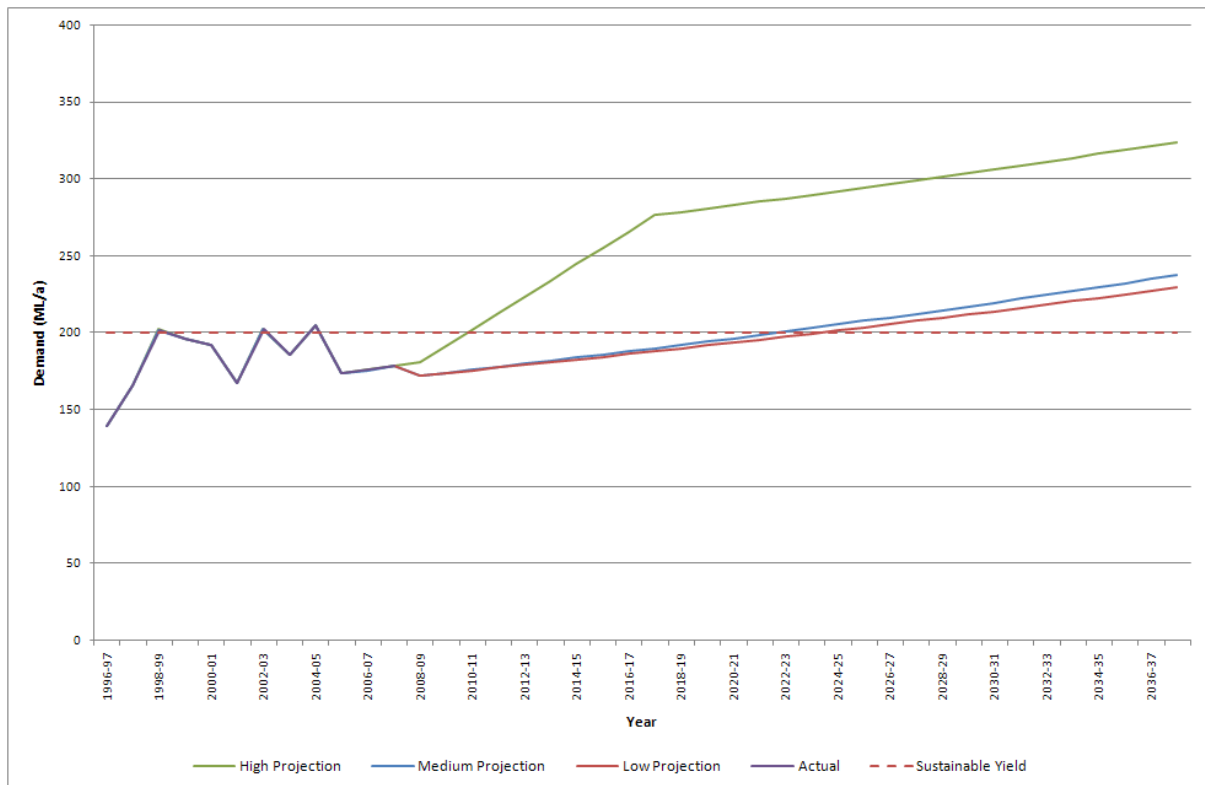
The future connections projections and demand projections are based on information and data collected during 2008/09 and are current as at this time. Any changes in information and data since that time will be incorporated as part of the long term planning annual review.

The projection scenarios within the long term plan are:

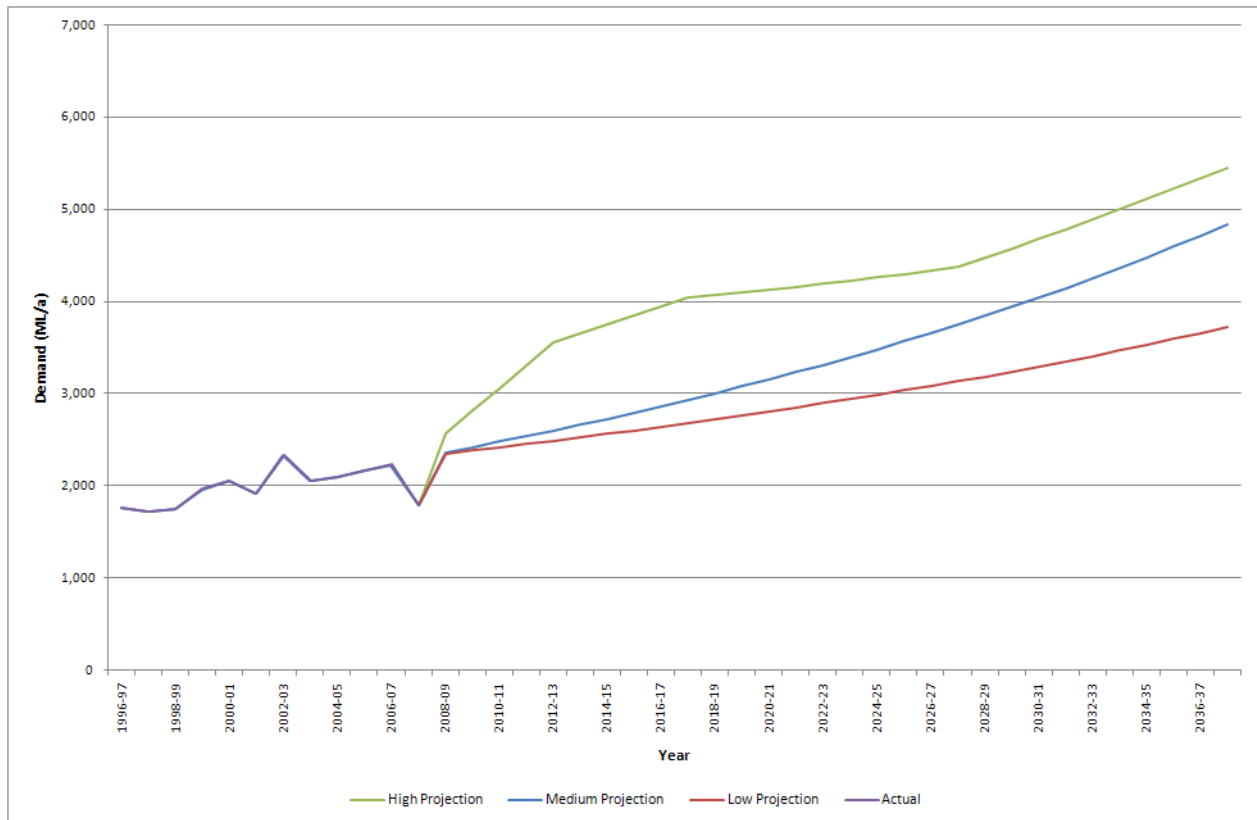
- Low projection: this is based on the Planning SA document titled 'Population Projections for South Australia (2001-31) and the State's Statistical Divisions (2001- 21)'
- Medium projection: this is based on historical trends in customer connections
- High projection: this is based on advice provided by the District Council of Yorke Peninsula and the District Council of the Copper Coast regarding development in their respective council areas



Summary Figure 3 Upper Paskeville water supply system projected demand



Summary Figure 4 Warooka water supply system projected demand



Summary Figure 5 Lower Paskeville water supply system projected demand

The effect of climate on demand

As rainfall decreases and temperature and evaporation generally increase it is expected there will also be an increase in demand for water.

The CSIRO has recently completed several assessments of possible future temperature, rainfall and evaporation projections under different CO₂ emission scenarios. Using these scenarios, an analysis of population, tourism and climatic variables against demands between 1998-99 and 2007-08 was undertaken.

This analysis indicated that climate variability could potentially increase the overall Yorke Peninsula demand by approximately 13% by 2030 and 30% by 2070.

The annual review embedded in the long term planning process will ensure SA Water are able to monitor demand and adjust any project milestones accordingly.

SA Water’s approach to water supply for mining

SA Water’s long term planning for its water systems is undertaken on the basis that mining companies will source their own water for mining extraction and operations. In preparing long term demand projections, allowance is made for associated demands that may be related to prospective and existing mining ventures (for example growth in residential demand as a result of mining ventures, noting that residential growth may be expansive and spread across a region).

Notwithstanding, mining companies may wish to explore commercial opportunities with SA Water. In such cases, SA Water is prepared to consider individual applications and assess their requirements with

respect to capacity and availability of SA Water's water resource and supply infrastructure. Any supply provided by SA Water would be dependent on (and not limited to):

- SA Water's ability to maintain suitable supply to existing customers (including allowing for reasonable growth in this customer base, as identified through the long term planning process)
- The capacity and availability of SA Water's water resource and supply infrastructure
- The conditions and legislative requirements of licences issued to SA Water which allow provision of a public water supply
- Specific arrangements with SA Water for cost recovery of any augmentation to the resource or supply infrastructure required to meet demand requirements from a mining venture.

SA Water is also prepared to consider partnering proposals with mining companies on new resource development opportunities.

Water sources

River Murray

SA Water is licensed to extract water from the River Murray.

SA Water's existing country licence allocation from the River Murray is 50 GL/a. However, recent drought conditions have restricted this allocation to 31 GL/a in 2008-09.

Unrestricted, SA Water's existing metropolitan licence allocation from the River Murray is 650 GL over a rolling five year period. This rolling licence allows for high (greater than 200 GL/a) and low (less than 100 GL/a) extraction years without any constraint on an annual basis. However as a consequence of the recent drought conditions this licence has been restricted to an annual extraction such that the allocation was 150 GL/a in 2008-09.

The *Water for Good* plan (page 52) suggests that 'although Adelaide will reduce reliance on the River Murray through additional diverse supplies [including the metropolitan Adelaide desalination plant], the State will still need its entitlement for River Murray water to:

- Supply growing country townships;
- Control river salinity and water quality;
- Provide a more secure supply to irrigators;
- Ensure a healthy riverine environment all the way to the Mouth.'

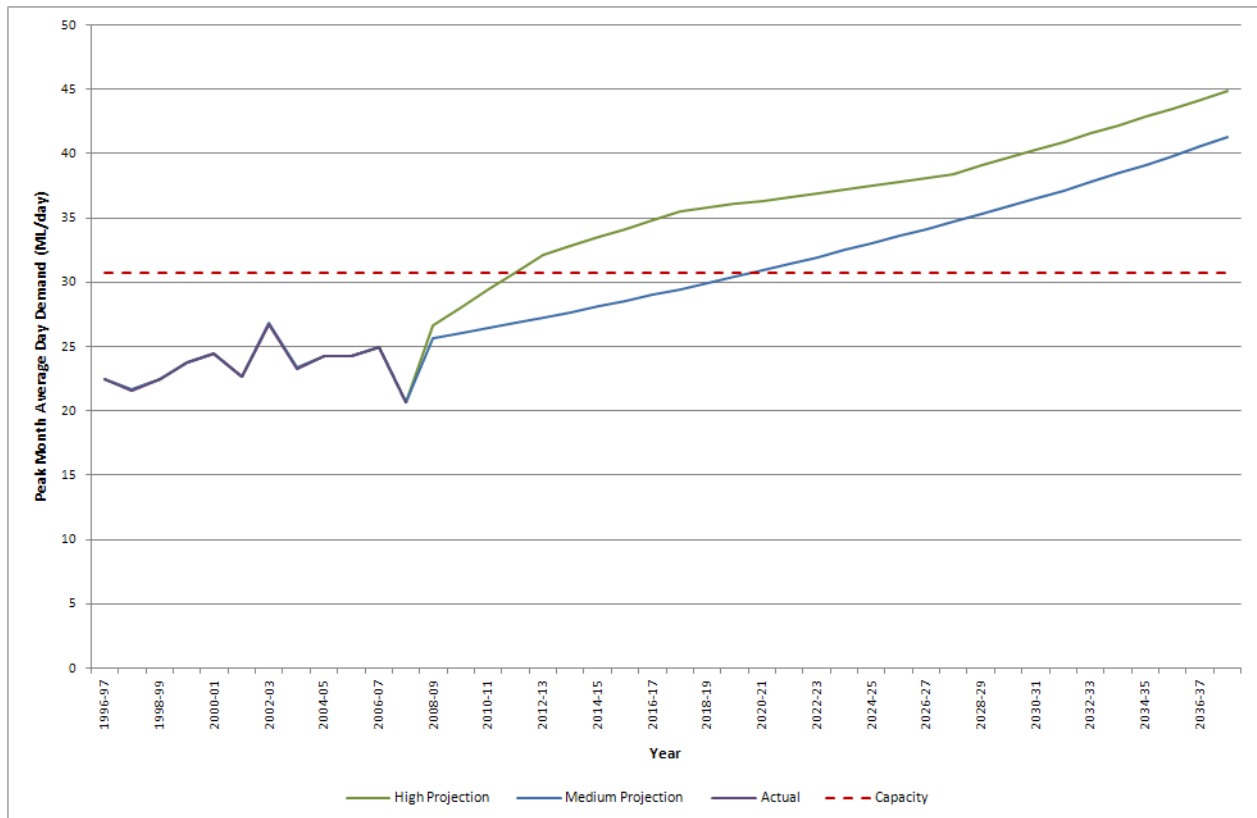
The plan is on the basis that, given the diversification of supplies State-wide, supply of River Murray water to the Yorke Peninsula region will continue in the medium to longer term, subject to ongoing monitoring and review of the River Murray system. The ability to provide this supply is therefore dependent on the infrastructure capacity of the Warren and Bundaleer trunk mains and the junction of these at Paskeville.

Should the annual review process indicate that an alternative source is required, desalination is an option that could be investigated. However, based on current assumptions a desalination plant for Yorke Peninsula would not be required within the 30 year timeframe of this plan.

Warren – Bundaleer junction

A combination of instantaneous flow and storage capacity has been used to estimate the capacity of the Warren – Bundaleer junction during peak periods.

The analysis of capacity against future demand projections suggests that augmentation of the Warren – Bundaleer junction will be required in approximately 2011-12 based on the high projection and 2020-21 based on the medium projection.



Summary Figure 6 Capacity of the Warren – Bundaleer junction

Groundwater

The Para Wurlie groundwater basin is not a prescribed resource. However, the *Northern and Yorke Regional NRM Plan* does list it as a priority area for protection.

Considering previous work undertaken by SA Water, the plan is on the basis that the sustainable yield from the Para Wurlie groundwater basin is 200 ML/a. This is therefore also taken to be the Warooka water supply system capacity.

The quality of groundwater extracted from the Para Wurlie groundwater basin is generally good, with salinity ranging between 500 mg/L and 750 mg/L. The Australian Drinking Water Guidelines recommend that based on taste, water with a total dissolved solids content of up to 1000 mg/L is acceptable.

Prior to the implementation of water restrictions, historical data demonstrates a demand of approximately 200 ML/a which is at the limit of what can be sustainably extracted from the resource. While water restrictions have reduced this demand, future demand projections show that extractions will likely exceed the sustainable yield again as early as 2010-11. (Refer Summary Figure 4)

Given this, it is apparent that an alternative source – or additional demand management – is required for the Warooka water supply system in the near future.

Previously SA Water has considered connection to the Carribie groundwater basin as a supplementary future source of water for the Warooka water supply system.

SA Water is committed to the sustainable use of groundwater sources and as such any extractions from either the Carribie or Para Wurlie groundwater basins would need to be capped at the sustainable limits of each basin.

SA Water recognises the need for ongoing monitoring of the region's groundwater resources to better understand their capabilities for water supply. SA Water will continue to work in partnership with the Northern and Yorke Natural Resources Management Board on projects to better define and manage these resources.

SA Water considers that a more sustainable option would be to connect the Warooka water supply system to the Upper Paskeville water supply system and therefore source water for this region from a combination of groundwater and River Murray water. This would enable SA Water to maintain extraction from the Para Wurlie groundwater basin within sustainable yields.

Connection of these water supply systems would also invite greater system flexibility.

Proposed Upper Paskeville and Warooka water supply systems connection

The plan proposes to connect the Warooka water supply system to the Upper Paskeville water supply system, with a detailed investigation recommended to be undertaken during 2010/11.

The connection of these systems would enable greater system flexibility, but would also enable development and could enable the potential expansion of the water supply system into the currently unserved areas of Point Turton ('dry' area) and Point Souttar (refer *Townships currently not serviced by SA Water* section). Expansion of the water supply system into these currently unserved areas would require more than two thirds of property owners (who could be serviced) to be in favour of the proposal including the requirement to pay a capital contribution.

It is noted within the plan that any augmentation to SA Water's water supply systems to accommodate future projected growth and development would be undertaken on a commercial basis. However, it is likely that the proposed connection between Upper Paskeville and Warooka will benefit existing SA Water customers, allow for enhanced operational flexibility for SA Water, allow for future growth and development in Warooka and Point Turton and potentially allow for the connection of dry lots (subject to the conditions discussed further in the *Townships currently not serviced by SA Water* section). To this end the funding model applied to this scheme is likely to be complex and will take into account all of these factors to ensure that costs are equitably and fairly apportioned between beneficiaries (including SA Water, property owners and developers where appropriate).

Water supply network

Proposed Upper Paskeville and Warooka water supply systems augmentation

The plan proposes to augment these water supply systems by increasing pipeline, pumping and storage capacities throughout as required dependant on regional development and demand for water. This approach would allow for staging of infrastructure works.

It is noted within the plan that any augmentation to, or extension of, SA Water's water supply systems to accommodate future projected growth and development would be undertaken on a commercial basis.

Proposed Lower Paskeville water supply system augmentation

In 2004 SA Water completed a master planning investigation for the Copper Coast region of Yorke Peninsula. The outcome of the master plan was the implementation of a staged augmentation charge program for new developments.

Due to the rapid growth and several significant major developments occurring within the Copper Coast region, SA Water initiated a review in 2008 of the augmentation charge program.

The revised master plan growth forecast notionally tracks in-line with the medium future connections projection prepared as part of this plan. As such it is assumed that the works included in the scope of the augmentation charge will sufficiently accommodate future growth for the Lower Paskeville water supply system.

Works included in the augmentation charge include increasing pipeline, pumping and storage capacities.

Townships currently not serviced by SA Water

The community engagement process identified opposing views with regard to the connection of existing settlement areas not serviced by SA Water's water supply systems.

Some property owners who participated in the community information sessions strongly advocated for connection, while others, having already invested in their own infrastructure, were opposed to any connection to a SA Water water supply system. While the intent of the plan is not to provide an immediate potable supply to these areas, it considers potential future demands and strategy recommendations for how to further pursue possible connection.

There are 22 identified existing settlements, townships and shack sites on Yorke Peninsula which are outside of the current SA Water potable water supply system supply areas.

Through the initial stages of the community engagement process, feedback directly relating to these townships was collated. Feedback typically either requested or rejected connection to the potable water supply system, and was largely divided in all communities.

As per SA Water's procedures and standardised approach, any proposal to provide potable water to an area would need to be operationally feasible and would be subject to the following conditions:

- At least one third of land holdings to be served are developed
- More than two thirds of property owners who can be served are in favour of the proposal
- The cost of the scheme can be justified
- All property owners to be served will be required to pay a capital contribution as determined by SA Water
- SA Water has funds available to construct the work.

While the intent of the plan is not to provide an immediate potable water supply to these areas, it is the intent of the plan to consider potential future demands and strategy recommendations for how to further pursue possible connection.

As part of the long term planning process SA Water requested the District Council of Yorke Peninsula provide advice based on its local knowledge and understanding of community needs as to which unserved towns would likely meet this criteria and therefore should be included in a long term planning assessment.

The District Council of Yorke Peninsula advised SA Water that the following towns should be further investigated for possible reticulation (whether that be via a direct augmentation provided by SA Water or possibly through a Council operated water supply scheme). In no particular order the towns considered a priority for the District Council of Yorke Peninsula include:

- Bluff Beach
- Parsons Beach
- Edithburgh (north)
- James Well / Rogues Point
- Point Turton (current 'dry' area)
- Port Julia
- Port Moorowie (area not already serviced by privately operated scheme)

- Port Rickaby (area not already serviced by privately operated scheme)
- Sultana Point
- Point Souttar

These towns have been broadly investigated in the plan to provide an indication of augmentation requirements to enable connection to the potable water supply system. Further work will be required to determine the specific needs of each of these communities.

Preparation now of these scheme requirements will facilitate strategy outcomes should there be community interest in pursuing a possible connection to the SA Water potable WSS.

A sensitivity analysis of the augmentation timing for the Warren – Bundaleer junction suggests that extension of the water supply system to include one additional town (which is currently not serviced by SA Water) per year would result in augmentation of the junction being required up to two years earlier than previously projected.

Long term planning recommendations

The long term planning recommendations can be summarised into the following:

- Annual review of the long term plan
- Water source
- Water supply system augmentation

These recommendations will be used to guide the scheduling of capital works for the Yorke Peninsula region. To accommodate any immediate supply or demand shortfall, SA Water may recommend to the South Australian Government the implementation of further demand management initiatives.

An overview of the long term planning recommendations is given in Summary Table 1.

Summary Table 1 Long term planning recommendations

Recommendation	Deliverable	Timing
Annual review of long term plan		
SA Water to review the following major assumptions annually: <ul style="list-style-type: none"> – Availability of the River Murray – Historical SA Water water supply system connections and demand – Projected connections – Projected demand – Impact of climate on demand 	<p>Confirm existing trends and whether timing for implementation of recommendations proposed in the long term plan is appropriate or needs to be amended.</p> <p>Review works included in established augmentation charge areas (e.g. Copper Coast) and confirm the timing for their implementation.</p>	Annually
Water source		
Augment the Warren – Bundaleer junction	Appropriate augmentation of either / both the Warren and Bundaleer trunk mains to increase supply through the junction.	Between 2011-12 and 2020-21 (timing will be refined based on ongoing annual review of demands)
Connect the Warooka water supply system to the Upper Paskeville water supply system	<p>Manage water supply system through demand management initiatives until construction of trunk main and associated infrastructure between the Upper Paskeville and Warooka water supply systems.</p> <p>Include appropriate commercial arrangements based on an assessment of development and infrastructure requirements.</p>	<p>Demand management to system connection</p> <p>Detailed investigation of system connection 2010/11</p> <p>System connection 2010/11+ (pending outcomes of the detailed investigation)</p>
Continue to supply the Yorke Peninsula region with water sourced from the River Murray	If the annual review of major assumptions in the long term plan requires, further investigate alternative sources such as desalination.	As required based on ongoing annual review of long term plan
Water supply system augmentation		
Augment the existing water supply systems by increasing pipeline, pumping and storage capacities as required	<p>Construction of infrastructure as required.</p> <p>Include appropriate commercial arrangements based on an assessment of development and infrastructure requirements.</p>	As required based on ongoing annual review of long term plan
SA Water to work with the District Council of Yorke Peninsula to engage with interested communities regarding water schemes to currently unserved settlements.	SA Water and Council meeting(s).	2010