Coliban WATER

Annual Operating Plan 2018-19

Urban & Rural

Final (October 2018)

1300 363 200 : www.coliban.com.au

Revision schedule and deadlines

Table I: Action schedule and deadlines for submission of Annual Operating Plan (AOP).

Action	Endorsement / Approval	Due date
Assumptions	WRC for noting of assumptions	June
Interim	Water Resources Committee	24 July
Interim	Board of Coliban Water	24 August
Interim	Department Environment, Land, Water & Planning	31 August
Final	Water Resources Committee	23 October
Final	Department Environment, Land, Water & Planning	31 October
Final	Board of Coliban Water	16 November
Final	Department Environment, Land, Water & Planning	30 November

Document control

Table II: Document control.

Author	Controller
Water Resources Manager (October 2018)	Water Resources Manager (October 2018)

Revision and amendment history

Table III: Revision History

Document	Version	Revision date
Peer Review	0.1	22 May 2018
AOP 2018-19 (Interim, July 2018)	1.0	1 Aug 2018
AOP 2018-19 (Final, October 2018)	2.0	24 Oct' 2018

Proposed future amendments

Nil

Table of Contents

Context

The Annual Operating Plan (AOP) outlines the actions that Coliban Water will undertake to maintain our level of service obligations. Key inputs are the 'outlooks' from the *Annual Water Outlook 2018-19*, in particular the Climate Outlook. The latter can impact on both supply (inflows to storage) and demand.

The Annual Operating Plan (AOP) uses the outputs from the AWO as the starting point for the consequential actions and recommendations. Key inputs are the 'outlooks' from the *Annual Water Outlook 2018-19*, in particular the Climate Outlook. The latter can impact on both supply (inflows to storage) and demand.

The AOP outlines the actions that Coliban Water will undertake to maintain our level of security obligations. The two documents should be read in conjunction with each other.

The Coliban Water, Annual Operating Plan a forecast period from 1 July 2018 to 30 June 2019. The AOP outlines the operational actions operational and provides an indication of future demand.

Key Points

Our overall resource position is good despite two relatively dry years in a row and all nine supply systems will remain on PWSR with 100% allocation for rural customers (Action 3).

With the Bureau of Meteorology's long-range outlook for dry warm conditions a more cautious approach is being taken with respect to allocation trade (Action 8). While the total volume of trade is approved by the Board, surplus allocation is released in tranches after consideration by an internal Water Resources Committee. If conditions continue to deteriorate then further releases may be curtailed.

Also should dry conditions persist then the carryover volume for surplus allocation at 30 June 2019 is likely to be maximised (Action 10). This cautious approach to the climate projection is further reflected in the recommendation to raise the volumetric trigger to 50 GL from 45 GL in 2017-18 (Action 1).

While the projected raw water demand is lower than last year there is a real possibility that the actual demands may tend higher due to the forecast dry conditions and warmer temperatures (Action 9). Based on conservative demand estimates and potential inflows it is likely that the Coliban Systems will switch to Mode 2 operation (Action 2). In this mode each system sources raw water independently. In Bendigo's case this will primarily mean pumping from Lake Eppalock. Since this source is prone to poor water events over summer a proportion of surplus allocation is retain in the GMW Goulburn system over the summer.

Proposed Actions

Volumetric trigger level

The volumetric trigger that applies to our Coliban Headworks Storages (CHS) has four levels; 55 GL, 50 GL, 45 GL and 40 GL. The 45 GL trigger would be the default in an 'average' year.

In November 2017 the Board of Coliban Water agreed to set the trigger at 45 GL due to the Coliban Headworks Storages filling. For the interim AOP, all three criteria indicated that a 50 GL volumetric trigger level was warranted and the status of the criteria on 30 September 2018 confirms the original recommendation.

- The BoM current long-range climate forecast is 'dry' *(Note: Coliban Water will continue to adopt a dry outlook for operational purposes)*
- Inflow of 17.0 GL up to 30 September 2018 was only 50% of the 1 July to 30 September median of 34.1 GL, and
- The combined volume of Coliban Headworks Storages was between 80-100%.

From 1 July 2018, Coliban Water is using a revised 'current climate' baseline. This baseline uses the period July 1975 to June 2017 as a reference period to scale the historical pattern of rainfall and inflows into our storages. Based on this revised baseline the median inflow into our storages becomes 49.2 GL per annum (the volume used in the *Urban Water Strategy 2017* is slightly lower). The volume of inflow expected between July and September during a 'normal' year is 34.1 GL per annum (unchanged from the previous estimate). The latter volume is one of the criteria used in determining the volumetric trigger.

Action 1: Coliban Headworks Storages volumetric trigger level for 2018-19

July 2018 – Set the trigger at 50 GL [interim]

October 2018 – Set the trigger at 50 GL [final]

The volumetric trigger level is set as follows; when the combined volume in storage of our Coliban Headworks Storages declines to, or remains below the trigger volume the Coliban Main Channel will cease to supply Coliban Northern. All demands for the northern system will be supplied from external sources such as the GMW Campaspe System (Lake Eppalock) and/or the GMW Goulburn System (Waranga Western Channel).

Note 1: This does not preclude initiating pumping to Coliban Northern ahead of the trigger being reached in order to optimise the use of off-peak electricity and maintaining the electricity access charge as low as practicable. Both objectives are economic efficiency measures.

Note 2: Coliban Water has reset its electricity network demand access. This does not limit pumping to a nominal volume but sets the access charge for a period of 12 months based on the highest usage encountered. The level of charge remains in place even if pumping ceases.

Operational Modes (Coliban Northern and Coliban Southern only)

Once the volumetric trigger is reached, on a receding storage volume, Coliban Northern operates independently. The nature of this transition has not previously been outlined formally. Table 1 highlights the nature of the different operational modes. Mode 3 reflects the operation of the Coliban Systems if a pipeline connection is constructed between Bendigo and the Harcourt (rural) and Castlemaine (urban) networks or during low reserve levels. Mode 3 would also be in place during extended dry periods to balance any supply constraints between the Coliban Systems. This is intended to be a more reactive mode of operation.

Action 2: Operational mode for 2018-19

July 2018 – Coliban Northern and Southern likely to remain in operational Mode 2

The Coliban Main Channel (CMC) is closed for maintenance until late July 2018. Sandhurst Reservoir has been supplied from Lake Eppalock since early June. McCay Reservoir is not affected by the current works program. It may be possible to provide a 'top up' to Sandhurst Reservoir from the Coliban Headworks Storages until the 50 GL trigger comes into effect.

October 2018 – Mode 2 likely to resume sometime during summer
Based on the current volume in storage and estimated demand it is likely that Mode 2 operation will be in place sometime over the summer months. Once this occurs then Bendigo will primarily source water from Lake Eppalock.

Table 1: Outline of operational modes of the Coliban Systems.

Mode	Supply Source[1]	Demand[2]	Comments
Mode 1	~16% external ~84% CHS	Coliban Northern ~6,587 ML Coliban Southern ~34,584 ML	All consumptive demand is met from the CHS. Additional supply includes the RWF for all modes. Evaporative losses and passing flows from Lake Eppalock remain a demand on Coliban Northern. With climate change this mode of operation will be less frequent. Rural trade between north and south is mostly unrestricted.
Mode 2	~60% external ~40% CHS	Coliban Northern ~24,703 ML Coliban Southern ~16,468 ML	The Coliban Systems operate independently. In Mode 2, Bendigo's demand and the northern rural customers is derived from external sources. Over time, with the impacts of climate change, this mode of operation becomes more common. Rural allocation trade is confined within each system.

Mode 3[3]	~68% external ~32% CHS	Coliban Northern ~27,996 ML Coliban Southern ~13,174 ML	This is intended to be a reactive mode when supply may be constrained (i.e. drought). Part of the Coliban Southern demand is potentially supplied from external sources i.e. the demand is transferred to Coliban Northern. This includes Harcourt rural and potentially Castlemaine once the proposed 'southern interconnector' between Bendigo and Castlemaine is constructed. Rural allocation trade between northern and southern systems will depend on pipeline capacity. Shortfalls in Superpipe capacity can also be offset by periodic releases from the Coliban Headworks Storages to supply Coliban Northern and defer a major capital upgrade of the Superpipe.

Note 1: CHS – Coliban Headworks Storages, external sources include Lake Eppalock (GMW Campaspe) and the Waranga Western Channel (GMW Goulburn). Supply for Coliban Northern includes recycled water from the Recycled Water Factory (RWF). The percentages are indicative only and have been rounded off to the nearest 1%.

Note 2: Demand includes urban, rural, evaporative losses, passing flows and operational losses. Volumes are indicative only and will vary depending on the supply and climate experienced during any given year.

Note 3: Assumes that both Harcourt (rural) and Castlemaine (urban) can be supplied from the Coliban Northern. Also that Coliban Northern can be supplied from Coliban Southern even when the volume in storage is below the volumetric trigger.

Operational Mode 4

Coliban Water has commenced modelling of another operational mode – Mode 4. This would be the mode of operation in place when transfers of raw water from Malmsbury Reservoir to Sandhurst Reservoir were made via the lower Coliban River and then pumped from Lake Eppalock. Currently there are multi-agency discussions in place to determine the feasibility of this. The objective is to better utilise the resources of Lake Eppalock, and provide greater opportunity for environmental and cultural flows into the lower Coliban River.

Urban restrictions and rural allocations

Restrictions are imposed whenever the available supply is insufficient to meet the Permanent Water Saving Rules (PWSR) and rural demands. Currently all our systems have access to adequate raw water resources to meet estimated demand for 2018-19. The supply outlook is still positive and but demands may be higher if a dry warm spring and summer eventuate. However the reserve rules are unlikely to be breached (Drought Policy No. 1, *Urban Water Strategy 2017*). The proposed urban restriction levels in Table 2 represent the estimate of PWSR adjusted demand.

Action 3: Stage restrictions for 2018-19

July 2018 – PWSR with rural allocations at 100%
October 2018 – PWSR with rural allocations at 100%

All Coliban Water supply systems are to remain on PWSR during 2018-19 with rural allocations opening at 100%.

Assumptions:
That there are no unforeseen supply, water quality, or capacity constraints.

Table 2: Proposed urban restriction levels for the current water year, July 2018.

Coliban System	Restriction level[1]	Proposed start date	Estimated end date
Campaspe	PWSR	n/a	n/a
Coliban Northern	PWSR	n/a	n/a
Coliban Southern	PWSR	n/a	n/a
Elmore	PWSR	n/a	n/a
Goulburn	PWSR	n/a	n/a
Loddon	PWSR	n/a	n/a

Murray	PWSR	n/a	n/a
Trentham	PWSR	n/a	n/a
Wimmera	PWSR	n/a	n/a

Note 1: Permanent Water Saving Rules (PWSR) is the default 'unrestricted supply' level.

Table 3: Proposed rural allocation for the current year, July 2018.

Rural system	Allocation[1]	Start date	End date
Coliban Northern	100%	1 July 2018	30 June 2019
Coliban Southern	100%	1 July 2018	30 June 2019

Note 1: Rural allocations have not been directly linked to urban restriction stages from 2017-18.

Raw water sources - Coliban Northern

Coliban Northern has access to multiple raw water sources to meet urban and rural demands. Supply from the Coliban Headworks Storages is the primary source of raw water (Operational Mode 1) and in an average year the only source that is usually required. Climate change projections suggest that less raw water from our Coliban Headworks Storages will be available for Coliban Northern over the longer term.

Additional supplies can be accessed, as required, from the GMW Campaspe and Goulburn Systems, and recycled water (only for rural and non-potable demand). Heathcote and Tooborac are part of Coliban Northern and draw water directly from Lake Eppalock but can also be supplied from Coliban Southern and the Waranga Western Channel.

Action 4: Coliban Northern external raw water source for 2018-19

July 2018 – Allow 200 ML for Heathcote & Tooborac, and up to 22,600 ML for Bendigo
October 2018 – no change proposed
The indicative maximum volume that may be required from external sources in an average year is 10 - 15 GL with the balance to be transferred from the Coliban Headworks Storages. The preceding year has been dry and the likelihood of median inflows into storages is less than 50% due to the low rainfall in recent months. The volume does not include water that may be transferred to Ballarat on behalf of Central Highlands Water.

Assumption: That a catastrophic failure of the Coliban Main Channel or the Lake Eppalock to Sandhurst pipeline does not prevent supply to Bendigo during the period of highest demand (late spring to mid-autumn).

The indicative volumes in Table 4 provide sufficient raw water to meet the estimated demands based on the PWSR adjusted demand. In keeping with the current pumping strategy, raw water would be pumped from Lake Eppalock in preference to the Waranga Western Channel.

Table 4: Coliban Northern range of raw water volumes by source (includes Heathcote and Tooborac).

Raw water source	Indicative volumes for 2018-19 ML[1, 3]	
Coliban Headworks Storages	minimum 800 ML	maximum 22,600 ML
GMW Campaspe[2] or GMW Goulburn[2]	maximum 22,600 ML	minimum 800 ML
Total	**23,400 ML**	**23,400 ML**

Note 1: All volumes have been rounded off to the next highest 100 ML and are indicative only.

Note 2: GMW Campaspe water is sourced from Lake Eppalock. GMW Goulburn water is sourced from the Waranga Western Channel via the Colbinabbin Pump Station and Goldfields Superpipe.

Note 3: Excludes evaporation from Lake Eppalock and passing flows into the Campaspe River.

Operational constraints

Coliban Water

Operational constraints, such as equipment failures or shut-downs for scheduled maintenance can potentially impact on access to, or delivery of, water. During the current Water Plan period (2018 to 2023) maintenance works are proposed on the Coliban Main Channel. Any physical works will normally be undertaken in non-critical times, preferably late autumn/winter and be staged with adequate periods of time in between to allow for channel runs if necessary. This will minimise disruptions to channel availability.

The Harcourt rural system is now a pressurised pipeline scheme rather than an open channel. The commissioning has been completed and commenced operation during the 2016-17 irrigation season.

Goulburn-Murray Water (GMW)
Many of our towns are supplied from GMW managed infrastructure which can also be periodically shut-down for a winter maintenance period when irrigation demands are low. Generally a routine shut-down does not present an operational constraint as raw water can be drawn from the channels or service basins at a time when demands are low.

On occasion selected channels are shut-down for an extended duration or drained completely. During 2017-18 this occurred in a number of locations. The period of notice can, on occasion, be short.

- Waranga Western Channel at Rochester drained to allow works on the Campaspe Siphon.
- Cohuna Channel lowered to allow construction of a fish ladder.

Action 5: Operational constraint(s) recommendations for 2018-19

July 2018 – No changes proposed
October 2018 – No changes proposed
No recommendation is warranted given that currently there are no known operational constraints that cannot be managed during 2018-19.

Assumption:
1 That all proposed repairs to be carried out in 2018-19 on the Coliban Main Channel are completed in a timely manner. (The channel will be available to recommence normal operation in August 2018.)
2 That the Harcourt rural system continues to operate effectively during the 2018-19 irrigation season.

Storage operating rules

All our major supply system storages have established operating levels that take into account seasonal demands and operational requirements. As part of a trial to reduce evaporative losses from our Coliban Headworks Storages we progressively reduce the storage volume of Malmsbury Reservoir in order to minimise surface area and hence evaporative losses. In the event that inflows are sufficient to warrant filling Malmsbury Reservoir then this trial would be deferred or scaled back.

Action 6: Storage operations for 2018-19

July 2018 – Malmsbury Reservoir to be drawn down to 1,500 ML (if feasible)
October 2018 – No change proposed
That during 2018-19 all major Coliban Water storages continue to be operated in accordance with established storage operating rules. Barkers Creek and McCay Reservoirs to be at or just below Full Supply Level ahead of the start of the irrigation season.

Coliban Water will however seek to review the storage operating rules during 2018-19.

Pumping strategy

The proposed strategy reflects our objective of optimising pumping operations by retaining flexibility in source selection. This includes seasonal timing, use of off-peak electricity (when feasible), and ensuring that the water within the pipelines is turned over and each pump is operated periodically.

The recommended pumping rate of around 50 ML per day optimises pumping efficiency but can be varied to meet an operational constraint when necessary.

Action 7: Pumping strategy for 2018-19

July 2018 – No changes proposed (review proposed during 2018-19)
October 2018 – No change proposed

Off-peak pumping and pumping rate: Off-peak at Lake Eppalock Pump Station up to 50 ML per day and Colbinabbin Pump Station at an equivalent daily rate of 50 ML per day.

Water source: Campaspe water (Lake Eppalock) to be sourced in preference to Goulburn water (Waranga Western Channel), whenever possible, to minimise electricity costs associated with pumping.

Coliban Water will however seek to review the pumping strategy during 2018-19.

If higher daily volumes are required then the pumping period would be extended up to 24 hours per day. Note that eight hours of off-peak pumping with a single pump will only deliver about 26.4 ML per day (averaged over a whole week). On weekends off-peak electricity is available from 11:00 pm on Friday until 7:00 am on Monday.

During 2018-19 Coliban Water is unlikely to be pumping additional water on behalf of Central Highlands Water (CHW). Any volume will be dependent on CHW storage levels and demand.

Allocation and entitlement trade

In average years and full allocations Coliban Water does not require all the raw water available. Hence it actively trades on the southern inter-connected Murray Darling Basin water market. In dry years however we may be absent from the market altogether.

Action 8: Allocation and entitlement trade for 2018-19

July 2018 Recommendations
October 2018 – No changes proposed

1. **Allocation trade volume[1,2] of up to 27,402 ML i.e. the default volume of 25,600 ML plus 1,802 unsold from 2017-18.**
2. **Retain default trade volume at 25,600 ML (includes Campaspe and Loddon allocations).**
3. **Leasing of carry-over capacity up to the volume available within our allocation accounts as of 30 June 2019.**
4. **Purchase of up 361.9 ML of Murray Zone 7 LRWS subject to internal funding approval. [Funding has been approved.]**

Allocation volume will also be sourced from allocations in our Campaspe and Loddon systems, and is subject to the GMW systems receiving sufficient inflows to meet operating requirements under 'average' conditions. In most years the Campaspe and Loddon Systems have an excess of allocation compared to demand.

The Water Resources Committee will release Board approved allocation on a regular basis as the season progresses.

Default trade volume: that all of the Bulk Entitlements and HRWS receive 100% allocation.

Our Wimmera System received a 9% allocation (July 2018) but had sufficient allocation carried over from last year. The most recent allocation announcement has raised this to 40%. The currently available water is sufficient to meet demand for 2018-19 however if allocations remain low during 2019-20 then additional allocation may need to be purchased.

The only purchase of permanent entitlement proposed for 2018-19 is for the Murray system in the form of low reliability water shares. Under 'dry weather' demand the minimum allocation required is around 85%. The purchase of additional entitlement or allocation is the main option to secure the system's water security.

Pre-conditions to release of full allocation trade volume:
1 That GMW allocations reach 100%
2 No loss occurs due to 'spills'
3 Average inflows are received into the Coliban Headworks Storages and Lake Eppalock
4 Respective system demands do not exceed projections, and

5 That seasonal conditions or long-range climatic conditions do not deteriorate e.g. El Nino develops.

An amount of 10,400 ML of Goulburn allocation will initially be quarantined from trade to provide 1,000 ML for the Murray System if <100% allocation is received and the balance for Coliban Northern to allow for a change in source water should water quality deteriorate. This volume may be released for trade once it is no longer required.

Current governance framework

All trades to be conducted in accordance with the *Intangible Water Products Transactions Policy 2015*, approved by the Board of Coliban Water in December 2012 (and revised in 2015).

Default volume of allocation trade

The default volume of trade is 25,600 ML and is equivalent to the combined volume of Campaspe, Goulburn and Murray HRWS rounded off to the next lowest 100 ML, and includes at least 200 ML Campaspe BE, and 200 ML Loddon BE. This would be the minimum allocation trade in an average year assuming 100% allocation and no significant increase in demand.

Recommended maximum volume of allocation trade

The maximum volume will vary from year to year but in an average year is equivalent to the combined volume of all HRWS and LRWS, plus allocation carried over from the previous year, plus surplus allocation held against Bulk Entitlement accounts. The volume will vary depending on seasonal allocations against LRWS, the volume carried over from the previous year, and the allocation that is 'spilt' (if any) during the year.

Table 5: Recommended water trade for 2018-19 (July 2018).

GMW & GWMW System	Allocation trade[1, 3]	
	Sell (ML)	**Buy**
Campaspe (bulk entitlement)	275 ML	
Campaspe (water shares)	2,700 ML	
Goulburn (bulk entitlement)	500 ML	
Goulburn (water shares)	19,625	
Loddon (bulk entitlement)	500 ML	
Murray (bulk entitlement)	2,000 ML	
Murray (water shares)	0 ML	
Wimmera[4]	0 ML	See Note 4
Total allocation trade (maximum)	**25,600 ML**	
	Entitlement trade	
	Sell	**Buy**
Campaspe	0 ML	0 ML
Goulburn	0 ML	0 ML
Murray (LRWS)	0 ML	361.9 ML
Total entitlement trade	**0 ML**	**361.9 ML**

Note 1: Coliban Water's position in relation to trade will be reviewed periodically.

Note 2: Assumes significant inflows into Lake Eppalock and that 'average' conditions see allocations increase to 100%. Also assumes that the long-term climate forecast remains neutral and does not return to 'dry', and demand remains within estimates.

Note 3: The volume excludes allocation approved for trade in 2017-18 but carried over into 2018-19.

Note 4: Opening allocation was only 9% and has now reached 40%. The system is reliant on carryover from 2017-18. Should an El Nino form the decision not to purchase additional allocation would be reviewed.

Demand Projections

Demand projections are based on a three year rolling average. The volumes in the text box and Table 6 are used for short-term planning purposes. The demand projection is lower than 2017-18 due to the impact of low demand over the last two years.

Action 9: adjusted demand for raw water in 2018-19 estimated at 46,222 ML

A PWSR adjusted demand for raw water of 46,222 ML as the baseline demand (includes estimated losses) will be adopted. Losses include operational losses from treatment and reticulation, evaporation from storages, and passing flows from Malmsbury Reservoir and Lake Eppalock. By comparison, the PSWR forecast demand is 54,426 ML.

Assumption: That losses will remain proportional to the losses in previous years.
That the estimated savings of 1,000 ML per annum from the Harcourt rural modernisation project are realised.

Table 6: PWSR adjusted demand, by system, for raw water 2018-19.

Supply System	PWSR adjusted demand[2]
Campaspe	69 ML
Coliban Northern[1] (urban and rural)	23,049 ML
Coliban Southern[1, 4] (urban and rural)	16,203 ML
Elmore	129 ML
Goulburn[5]	1,605 ML
Loddon	374 ML
Murray	4,434 ML
Trentham	127 ML
Wimmera	233 ML
Total	**46,222 ML**

Note 1: Rural demands are supplied from their respective system; however there is some flexibility in the Coliban Northern rural system.

Note 2: Demands based on PWSR adjusted demands. Actual demands will vary from year to year based on seasonal weather conditions.

Note 3: PWSR forecast demand is based on PWSR adjusted demand plus 20% increase for urban and 50% increase in rural demand should dry weather be experienced. The forecast demand also includes operational losses and evaporation.

Note 4: Coliban Southern rural demand has been reduced by 1,000 ML from July 2016 to take into account the anticipated savings from a modernised Harcourt rural network.

Note 5: Goulburn demands are likely to be lower with the closure of the former Murray Goulburn Cooperative plant at Rochester.

Actual rural system losses are estimated to be about 30% of total raw water demand for our rural systems while urban losses are typically less than 10% of total demand, excluding evaporation from our major storages. Additional losses include evaporation from minor storages, leakage, and operational water.

'End of Year' carryover at 30 June 2019

In an average year, estimating the carryover volume at the end of June the following year relies on assumptions regarding seasonal allocations, inflows into storage and passing flows, raw water demand, weather conditions over summer (inc. evaporation), and any spill of allocations held in 'spillable water accounts'. Different considerations are taken into account depending on the prevailing climatic conditions e.g. under a dry or uncertain climate scenario a 'preferred' carryover volume is appropriate to ensure additional reserves into the following year. The volume can be revised as the season progresses and can be raised or lowered.

The groundwater systems of Elmore and Trentham are excluded as the supply of groundwater is not subjected to the same annual variations as surface water supplies.

Action 10: Carryover outlook post 30 June 2019

HRWS preferred carryover volume (Coliban Northern) – 15,000 ML (unchanged from last year)
Given the uncertainty of weather conditions throughout year and preceding dry conditions it is preferable to have a carryover volume that will provide additional reserves into 2019-20 if climatic conditions return to dry. This assumes that final seasonal allocations fall below 100% and preclude further allocation trade.

Lake Eppalock 18% Share (Coliban Northern) – 30,000 ML
Coliban Water's share of Lake Eppalock is subject to 'losses' by evaporation, passing flow requirements (as specified in our Bulk Entitlement), and gains via inflow and rainfall. All of these parameters are inherently difficult to predict. The volumes that Coliban Water may pump to Bendigo or Heathcote are easier to predict but still dependent on seasonal conditions.

Coliban Headworks Storages (Coliban Southern) – 35,000-40,000 ML (preferred minimum volume for average and dry conditions respectively)
For Coliban Southern the major storages are most likely to remain below the volumetric trigger of 50 GL at the end of June 2019. The volume assumes the 2019 autumn and early winter period remains below average with regard to rainfall and inflows.

Short-Term Actions (1 – 5 years)

Drought Preparedness Plans (DPP)

The DPPs will be progressively revised over the next five years after engagement with local government and the community to identify priority public open space assets that should be exempt from severe water restrictions during extended periods of water shortages.

Engagement with Stakeholders

The engagement with LGAs has commenced and will be on-going in the lead up to the next UWS in 2022. Engagement with Dja Dja Wurrung occurs on a monthly basis. In addition there is considerable engagement with DELWP and other agency stakeholders such as the north Central CMA.

Proposed actions for 2018-19

Urban Water Strategy (Second Iteration)
Coliban Water has continued to engage with stakeholders and customers in relation to the Urban Water Strategy (UWS). Detailed analysis on each system will commence during the latter part of 2018.

Trentham Groundwater Investigations
Additional investigations will be carried out to 'prove up' a groundwater resource adjacent to our water treatment plant. If the yields are favourable, application will be made to GMW to secure additional licence volume.

Lake Eppalock Hydroelectricity Project: 'For Country and the Environment'
Coliban Water will continue to progress the development of a business case for the construction of a hydroelectricity plant at Lake Eppalock. If the project progresses to construction the releases into the Campaspe River downstream of Lake Eppalock would be used to power the turbines. The project would allow greater utilisation of our water resources in Lake Eppalock without the penalty of high pumping costs. If constructed it would provide opportunities to deliver raw water to Bendigo via the lower Coliban Rive thus achieving an ecological and cultural benefit at minimal cost.

Further Information

Water Resource Updates for Stakeholders

We generate numerous internal and external reports for regulators, the Board of Coliban Water, and other stakeholders (internal and external). Table 7 lists the periodic resource statements that are generated.

Action 11: Communication schedule for 2018-19

We adopt the stakeholder reporting schedule outlined in Table 20 for 2018-19.

Table 7 also provides an indication of the broad scope of water related reports. Not included in the table are internal reports and reports that are primarily of a regulatory nature.

Table 7: Water resource status reports available to customers and stakeholders.

Frequency and stakeholder	Report title and comments
Daily	
Public (website storage levels)	*Reservoir Levels* – Updates rainfall compared last year and historical levels, inflows into major reservoirs along with volumes. Service basins are updated weekly.
Monthly	
Public (online newsletter)	*Water Summary Newsletter* – Covers the preceding month only. Provides a snapshot of the status of water usage and water availability on a system by system basis.
Quarterly	
Public (website)	*Seasonal Wrap Summary* – Provides a water resource status summary of the previous quarter's data. Produced at the end of winter, spring, summer and autumn.
Annual and 'as needed'	
DELWP	*Annual Report* – Provides information on water services managed by the Water Resources Group, comment on performance in meeting Level of Service obligations.
Public (website and DELWP)	AWO and AOP – Provides a review of the previous year and provides an 'outlook' to the coming year and outlines water resource related decisions.
Public (rural customers, media releases and community newsletters)	*Rural Allocation Outlook* – March (indicative) and June (declaration). Provides an indication to rural customers of what the likely allocations are going to be for the next 'water year'.
Bureau of Meteorology	*Restriction Information* – Provided on an irregular basis as part of a national database.