Guidelines for the development of urban water strategies and drought preparedness plans

Final

VICTORIA State Government | Energy, Environment and Climate Action

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

DEECA is committed to genuinely partnering with Victorian Traditional Owners and Victoria's Aboriginal community to progress their aspirations.

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Accessibility

An accessible version of this document will be available at the following link from January 2025: https://www.water.vic.gov.au/our-programs/long-term-water-resource-assessments-and-strategies/urban-water-strategies

Contents

List of tables

List of figures

Introduction

Urban Water Strategies and Drought Preparedness Plans

Water is essential for health, quality of life, industries and the economy. Water connects us to culture and tradition, and supports our natural environment. Our water resources are subject to the impacts of climate change, climate variability, extreme events and changing demographics and economy. These issues present challenges for balancing the economic, environmental, cultural and social values of water and ensuring the availability of water resources to meet future needs.

Under s. 4I of the *Water Industry Act 1994*, the Minister for Water may make and issue statements of obligations to water corporations. These statements specify the obligations of Victoria's water corporations in relation to the performance of their functions and the exercise of their powers.

The Statement of Obligations (General) (2015)[1] (SoO) requires that urban water corporations produce Urban Water Strategies (UWSs) and Drought Response Plans, and that Melbourne Water produces the Melbourne Water System Strategy (MWSS) for the region serviced by the Melbourne water supply system. The Guidelines incorporate the SoO requirements for drought response into Drought Preparedness Plans (DPPs) that cover both drought preparedness and response for each urban water supply system. The function of each of these instruments is shown in **Table 1**.

For the purposes of these guidelines, the term UWS is often used in a general manner to be inclusive of the MWSS. **Appendix D** provides additional metropolitan-specific expectations for the MWSS and the UWSs of metropolitan urban water corporations and Barwon Water.

The SoO provides for the specific timing of UWSs and MWSS to be directed by these Guidelines. The SoO requires DPPs to be reviewed at intervals of no more than 5 years or following the end water restrictions or major works that affect water supply systems. Due to the inter-dependencies between UWSs, MWSS and DPPs, these Guidelines provide for them to be reviewed concurrently.

A key distinction between UWS and DPPs is the timeframe that they focus on. UWS focus on long-term supply and demand projections, and progress actions which are permanent (or at least long-term) in nature, including pipelines, storages, pump stations, increasing entitlements, recycled water projects, or desalination. DPPs outline a plan for responding to temporary water shortage events, using temporary responses, including water restrictions, carting, re-activating a disused asset temporarily, communications campaigns, or purchase of one-time water allocations.

Table 1: Primary and secondary functions of Urban Water Strategies, Drought Preparedness Plans and the Melbourne Water System Strategy

Instrument	Primary functions	Secondary functions
Urban Water Strategy	• Document customer-agreed long-term water security Levels of Service (LoS) • Develop a 50-year outlook of bulk water supply and demand, taking into account population, climate change & variability • Identify and assess permanent/long-term supply and demand options to meet LoS – including consideration of water efficiency and Integrated Water Management (IWM) options • Consider social, environmental, cultural and economic costs/benefits of options – including partnership with Traditional Owners • Outline a plan for action, with triggers, so that options are ready, when needed	• Strategic consideration of water and wastewater treatment and transfer infrastructure, particularly where it interacts with LoS, to support holistic communication with community and government, and provide context for bulk water decisions • Transparent documentation for community and government around the extent to which water efficiency and IWM are able to fill identified gaps between bulk water supply and demand, and how IWM principles have been applied • Support urban liveability and resilience

[1] https://www.water.vic.gov.au/__data/assets/pdf_file/0015/54330/Statement-of-Obligations-General.pdf

Melbourne Water System Strategy	• An integrated long-term system view of supply and demand in the Melbourne water supply system, having regard to relevant UWSs, and providing information for the Water Security Taskforce established to support the Water Security Plan • Aggregation of permanent/long-term supply and demand options, from relevant UWSs, to determine the gap that may need to be filled by regional-scale augmentations • Document community perceptions on options for regional-scale augmentation • Outline a plan for regional-scale actions, with triggers, so that they are ready, when needed	• Strategic consideration of water and wastewater treatment and transfer infrastructure, at the regional-scale • Transparent documentation for community and government around the extent to which water efficiency and IWM are able to fill identified gaps between bulk water supply and demand, at the regional-scale • Support urban liveability and resilience
Drought Preparedness Plan	• A plan for managing temporary imbalances between supply and demand • A record of identified drought response options assessed against financial, legislative, technical, environmental and social considerations • Document response review points for any approved operational drought response measures other than restrictions, including volumes of water provided • Document response review points for staged water restrictions, as well as water savings • Document roles, responsibilities and decision-making frameworks for drought response monitoring and implementation • Document communication procedures for informing local community and DEECA in the event of drought response • Support community education, and document which priority community assets should be exempt from restrictions	• Provide additional information about how systems are operated

Structure of these guidelines into twelve sections

The structure of these guidelines is built around 12 sections, which reflects the typical flow of information in a final UWS/DPP document (see **Figure 1**), and is not intended to represent the chronological sequencing of analysis. For example, DPPs are often placed at the end of the UWS document, but chronologically this analysis is generally done early.

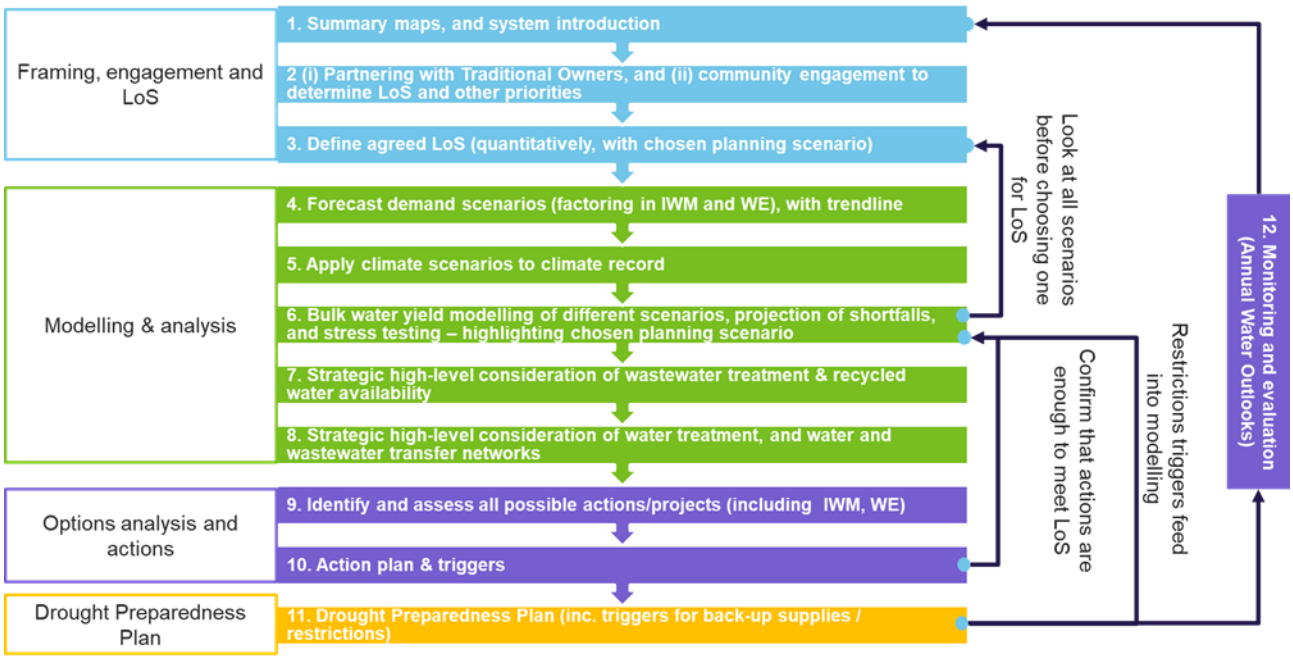

Figure 1: Structure of Urban Water Strategy Guidelines

DEECA assurance and oversight processes

DEECA is responsible for assuring, across the state, that water corporations have taken appropriate steps towards making their urban water supplies secure and resilient into the future. DEECA does this by its oversight of the development of UWSs and DPPs, and annual monitoring against these documents, which is done via Annual Water Outlooks (AWOs).

In this cycle, DEECA will focus its assurance on the Core Requirements and consolidated checklist in **Appendix A**. All other content in these guidelines, outside of these sections, is for explanation or advice.

DEECA will apply the following principles to its assurance, and to resolve risks and issues as they arise:

- Risk-proportionate – depth and frequency linked to materiality and risk
- Transparent – clear line of sight between assurance findings and actions
- Forward looking – promoting prevention, early intervention, and learning
- Continuous improvement – to meet evolving needs and changing conditions
- Adding value – focusing on improving performance, not only on compliance

Where risks or issues are identified, DEECA will proactively engage with water corporations to improve compliance with the checklist. If initial engagement at officer level does not resolve the problem, DEECA will consider options for escalating actions to achieve a timely and effective resolution. If needed, DEECA will instigate independent reviews or audits of UWS or DPP work programs or deliverables.

New attestation requirements

To assist with assurance, water corporations are expected to provide attestations regarding self-assessment against this checklist, at two stages:

1. When a draft analysis is submitted (Oct 2026), the water corporation Managing Director is expected to attest to which elements of the checklist are on track for inclusion with the completed UWS, and explanation of any elements that are unable to be provided.
2. When the full draft UWS document is submitted (Apr 2027), the water corporation Chair of the Board is expected to attest to which elements of the checklist have been successfully delivered, and explanation of any elements that were unable to be provided.

Publication of final UWS documents

All final UWS documents must be noted by the Minister for Water prior to publication. DEECA will facilitate this process and inform water corporations of when documents can be published.

Submission requirements and communication expectations

Submission timeline is shown in **Table 2**. There is a new requirement in this round of UWSs that water corporations provide an update to DEECA mid-way through the UWS development process. In addition to this, water corporations must consult with DEECA on any matter likely to be of Government interest throughout UWS development; respond in writing to written requests from DEECA; and have regard to any comments relating to an obligation or requirement. A water corporation must, if not intending to follow a guideline requirement, clearly explain in writing to DEECA the rationale for this.

Water corporations are expected to communicate with each other directly if they have cross boundary impacts or connections to manage. In the South-Central region, which covers all towns which receive water from the Melbourne Supply System, regional-scale action planning is addressed via the Water Security Plan (explored further in Section 9).

Table 2: Submission timeline

Activity	By who	Indicative date
UWS guidelines issued	DEECA	Dec 2025
WCs provide update (slide-pack on approach, status, assumptions, focus on engagement & LoS)	Water corporation	Apr 2026
Written feedback	DEECA	One month turn-around
Drafts of analysis due (slide-pack is acceptable, demonstrate that the analysis is (mostly) done, and include draft attestation signed by Managing Director)	Water corporation	Oct 2026
Written feedback	DEECA	6 weeks turn around
Full draft UWS document due (visually designed draft), and include attestation signed by Board Chair)	Water corporation	Apr 2027
Written feedback	DEECA	6 weeks turn around
Final UWS is ready for publication	Water corporation	Jul 2027
Minister for Water to note each UWS prior to publication	Minister (with DEECA facilitation)	Approx. Jul – Aug 2027

Your key contacts for these guidelines, and the mail box for submission of outputs are:
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cc: : Water.Reporting@deeca.vic.gov.au

DEECA support

To assist urban water corporations, DEECA will ensure a core team is available throughout UWS development, to provide advice on guidelines and promote consistent application across the state. This will include availability for bilateral meetings (DEECA with individual water corporations), as well as regularly holding state-wide meetings on specific topics, where water corporations are encouraged to collaborate and share knowledge/resources. This will include a session on each UWS requirement (i.e. following the structure of these guidelines).

Revised guideline content

Table 3 summarises key changes made to the UWS guidelines in this cycle.

Table 3: Summary of key changes

Issue	Changes	Reasons
Towns with a low Agreed LoS, or where Agreed LoS cannot be met	In the circumstance where a supply system is either (a) targeting a LoS below 90% of the time without restrictions, or (b) where a water corporation does not have plans to meet their Agreed LoS, additional evidence is required as justification. This evidence could relate to intervention cost divided by the number of people who would benefit.	Support statewide transparency and assurance, making it clear which parts of the state have a reduced LoS, why, the number of people impacted, and the cost involved in any potential intervention.
Selecting a "chosen planning scenario" for demand and supply	When determining whether LoS can be met long-term, and determining the action plan for future augmentation investment, water corporations use a "chosen planning scenario", with evidence for why it was chosen. Other standard UWS scenarios must be assessed as sensitivities, and action plan triggers should enable adaptiveness, but the base action plan should reflect the "chosen" scenario.	Climate and demand scenario assumptions can impact water security planning significantly, and need to be transparently documented and justified so the overall exposure to risk can be understood.
Strategic high-level consideration of water and wastewater treatment & transfer	UWS requires strategic high-level consideration of water and wastewater treatment and transfer infrastructure, particularly where they interact with LoS, to support communication with community and government, and provide context for bulk water decisions. This should give confidence that Agreed LoS can be met. *Note: maintaining critical infrastructure, asset & emergency management remain out of scope.*	Provide the UWS a more holistic narrative to support communication with community, government, and the Essential Services Commission, of future investment needs, without requiring extensive content or extensive re-work of any existing analysis.
Transparency around the role of water efficiency and IWM in achieving water security objectives	Demand projections should acknowledge the names and estimated volumes of efficiency and IWM measures already in place. Future efficiency and IWM options need to be included in option assessment. Any preferred efficiency and IWM options need to have estimated volumes included in action plans, to enable future tracking.	Support statewide reporting on progress towards water efficiency and IWM, encourage efforts without dictating uniform targets, and create consistency between water resource planning and integrated water planning efforts.
Purified Recycled Water & Stormwater options	Water corporations are encouraged to identify and assess these options, including community perceptions, as part of a technology-agnostic assessment of all options.	Sector requires technology-agnostic evidence-based to determine how these options stack-up against other options.
Consider opportunities to return water	Water corporations are to consider whether they hold any surplus or unused surface or ground water, or if any UWS supply or demand options would result in this, which would enable opportunities to return water to Traditional Owners or the environment.	The Victorian Government is committed to returning water to Traditional Owners and the environment where it can be done without compromising urban water security.
Length, reporting and assurance	Guideline length, and reporting checklist, both significantly reduced.	Simplify guideline requirements, reduce reporting burden, allowing improved assurance on a risk-targeted and streamlined checklist.
Drought Preparedness Plans	Guidance in this section has been edited towards being marginally more prescriptive, based on high performing DPPs from the previous cycle.	Recent dry weather has highlighted differences between DPPs in terms of how clear and effective they are.

Links between UWS and other required planning and reporting

Table 4 outlines the links between UWS and other required planning and reporting. Figure 2 elaborates on connections between UWS, DPPs, Pricing Submissions and Annual Water Outlooks.

Table 4: Links between UWS and other required planning and reporting

Other plan / reporting element	Links with UWS
General consistency	• Assumptions/projections around demand (inclusive of IWM and WE) and supply volumes should be consistent across UWS, corporate plans, and price submissions to the extent possible. There should be a clear explanation if these are not consistent.
Pricing submission	• Community engagement integrated across UWS and price submission where possible. • UWS should provide justification for major investments in pricing submissions. Action and timing should align (noting that ESC determination can impact on final outcomes).
IWM and water efficiency (WE) planning	• Water service planning should be integrated across the water cycle, considering relevant IWM Plans, waterways/flood strategies, and water efficiency plans. Wherever possible co-ordination is expected to enable consistent volume estimates. • UWSs should outline actions being taken to achieve policy commitments, e.g. Central and Gippsland Region Sustainable Water Strategy actions to achieve per capita water use & leakage targets, rebates, recycled water and stormwater opportunities inclusive of priority IWM initiatives identified through IWM Forums.
Operating plans	• UWS modelling should reflect how systems are operated, for example preferential use of water supply sources for water quality or cost reasons.
Annual Water Outlooks	• UWS priority actions (DEECA will work with water corporations to prepare a risk matrix to prioritise systems) should be reviewed via AWO, with progress and trigger monitoring, to determine if actions should be accelerated or delayed. • Demands actuals/trendline should be tracked against scenarios. • Drought Preparedness Plan restriction review points and zones are used in each AWO.
Water Security Plan	• WSP will be the primary means of proposing and tracking action for regional-scale, cross-boundary, major augmentations in the South-Central region (around Melbourne). • A Water Security Taskforce will consider the findings of detailed, technology-agnostic investigations into augmenting the system, and report to the Minister for Water by March 2027.Development of UWS in the South-Central region will provide vital information to support the Taskforce and investigations.

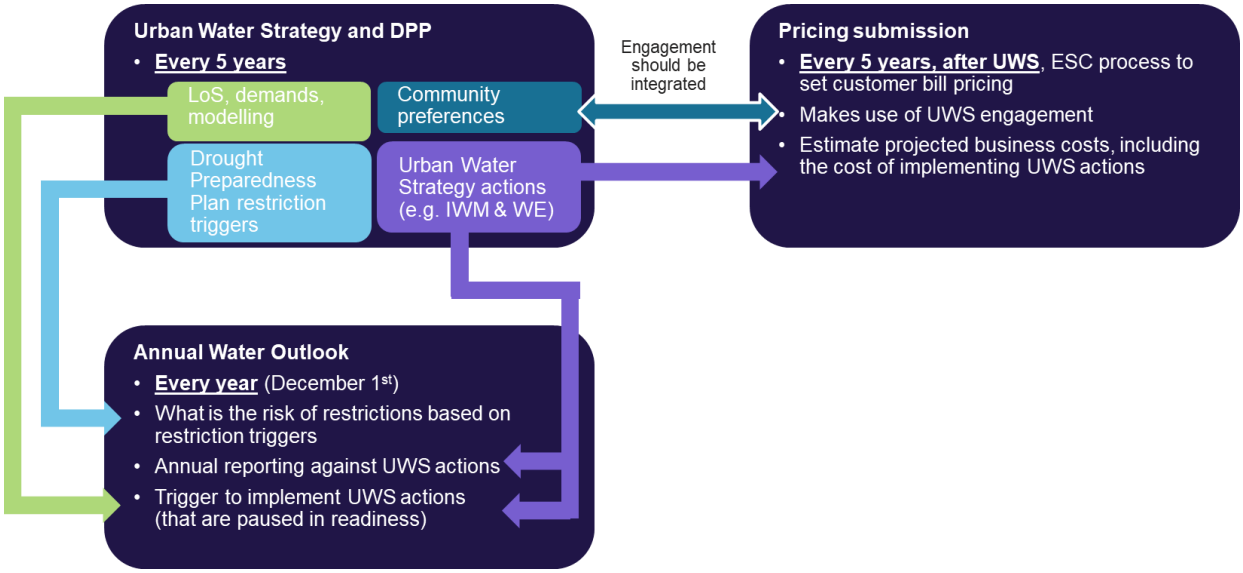

Figure 2: Links between key instruments

Principles for UWS development

The following principles have been developed to guide the delivery of UWSs by water corporations.

Table 5: Principles for the development of UWSs

Category	Principle
Community and customer engagement	1. Opportunities to build community water knowledge on the challenges and options are to be included into engagement processes.
	2. Customers must be engaged on the Levels of Service of water security, customer preferences around options, and trade-offs between cost and outcomes.
Planning approaches	3. Planning must be based on the best available information about current and future water resources incorporating specified climate change projections and local demand drivers, including population changes, environmental flow and other release obligations and where likely, future economic development and land use planning. Planning should also consider Plan Victoria (released 28/2/2025).
	4. Planning must be scenario-based, incorporating uncertainty in supply and demand, before selecting a chosen planning scenario. Sensitivity testing should be applied to uncertainties associated with key social, technical, environmental, economic and policy factors.
Options development and assessment	5. An integrated water management approach must be taken when developing and assessing options. All potential water sources and demand reduction options should be considered, as part of a technology-agnostic approach. While the UWS cannot commit to delivering an option which is contingent on significant engagement with health regulators, the UWS should consider and assess these options, as well as options that may become available due to future changes, e.g. technology, cost, policy settings or community acceptance. The UWS process can build the evidence base to understand levels of community support for these types of options.
	6. All water servicing options are to be assessed on a robust and transparent basis, examining the social, environmental, cultural and economic costs and benefits.
	7. The value of individual options to the overall supply-demand portfolio should recognise resilience characteristics (e.g. reliability, flexibility, circular economy, energy and greenhouse gas emission impacts and substitutions for potable water).
Adaptive management and readiness	8. Water corporations should implement their own adaptive management approaches, however at a minimum, key UWS actions must be monitored via AWOs each year, with triggers designed to inform decisions around accelerating or delaying these actions. The goal should be to ensure that options are ready, for when they are needed.

Urban Water Strategy requirements

Section 1: Summary maps and system introduction

DEECA's objective for this section, and the work program that it guides, is to improve community understanding of current water supply sources, sewerage systems, and alternative water systems. State and local government stakeholders also benefit from a clear articulation of these matters. Success will be judged through ability to clearly convey the context which is necessary to understand all following sections.

Table 6: Core requirements for "summary maps and system introduction"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
1A	Include an executive summary.	✓		
1B	Provide an **overview of the water supply system/s and sewerage system/s** managed by the water corporation, including: • Which towns or communities are connected. • Number & type of water/sewer connections, including non-potable. • Maps that provide regional and geographical context for the relevant systems including housing growth areas, and key supply infrastructure and sewerage infrastructure. • Include a summary of the last UWS actions/achievements, and any notable changes in context.	✓		
1C	**Describe current sources and uses of water**, including: • Describe current entitlements held by the corporation including Bulk Entitlements, Take and use licenses (section 51), water shares in declared water systems; outline water available under each entitlement, limitations on take, and historical take (minimum past 5 years). • Include a graph showing the supply mix over the past five years. Detail the use (if any) of water trading, in that mix. • Describe existing water corporation led efficiency, recycled water, stormwater and rainwater initiatives and potable water volumes saved by these initiatives (describing any council or community led IWM matters is optional).		✓	
1D	**Consider relevant policies, strategies and plans** (outlined in Appendix C), including the Water Security Plan, Water for Victoria, Sustainable Water Strategies, and anything deemed relevant from partner and stakeholder organisations. Urban Water Strategies are expected to consider this context in the formulation of options and actions, and articulate how these have been taken into account.		✓	

Section 2: Working with partners and stakeholders

Partnering with Traditional Owners

DEECA's objective for this section, and the work program that it guides, is to ensure that water corporations are meaningfully partnering with Traditional Owners on the development of UWSs and DPPs, with the nature of this partnership self-determined by Traditional Owners.

Victorian Government commitment to Traditional Owners

The Victorian Government is committed to fostering meaningful engagement and partnerships with Traditional Owners, and enabling Traditional Owners to self-determine outcomes on Country. Traditional Owners are equal partners in the management of land and natural resources and have inherent rights to care for Country. This means having the opportunity to meaningfully participate in and be involved in decision-making that affect their Country and community, in ways decided by them.

Water corporations are expected to partner with Traditional Owners to increase participation and decision-making as self-determined by them, including planning and management of water and catchments. DEECA is preparing guidelines for formal partnerships between Traditional Owners and water corporations that support the policy positions outlined in *Water is Life: Traditional Owner Access to Water Roadmap* 2022.

When partnering with Traditional Owners on UWS & DPP development, corporations are to demonstrate:

- awareness of which Traditional Owners group(s)' Country are impacted by UWS or DPP outcomes.
- how UWS and DPP outcomes align with the existing strategies developed by, or in partnership with Traditional Owners.
- what the expected opportunities and impacts are on Traditional Owners and their Country, and how their rights, responsibilities and aspirations have been considered.
- whether Traditional Owners have requested or supported work being undertaken to inform the UWS & DPP.

UWSs and DPPs should continue to contribute to the achievement of relevant actions in Water for Victoria (see Appendix B). Consistent with action 6.3, urban water corporations should look for opportunities to return water entitlements and notify Traditional Owners if opportunities to access water entitlements arise. This could occur when water corporations are implementing supply or demand options, or decide that an existing source is surplus to their requirements. Water corporations are expected to support and collaborate with Traditional Owners to identify and explore these opportunities as determined by Traditional Owners.

Other resources

DEECA's *Traditional Owner and Aboriginal Community Engagement Framework* (TOACEF) may provide water corporations with a useful model for their engagement with Traditional Owners for UWS & DPP, which could be adapted by water corporations for their own purposes. The TOACEF sets out best-practice engagement principles, a 5-step pathway to engagement and supporting Traditional Owner groups with and without formal recognition, overview of the policy and legislative context and a range of other helpful information.

The Aboriginal Water Program: water.vic.gov.au/our-programs/aboriginal-water-program, is a partnership between DEECA, Traditional Owners and Aboriginal Victorians. It focuses on managing waterways and catchments across the state, aiming to reconnect communities to water for cultural, economic, customary, and spiritual purposes. The Aboriginal Water Program and *Water is Life: Traditional Owner Access to Water Roadmap*, clarifies that water corporations may enter formal partnership agreements with any Traditional Owner group on whose Country they operate, including groups without formal recognition.

Appendix B provides additional resources intended to help inform water corporations on best practice in partnering with Traditional Owners to enable self-determination and decision-making.

Table 7: Core requirements for "Partnering with Traditional Owners"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
2A	**Include a culturally-sensitive narrative in UWS** around how the water corporation has partnered with Traditional Owners, and how this has influenced the strategy. This narrative could include meaning and importance of Country, acknowledgement of the natural and cultural landscape that came	✓		

	before the urban water supply system and the need to manage water in a way that gives weight to that legacy.	
2B	Water corporations to **provide evidence of culturally-sensitive UWS process**: • met statutory obligations to Traditional Owner groups, and any relevant commitments water corporations have previously made to Traditional Owners. For example, the Recognition and Settlement Agreements under the Traditional Owner Settlement Act 2010 (Vic) or Native Title determination under the Commonwealth Native Title Act 1993 (Cth). • enabled Traditional Owners to self-determine how they will partner or otherwise work with corporations in developing and delivering UWSs. • have considered opportunities to return river water entitlements where it can be done without impacting the Corporation's, or a connected water corporation's, urban water security, and notified Traditional Owners of opportunities to access water from within the Corporation's service area, including current or future supplies of manufactured sources of water. • partnered/engaged on areas identified by Traditional Owner groups' as being of interest to them, and how the results of this engagement have been incorporated in the UWS including how Traditional Owner Groups' formalised rights and responsibilities have been balanced in assessing options. • contributed towards the outcomes of the Water is Life Traditional Owner Access to Water Roadmap water.vic.gov.au/our-programs/aboriginal-water-program/water-is-life-roadmap and relevant actions in Water for Victoria.	✓

Engaging the community on Levels of Service (LoS) and options

*DEECA's objective for this section, and the work program that it guides, is to ensure that community and customer preferences are well understood, so that they can guide decisions around investment in supply-demand augmentations. It is essential that LoS have a clear **quantitative** justification, as they are the building block for supply-demand modelling and actions plans. Likewise, where action is needed and there are multiple possible options, it is important to have an understanding of community views on the merits of each option. Success of this work will be judged based on how well community opinions have been captured and documented quantitatively, in a manner that provides a solid foundation for latter UWS sections. For example, DEECA will be looking to see evidence such as: "X% of people surveyed, or X% of our focus group, chose option B".*

Water corporations should determine, via a tailored engagement plan, whether there are specific sub-sets of the community, collaborative forums or stakeholder organisations, that should be given specific opportunity for consultation during the UWS process. Table 8 outlines key stakeholder groups that may be relevant.

Where possible, DEECA encourages integration of engagement for the UWS and Price Submission, and believes there is a way to tailor engagement to address ESC guidance, while also addressing requirements in these guidelines. Water corporations may also draw on recent engagement undertaken for other purposes.

The DEECA **Public Engagement Framework 2021-2025 (vic.gov.au/public-engagement-framework-2021-2025) is the most up to date reference for Victorian Government positions on how engagement should be done.**

Table 8: Key stakeholder groups and how they should be engaged (noting that Traditional Owner groups are considered partners - refer to the previous section).

Stakeholder	Commentary
Water users (res & non-res)	Residential and non-residential customers are the core stakeholders for engagement on LoS and options. This can be done via surveys, representative focus groups, individual engagement for large users, or industry groups with particular interests.
Local government	Local councils are important stakeholders for: (a) alternative water supply opportunities (IWM Forums may assist with this), and (b) requirements for watering of open spaces and identification of Priority Community Assets for restrictions exemptions (see UWS Section 11)).
Recreational users	The *Water and Catchment Legislation Amendment Act 2019* ensures social and recreational values are explicitly incorporated into future regional water planning processes. The Victorian Environmental Water Holder (VEWH), water corporations and catchment management authorities (CMAs) are required to consider opportunities to provide for recreational uses and values of waterways. Water corporations should determine whether any UWS or DPP actions may have material impact on recreation, and if so, engage with the relevant user groups.
Department of Transport and Planning inclusive of Victorian Planning Authority	Water Corporations have an important role in the development of IWM Plans in collaboration with the relevant planning authority (e.g. Victorian Planning Authority, Department of Transport and Planning and Local Governments) to communicate and coordinate IWM opportunities in urban developments (infill and growth areas). IWM Plans can be developed at strategic cluster or precinct scales, and help identify UWS actions, and/or embed UWS actions into urban development, infrastructure and land use planning. The IWM Forums can support these activities.
Essential Services Commission / Department of Treasury and Finance	Corporations may seek to provide the ESC or DTF with early briefings of UWSs findings, in some circumstances. For example, if there are major investments likely to be needed urgently, early engagement would make future business cases as robust as possible, and reduce the likelihood of government agencies coming to a different conclusion about the need for action or the preferred solution.
Other Government entities	In some circumstances there may be a need to engage with other Victorian Government entities such as Environmental Protection Authority, Agriculture Victoria, Regional Development Victoria, Victorian Planning Authority, local fire Authorities or local DEECA regional offices. This should be done if different options have a materially different impact on any of these parties.
Environmental groups	In some circumstances, environmental groups may warrant direct engagement, e.g. if different options have a materially different impact on the environment.
Property development industry	In some cases, the property development industry may warrant direct engagement, e.g. in towns with significant greenfield development, where growth may have a material impact on the demand or option assessment components of an UWS.

Table 9: Key issues requiring stakeholder input

Issue	Explanation
Selecting Levels of Service and explaining trade-off between security and cost (refer UWS Section 3)	The agreed LoS must be tested with the community. Water corporations need to determine whether all systems are on a consistent LoS, or there are different LoS for each system. It is expected that LoS are set at a level that is achievable, and that they are met. Engagement should explain the chosen planning scenario, so the community can get a sense of the overall level of risk. Water security and cost trade-offs should be explained in the context of year-to-year variability, such as: *"If we take no action and we experience a repeat of a Millenium Drought, you may experience X level of restrictions for X duration, whereas if we take this action you would experience no restrictions, but this would cost $X."*

Issue	Explanation
Option identification and assessment, and the costs and benefits of taking action (refer UWS Section 9)	Community engagement must inform augmentation options analysis. Community preferences should inform the way options are shortlisted, and ultimately determined as preferred. Community should be presented with the costs and benefits (aligned with the IWM Strategic Directions Statements and in metropolitan Melbourne, Catchment Scale IWM Plans) for each option.
Drought preparedness and response (refer UWS Section 11)	Drought preparedness actions, response review points, and priority community assets/criteria, should be tested with the community (noting that other extreme events including water quality and bushfires can also trigger these actions). All water user groups should be engaged, especially where water shortages may lead to restrictions for some uses/users and not others (e.g. urban versus rural restrictions). Drought Preparedness Plans also define how water corporations will engage with customers/stakeholders in the event of actions being triggered.

Table 10: Core requirements for "engaging the community"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
2C	**Develop an Engagement Plan** to inform the UWS, including: • An understanding of who will be affected and how they should be engaged. • How the outcomes of engagement will be recorded quantitatively, and how these results will impact the UWS. For example, "X% of people surveyed, or X% of our focus group, chose option B". • How engagement for UWS will be integrated with engagement for next Price Submission. • Confirming communities will be given more than one Agreed LoS option. • The implementation approach, resources, skills and time required. • How to monitor and evaluate engagement. • How to use the process to help improve water literacy. • Systems that require augmentation in the near-term should have system specific engagement on options, most other matters can be WC-scale engagement. • Explain how the chosen planning scenario will be transparently communicated during engagement. Test how risk averse community is overall. If planning scenario is conservative, they may want to be less conservative on the LoS % years, and vice-versa.		✓	
2D	**Implement the engagement & evaluation**: in accordance with the engagement plan, focusing on: • Ensuring that community is given a choice (options to choose from) for agreed LoS (considering trade-off between security and cost) and given		✓	

	a chance to express opinions about possible supply and demand options, and drought preparedness and response. • An evaluation should seek feedback, to inform future engagement.	
2E	**Documentation of the engagement**: UWS documents need to summarise the engagement approach undertaken, quantify the findings, and demonstrate how they have influenced decisions.	✓

Section 3. Defining water security Level of Service

DEECA's objective for this section, and the work program that it guides, is to ensure that LoS are transparently documented, informed by the outcomes of community consultation. A key change in this version of the guidelines is a requirement to transparently select and define a chosen planning scenario, i.e. the specific future scenario that the water corporation is focused on, when determining if LoS will be met, and therefore when augmentation is needed. Success of this work will be judged based on how well the community consultation is used to justify the agreed LoS, and how well the chosen planning scenario is justified.

Water corporations are responsible for setting urban water security LoS based on their communities' views of trade-offs between security and cost. This is a critical factor in determining the need for action/investment. These are typically defined in terms of frequency/severity of water restrictions, experienced by community, on average over the longer-term. Additional metrics may be used, so long as these are specific, quantifiable, measurable and informed by customer engagement.

These guidelines refer to two Levels of Service. "***Agreed Levels of Service"*** can be different for each water corporation system. "***Minimum Levels of Service"*** are defined here, by DEECA, as having enough water to provide Stage 4 demand, across the historical climate data that is available for use in water resource modelling.

Relating Levels of Service (Agreed and Minimum) to a specific chosen planning scenario

UWS Sections 4-6 require the analysis of ***multiple demand and supply scenarios***. When making decisions, it is appropriate to ***consider each of the specified scenarios as sensitivities***, in accordance with adaptive planning.

However, as the LoS is to be used to justify proposed actions, it needs to be clear which specific planning scenario is the focus of the UWS, so this can be used to determine if/when LoS are expected to fail. When LoS is expected to fail under the chosen planning scenario, the water corporation should take action to maintain the LoS.

The LoS ***Agreed and Minimum*** components must be assessed in relation to a ***specific chosen planning scenario***. E.g. if a water corporation adopted an Agreed LoS of *95% of time without any restrictions, under a medium demand and medium climate scenario, then when the medium supply line crosses below the medium demand line, this is a projected LoS failure and needs action.*

Water corporations must provide rationale for their chosen planning scenario. Some guidance on how to justify the chosen planning scenario is as follows:

- For the climate (inflows) scenario:
    - Selection could be based on an understanding of system risks. An analysis of the system would generally include an assessment of the range of future climate scenarios (see Section 5) in combination with an understanding of past catchment behaviour.
    - Statistical analysis can be a helpful tool, noting that the high variability in Victorian streamflow means that trend analyses need to be conducted over relatively long time periods, and can often not satisfy statistical significance tests. Further information on streamflow trend analysis, including example analyses for the Bureau of Meteorology's Hydrologic Reference Stations, can be found at: http://www.bom.gov.au/water/hrs/

- One example of a statistical assessment of system inflow is shown in Figure 3, giving the example of a linear trendline.

- Use demand trendlines to help select a chosen demand scenario.
- Use any other analysis or data available.

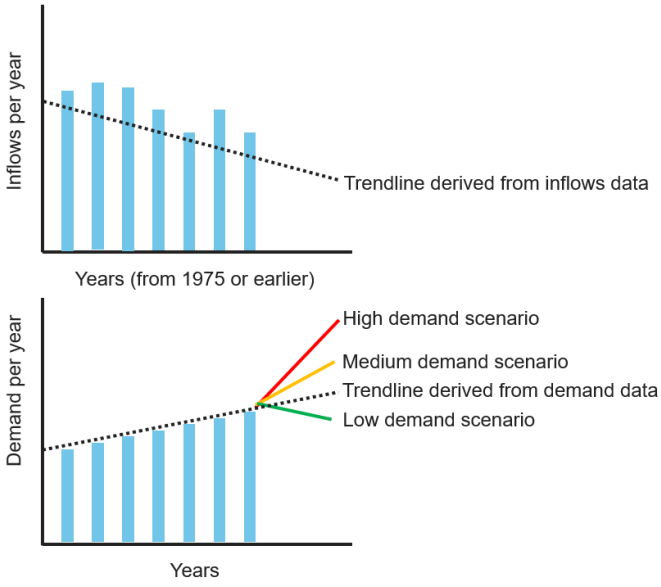

Figure 3: Indicative visual example of how to use trendlines to inform the "chosen planning scenario"

Link between water security LoS and other causes of restrictions

Restrictions can be caused by a variety of circumstances. Water resource modelling focuses primarily on the availability of bulk water in comparison to demand. The majority of restriction events in the past have also been caused by the availability of bulk water.

However, water restrictions by-laws make it clear that restrictions can also be triggered by other events including limitation of a pipeline, pump station, or treatment plant, or due to a water quality issue (e.g. bushfire). Therefore, it is conceivable that a system could have enough bulk water, but regularly experience restrictions as a result of these other causes.

DEECA understands these other events/causes are difficult to incorporate into water resource modelling. The expectation is that water corporations consider these other matters in parallel planning, to ensure that customers experience restrictions less often than described in LoS.

Defining Agreed LoS (providing rationale if below 90% of time without restrictions)

Setting LoS involves consideration of trade-offs, getting a balance between the cost of augmentations, and potential cost to customers of restrictions. Even low-level and infrequent restrictions can have serious impacts on economies, greenery and liveability. Each community should get a say on what they value, and what their expectations are of their water corporation related to the water security LoS. Estimating the socio-economic costs of water restrictions (quantitatively or qualitatively), can provide useful information to support community consultation, and set the Agreed LoS.

In some locations, augmenting the system to have an Agreed LoS above 90% of the time without restrictions may be beyond the community's capacity to pay, or beyond the water corporation's ability to justify. In these cases, water corporations must have response plans in place that meet customer expectations.

These guidelines include new requirements as follows: if the Agreed LoS is below 90% of time without restrictions, additional evidence is required as justification. If a water corporation proposes locations to have a LoS below 90%, the UWS should provide a rationale covering:

- history of restrictions and other service disruptions and the frequency with which these events can be reasonably expected to occur in future
- evidence that improving reliability to these disruptions is cost-prohibitive (e.g. based on the population impacted)
- alternative measures (e.g. carting) to provide essential water in the event of a severe shortage; and
- evidence of community opinion

Defining minimum 'Levels of Service'

DEECA defines the Minimum LoS as: for the available historical climate record, adjusted to the modelled planning scenarios, there is enough water to deliver: (a) Stage 4 restricted demand in urban areas; (b) essential domestic and stock and emergency water supply points to meet water carting requirements for rural customers; and (c) to operate the distribution system to deliver that water.[2]

One method of estimating Stage 4 water demands is to take the daily demand on a wet and cold winter day, and apply that across the entire year, thus excluding outdoor use for gardens, greening, pools, fountains, car washing and so on (more information in Section 11 in these guidelines).

Table 11: Core requirements for "defining water security Level of Service"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
3A	**Document the LoS and chosen planning scenario, including**: • Agreed and Minimum LoS for each system. • Agreed LoS may be described as percentage of time, or percentage of years, which are expected to be free of restrictions. Water corporations may choose to define different percentages for different levels of restrictions, but one of those metrics must be around time with no restrictions at all. • The rationale for the Agreed LoS – what were the community's views on trade-off between cost and water security, what LoS options were presented to them and what did they prefer. • Minimum LoS is defined as: for the available historical climate record, adjusted to the modelled planning scenarios, there is enough water to deliver: (a) Stage 4 restricted demand in urban areas; (b) essential domestic and stock and emergency water supply points to meet water carting requirements for rural customers; and (c) to operate the distribution system to deliver that water.	✓		

[2] *In contrast to previous iterations of guidelines: (a) the word 'always' has been removed from the Minimum LoS definition, because it is not expected that water corporations guarantee this level of supply for events which are not present in the available climate record (adjusted for climate change impacts), i.e. events that are unforeseen; and (b) reference to 'critical human water needs' has been removed to reduce definitional layering and improve clarity, while retaining substantive intent that Minimum LoS relates to ability to supply Stage 4 demand.*

	• Describe how other potential shortage events, e.g. triggered by water quality, have been considered qualitatively (if they have not been factored into modelling). • Chosen planning scenario (i.e. which supply and demand scenario is being used to inform the action plan). *Note: the other specified UWS supply and demand scenarios are to be used as sensitivities.* • The rationale for the chosen planning scenario (can be narrative-based).	
3B	**Provide evidence of a robust process to select LoS and chosen scenario**: • Analysis that was used to select the chosen planning scenario, including trendlines for inflows and demands. • If any systems have a LoS below 90% of time without restrictions, provide evidence as to why it is cost-prohibitive or technically infeasible to get above 90% (e.g. based on cost of intervention divided by population impacted). • If there are different LoS for different systems, the documentation and underlying analysis should give priority to the most significant systems by size and/or by likelihood of LoS being breached.	✓

Section 4. Water demand projections

DEECA's objective for this section, and the work program that it guides, is to ensure demand estimation is done with a robust and transparent process, and that the chosen demand scenario for planning is selected with reference to recent trends.

Population forecasts to use in demand forecasts – Victoria in Future

Victoria in Future (VIF) is the official state government projection of population and households. Projections are used by decision makers in government, business and the community to understand the growing and changing population including distribution and composition.

Water corporations are expected to use the latest VIF data that they have available when their analysis/modelling work begins. It is requested that water corporations contact the Planning & Population Insights team at the Department of Transport and Planning, one month prior to analysis/modelling beginning to confirm they have the latest update.

As no forecast is certain, and uncertainty increases over longer projection horizons and smaller geographical areas, water corporations are required to consider multiple demand scenarios. Water corporations are required to choose one demand scenario to use when determining if their LoS will be met, and to guide the UWS action plan. The chosen planning scenario should be selected with commentary on recent demand trends.

If a water corporation wishes to also use a different forecast data set as a reference, they may do so. In these cases, water corporations are expected to compare the two methods and comment on why they have more confidence in one set over the other.

New and emerging industries, including data centres

Data centre water demand over the next 10 years could represent a step change beyond what is currently planned for in both water supply and wastewater services. The frequency and scale of new data centre developments has increased significantly, with increased demand to capitalise on new and emerging opportunities for jobs and growth in Victoria and support critical services such as transport, health, defence and banking.

Based on current applications in Greater Melbourne, we expect a majority of new data centres to be large water users with annual demand profiles that potentially vary considerably. Water demand is for cooling purposes and is therefore largely weather dependent. This means that, depending on the cooling design used, the peak flow rates required can be (a) very high; (b) only required for a few days each year; and (c) required at a time that coincides with peak periods for the rest of the network.

While housing growth is built into the demand forecasts used to estimate the shortfall in the *Water Security Plan (2025)*, the full extent of potential data centre demand is not. Water corporations should engage early with data centre proponents and other potential significant water users to ensure their demand forecasts consider this emerging need and are as accurate as possible. Water corporations should work with new large industrial customers such as data centres, to supply them with recycled water, instead of drinking water, wherever feasible.

Water use factors influencing demand

Projections of demand must include consideration of usage changes, in addition to population, including domestic, industrial and commercial trends, and assumptions about water conservation. Analysis around future water demand should inform estimates of future wastewater flows. The complex array of factors that may be relevant, are shown at Figure 4.

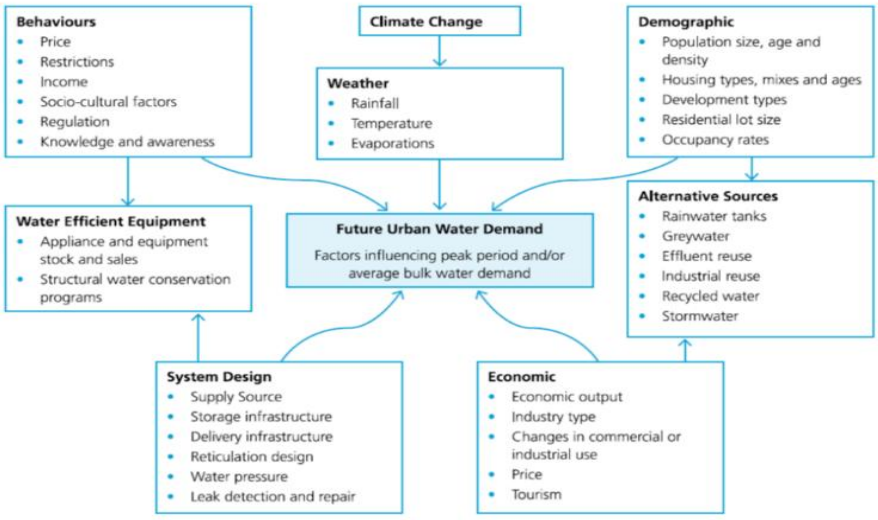

Figure 4: Typical factors affecting urban water demands, Source: Turner et al 2010

Where appropriate, projections should recognise and reflect key drivers of demand (see Table 12).

Table 12: Other key drivers of demand

Category	Element
Consumer behaviour	• Government or water corporation policy/actions around demand management • Education and attitudes towards water conservation, awareness varies over time depending on recent climate, messaging and education – if water scarcity has occurred recently there is potential for bounce-back in demand • Current and projected changes in climate & impact of pricing on demand • Availability and use of alternative sources
Climate & climate change	• Increased average and peak summer demands due to climate change • Demand projections are typically developed on the basis of 'average' weather conditions – actual demands vary depending on the rainfall and temperatures in any given year
Population, demographics & development	• Population projections, with regard to VIF & tourism / holiday populations • Changes in demographics (where relevant and data exists) • Potential new development as outlined in Regional Growth Plans, Plan Victoria, the Housing Statement (2023) and Growth Corridor Plans

Category	Element
Housing stock, fixtures & appliances	• Change in block size and housing density over time, e.g. trends towards smaller or drought-resistant gardens, or prevalence of backyard pools • Older housing stock more prone to leakage or less efficient fixtures • Building standards for new/renovated homes & uptake of efficient fixtures and appliances
Non-residential use	• Local commercial/industrial changes, including from changing economic conditions, or transition to a low-carbon economy • More irrigation of public space, to support liveability & mitigate climate change impacts (consultation with local governments, and other open space managers, is worthwhile) • Use of alternative sources such as rainwater and wastewater reuse

Approaches to projecting water demands

Some common approaches, with varying levels of sophistication, are described in Table 13.

Table 13: Common approaches to projecting water demands (note: also informs estimate of future wastewater flows)

Approach	Description
Basic litres/capita/day	Raw unadjusted historical bulk water demand and discharge is analysed and projected forwards using population projections.
Sector based	Residential demand (single and multi-residential properties), non-residential demand (commercial, industrial and institutional sub-sectors) and non-revenue water are analysed separately and projected forwards using population & sector-based projections.
End-use analysis approaches	Historical demand and discharge (predominantly in the residential sector) is analysed via a bottom-up approach that disaggregates demand into 'end-uses' e.g. washing machines, dishwashers, toilets, showers, evaporative air coolers. Each individual end-use is projected forwards based on assumptions about frequency of usage, population, demographics, changes in appliance efficiency, ownership, penetration of new stock and mix of stock over time.
Approaches for demand and discharge projecting listed above can be complemented by techniques including: • engagement with major water users (power stations, commercial, agricultural, industrial etc) • climate correction • the application of price and income elasticities • trend analysis of demographic, land use and behavioural changes (or other identified variables)	

Expectations for UWS demand forecasting

Water corporations must develop three demand scenarios to enable sensitivity testing. Water corporations are to consider all matters in Figure 4 and Table 12 when doing so. The degree of rigour and complexity underlying a demand projection should reflect the nature of the system, the customer base and the existing water balance, i.e. small systems with a high security of supply need less analysis.

IWM and water efficiency measures can reduce the demand for water from potable supplies. Existing and planned initiatives should be factored into demand projections, so that their contribution towards reducing demand is transparent. This enables the tracking of these measures over time, to give Government and communities a clear view of uptake and success. At a minimum, existing schemes should be named, along with an estimate of their impact on demand.

In most cases, the projections prepared as part of pricing submissions to the ESC and UWS should be similar, based around the same planning inputs and assumptions. Where the two are different, the reasons for the difference should be explained.

Table 14: Core requirements for "projecting water demands"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
4A	**Document key demand forecasting results** for each system including: • Chart showing population (historical 5+ years, current and projected 50 years) – if using multiple forecasts (e.g. one for each demand scenario), include these. *Note: DEECA will provide further advice on the inclusion of population charts in the public document prior to publication.* • Charts showing breakdown of water demand, including residential, public open space, small commercial, large commercial, and non-revenue water & information on the non-potable component of system demand. • Charts showing usage per person (residential) over time. • Chart showing historical (5+ years) changes in demand, with a trendline added, and also including projections of low, medium and high scenarios for future water demand: - Medium demand: best guess of future demand, factoring in best population forecast and water use per capita/business trends - Low demand: lower population/business growth, and lower water use assumptions (e.g. appliances and behaviour) - High demand: a higher population/business growth forecast, higher water use assumptions (e.g. appliances and behaviour), and/or accounting for increased demands from climate change e.g. increased outdoor water use when rainfall is low • Use the latest VIF data which is available at the time analysis/modelling begins (or other datasets can also be used if there is justification). Comparison of VIF against housing statement targets or Plan Victoria is optional. • Align with Price Submissions to the extent possible, unless justification is provided as to why this is not appropriate.	✓		
4B	**Climate-dependant demand analysis and modelling:** • If water corporations have existing climate-dependent demand models, the input climate variables should be adjusted using projected changes outlined in the Guidelines for Assessing the Impact of Climate Change on Water Availability in Victoria, including changes in temperature and evapotranspiration.			✓
4C	**Include information on existing/planned IWM & efficiency initiatives**: • List the names of existing and planned IWM and efficiency initiatives, along with the estimated potable substitution or reduction volumes (current contribution and ultimate contribution in the future). The materiality threshold for IWM options is that they are water corporation led and involve potable substitution. Inclusion of IWM initiatives for which water corporation is a collaborative partner (i.e. lead organisation is another water corporation, a local council, a Traditional Owner organisation or a Catchment Management Authority) is optional but highly desirable. • Where it is not possible to estimate volumes, e.g. if an efficiency initiative has been in place long-enough that it is difficult to determine what demand would have been without it, explain this.	✓		

	• Provide commentary on how initiatives were factored into forecasts.	
4D	**Document other demand forecasting results** for each system including: • Major industrial (or agricultural) customers serviced by the system/s. • Potential future significant consumers such as data centres, how these have been considered in demand analysis, including assumptions and timing, such as expected staged increase in demand over time. • Consultation that has occurred with non-residential users that use over 100 ML/year, to (a) discuss whether demands are likely to increase or decrease, and (b) explore opportunities for reducing potable demand. • Aboriginal values and uses of water (where appropriate & known). • Key recreational uses and assets (where appropriate). • Projections for agricultural demands e.g. from raw or recycled water. • Metro water corporations and Barwon Water are to demonstrate a material improvement in the direction of Australian and New Zealand Standard Industrial Classification (ANZSIC) for the non-residential demands to support standardised compilation of statistics.	✓
4E	**Provide additional evidence of a robust demand forecasting process**: • Documenting the approach adopted, key drivers for demand, and outlining any models or tools used, assumptions, source data, and outputs. • Document the demand estimates used to assess the Minimum Level of Service component (i.e. Stage 4 restrictions), which should be based on metered data (e.g. winter demand), or industry accepted savings.	✓

Section 5. Water supply projections (climate dependent)

DEECA has other guidelines which deal specifically with estimating future water availability under climate change. Therefore the objective of this section, and the work program that it guides, is to ensure these guidelines are followed: Guidelines for Assessing the Impact of Climate Change on Water Availability in Victoria.

As most of Victoria's water sources are climate dependent, planning for future climate variability and climate change is an important component of UWSs.

Climate variability is represented by the fluctuations in temperature, evapotranspiration, rainfall and other variables on daily, seasonal, annual and decadal time scales. It can be chaotic or cyclical in nature. Natural climate variability is a phenomenon of the earth's climate system at equilibrium under pre-industrial levels of greenhouse gas concentrations in the atmosphere.

Climate change represents a change in climate behaviour associated with an underlying shift in the earth's climate system, with the earth's climate system no longer in equilibrium.

Guidelines for Assessing the Impact of Climate Change on Water Availability in Victoria

The Guidelines for Assessing the Impact of Climate Change on Water Availability in Victoria provide critical advice on the background climate science and assessment techniques to help understand the impacts of climate change on water supplies. These are available at: water.vic.gov.au/our-programs/climate-change-and-victorias-water-sector/climate-change-water-resources/water-availability-climate-change-guidelines.

The recently updated climate change guidelines incorporate the latest science and analysis methods for undertaking water availability assessments. Further, new hydroclimate projections have been derived from the latest suite of global climate models (CMIP 6).

During the Millennium Drought (1997-2009), less catchment runoff was generated for the same amount of rainfall than before the drought in many catchments. After the drought, this change in rainfall-runoff relationship has continued in about one-third of catchments, predominantly in central and western Victoria. For catchments where the rainfall-runoff relationship has not recovered after the drought, there is an option to assess current and future water availability relative to the post-1997 rainfall-runoff relationship. This option is explained more fully in the updated climate change guidelines, and is a new approach that is expected to

replace the ‘post-1997 step climate change’ scenario used in previous guidance. It only applies in those catchments that have continued to experience a significant shift in the rainfall-runoff relationship. This new option is in addition to the standard approach of applying climate change projections to hydroclimate data representing post-1975 climate.

There is no ‘most likely’ scenario that can be specified for future climate in Victoria. Planning needs to be built around consideration of a range of plausible climate futures. The climate change guidelines discuss two emissions scenarios, representing future greenhouse gas concentrations and subsequent warming of average global temperatures. These are called socio-economic pathways (SSPs): SSP2-4.5 and SSP3-7.0. For each emissions scenario three climate projection scenarios are provided, being the 10th, 50th, and 90th percentile from the full range of projections - or the L, M, and H scenarios. These climate projections are drawn from the CMIP 6 global climate models and represent the uncertainties in how climate systems will react to increasing global temperature. Refer to the climate change guidelines for more information on the derivation of projection scenarios and advice on estimating current and future yield.

The guidelines also provide resources for assessing the impact of climate change on groundwater, drought and operational planning, alternative water projects and demand projections.

Table 15: Core requirements for “water supply projections”

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
5A	Water corporations must demonstrate that they have applied the Guidelines for Assessing the Impact of Climate Change on Water Availability In Victoria, as issued by DEECA in 2025, when undertaking water system projections.		✓	

Section 6. Bulk water yield modelling (system performance assessment)

Section 5 was focused on ensuring these parallel DEECA guidelines are followed: Guidelines for Assessing the Impact of Climate Change on Water Availability in Victoria.

This section is focused on translating this modelling work into outputs that are clear, and help water corporations make decisions about augmentation investments. Success of this work will be judged based on how clearly links can be drawn between the content of this section, the options analysis section, and the action planning section, in particular, a clear visual illustration of the supply-demand gap under the chosen supply-demand scenario. The other specified supply-demand scenarios are to be considered as sensitivities.

Water resource yield modelling scenario assessment

Estimation of system yield is influenced by factors including system infrastructure, restriction review points, assumed LoS, system operating rules, within year demand pattern or interannual variability of demand, and the period over which yield is assessed.

Water supply system yield can be defined as the average annual volume that can be supplied by a system, without violating Agreed or Minimum LoS metrics. It should be determined by factoring up demands until the LoS can marginally be met (under current and future climate conditions).

Yield will be impacted by the restriction rules/review points and should reflect the rules used in practice. These are updated in Drought Preparedness Plans (guidelines Section 11), and should be done prior to water resource yield modelling.

For future yield, estimation is also influenced by the emissions scenario (SSP) and climate model output (Low - L, Medium - M, High - H) selected. As described in Section 5, preparation of climate and streamflow data for yield modelling analysis must be consistent with the DEECA guidelines for assessing the impact of climate change on water availability.

System yield is compared against demand, to determine the need for bulk water augmentation at a given point in time. Where demand exceeds yield, under the chosen planning scenario, the UWS should find that the LoS will not be met at that time. This analysis determines the size and timing of shortfalls, and should be used in conjunction with ongoing adaptive management via Annual Water Outlook system monitoring, to determine the need to bring forward or delay augmentation.

Climate scenario selection for yield modelling

Consideration of the three climate scenarios (L, M, and H) as sensitivities helps to provide a fuller picture of the uncertainties of climate change impact on yield and shortfalls. These yield sensitivities support decisions, especially when system augmentation is required in the short to medium term, or if the consequence of action or inaction is high. In these circumstances, additional analysis, with further consideration of shorter-term climate variability, may also be required.

The starting point for a UWS is to assume that three climate scenarios (L M & H) and three demand scenarios (L M & H) are needed for every system. Noting this, these guidelines recommend a ***risk-based discretion*** approach to enable reducing the number of scenarios in some systems, according to the level of risk. This risk-based decision should factor in level of risk posed by climate change and a reduction in yield, population impacted, scale of cost involved in potential intervention, the need to provide confidence around the model outputs for decision-making, and timing of when a decision need to be made.

If a water corporation wants to reduce the number of scenarios modelled for any system, it is expected that DEECA is proactively informed of the logic, at (or prior to) the April 2026 update.

Table 16: Core requirements for "yield modelling"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
6A	**Document key yield modelling results**: • Confirm DPP restriction review points were revisited prior to yield modelling. • Include chart(s) showing if demand can be satisfied over the next 50 years, ***focusing on the chosen planning scenario described in UWS Item 3)***, without violating Levels of Service • The other specified demand and supply scenarios should be shown as sensitivities (i.e. L M and H for each), unless a rationale is provided for showing less (to DEECA at, or prior to, the April 2026 update), based on the risks for that particular system. • Clearly show the year that augmentations may be required under chosen planning scenario, and modelled sensitivity scenarios (book-end approach, earliest and latest augmentation result, is acceptable). • Consider the likelihood of LoS being breached over the next 10 years.	✓		

6B	**Provide additional evidence of a robust yield modelling process**: • Demonstrate using an appropriate water resource model such as SOURCE (see footnote for notes on REALM[3]) – noting that complex modelling is not required for very simple or highly secure systems. Systems where complex modelling has not been undertaken must be identified with clear justification provided as to why complex modelling is not required. Risk-based-discretion logic above may also be applied here. • Clearly document underlying assumptions. • Where known, the analysis should state which criterion of the Agreed LoS or Minimum LoS is the larger factor in limiting the yield.		✓	

Uniform system stress test

It is a requirement that UWS include stress testing, to provide a useful additional data point, along with yield modelling, to support augmentation decisions. This is intended to support government assurance, by having a common analysis performed across all supply systems, so that communities that are vulnerable to water shortages can be more easily identified. This can help direct further analysis to understand the needs of communities, including potential for regional scale augmentations.

Table 17: Core requirements for "stress testing"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
6C	**Document stress testing results:** • for the following stress-testing runs: - Does each water supply system have sufficient capacity to supply customers, without the need for restrictions, if the 13-year ***Millennium Drought runoff sequence occurring from January 1997 to December 2009*** was to occur again? - As above, repeat of the 13-year ***Millennium Drought***, but with the ***lowest 3 inflow years moved to the beginning*** of the sequence, then followed by the remaining 10 years - As above, a repeat of the 13-year Millennium Drought, but with the ***2 highest inflow years replaced with the lowest inflow year*** (repeated twice). • To enable comparison across systems and water corporation areas, all stress tests should use a 1 July 2025 starting storage.		✓	

3. *Victoria has transitioned to Source and progressively winded back the use of Resource Allocation Model (REALM). Consistent with this practice, no new models are developed by DEECA using REALM. DEECA will provide only basic maintenance and support for existing REALM models and software where efficient and effective base Source models do not exist that meet the needs of that system. REALM software has no longer been supported by DEECA from July 2022.*

	• With the following stress test output: if a water supply system does not have sufficient capacity – without the need for restrictions – for how many months (out of the 156-month period) would the supply system be in Stage 1, Stage 2, Stage 3 and Stage 4 restrictions? • Risk-based-discretion earlier in Section 6 may be applied to justify a simplified modelling approach, modelling of only the first listed stress testing run, or in ***very low risk systems***, a water corporation may propose to DEECA that the stress testing run be skipped. • State that the results are considered along with yield modelling results, prior to conducting option assessment and action planning.	
6D	**Additional stress testing considerations**: • If there is any evidence or knowledge that there has been a historic climatic period where the system is more vulnerable than the Millennium Drought period, water corporations may assess this other period, ***in addition to*** the Millenium Drought period. • If there are systems which are vulnerable to non-bulk water shortage related restrictions (such as restrictions related to water quality, treatment or transfer) additional stress testing may add value.	✓

Section 7. Bulk sewer treatment assessment

DEECA's objective for this section, and the work program that it guides, is to provide strategic high-level consideration of wastewater treatment to give UWSs a holistic view of water security resilience and support communication with community and government, around a range of key issues listed below. Success will be measured by UWS having a holistic narrative.

Wastewater treatment systems require adequate and timely upgrades to plant capacity accommodate flows from population growth and climate induced effects (e.g. rainfall patterns, or changes to groundwater tables), in order to:

- keep within treatment plant capacity limits (e.g. for typical dry-weather flow)
- support availability of recycled water for various users
- mitigate wet weather overflows in accordance with the General Environmental Duty[4] obligations
- manage limits on biosolid stockpiling, e.g. in relation to PFAS
- manage discharge or beneficial reuse within licence conditions, or further protect or enhance the health of inland and marine water bodies – where treated effluent may be a positive or negative impact, depending on the context, quality and timing

Water corporations are expected to provide a high-level strategic assessment of their wastewater treatment plants, comparing volume (or load) to system capacity, over a minimum of 20 years, with commentary on the above dot-points, as appropriate. Wastewater system capacity can be defined as the peak volume (or load) of sewage that can be treated and discharged, subject to current infrastructure and regulatory constraints. Wastewater flow (or load) estimates factor in water usage, inflows and infiltration, and climate change impacts.

4. *New environmental laws came into effect from 1 July 2021. They give EPA more powers and tools to prevent risks to the environment and human health. They also allow EPA to issue stronger sanctions to hold polluters to account. The general environmental duty (GED) is central to the new laws. It requires all Victorians to manage risks to human health and the environment that their activities create. See https://www.epa.vic.gov.au/about-epa/epa-is-changing*

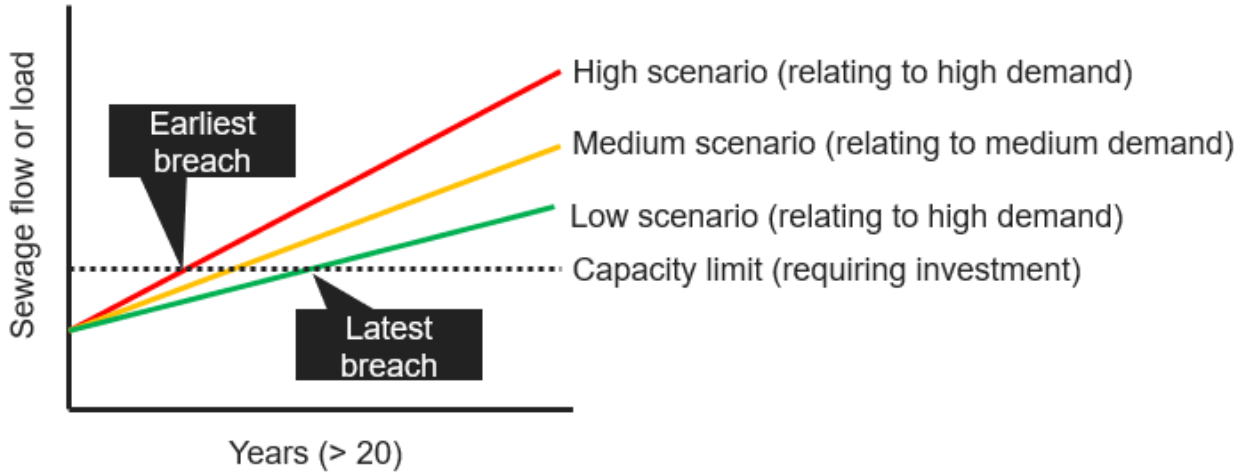

Figure 5: Example of scenario analysis for a sewerage system

Table 18: Core requirements for "bulk sewer treatment assessment"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
7A	Demonstrate if/how the Guidelines for the Adaptive Management of Wastewater Systems under Climate Change in Victoria have been considered. These: • help identify, assess, manage or adapt to priority climate change risks • focus on assessing the impacts of climate change on infrastructure design, while proposing scalable approaches that can be readily modified			✓
7B	Document key wastewater treatment planning results for each plant: • Provide introduction, including one sentence each (or equivalent in table/diagram) on: sewer catchment, plant capacity, discharge point, effluent license limits (quality, flow or load), existing recycled water schemes (names, class, uses, and volumes). • Include a chart which compares wastewater volumes (or load), against system capacity, over a minimum of 20 years into the future. Volume or load projections should be aligned (as far as possible) with the population and per person use assumptions, used in demand estimates. • Briefly discuss when, what and why investment is likely to be required, with reference to volumes (or load) scenarios, and any opportunities to use wastewater for broader benefits	✓		
7C	Provide additional evidence of a robust bulk sewer treatment assessment: • Document the adopted approach and methods – e.g. simple factoring of demand based on historical experience or a more sophisticated method including end use, inflow or infiltration studies, trade waste information, and engagement with large water users		✓	
7D	Consider a sensitivity test to account for changing conditions which may affect the ability to discharge treated wastewater to water bodies. *Note: EPA Victoria has developed Guidelines for risk assessment of wastewater discharges to*			✓

waterways (publication 1287)[5], providing guidance to practitioners conducting wastewater discharge risk assessments.

Section 8. Transfer and treatment context for options assessment

DEECA's objective for this section, and the work program that it guides, is to provide strategic high-level consideration of water treatment, water network transfer, and wastewater network transfer, to give UWSs a holistic view of water security resilience, support communication with community and government, and provide the context for options assessments. In particular, are there material treatment or transfer issues that may limit achievement of UWS LoS, options assessment or bulk water decisions?

Achieving UWS LoS depends on all relevant infrastructure working synergistically. The previous two sections covered bulk water supply assets, and bulk sewer treatment assets. This chapter focuses on the matters included in Table 19.

Table 19: Matters within scope for treatment and transfer context section

Topic	Matters within scope	Matters out of scope
Water supply treatment plants	Any major issues which could limit achievement of LoS? If yes, these should be described, including what actions are being taken. Are any issues so material to LoS achievement that they should be included in UWS action plan? If yes, include in action plan. Any major investments on the horizon? If yes, describe, linking to price submission proposals where relevant. Any matters that might advantage some bulk water options over others? If yes, these should be factored into option assessment.	All matters relating to emergency response, Critical Infrastructure legislation, or asset management are outside the scope of the UWS guidelines, and have their own guidance and legislation. The UWS guidelines are designed to exclude, as far as possible, any duplication with these topics.
Water transfer mains – that interconnect source(s), treatment works, reservoir(s) and/or supply areas, without direct consumer connections		
Trunk sewers – principal sewer of a catchment system that drains to the point of treatment		

This UWS section focuses on medium to long-term infrastructure planning only, to the extent that it has a bearing on the questions listed in Table 19, column 2. Water corporations are expected to consider each of the questions in relation to each system, using a simple process such as "yes or no" or "traffic light assessment", to determine which systems have treatment or transfer matters which should be explored further in the UWS.

[5] https://ref.epa.vic.gov.au/business-and-industry/guidelines/water-guidance/wastewater-guidance-for-industry

Table 20: Core requirements for "treatment and transfer assessment"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional

8A	Document key transfer and treatment assessment results for each system:
	• Provide a brief answer to each of the four questions listed in Table 19, column 2. Each of these should be answered in a yes/possibly/no style, or alternatively with a red/yellow/green style.
	• Where a system receives a "no" to all four questions, no further analysis or documentation is required.
	• Where a system receives a "yes" or "maybe" to any of the four questions, some further documentation is required.
	  ○ Summarise existing plans for managing the capacity/sizing of water treatment/transfer and wastewater transfer infrastructure – focus on plans, not detailed justifications
	  ○ Problem summary of capacity issues that may impact LoS, and drivers
	  ○ Investment logic/summary of plans
	  ○ Potential influence on major supply augmentation and integration with broader system planning – and acknowledgement that these are considered in option assessment section
		✓		

8B	Provide a narrative around how the water corporation is supporting housing: • How is water corporation planning or investment supporting new developments, or increasing densification • What is being done to support and manage new industries, including data centres • Confirm if water corporations are keeping pace with rapid growth, and if not, how risk is being addressed • Include at least one figure, diagram or map that supports the narrative, which can be backwards looking (e.g. recent investments), or forward looking (e.g. servicing plans that are in-progress)	✓		

Section 9. Identifying and evaluating options

DEECA's objective for this section, and the work program that it guides, is to ensure that all possible options are identified, assessed fairly and transparently, and directly inform action plans.

This section outlines the required option identification and evaluation process. It is required that water efficiency, and IWM options be considered along with conventional supply augmentations. It is also a requirement that water treatment/transfer networks assessment results be considered, and made use of, if that assessment determined they were relevant.

Figure 6 shows an example of a process that involves assessing options against criteria, then combining this information with water resource modelling to develop an action plan, then reevaluating the action plan each year as part of the Annual Water Outlook before taking action.

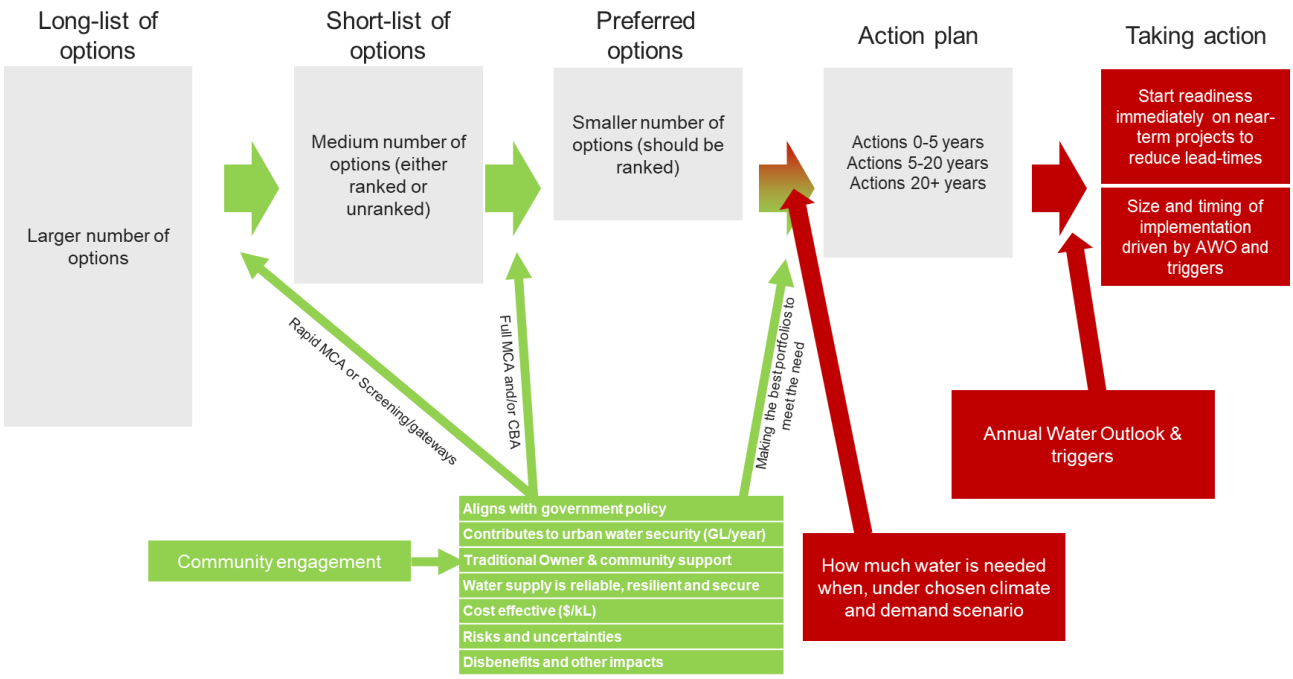

Figure 6: Example of a process for UWS option assessment, action planning, and taking action

Based on the analysis undertaken (UWS Sections 3 to 8), water corporations need to form a view on whether action is required to ensure systems meet LOS, i.e. what is the extent of the imbalance between supply and demand (focusing on the chosen planning scenario, but also considering other scenarios as sensitivities).

All preferred options should have an estimated lead-time for passing through readiness (including preliminary business case or equivalent), selection (including full business case or equivalent), and implementation (including procurement and construction).

The level of detail and effort expected in options assessment depends on:

- How soon an option may need to be implemented – if readiness, selection or implementation is needed prior to the next UWS, the option assessment should be more detailed
- How large the impacted population, and associated option costs are

Regional-scale scale options including for South-Central region (all towns connected to the Melbourne supply system)

Where a need for regional-scale, cross-boundary, multi-agency action (either for water or wastewater) is identified by water corporations, it is expected that Government take on a leadership role through regional planning processes, including the Water Security Plan and Water Security Taskforce. This does not negate the need for water corporations to follow 'Corporate planning and performance reporting requirements for Government Business Enterprises' or the Department of Treasury and Finance High-Value-High-Risk Framework for projects which are not regional-scale.

Government has a role in decisions around major augmentations in the South-Central region given there are seven urban water corporations connected to the Melbourne Supply System and it supplies about 80% of Victoria's population. The South-Central reforms initiative has been designed to make it easier for this collective planning to occur between Melbourne Water and the seven urban water corporations.

The Water Security Plan explores the best mix of options to increase the capacity of the South-Central Water Grid and progresses detailed investigations into options to sustainably grow our water supplies and build our resilience to drought and other disruptions.

To be considered regionally significant an urban water supply option must satisfy the following: (1) the option augments an interconnected water grid; (2) the option crosses regional and/or organisational boundaries; (3) planning and implementation of the option would require coordination between multiple partners and/or agencies; and (4) implementation of the option may require government investment.

The Water Security Plan will be updated annually and published alongside the Annual Water Outlook each December. Updates on progress of any investigations will be provided in these annual updates. Relevant water corporations are responsible for providing the evidence base, including assessing options, and community opinion on options, that feed into the detailed investigations and the Water Security Taskforce. This requires a coordinated approach, from DEECA and all connected water corporations, with a work program for improving knowledge and evidence base for water system decision making.

Integrated Water Management and demand management options

IWM and water efficiency schemes can create a wide variety of benefits and are important for a number of reasons. These guidelines require that both categories are considered as options. The long list must draw on the best available information from other planning processes, particularly regarding IWM and efficiency options. For example, options analysis undertaken in previous UWSs, Local Scale IWM studies or Regional Scale IWM studies should be considered.

Table 21: Examples of water efficiency and IWM initiatives

Category	Initiative
Water efficient fixtures, appliances and audits	Communications to increase awareness of/promote the WELS (Water Efficient Labelling Standards) scheme.
	Rebates, exchanges and other incentives to encourage voluntary uptake of water efficient fixtures and appliances, rainwater tanks and household grey water systems and other water saving products.
	Water Efficiency audits and retrofits. For example, providing customers in vulnerable and hardship situations with audits, leak detection and fixture and appliance upgrades through the Community Rebates and Housing Program[6].
Management plans, guidelines and benchmarking	Water sensitive urban design and development (e.g. passive irrigation), and inputs into and/or development of industry best practice guidelines/benchmarks (e.g. best practice open space irrigation).
	Water efficiency audits, management plans and retrofits for households or public open space managers and other non-residential customers. For example, encouraging large customers to participate in programs such as the non-residential water efficiency WaterSmart[7] program, which includes sporting ground audits.
Digital monitoring and high water use alerts to identify leaks and other forms of water waste	Rebates or other incentives to encourage installation of digital water monitoring. For example, supporting schools to participate in the Schools Water Efficiency Program[8] or equivalent programs and providing non-residential customers with digital monitoring, or access to a water use data viewing platforms (to view data from water corporation digital meters), via programs/platforms such as WaterSmart.
	Replacing existing mechanical meters with digital metering.
Behaviour change	Education campaigns at the macro level, e.g. Target 150/Target your Water Use, Make Every Drop Count, Smart Water Advice webpage and tools Communications that increase awareness of Permanent Water Savings Rules.

[6] *See https://www.water.vic.gov.au/our-programs/community-rebate-program for more information*

[7] *See https://www.water.vic.gov.au/our-programs/watersmart for more information*

[8] *See https://www.myswep.com.au/ for more information*

Category	Initiative
	Education and awareness campaigns at the industry, user or use level: • encouraging and supporting industry to reduce water consumption through access to digital monitoring data and education materials e.g. sponsoring schools to register to the Schools Water Efficiency Program or encouraging large customers to participate in WaterSmart • community programs that provide a greater connection to where water comes from, e.g. participation in waterway restoration projects • working with and supporting local government to promote water conservation and facilitate water sensitive urban design and development • promoting best practice water usage through external programs and building sustainability rating schemes such as the Alliance for Water Stewardship, Infrastructure Sustainability Council of Australia, Green Building Council of Australia and National Australian Built Environment Rating • new technologies engaging with water users in targeted, immersive ways (e.g. digital metering, social media, and 'gamification')
Losses from supply system (non-revenue water)	Actions to reduce leakage, pressure, theft, seepage, or evaporation
Recycled wastewater	Treating wastewater to a fit-for-purpose standard and then using it as a beneficial use.
Stormwater harvesting	Harvesting urban stormwater and treating it to a fit-for-purpose standard and then using it as a beneficial use.

Water supply options

Examples of initiatives that increase water supply or resilience are contained in Table 22.

Table 22: Initiatives that aim to increase the supply or resilience of water services

Category	Initiative
Catchment management	Catchment and waterway management activities to improve source water quality and associated yield
Additional sources	Groundwater – if there is interest, contact the relevant Minister's delegate to determine whether this option is feasible (e.g. is there water available or is there a market for trade)
	Desalinated water (sea, surface and groundwater)
	Use of alternative water (i.e. rainwater and stormwater, recycled water [treated wastewater]) on a fit-for-purpose basis, including connection to existing alternative water schemes
	Purified Recycled Water (including stormwater), should be identified and assessed in UWS option assessment, as part of a technology-agnostic option assessment
Increasing storage	Aquifer storage and recovery projects
	Additional off-stream storage to enhance harvest
	Major dams: expansion of existing or new
Trade	Trading to secure water from resources already connected to the water grid, or proposed new connections/relationships. Water corporations should consider opportunities to either buy or sell water, and how best to initiate negotiations if promising. DEECA should be consulted on these matters, including any relevant barriers (e.g. is there a market).
Operating rules and procedures	Increased uptake from surface water resources, through changes to pumping or storage rules, dams, or off-stream storages (while maintaining compliance with any entitlement matters and receiving relevant approvals to adjust arrangements for take)
Grid connections	Existing and proposed interconnections to other supply systems
	Opportunities for investments in water savings in other supply systems, which may or may not be managed by the water corporation

Narrowing long list to short list – and considering opportunities to return water

Initial options analysis should enable water corporations to identify a 'short list' of viable initiatives to be taken forward for further analysis and engagement with customers and other stakeholders.

This short-listing should consider which options may enable the return of surface or groundwater to Traditional Owners and/or to the environment via substitution or where an existing source is no longer required for urban supply. Water corporations should work with Traditional Owners to agree on a culturally appropriate way of factoring their considerations into an options assessment. If the pre-conditions for achieving this are not in place, water corporations should work with Traditional Owners on foundational partnership-building activities so that their values and priorities are better represented in the next strategy (see **Appendix B**).

Table 23 contains suggestions about language to use for categorisation of options.

Table 23: New supply options hierarchy for shortlisting

Tier	Examples of options
Options that show promise conceptually and have no systemic barriers, provided that community is supportive and business case is positive.	• water efficiency • fit-for-purpose Integrated Water Management • desalination • aquifer storage and recovery
Options that show promise conceptually but may require further effort in relation to community engagement, sector knowledge, Government policy or regulation. Worthy of further cost benefit analysis to inform discussion with Government and community.	• proposed interconnections and/or trading to access water from other inter-regional supply systems which are contrary to present trade rules • purified recycled water (including stormwater)
Options not a reliable source of additional water and no additional analysis needed to support further consideration.	• new or expansion of major on-stream dams (as they rely on rainfall, take water off other water users and have significant environmental impacts that would need to be offset).

Narrowing short-list to preferred options for action plan

UWS should reveal the best available options, including a proposed sequence of roll-out that is adaptive to change. A ranked list with identifiable costs and benefits (or scores against criteria including cost-effectiveness), including trigger points with lead times, can then be used to make selections for action plans.

Assessment approaches chosen should be tailored to the complexity, resources and capacity within each water corporation. They should also be tailored to the level of community impact, cost involved in implementing the options, and how soon the options may be needed.

A broad range of guidance material is available to consider when undertaking the detailed options analysis. Particular attention should be given to The Investment Management Standard[9] developed by the Department of Treasury and Finance under the Infrastructure Investment Program.

9. *https://www.dtf.vic.gov.au/infrastructure-investment/investment-management-standard*

The methodology adopted must be applied consistently across all options assessed. Some discussion of specific inputs is included in Table 24.

Table 24: Option analysis considerations

Consideration	Description
Discount rate	Chapter 6 of The Economic Evaluation for Business Cases (DTF)[10] - Technical guidelines provide guidance on discounting, bringing back all future cash flows and economic values to "present values", based on time preference (i.e. $1 today is worth more than $1 given to you tomorrow). Future costs/benefits (including water volumes), should be discounted.
Comparing reliability, resilience and uncertainty of different options	There are several aspects that should be considered in this calculation: • Climate dependence – for surface water and stormwater projects, calculation is needed to determine volumes in different circumstances (e.g. average vs dry year), and what percentage of the time full demand can be met (reliability). Climate change should be factored in. • Other interruptions – all sources can be interrupted due to water quality events, planned/unplanned maintenance, electrical connections, supply chain etc. If a project may be offline X% of the time, yield could reduce this amount. • Demand uncertainty – sometimes projects are built to supply a demand which never eventuates, or is lower than estimated. If similar projects result in a yield X% lower than predicted, then the yield could be reduced by this amount.
Levelised cost	Calculation of levelised cost for each option, i.e. cost/volume of water ($/kL), is required for UWS documentation. Volume forecasts should factor in reliability, and be discounted at the same rate that costs are discounted.
Long run marginal costs	In some systems, a calculation of long run marginal cost (LRMC) may be useful for informing decisions between larger centralised (or base case) projects and smaller decentralised (or alternative) supply and demand projects. LRMC reflects the cost of incremental change in demand, i.e. reducing demand by X GL will save $Y, by building centralised assets later/smaller, according to an investment pathway & future scenarios. In Melbourne, LRMCs are most often used to compare the costs of water efficiency and IWM against a base case pathway including future desalination investment. For efficient decision-making, the relevant marginal cost is the full cost to society, including externalities.
Evaluation period	Ideally, (a) all options should be assessed over the same period, (b) the period of analysis should cover the full economic life of the assets being evaluated, and (c) also be reflective of the 50-year planning timeframe of the UWS. In practice, these may contradict each other, e.g. it may be impractical to evaluate the investment over the full life cycle. As the study period becomes longer, accuracy of estimates declines, and values become discounted heavily, so it may be appropriate to limit some analysis to 20-30 years. In these instances, the estimated residual asset value of the investment should be used to reflect the asset's remaining value.
Avoided costs to water corporations	Any benefits or avoided costs to other systems from a project should be factored in if possible. For example, sewer mining or demand management activities reduce flows and could reduce/defer other sewerage investment.
Avoided costs to customers	Potential for options, such as water efficiency initiatives, to reduce customer water and energy bills, thereby helping to mitigate cost of living / business pressures.

[10] *https://www.dtf.vic.gov.au/investment-lifecycle-and-high-value-high-risk-guidelines/stage-1-business-case*

Consideration	Description
Environmental costs and benefits	Environmental impacts should be quantified where possible and qualitatively assessed where they are not. Environmental costs/benefits are often quantified using methods like willingness-to-pay surveys, revealed preference techniques (e.g. property values or recreation expenditures), and avoided costs. Greenhouse gas emissions must be considered, as should significant environmental values identified in regional strategies for healthy rivers, wetlands and estuaries (e.g. impacts on environmental flows). Water corporations should also quantify environmental costs/benefits for environmental assets with previously estimated values that may be impacted.
Factoring in Traditional Owner and broader community views into QBL	When comparing options, water corporations should factor in Traditional Owner and community views. This is likely to be easier in a multi-criteria assessment, where community values can be included as one or more specific criteria. In a cost benefit analysis, willingness-to-pay for certain outcomes can be factored in.
Potential to return water to Traditional Owners and environment	Options analysis should consider the possibility of whether the option can enable a return of water to Traditional Owners or the environment. This should consider the potential volumes, benefits, timing and costs associated with doing so. Quadruple bottom line assessments are one way of assessing the potential benefits and costs from water returns, noting that final entitlement amendment decisions sit with the Minister for Water.
Water quality	In some circumstances, option assessment may warrant factoring in of different levels of water treatment and water quality. E.g. taste and odour in the case of potable water. Community consultation may be required to determine preferences and willingness to pay, to assist in comparing options which have a different treatment/quality dimension to them.
Cross-subsidies across systems	In the first instance option assessments should assess from a whole of community perspective, before cost allocation is considered. Cost sharing across different supply systems, in situations where a uniform water tariff is set for the whole region, should be taken into account and explained in the engagement process.
Economic development	Economic costs/benefits are different to financial costs/benefits because of externalities, including supporting industry, tourism, and agriculture.
Liveability and recreation	Water for Victoria recognised (a) the importance of recreation on/around water and committed to supporting recreational opportunities at our waterways, and (b) the importance of water supply for quality open space. The 2019 amendments to the *Water Act 1989* require consideration of social and recreational uses and values in water management and planning.
Adaptability and flexibility in the face of different scenarios	Analysis should consider adaptability and flexibility of options, including whether they can be implemented quickly and/or ramped up or down to respond quickly to shocks and uncertainties. There can be an opportunity cost of not implementing certain options now, which may not be available to us in the future (for example embedding IWM or WE into new developments). Sensitivity analysis should be used to determine whether preferred options change under different scenarios/ assumptions (e.g. around future energy prices). The extent to which a portfolio approach reduces the risk associated with single initiative, should be considered.
System resilience	Methods for measuring and valuing system resilience

Table 25: Core requirements for "option identification and assessment"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
9A	Clearly document the longlist of options: • Identify all technically feasible centralised and decentralised augmentation options across supply and demand, including IWM and efficiency. • The materiality threshold for IWM options is that they are water corporation led and involve potable substitution. Any options that meet this threshold, arising from the IWM forums, are to be included. Including options to deliver sub-regional planning outcomes, and alter relevant planning schemes. Inclusion of IWM initiatives not led by water corporations is optional but desirable. I. • Include Purified Recycled Water (and stormwater) options, as part of technology-agnostic assessment where feasible. • Include any feasible options to return water to Traditional Owners or the environment.	✓		
9B	Clearly document a short-list of options which warrant analysis, which long-list options are being excluded at this stage, and the reasons for this: • This stage should document which options from the long-list do not warrant analysis to determine costs, volumes, timing etc. These options have a fatal flaw, and are not feasible regardless of any amount of analysis. E.g., new dams take water from Traditional Owners, environment, and other users. • Long-list should at least be named with qualitative assessment, however, there is no need for detailed analysis of bad options.	✓		

9C	Clearly document a preferred list of options which warrant action planning, and which options are being excluded at this stage, and the reasons for this:
	• Apply a quadruple bottom line (or equivalent) approach that incorporates financial, social, cultural and environmental costs and benefits to determine a ranked list of options – this will be used to inform action planning.
	  - Traditional Owners are to be supported to self-determine their input into this process.
	• The level of detail and effort expected in options assessment increases if:
	  - Option readiness needs to be progressed soon
	  - Number of impacted population is high
	  - Associated option costs are high
	• The methodology must allow the comparison of individual supply and demand projects, as well as capture the value of potential portfolios.
	• Water corporations are to consider all the analysis considerations in Table 24, unless a rationale is provided for which matters are not relevant.
		✓		

9D	Provide additional evidence of a robust option assessment process: • Justify the extent of the assessment required, with consideration given to future applicability in Pricing Submissions and detailed Business Case development. • Provide raw results of option assessments, including cost and volume data.		✓	

Section 10. Developing an action plan

DEECA's objective for this section, and the work program that it guides, is to ensure that the action plan:

- *Is substantial enough to fill gap between supply and demand, for the chosen planning scenario*
- *Is informed by the option assessment (i.e. the best projects are included in the action plan)*
- *Is adaptable to changing circumstances, being compatible with triggers which can be considered in the Annual Water Outlook, to determine if actions should be sped up or slowed down*
- *Is aligned (as far as possible) with Pricing Submission proposals, and future Corporate Plans*

Water corporations should determine which options from their preferred options list, should be implemented in the short (<5 years), medium (5-20 years), and long-term (>20 years). This should be based upon the gaps/shortfalls determined by UWS modelling, for the chosen planning scenario, using other scenarios as sensitivities.

The below Figure 7 shows one example of how this can be done from a water security perspective (if the gap for the chosen planning scenario was 3 GL in 5 years, and 20 GL in 20 years). Water corporations are free to adjust the process, so long as the general intent is followed.

Rank according to MCA	Project	Volume	Cumulative volume	
1	Showerheads	1 GL	1 GL	Near-term action plan (achieve 3 GL within 5 years)
2	Recycled water project X & Y	1 GL	2 GL	
3	SWH project C & D	1 GL	3 GL	Medium-term action plan (achieve 20 GL within 20 years)
4	New desalination	20 GL	23 GL	
5	Potable reuse	20 GL	43 GL	Other projects to consider beyond 20 years or if climate trends worse than predicted
6	Other recycled water projects	2 GL	45 GL	
7	Other SWH projects	2 GL	47 GL	

Figure 7: Example ranking of options

Readiness investment enables adaptiveness

UWS must include the consideration of lead-times for both supply and demand-side options, how readiness can reduce these lead-times, and how this readiness enables the Corporation to be more adaptive to changing circumstances.

Project lead-times (and readiness activities to reduce these lead-times) are important factors in relation to when projects can be completed. The order in which project readiness is initiated, may not align with the order in which projects are completed. In certain circumstances, lower ranked projects will have a longer lead-time and so these may warrant investment in readiness earlier than projects with a higher ranking.

No regrets readiness (which will be needed at some point anyway) should be engaged early and proactively. Projects needed in the medium-term should still progress readiness in the short-term, so that they are ready to be implemented rapidly should the need arise. Readiness actions may include further investigation, detailed design, planning, approvals and site preparation, and other relatively long lead-time but low-cost elements of implementation.

Readiness approaches that enable the trigger for implementation to be delayed longer can lead to significant savings. Taking steps to reduce long lead times, will increase certainty that large capital investments are triggered at the optimal time.

An annual adaptive process via the Annual Water Outlooks, enables water corporations to delay final implementation/construction, if demand is trending lower than expected, or inflows are trending higher than expected.

Water efficiency and IWM volumes expected to be achieved through the action plan

Water corporations must estimate volumes that may be achieved by implementing their action plan, in regard to water efficiency (per person and system level) and IWM. Estimated volumes should be expressed for each initiative/project option, at different time horizons, compared to what projected demands would have been, without these interventions. In future AWOs, water corporations are expected to report on progress against expected volumes. In future UWSs, water corporations may adjust their expected volume estimates, to reflect any changes that have occurred in between UWS periods.

Table 26: Core requirements for "action plans"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
10A	Document a clear action plan, including: • A plan for priority actions that may need to be undertaken in the short term (0-5 years), medium term (5-20 years), and long term (20+ years), in order to meet the LoS for the chosen planning scenario. • Describe the adaptive Annual Water Outlook process that will be used to determine whether the action plan should be brought forward/increased, or pushed back/reduced. • Specify early readiness work that is to be undertaken on actions in the short and medium-term. • UWS action plan, including readiness activities, should be reflected in Pricing Submission (subject to Essential Services Commission scrutiny and determinations) and, if approved, Corporate Plans, unless rationale is provided to DEECA to explain the differences. • Clearly articulate IWM and water efficiency initiatives, including estimated volumes over time (existing, planned, and newly proposed initiatives). This may be a rough estimated range, with as many caveats, qualifications, confidence bands as desired. Water corporations will be expected to transparently report on the delivery of these initiatives and expected volumes in future Annual Water Outlooks. The materiality threshold for IWM options is that they are water corporation led and involve potable substitution. Inclusion of IWM initiatives for which water corporation is a collaborative partner (i.e. lead organisation is another water corporation, a local council, Traditional Owner organisation or a Catchment Management Authority) is optional but desirable.	✓		

Section 11. Drought Preparedness Plans

DEECA's objective for this section, and the work program that it guides, is to ensure that water corporations have a clear plan for responding to water shortages, and that the plan is clearly communicated to government and the community. Success of this work will be judged based on (a) how practical the plan is, and (b) how clearly it is communicated.

Water corporations must actively prepare for drought, not just respond to it. To support this commitment, Drought Response Plans are incorporated into Drought Preparedness Plans to drive holistic thinking,

integrated action and continuous improvement. The aim of a Drought Preparedness Plan is to document the procedures, activities and temporary responses a water corporation will implement to prepare for, respond to, and improve in anticipation of, future water shortages that may result from drought and other extreme circumstances such as water quality and emergency events.

There is a clear distinction between UWS actions, which are permanent, and DPP actions, which are temporary. Building new permanent infrastructure, such as inter-basin pipelines, or Purified Recycled Water schemes, are UWS actions, which may be sped-up or slowed-down, based on monitoring. DPP actions are temporary measures, such as carting, restrictions, or temporarily increasing access to dead storage.

Drought Preparedness Plans must be reviewed alongside the UWS every 5 years. Water corporations are also obliged to review the plan within 12 months of either the lifting of any period of water restrictions or the augmentation of any water supply system.

Water corporations must not rely on the Minister declaring a water shortage and qualifying rights to water under the Water Act 1989 as an option for maintaining supplies as part of the Drought Response Plan. A qualification of rights is considered to be an emergency measure to avoid unacceptable water shortages for entitlement holders. It is a measure of last resort and therefore beyond the reasonable scope of a water corporation's water resource and contingency planning activities undertaken as part of conducting its business.

The structure of a DPP is shown in Figure 8.

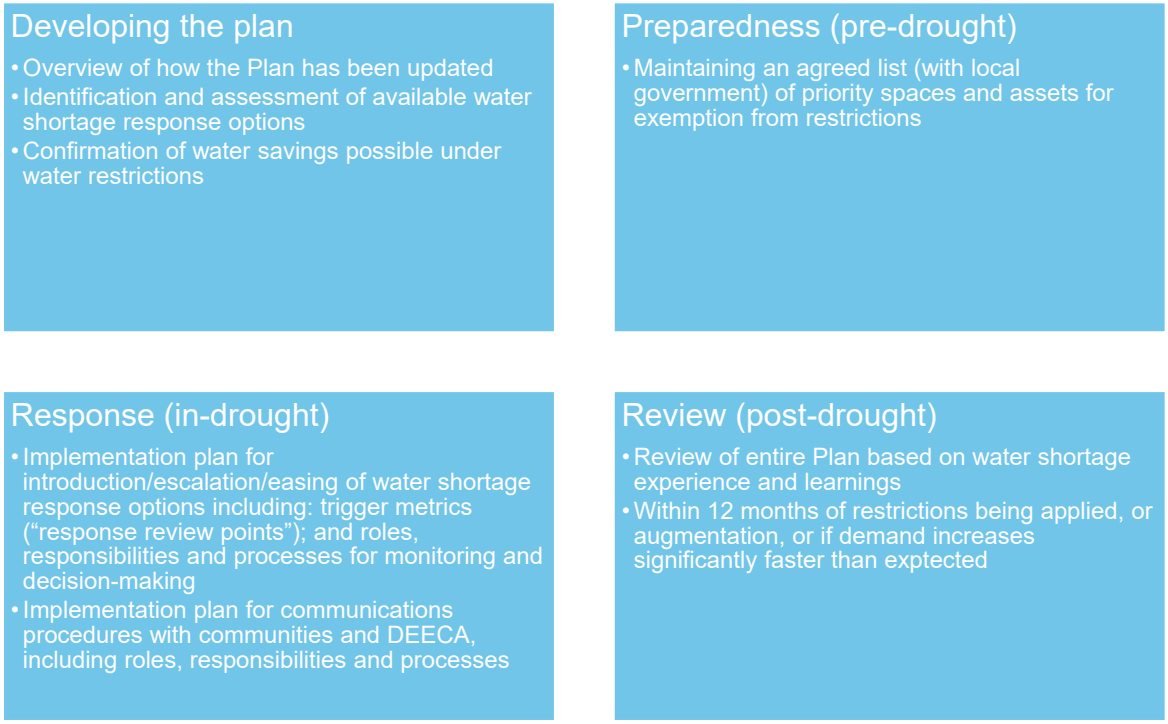

Figure 8: Structure of a DPP

Developing the plan is the investigative and formulaic efforts that occur before the DPP is finalised. This includes assessing response options against each other, e.g. to determine which systems realistically have carting as an option, and whether it should be implemented before or after restrictions. This also includes re-calculating the expected savings from response options.

Preparedness is the part of the plan that relates to the period after the DPP is finalised, but before any incidents of drought or other water shortage. This includes maintaining a record of which priority community spaces will be exempt from restrictions.

Response is the part of the plan that outlines the response options, and the "response review points" that will be used to determine when each of the responses will be implemented. This part also includes a summary of the decision-making process and communication plans that will facilitate any potential responses.

Review is the part of the plan which articulates that the entire plan will be reviewed within 12 months of restrictions being applied, or augmentation, or if demand increases significantly faster than expected. The

review must be informed by lessons learned from the effectiveness of the DPP during water shortage events and seek to make improvements based on these lessons.

Table 27: Core requirements for "Drought Preparedness Plans"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional

11A	Document key outputs in relation to developing the DPP:
	• Provide discussion of how the Plan has been improved since the last UWS/DPP cycle, due to new knowledge, or experience.
	• At the system level, identify all temporary water shortage response options including water restrictions, voluntary demand reduction, or supply enhancement measures.
	• Summarise which response options are or aren't preferred for each system.
	• Specify expected water savings (on a monthly basis) in both percentage and volume for each stage of restrictions (1 to 4), including:
	  ○ base demand – volume
	  ○ restrictable demand – volume and percentage of base demand.
	• Focus on expected demand at end of 5-year DPP period.
		✓		

11B	Provide additional evidence in relation to developing the DPP:
	• Provide a summary of who was consulted, and what the outcomes were.
	• Provide summary of method/assumptions used to estimate water savings.
	• Include rationale/assessment for which responses are or aren't preferred for each system, considering these factors:
	  - Technical: volumes achievable, feasibility/ease of implementation, and lead times
	  - Institutional and legal: whether entitlements to emergency water sources can be obtained; restriction by-laws are in place; how enforcement and penalties are handled; and what agreements are needed with other authorities
	  - Financial: evaluation of direct response costs
	  - Social and environmental: impacts, and whether they are considered acceptable
			✓	

11C	Document key outputs in relation to preparedness: • Make reference to a managed record (i.e. that a list exists) that identifies the priority community assets that will still receive water during periods of shortage, as well as how they will be watered (e.g. Water Use Plans, exemptions, alternative water). This list may include public gardens, public lawn areas, general or particular playing surfaces, public ponds and lakes, and public pools and spas. • Summarise how communities have been, and will be, involved in ongoing conversations on drought planning.	✓		
11D	Provide additional evidence in relation to preparedness: • Summarise how priority open spaces were determined/documented with local government, including any engagement. • For each system, attest to DEECA that a list of priority community assets exists that documents which spaces are granted water restriction		✓	

	exemptions during each stage of restrictions, and that this list is being maintained over time. • Send DEECA a copy of the list.	
11E	The public Drought Response Plan (a separately labelled section of the Drought Preparedness Plan) must set out: • Implementation plan for introduction/escalation/easing of water shortage response options for each system including trigger metrics ("response review points"); and roles, responsibilities and process for decision-making. - Water corporations may choose to use the worst drought on record, a synthetic drought (e.g. no inflows), or another sequence specifically tailored to their local entitlements. WCs should consider their system storage configuration and vulnerabilities. For example, run-of-river systems will be more susceptible to within and between year variation in inflow, than systems with multi-year storage or carryover. - Describe the role/team responsible, and the process for monitoring adopted indicators against response review points, including frequency of monitoring (frequency may differ between shortage periods and normal operation). - Describe the decision-making process and accountability (including roles/teams e.g. Executive management, Board) for implementation of responses, once response review point values have been reached. - Figures or tables showing response actions against triggers ("response review points"). - Identify and document the key indicators (e.g. storage level/ flow, system demand) that serve as response review points. - Document trigger metrics ("response review points"), for each month of the year (i.e. generally the response review point should be different before the filling season compared to after the filling season). • Implementation plan for communications procedures, including roles, responsibilities and process for local communities and DEECA. - Describe the communication approach and channels for customer and community engagement during drought phases (e.g. water corporation website, direct mail, customer newsletters, targeted social media, local newspapers, radio and television, and community events). • Reiterate that the DPP is consistent with the UWS modelling, and include confirmation of relevant LoS from the UWS, e.g. DPP response review points are factored into UWS modelling.	✓
11F	Provide additional evidence in relation to response: • Clearly articulate monitoring protocols, decision-making accountability, escalation protocols, and governance structure. Be specific - i.e. teams/roles/names) and when it will involve ministerial sign-off (e.g. qualification of rights). • For each system, document the design basis and/or assumptions for restriction triggers ("response review points") i.e. assumed system inflow, drought year demand, supply period from Stage 1 trigger, interval between restrictions stages, emergency/reserve volume. • Provide a discussion of how the water corporation will communicate with other regional/neighbouring water corporations during response implementation to ensure alignment and feasibility of proposed responses (e.g. water carting). • Aside from submission of the AWO, document at what points the water corporation would engage with DEECA to communicate potential issues (i.e. water quality event, potential for water restrictions based on latest monitoring outcomes, potential for higher level restrictions). • Provide technical basis and rationale for selection for each selected key indicator (e.g. storage level or river flow).	✓
11G	Outline the process to be taken in relation to DPP review within 12 months of implementing restrictions or a major change to system operations. Describe	✓

how DPP components would be updated in light of recent experience, specifically investigating:

- whether communications procedures with community/DEECA were effective/applied correctly
- the accuracy of assumed restrictable demand volumes in contrast to actual observed reductions in demand during restrictions
- whether the list of preferred DPP response measures for the system should be updated
- whether DPP response indicators (TSS/streamflow/allocation) are still the most appropriate metric for the system
- whether DPP response/restriction review points are still fit for purpose
- whether changes to entering and exiting restrictions should be considered at different points in the year, to minimise community disruption
- whether the "spacing" between DPP response/restriction review points should be re-assessed
- whether system security recovered as expected following the easing/removal of response measures
- whether monitoring processes/frequency before/during/after events is still fit-for-purpose
- whether community expectations were met during the event (has the community provided feedback to consider in the review of the DPP?)
- whether priority open spaces were supplied with water as per pre-existing agreements/exemptions, and whether the list of priority open spaces requires an update

Section 12. Annual monitoring

DEECA's objective for this section, and the work program that it guides, is to ensure that action plans are monitored at least once a year, to determine if actions should be increased/sped-up, or reduced/slowed-down, on the basis of clear triggers.

Action plans indicate planned actions under a chosen planning scenario. However, it is important to check in on demand and climate data annually, to determine if the action plan is still fit-for-purpose. This decision should be made as part of the AWO development process, using predetermined triggers for action. Water corporations are encouraged to factor in adaptive planning in the development of their actions lists, such as considering the earliest or latest that an action may be needed. Sitting behind these triggers should be a general understanding of:

- The logic that would play out in a business case for augmentation investment (e.g. how the impact of restrictions would compare to the cost of bringing forward a capital investment).
- Both long-term modelling, and also a short-term view, such as the current state of storages and other Drought Preparedness indicators, in a particular year.
- The lead-times for projects (e.g. if a project will take 5 more years to complete, it must be triggered 5 years before the LoS is expected to be breached).

The AWO cycle is a key part of the 'adaptive management' framework for monitoring and evaluating the implementation of the UWS. The AWO is also the best way communicate to customers and DEECA how the UWS is tracking.

Table 28: Core requirements for "annual monitoring"

Code	Instructions	Required for public document	Required for DEECA – publication is optional	Optional
12A	Document in the UWS the intention around annual monitoring: • All Victorian water corporations are required to publish an AWO each December, including: - the current water resource position - a forward outlook over the coming year (or more), under a range of plausible scenarios - the likelihood of restrictions - whether agreed Levels of Service will be able to be met under these scenarios - if not, action/s proposed to improve system performance so that agreed Levels of Service can be met • Reviews of the progress of implementing the UWS must be undertaken in the Annual Water Outlook: - the action plan must be a 'live' document supporting adaptive management as circumstances change - the AWO must consider supply/demand data against scenario forecasts made in the UWS. Key reasons for variances should be identified if possible - status reporting of UWS actions, and changes to the action plan – new actions, changes, or actions no longer required, augmentation trigger points being hit or actions at risk - status reporting on any engagement activities critical to the readiness of UWS actions, such as engagement with local community or with government - tracking against expected volumes of water efficiency and Integrated Water Management. The materiality threshold for IWM options is that they are water corporation led and involve potable substitution. Inclusion of IWM initiatives for which water corporation is a collaborative partner (i.e. lead organisation is another water corporation, a local council, Traditional Owner organisation or a Catchment Management Authority) is optional but desirable.	✓		

Appendices

Appendix A: Water corporation checklist and attestation

To assist with assurance, water corporations are expected to provide attestations regarding self-assessment against this checklist, at two stages:

1. When a draft of analysis is submitted (Oct 2026), the water corporation Managing Director is expected to attest to which elements of the checklist are on track for inclusion with the completed UWS, and explanation of any elements that are unable to be provided
2. When the full draft UWS document is submitted (Apr 2027), the water corporation Chair of the Board is expected to attest to which elements of the checklist have been successfully delivered, and explanation of any elements that were unable to be provided

Table A1: Checklist

#	Title	Requirement within UWS document	Included?	Required for DEECA – publication optional	Attached?
1	Summary maps and system introduction	1A Include executive summary		1C Describe current entitlements and historical take (minimum past 5 years)	
		1B Overview of water & sewer systems including: which towns are connected, number of connections, maps, and summary of recent achievements		1D Consider relevant policies, strategies and plans (outlined in Appendix C), and articulate how these have been taken into account.	
2	Partners and stakeholders	2A Include a culturally-sensitive narrative, including: how have Traditional Owners been partnered with, and how this has influenced the strategy		2B Indicate: meeting legal obligations and previous commitments to Traditional Owners; self-determination in partnership; have considered opportunities to return water; how you have contributed to outcomes of Water is Life	
				2C Engagement plan indicating: how engagement will be recorded ***quantitatively,*** communities will be given ***more than one Agreed LoS option to choose between***, communities will be consulted on supply-demand options, and how engagement for UWS will be integrated with engagement for next Price Submission.	
		2E Quantitative summary of community views, and their impact on UWS		2D Document the engagement, and after completion, evaluate the engagement.	
3	Defining Agreed Levels of Service	3A Document which Agreed LoS option was chosen, and ***why it was chosen,*** in the context of community views. Document the chosen planning scenario and ***why it was chosen***. Provide some commentary around how treatment and transfer matters are managed to enable achievement of LoS intent.		3B Show analysis that was used to select the chosen planning scenario, including trendlines for inflows and demands. If any systems have a LoS below 90% explain why it is cost-prohibitive to get above 90%.	
4	Water demand projections	4A Include the following charts: Population chart (*note: DEECA will provide further advice on the inclusion of population charts in the public document prior to publication.*); demand breakdown chart (residential, public open space, small commercial, large commercial, and non-revenue water); usage per person over time chart; demand chart (backwards looking 5+ years with trendline, and forward looking 50 years Low Medium and High scenarios). Note which VIF data was used (latest available		4D Further detail on demand modelling including: major non-res customers serviced, potential future significant volumes such as data centres, the assumptions for these and how they are factored into demand forecast. Show consultation that has occurred with non-residential users over 100 ML/year to discuss whether demands are likely to increase or decrease, and explore opportunities for reducing potable demand. Take note of any recreational or Traditional Owner demands for water that are known and relevant. Include some information around agricultural demand for raw or recycled water.	

		when modelling begins). Align with Price Submissions to extent possible or explain differences.			
		4C List names of existing & planned IWM & efficiency initiatives, along with the estimated volumes (WC-led potable substitution required, beyond that is optional but desirable). If not possible, explain why. Provide commentary on how these were factored into forecasts.		4E Document demand analysis approach, including key drivers, tools etc. Document the demand used to assess minimum LoS (i.e. Stage 4 demand), and how it was calculated.	
5	Apply climate scenarios to climate record			5A Confirm Guidelines for Assessing the Impact of Climate Change on Water Availability In Victoria, as issued by DEECA in 2025, have been applied.	
6	Bulk water yield modelling	6A Document yield modelling results. Confirm DPP restriction review points updated prior to yield modelling. Include chart(s) showing if demand can be satisfied over 50 years, focusing on the chosen planning scenario. Other L M & H scenarios should be shown as sensitivities, unless a rationale is provided for showing less (to DEECA at the April 2026 update). Show the year that augmentations may be required and likelihood of LoS being breached over the next 10 years		6B Explain modelling undertaken (SOURCE), method and assumptions. Justification is required for any systems that were considered using a simplified modelling approach. Where known, the analysis should state which out of the Agreed LoS or Minimum LoS is the criterion that is the larger factor in limiting the yield.	
				6C Document the stress test results for the three stress testing runs, including what % of time in what stage of restrictions. Starting storage should be as at 1 July 2025. With justification, the number of runs may be reduced. For some very small systems, stress testing may be skipped. Include commentary around how stress testing results are considered in combination with yield modelling, to inform decisions.	
7	Bulk sewer treatment plant assessment	7B Document for each WWTP: an introduction to sewer catchment, plant capacity, discharge point, effluent license limits (quality, flow or load), existing recycled water schemes. Chart which compares wastewater volumes (or load), against system capacity, over a minimum of 20 years, aligned (as far as possible) with demand assumptions. Briefly discuss future investment requirements, with reference to chart, and any opportunities to use wastewater for broader benefits.		7C Document the adopted approach, assumptions and methods – e.g. simple factoring of demand based on historical experience or a more sophisticated method	
8	Treatment and transfer context	8A Provide a brief answer to each of the four questions listed in Table 19 for each system. Where a system receives a “yes” or “maybe” to any of the four question: summarise existing plans; problem summary and drivers; investment logic; (if relevant) how these are being considered in bulk option assessment section.			
		8B Provide a narrative around how growth is being supported; what is being done to support and manage new industries, including data centres; are you keeping pace with rapid growth; include at least one figure, diagram or map that supports the narrative			
9	Identifying and evaluating options	9A Clearly document the longlist of options: all technically feasible supply & demand options, including IWM (WC-led potable substitution required, others optional but desirable)		9D Justify the extent of the assessment required, with consideration given to future applicability in Pricing Submissions and detailed Business Case	

		and efficiency. Include Purified Recycled Water (& stormwater) options. Include any feasible options to return water to Traditional Owners or the environment.		development. Provide raw results of option assessments, including cost and volume data.	
		9B Clearly document which options from the long-list do not warrant analysis to determine costs, volumes, timing etc. These options have a fatal flaw. E.g., new dams. Long-list should be named with qualitative assessment for exclusion.			
		9C Clearly document a preferred list of options which warrant action planning. Apply a quadruple bottom line (or equivalent). Rank the options. Traditional Owners are to input into this process. If considering portfolios, assess individual options first. Effort & detail should correspond to how soon option is be progressed, population impacted, & costs.			
10	Action plan	10A Document priority actions short term (0-5 years), medium term (5-20 years), and long term (20+ years), to meet LoS for chosen planning scenario. Describe the adaptive AWO process. Specify early readiness work. Align with Pricing Submission and Corporate Plans, or explain why not. Articulate IWM (WC-led potable substitution required, others optional but desirable) and efficiency plans, including estimated volumes over time.			
11	Drought Preparedness Plan	11A How has DPP improved since last cycle. Identify all DPP options. Summarise which options are preferred or not for each system and why. Specify volumes (and % savings) from each option (including each restriction level), in each month of the year. Focus on demand at end of 5 year period.		11B Summarise who was consulted and what outcomes were, the method and assumptions used to calculate volumes. Include rationale/assessment for which responses are or aren't preferred for each system, considering these factors: Technical; Institutional and legal; Financial; Social and environmental impacts.	
		11C Refer to a record or list that shows which spaces will receive water during restrictions. Summarise how communities will continue to be involved in ongoing conversations around drought planning.		11D Summarise how priority spaces were determined/documented with local government, including any engagement. For each system, attest to DEECA that a list exists for which spaces are granted water restriction exemptions during each stage of restrictions, and that this list is being maintained over time. Send DEECA the list.	
		11E Include: Implementation plan for response options for each system. Trigger metrics ("response review points") (e.g. storage level / flow, system demand), for each month of the year. Roles, responsibilities and process for response decision-making. Implementation plan for communications procedures, including roles, responsibilities and process for local communities and DEECA. Reiterate that the DPP is consistent with the UWS modelling.		11F Additional details on Monitoring protocols, decision-making accountability, escalation protocols, and governance structure (be specific - i.e. teams/roles/names) and when it will involve ministerial sign-off (e.g. qualification or rights). For each system, document the design basis for restriction triggers ("response review points"). Discussion of how to communicate with neighbouring water corporations during response implementation. Document at what points the water corporation would engage with DEECA to communicate potential issues. Provide technical basis and rationale for selection for each selected key indicator (e.g. storage level or river flow).	
		11G Outline how DPP would be reviewed within 12 months of implementing restrictions demonstrating how activities,			

		responses and review points would be updated in light of recent experience, specifically investigating whether: • communications procedures with community/DEECA were effective/applied correctly • actual observed savings aligned with assumptions • preferred response options should be updated • indicators, response review points and monitoring frequency are still fit-for-purpose • community expectations were met during the event • priority open spaces were maintained according to pre-existing agreements/exemptions, and whether the list of priority open spaces requires an update			

STATEMENT OF ASSURANCE

Attestation by Chair of the Board

I, [***NAME]*** being the [***Managing Director at the draft analysis stage or Chair of the Board at the full draft UWS document stage***] of [***WATER CORPORATION]*** attest that the accompanying draft Urban Water Strategy:

1. has complied with the requirements of the Statements of Obligations (General) and the current Urban Water Strategy and Drought Preparedness Plan guidelines, as summarised in the guideline checklist;
2. has had regard to written feedback and comments received from DEECA to date; and
3. contains a filled-out guideline checklist, stating which requirements or DEECA comments have ***not*** been complied with, the rationale for not complying with this, and evidence that the water corporation has proactively engaged with DEECA to signal this rationale in advance of submitting the draft analysis.

SIGNATURE

DATE

NAME

[***Managing Director at the draft analysis stage or Chair of the Board at the full UWS document stage***]

[WATER CORPORATION NAME]

Appendix B: Partnering with Traditional Owners

The purpose of this appendix is to inform water corporations on best practice in partnering with Traditional Owners to enable self-determination and decision-making. This appendix includes a range of resources to guide water corporations to uphold their obligations in relation to Traditional Owner engagement, as well as aligning with Victorian Government commitments to ensure Traditional Owners, as partners, can self-determine outcomes for the management of water on Country.

Requirements established in Whole of Victorian Government strategies and frameworks

The Victorian Government through the *Victorian Aboriginal Affairs Framework (VAAF)* and the *Self-Determination Reform Framework (SDRF)*, recognises the unique rights and obligations held by Traditional Owners to care for Country and is committed to Aboriginal self-determination. These frameworks establish overarching commitments for how the government will work with Traditional Owners, Aboriginal Victorians, organisations and the wider community to drive action and improve outcomes.

DEECA strategies: exemplars for water corporations' own frameworks

DEECA has outlined its commitments to meaningfully partner with Traditional Owners and remove barriers to self-determination in *Pupangarli Marnmarnepu "Owning Our Future" Aboriginal Self – Determination Reform Strategy 2020-2025.* The strategy is founded on cultural authority and was developed in partnership with Traditional Owners. It sets out the strategic direction, outcomes and priorities for DEECA's commitment to embed self-determination.

DEECA's *Traditional Owner and Aboriginal Community Engagement Framework* (TOACEF) outlines best-practice engagement and partnership principles and the importance of embedding self-determination in day-to-day work (see section 'Engaging with Traditional Owners' for further information). Traditional Owners and the Victorian Government are equal partners in the management of lands, water and natural resources.

History of water reforms to enable Traditional Owner self-determination

Water for Victoria, which was released in 2016, commits to recognise Aboriginal values and objectives of water, include Aboriginal values in water planning and management, support Aboriginal access to water for economic development, and to build capacity to increase Aboriginal participation in water management. Additionally, of the 69 Actions within Water for Victoria approximately 40 require the water sector to engage meaningfully with Traditional Owners and/or Aboriginal Victorians.

Water for Victoria

Action 6.1: recognise Aboriginal values and objectives of water

Action 6.2: include Aboriginal values and traditional ecological knowledge in water planning

Action 6.3: support Aboriginal access to water for economic development

Action 6.4: build capacity to increase Aboriginal participation in water management

Action 10.8: increase Aboriginal inclusion in the water sector

Action 10.9: support economic development through Aboriginal participation

In 2019, amendments to the *Water Act 1989* embedded Aboriginal cultural values into the planning and operations of water resource managers. This includes taking into account existing Recognition and Settlement Agreements, Aboriginal cultural heritage land management agreements, and native title determinations.

In 2020, DEECA and Parks Victoria funded the development of the *Victorian Traditional Owner Cultural Landscapes Strategy,* which is a Traditional Owner authored document, to support Traditional Owner rights and interests in managing Country.

The framework outlines how Traditional Owners will lead the planning and management of Country in line with their cultural obligations to care for Country for cultural, environmental and economic benefit. It will provide direction to the Victorian Government about how it can support this work and identifies existing barriers to address.

The launch of *Water is Life: Traditional Owner Access to Water Roadmap* in September 2022 was another significant step, committing to a program of systematic change with actions that will increase:

- Traditional Owner participation in water policy, management and decision-making.
- The volume of water entitlements held by Traditional Owners for their self-determined purposes.

Water is Life supports a careful and considered balance between Traditional Owner self-determination in water access and management, and the rights and entitlements of a range of stakeholders.

In August 2022 the *Central and Gippsland Region Sustainable Water Strategy (CGRSWS)* was published. It included a chapter which was written by the Traditional Owner Partnership (made up of representatives from four Registered Aboriginal Parties), and provided insights, main messages and recommendations. The Traditional Owner Partnership sat alongside decision-makers from the government and the water sector and guided the development of the Strategy. Commitments that are being progressed through the implementation of the Strategy include:

- Working with Traditional Owners to continue to identify and pursue opportunities to return water as it becomes available, without taking water away from farmers or other entitlement holders.
- Removing barriers to water ownership and access for Traditional Owners.
- Strengthening the role of Traditional Owners in water resource planning and management.

The Traditional Owner Partnership developed a Cultural Benefits Framework to demonstrate how changes in ownership and management of water can result in benefits at the scale of individuals, at a Traditional Owner group level and also creates a ripple effect that extends to the wider community and, in some cases, the whole of Victoria and Australia. The Cultural Benefits Framework will be used when implementing relevant actions and policies in the CGRSWS.

Traditional Owner Rights and Responsibilities – including agreements

The right to self-determination is enshrined in the United Nations Declaration on the Rights of Indigenous Peoples to which Australia is a signatory:

- Self-determination is the right of Aboriginal Victorians including Traditional Owners to make decisions about the matters that affect them.
- The Victorian *Charter of Human Rights and Responsibilities Act 2006* also provides legal protection of the cultural rights of Aboriginal Victorians.

There are three ways the Victorian Government formally recognises Traditional Owners of Country:

1. In some locations, Traditional Owners are legally recognised under the *Aboriginal Heritage Act 2006* (Vic) (AHA) as Registered Aboriginal Parties (RAPs). Traditional Owner Corporations are appointed as RAPs through the Victorian Aboriginal Heritage Council. Where there is no RAP, the Department of Premier and Cabinet (DPC) performs those functions.
2. Through a *Recognition and Settlement Agreement* (RSA) under the *Traditional Owner Settlement Act 2010* (Vic) (TOS Act). The following sub-agreements must also be taken into consideration for the Traditional Owner groups that hold them:
    a. *Natural Resource Agreements* (NRAs) place additional obligations on DEECA in relation to policies, programs or projects that involve natural resource management. A best practice approach would see water corporations include procurement and participation elements of NRAs in their work.
    b. Land Use Activity Agreements (LUAAs) that require certain processes and procedures which water corporations must follow in planning and delivering works.
3. Through a consent determination by the Federal Court under the *Native Title Act 1993* (NTA) (Cth) and accompanying *Indigenous Land Use Agreements* (ILUA).

In delivering their activities, water corporations need to be aware of the requirements of these Acts, the obligations for engagement with Traditional Owners and what it means for their deliverables (including plans, strategies, works etc).

The status of the agreements that Traditional Owners have with the Victorian Government can be confirmed via the following links:

- Victoria's current Registered Aboriginal Parties - https://www.aboriginalheritagecouncil.vic.gov.au/victoria-registered-aboriginal-parties
- Traditional Owner Settlement Act (2010) - https://www.firstpeoplesrelations.vic.gov.au/traditional-owner-settlement-act-2010
- Native Title in Victoria - https://www.firstpeoplesrelations.vic.gov.au/native-title-victoria
- Aboriginal Cultural Heritage Register and Information System - https://achris.vic.gov.au/#/dashboard

Engaging with Traditional Owners

The following advice draws from DEECA's Traditional Owner and Aboriginal Community Engagement Framework (TOACEF[11]) which can be referred to for more detailed guidance on planning your engagement to ensure it is meaningful and culturally safe.

The following key considerations should be observed by water corporations when engaging with Traditional Owners.

Planning for engagement

- Embed Traditional Owner partnership and self-determination as a key principle of your project and allow enough time for proper consideration. All water corporation staff directly engaging with Traditional Owners should complete cultural safety training. Be aware that Traditional Owners will self-determine whether and how they want to be involved, and this may sit anywhere on the IAP2 spectrum of public participation.
- Identify the legal and contractual obligations set out in Traditional Owner Agreements under the *Traditional Owner Settlement Act (Vic) 2010* (TOS Act) and *Native Title Act (Cth) 1993* (NTA). Familiarise yourself with those you need to comply with and those that are encouraged.
- Identify which Traditional Owner groups to engage with, and whether they have formal recognition under the TOS Act, NTA or AHA or are non-formally recognised.
    - If your project or activity is within an area where there is formal recognition, you should engage with the formally recognised group appointed for that area. If the project covers more than one formally recognised Traditional Owner group, you should engage with each group as they self-determine. Understand the recognition status of Traditional Owner groups and how this informs levels of participation.
    - Where there are non-formally recognised Traditional Owner groups, water corporations will also need to engage with them.
    - If there is no Traditional Owner group with formal recognition in an area of interest, water corporations must consult broadly and inclusively with all Traditional Owners who are non-formally recognised, or those that hold formal recognition elsewhere and have non-formal recognition over the area of interest.
- Read Traditional Owner authored strategies and plans including Whole of Country plans. These are available on Traditional Owners' websites.
- Read Traditional Owner partnered strategies e.g. Water is Life, Cultural Landscape Strategy.
- Make use of resources within the water sector and seek out relevant projects and knowledgeable people from other parts of your organisation.
- There are a broad range of activities that may be undertaken in partnership with Traditional Owners (see following two pages). As well as activities strongly aligned to the scope of developing the UWS, activities may:
    - Be 'no regrets' actions related to implementing the UWS, which are of mutual interest to the Traditional Owners and water corporations. For example, an Aboriginal Waterway Assessment that is a short-term priority for Traditional Owners may also be of interest to a water corporation if in future it will assist them implement actions in their UWS.
    - Be outside the scope of the UWS, but valuable for building the capacity of Traditional Owners and strengthening relationships and mutual understanding between the water corporation and Traditional Owners. DEECA supports the inclusion of these activities where they contribute to long-term partnership outcomes.

[11] https://www.deeca.vic.gov.au/aboriginalselfdetermination/traditional-owner-and-aboriginal-community-engagement-framework

Examples of partnership activities

Partnerships & Engagement

- Support Traditional Owners to determine how they want to input into UWS, e.g. roles and functions, priorities and objectives, respect Traditional Owners' decision to engage or not
- Establish a level of understanding before engaging Traditional Owners on specific matters and decisions
- Offer to use existing Traditional Owner forums and processes, including broader discussions about partnerships, to limit demands on their resources
- Consider co-funding by multiple water corporations within a Traditional Owner's cultural landscape (aim to avoid multiple requests to Traditional Owners)

Knowledge exchange

- On-country walks and talks, and facilitated sessions with water corporation staff (e.g. providing information about water corporation systems)
- Aboriginal Water Assessments
- Employment and secondments to allow for two-way learning

Strategy Development

- Participation in framing UWS content or reviewing draft strategies, modelling, options analysis, priorities for drought response, and monitoring
- Potential approaches to overcome lack of information about water demands could include:
    - Co-designing with Traditional Owners activities that will enable them to develop site specific proposals for the next iteration of UWSs or ESC submission
    - If new assets or water supplies are being planned (including loss reduction, water recycling and system optimisation) consider options for sizing the project to allow an amount of water (proportionate to the scale of the project) to be returned to Traditional Owners
- Engagement and co-design of infrastructure proposals
- Building learning by doing actions into UWS to enable Traditional Owners:
    - Determine what water returns will be used for
    - Investigate water delivery requirements (e.g. scoping and feasibility studies for water delivery infrastructure, community meetings)
    - Explore barriers to achieving their water objectives and short, medium and long-term solutions
- As partnerships develop, consider possibilities for shared governance and shared ownership and role of Traditional Owners in decision making for water

Resourcing and Support

- Funding for staff, travel, and engagement
- In-kind technical advice, for example support for entitlement applications
- Consider enabling Traditional Owner groups to lead their own engagement with their members, for cultural safety and to build their capacity. This may include resourcing for time and expenses, clarifying questions/decisions, support for engagement including information, and willingness to accept the advice received.

A good practice example: DJAARA recycled water expectations

Coliban, Greater Western Water and Central Highlands Water partnered with DJAARA to fund and enable DJAARA to develop guidance and expectations for the future use and management of recycled water by exploring recycled water from a DJAARA cultural lens. This included:

- On-country walks and talks, where the DJAARA members explored water reclamation plants and nearby waterways that receive recycled water.
- Facilitated information sessions with water corporation staff to explain recycled water concepts, processes and terminology.
- Identify concerns and opportunities in culturally safe workshop environments.
- The information was then collated and distilled into guidance and advice and shared with partnering water corporations.

Water corporations have since included policy advice into relevant projects and Coliban's Recycled Water Strategy. A side benefit of this partnership approach has led to a 'DJAARA-centred urban water group' being established between DJAARA, Coliban, Central Highlands Water, and Greater Western Water (and later Grampians Wimmera Mallee Water). This group is progressing urban water opportunities that are aligned to DJAARA's *Dhelkunyangu Gatjin* Strategy. This group has built greater understanding, capacity and trust between the involved partners. The group is an official subgroup under the Wanggal Group, which is the implementation group for the *Dhelkunyangu Gatjin* Strategy. This collaboration for recycled water has also led to DJAARA undertaking Aboriginal Water Assessments for waterways that receive recycled water. This includes an Aboriginal Water Assessment for Campbells Creek, which has led to the commencement of a Traditional Owner led FLOWS study for the waterway to establish a detailed set of objectives and flow recommendations for the waterway, informed by the cultural values and traditional ecological knowledge of the waterway and is informing the upgrade of Castlemaine Water Recycling Plant.

Co-designed approach for Urban Water Strategies

Via the Wanggal Group and DJAARA-centred urban water group, DJAARA and partners are exploring the most appropriate engagement approach for forthcoming urban water strategies on DJAARA country. Several meetings and workshops have been conducted to co-design the approach, which currently aims to achieve the following (but to be progressively refined):

- Enable DJAARA to build understanding and capability in urban water planning. This will likely include a series of workshops and on-country walks and talks.
- Involve DJAARA in decision-making processes including considering water augmentation options and drought mitigation measures; and deliberate trade-offs about water for Country and urban water supply.
- Facilitate two-way staff exchange between DJAARA and water corporations to share skills, understanding and perspectives. This will aim to include cultural values, principles and advice within urban water strategies.

Appendix C: Regional and state-wide processes

UWS Core Requirement 1 Part B requires that water corporations consider the following relevant policies, strategies and plans as context for development of the Urban Water Strategy and articulate how they have been taken into account.

Table C1: Regional and state-wide processes

Title/Theme	Description
Long-term Water Resource Assessment	Water corporations long-term planning can also be influenced by long-term water resource assessments, which are a legislative requirement under Division 1C of the *Water Act 1989*. These assessments of the resource base and river health are required to be undertaken every 15 years, with the first in 2020 for catchments in southern Victoria. The principle objective of the long-term water resources assessment is to determine whether there has been a change in water availability that has had a disproportionate impact on any class of water entitlement or if waterway health related to flow has deteriorated. If there has been a disproportionate impact, a review will be conducted to determine how to restore an acceptable balance. This may involve corrective action to restore a balance between water available for consumption and the environment. The *Water Act 1989* provides processes for making these adjustments.
Sustainable Water Strategies	Water corporations also provide input to, but are not responsible for, the preparation of regional sustainable water strategies. Regional sustainable water strategies are a legislative requirement under Division 1B of the *Water Act 1989* and fulfil Victoria's commitment under the National Water Initiative to carry out open, statutory-based water planning. Sustainable water strategies are prepared on a regional basis by the Department of Energy, Environment and Climate Action on behalf of the Minister for Water, under the guidance of a consultative committee appointed by the Minister. Sustainable water strategies examine the needs of towns, industry, agriculture, Traditional Owners and the environment in a particular region over the next 50 years under a range of possible climate scenarios and set water resource management priorities and actions. Sustainable water strategies guide the development, integration and implementation of local management plans prepared by water managers within the region, including water corporations and catchment management authorities. Each strategy focusses on one region of Victoria. They are used to manage threats to the supply and quality of water resources to protect environmental, economic, cultural and recreational values. Sustainable water strategies are developed to: • help entitlement holders manage their own risks • identify potential ways to improve waterway health and return water to Traditional Owners • identify actions and policies to address current and emerging water challenges for all values and uses of water across a given region 300 actions were identified across the past four sustainable water strategies. Implementation of actions was largely the responsibility of DEECA, water corporations, catchment management authorities, the Department of Jobs, Skills, Industry and Regions (DJSIR), and partners and stakeholders.

Title/Theme	Description
Integrated water management planning	Integrated Water Management planning fits within the existing water planning framework and is dependent upon participants like urban water corporations understanding their own systems and proposed servicing approaches. To meaningfully participate in IWM, water corporations must have a well-articulated and current long term UWS to provide water supply and sewerage services to its customers, local government must have a strategy to meet amenity and drainage needs for its ratepayers, and catchment management authorities must have a long-term strategy to ensure waterway health and effective floodplain management for the environment and stakeholders. The subsequent collaborative IWM process aims to identify integrated opportunities to deliver better value for the community. Successful place-based IWM planning requires all agencies responsible for the management of the urban water cycle to collaborate by sharing the outcomes to be delivered, sharing data and working positively toward implementing integrated servicing solutions. Integrated Water Management Forums have been established across Victoria comprising of authorities with responsibilities across the water cycle, including water corporations, local government and catchment management authorities as well as planning authorities, traditional owners and other relevant entities. Partners of each IWM Forum have clearly articulated strategic outcomes that they are seeking to achieve by adopting IWM principles. These strategic outcomes are documented in the form of Strategic Direction Statements for each IWM region (or Forum Area) which are a key input into this iteration of UWS. In metropolitan Melbourne, IWM strategic outcomes have been further defined by the Metro IWM Forum partners and documented in Catchment Scale IWM Plans using measures and targets. Examples of priority work streams that present potential opportunities include growth area servicing, urban renewal projects, infrastructure renewals and urban greening projects.
Water Security Plan	Released by the Minister for Water, with input from Melbourne Water, metro urban water corporations and Barwon Water, this plan will facilitate detailed investigations for consideration by the Water Security Taskforce, for regional-scale augmentations for the South-Central region.
Victorian Waterway Management Strategy, Regional Waterway & Catchment Strategies	The Victorian Waterway Management Strategy sets statewide policy for waterway health, Regional Waterway Strategies outline long-term priorities for managing rivers, wetlands, and estuaries, while Regional Catchment Strategies provide an integrated, region-wide plan for managing land, water, and biodiversity resources.
Murray Darling Basin Plan and associated Water Resource Plans	In Victoria, the Murray-Darling Basin Plan is a federally-led framework for sustainably managing water resources across the Basin, and the associated Water Resource Plans are state-prepared documents that show how Victoria will meet the Plan's requirements within specific river catchments.
Sewerage plans/ strategies	Existing sewerage strategies and documentation, such as the Melbourne Sewerage Strategy, which sets a target of "an additional 50 GL/year of water from the sewerage system is beneficially reused in an economically viable way by 2040 to support Melbourne water system goals."

Title/Theme	Description
Unregulated systems and groundwater management plans	Statutory management plans and local management plans (LMP) are developed to manage risks to unregulated and groundwater resources. Management plans aim to ensure the resource is shared equally between users, that impacts on third parties are minimised and the environment and long-term sustainability of the resource is protected. Statutory management plans are a requirement for Water Supply Protection Areas under the *Water Act 1989.* The plans are developed with the community, groundwater users and other stakeholders and define specific rules to meet the management objectives in the area. Water corporations responsible for licensing (as delegates of the Minister for Water) unregulated surface water and groundwater are responsible for the development, approval, implementation, reporting and review of an LMP. The objective of an LMP is to ensure the equitable sharing of available water between licensed water users, to protect the environment and ensure the long-term sustainability of the water resource in the applicable area. An LMP will be prepared where required by Government policies[12] to help meet requirements of the Murray-Darling Basin Plan or the delegate decides that specific arrangements are needed for equitable sharing of the water resource. This may occur when: • there are competing demands for water; • there is risk from licensed water use to significant environmental values, or • there is a need to manage the system (i.e. surface water and groundwater resources) as a whole (e.g. due to significant inter-connection). LMPs describe how delegates will manage the taking of unregulated surface water and groundwater licensed under section 51 of the *Water Act 1989*, using the powers delegated under the Act and in accordance with the Policies for Managing Take and Use Licences. An LMP will: • define the water system to which it applies and provide contextual information (e.g. catchment context, trading zones, winter-fill sustainable diversion limit (SDL) zones, any significant water-dependent environmental values) • explain to section 51 licence holders and the community the rules the delegate will apply to licence management, and, in particular sharing arrangements for the water, and the technical basis for their determination • where a water corporation is also the delegate of the Minister in relation to temporary qualifications, document the rules the delegate will apply in carrying out this function. The level of detail in an LMP, the technical information required to prepare it and the consultation required to resolve issues should be commensurate with the size and complexity of the system, the extent of licensed water use and the level of risk to the system's water resources and associated environmental values.

12. https://waterregister.vic.gov.au/images/documents/Policies%20for%20Managing%20Take%20and%20Use%20Licenses%20-%20Approved%20by%20Water%20Min%2002.02.2014.pdf

Title/Theme	Description
Climate change	Victoria's Climate Change Strategy articulates the Government's priorities and plans to meet the challenges and take up the opportunities created by climate change. A Strategy is required every five years under the Climate Change Act 2017, with the most recent published late 2025. Victoria's Climate Change Act 2017 also places a statutory obligation on nominated Ministers to prepare sector-based Adaptation Action Plans (AAPs) for seven systems every five years. The 'water cycle system' is identified in the Act as requiring an AAP to prepare for and respond to the current and future impacts of climate change on flooding, drainage, wastewater management and water supply. The current Water Cycle AAP 2022-2026 has 21 actions designed to complement existing policies and programs, including actions delivered through the Pilot Water Sector Adaptation Action Plan. It is complemented at a regional scale by the Regional Adaptation Strategies developed in partnership with regional communities to identify, prioritise and deliver place-based action informed by local knowledge and needs. These strategies have been developed for the Greater Melbourne, Gippsland, Hume, Loddon Mallee, Grampians and Barwon South West regions. The Victorian Government also has legislated greenhouse gas emissions reduction targets to halve the state's emissions by 2030 and reach net zero by 2045. Water for Victoria says that 'our water sector will be a leader in the state's climate change mitigation and adaptation actions' and recognises the State's commitment to achieve net-zero greenhouse gas emissions flows through to the water sector. The Statement of Obligations (Emission Reduction) establishes the water sector's emissions reduction obligations, setting industry targets of 42.4% reduction by 2025 and achievement of net zero emissions by 2035.
Recycling Victoria: A New Economy	Victoria's circular economy will create jobs and economic growth while reducing waste, cutting pollution and establishing a strong recycling system. Businesses, governments and individuals need to work together to realise the benefits of a circular economy. Our community wants a circular economy that prioritises more sustainable and innovative use of materials, minimises the impacts of climate change and creates less waste and pollution. Recycling Victoria is the Victorian Government's 10-year policy and action plan for waste and recycling. It is Victoria's plan of reform to establish a recycling system that Victorians can rely on while transforming how the Victorian economy uses materials and how Victoria state reuses, repairs and recycles. Victoria's circular economy goals align with the United Nations Sustainable Development Goals, including Goal 8 ('promote sustained, inclusive and sustainable economic growth') and Goal 12 ('ensure sustainable consumption and production patterns'). Recycling Victoria acknowledges that the water sector plays an important role in the circular economy. Organisations in the water sector are well placed to support the transition because of their access to suitable land, expertise managing organic waste and treatment technologies, and commitments to resource recovery and reducing greenhouse gas emissions. It notes that Victoria's water and energy sectors already contribute to a circular economy by ensuring those resources are used efficiently for economic and environmental benefit. Recycling Victoria cites: Water for Victoria, the Melbourne Sewerage Strategy and the Intelligent Water Network Program as complementary policies and strategies supporting its delivery. The policies and actions within Recycling Victoria are designed to support and provide opportunities for the water sector in a Victorian circular economy. Note: The National Environmental Management Plan 3.0 once adopted nationally, has PFAS limits, which will have implications for water corporation management of sewerage systems.

Appendix D: Addendum to clarify expectations for Melbourne Water, South East Water, Greater Western Water & Barwon Water

The South-Central region of Victoria is the only area of the state, where multiple water corporations are expected to follow these guidelines in an overlapping geographical area. This appendix is designed to clarify what is a Melbourne Water responsibility, and what is a responsibility for a connected water corporation. The following table provides additional guidance around how guidelines requirements should be interpreted in this context. This guidance is to be read in conjunction with the standard statewide guidance. Which matters are required for publication and which are not, should be interpreted from the statewide guidance. All of the standard statewide guidance is to be completed for the South-Central region, and the checklist in Appendix A is to be used. The table below is intended only to emphasise particular parts of the statewide guidance, for particular parties, and not to provide an alternative checklist for assurance.

Table D1: Expectations for Melbourne Water, South East Water, Yarra Valley Water, Greater Western Water & Barwon Water (note: where the water corporation is expected to follow standard guideline requirements, the cell is empty and coloured with a grey fill)

Step	Melbourne Water (MW)	South East Water (SEW), Yarra Valley Water (YVW) & Greater Western Water (GWW) towns which are connected to South-Central system	Greater Western Water (GWW) towns which are not dependant on South-Central system (Rosslynne, Romsey-Lancefield, Woodend, Merrimu, Myrniong)	Barwon Water's (BW) towns connected to South-Central system
Executive summary (or separate glossy summary document)	• Agreed Level of Service, specified against chosen planning scenarios for supply & demand. • Chart showing South Central-scale Supply Demand and any imbalances • Some data and commentary around South Central-scale supply & demand options, including IWM and efficiency • Some data and commentary around how MW water & wastewater treatment & transfer assets are being managed, and upcoming major investments	• Community engagement summary, which Agreed LoS options were presented to community and how it resulted in Agreed LoS • WC scale population and demand projection charts • What WC scale IWM & WE options have been considered, and which of those are being proposed for inclusion in Price Sub (i.e. subject to ESC review) • Some data and commentary around how WC scale water & wastewater treatment & transfer assets are being managed, and upcoming major investments	• Agreed LoS for each system and how it was determined • Supply demand balance for each system, and medium term plans for securing LoS	• How Agreed Level of Service links to/aligns with Melbourne's • Demand projection chart which is developed consistent with the metro urbans • Some data and commentary around options to secure water supplies, including both BW-scale options and cross-referencing what the MWSS says about SC-scale options
1. Summary maps and system introduction	All the standard guideline requirements apply, but focusing at the aggregated South Central-scale.	Standard guideline requirements apply, but should be focused specifically on WC scale. Show major interface points to MW network. Show key achievements/changes from last UWS on overview/maps if	Describe existing sources of water, and their usage, including alternative water.	Follow standard statewide guidance, other than highlighting connection points to Melbourne Water network.

Step	Melbourne Water (MW)	South East Water (SEW), Yarra Valley Water (YVW) & Greater Western Water (GWW) towns which are connected to South-Central system	Greater Western Water (GWW) towns which are not dependant on South-Central system (Rosslynne, Romsey-Lancefield, Woodend, Merrimu, Myrniong)	Barwon Water's (BW) towns connected to South-Central system
		relevant, e.g. water efficiency & IWM achievements. Describe existing sources of water, and their usage, alternative water (IWM) only.		
2 (A & B) Partnering with Traditional Owners				
2 (C & D). Community engagement	Metro urban water corporations have lead responsibility for determining water security LoS (in consultation with MW). Melbourne Water must provide estimates on cost vs security trade-off data, outlining at least two LoS options, to enable this to occur. MW and metro urbans should collaborate on consultation to test option preferences, including desalination and potable reuse. As per the statewide requirements, a quantitative summary of community priorities/views and their impact on UWS is required.	WC collaboration to run consultation on LoS. Metro urbans & BW may either run separate consultation processes which later get aggregated, or collaborate and run combined consultation processes, to determine customer agreed LoS for water security. These should utilise MW estimates on cost vs security trade-off, outlining at least two LoS options. WCs must provide a quantitative summary of community priorities/views and their impact on UWS.		Participate in SEW, YVW, GWW collaboration.
3. Defining Agreed Levels of Service	Based on the outcomes of the WC-led community consultation on water security LoS, MW must document a LoS that is jointly agreed by metro water corporations and Barwon Water. The MWSS must describe agreed LoS, rationale for chosen climate/demand scenario & impact of engagement.	N/A		Refer the content in the MW column.

Step	Melbourne Water (MW)	South East Water (SEW), Yarra Valley Water (YVW) & Greater Western Water (GWW) towns which are connected to South-Central system	Greater Western Water (GWW) towns which are not dependant on South-Central system (Rosslynne, Romsey-Lancefield, Woodend, Merrimu, Myrniong)	Barwon Water's (BW) towns connected to South-Central system
	MW must also describe minimum LoS.			
4. Water demand projections	Aggregate the WC-scale demands, and support alignment on approach where appropriate with GWW, SEW and YVW in preparing demand forecasts. Work with the relevant regional water corporations to produce demand forecasts for use from the central Melbourne water supply system. MW should help the WCs achieve similar assumptions, transparent rationale for analysis, and calibration, across Melbourne.	Use a consistent approach to demand forecasting between GWW, SEW, YVW and BW. Work together to align on the demand forecasting approach and relevant assumptions, including producing written documentation that captures the approach, notes where there are differences and notes the reason for these differences. The same type of demand forecasting tool should be used by GWW, SEW, YVW and BW. These parties are to demonstrate a material step-up in regards to how non-residential demands are categorised.	Refer cell to left.	Refer cell to left.
5. Apply climate scenarios		N/A		Modelling for this step should be integrated (or at least aligned) with Melbourne Water modelling as far as possible.
6. Bulk water yield modelling	Modelling for this step should be integrated (or at least aligned) with Barwon Water modelling as far as possible.	N/A		Modelling for this step should be integrated (or at least aligned) with Melbourne Water modelling as far as possible.
7. Bulk sewer treatment assessment	Standard guideline requirements but focusing on Western and Eastern Treatment Plant. Summarise what the plans (or possible plans) are for each of these plants, over the medium term.	Standard guideline requirements but focusing on water corporation wastewater treatment plants. Summarise what the plans (or possible plans) are for each of these plants, over the medium term.		
8. Treatment and transfer	Standard guideline requirements but focusing on MW assets.	Standard guideline requirements but focusing on water corporation assets.	Standard guideline requirements but focusing on water corporation assets.	Follow standard guideline requirements but also: work with Melbourne Water to do some analysis

Step	Melbourne Water (MW)	South East Water (SEW), Yarra Valley Water (YVW) & Greater Western Water (GWW) towns which are connected to South-Central system	Greater Western Water (GWW) towns which are not dependant on South-Central system (Rosslynne, Romsey-Lancefield, Woodend, Merrimu, Myrniong)	Barwon Water's (BW) towns connected to South-Central system
				in relation to transfer network between Melbourne and Geelong.
9. Identifying and evaluating options	Standard guideline requirements but focusing on MW assets and South Central scale analysis.	Standard guideline requirements but focusing on water corporation scale analysis (particularly IWM and efficiency).		
10. Action Plan	Standard guideline requirements but focusing on MW assets and South Central scale actions.	Standard guideline requirements but focusing on water corporation scale actions (particularly IWM and efficiency).		
11. Drought Preparedness Plan	Standard guideline requirements apply to DPP content (note: existing desal plant should be factored in). MW is to support collaboration to develop a joint DPP for the South Central region. MW is to ensure connected regional demands on the system are considered, in terms of how much draw there would be on the centralised network. MW is also to assist connected regionals with their own DPPs, in terms of what they can expect to receive from Melbourne supply system, in their design drought. This should factor in protocols proposed via South Central Reforms process.	Standard guideline requirements apply to DPP content (note: existing desal plant should be factored in). As the responsible party for the majority of the relevant demand, Metro urbans may lead or own the joint DPP for the South Central region. The working relationship between the metro urbans, MW, BW and connected regionals is a matter for water corporations to determine.	Systems which are not connected are expected to have the same DPP content that a regional water corporation would have. Follow standard guideline requirements.	Follow standard guideline requirements, other than: Due to the significant implications that the Melbourne DPP has for Geelong, Barwon Water should also participate in South Central region DPP.

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