

Inquiry into the augmentation of water supply for rural and regional New South Wales

Post Hearing Response- Supplementary

June 2017



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Centroc's Mission is to be recognised as the lead organisation advocating on agreed regional positions and priorities for Central NSW whilst providing a forum for facilitating regional co-operation and sharing of knowledge, expertise and resources; effectively nurturing sustainable investment and infrastructure development.

www.centroc.com.au

22 June 2017

Reference jm:mm061715
Enquiries: Ms M Macpherson:

The Hon Robert Brown MLC
Chairman
General Purpose Standing Committee No. 5
Parliament House
Macquarie Street
Sydney NSW 2000

Dear Mr Brown,

Re: Inquiry into the augmentation of water supply for rural and regional New South Wales

Thank you for holding a hearing of Portfolio Committee No. 5 in Orange on 17 May and for making time for a site tour during your visit.

Given the high priority of water security for the Central NSW region, the Centroc Board appreciates the Committee's interest in water storages in this region and the public debate that the inquiry hearing has generated about a proposed new dam for the Lachlan catchment currently under investigation by WaterNSW.

As the representative body for local government in Central NSW, Centroc has a legitimate and deep interest in water security for the region because its member Councils have dual responsibilities firstly as local water utilities, responsible for security of drinking water supplies for their communities and secondly as facilitators of economic development, of which agriculture and mining, both heavily reliant on reliable water supplies, are two key sectors.

The Centroc Board welcomes the opportunity to provide responses to supplementary questions and questions on notice taken during the hearing and to provide additional information based on discussions subsequent to its submission to the inquiry provided in August 2016.

Following are responses to supplementary questions. Responses to questions on notice are provided in a separate document as requested. Please note that there is some duplication between the questions on notice and supplementary questions for which the response will be similar.

Responses to Supplementary Questions

- 1. If water was not a concern could you estimate what the potential economic output of this area would be?*

Centroc Response:

With reference to supplementary question 1, Centroc provides the following response.

Firstly it must be noted that providing evidence of where lack of security of supply impacts on economic growth is complex and the subject of a much larger piece of work than the timeframe for response allows. Centroc can, however, provide the following information with regard to the potential for economic growth of the Central NSW region where the availability of secure water supplies is a key consideration.

According to studies completed by Regional Development Australia Central West, through the Invest Central NSW project the key sectors driving the Central West region's GRP are:

- **Mining** - contributing \$2.1 billion to the region's economy, and accounting for 21.9% of the Central NSW region's GRP which is significantly higher than the NSW average of 3.1%.
- **Manufacturing** - accounting for \$727.52 million in GRP, which is equal to the State's average at 7.5%.
- **Agriculture** - the economic strength of many areas in the Central NSW region, contributing \$709.52 million or 7.3% of GRP, which is higher than the State average of 1.6%.

* **Note** – these figure do not include the LGAs of Hilltops and Upper Lachlan Shire.

www.investnswcentralwest.com.au

<http://www.investnswcentralwest.com.au/wp-content/uploads/2015/03/NSW-Central-West-Regional-Economic-Profile-2015.pdf>

Mining

The Central NSW region has a strong mining industry which is an important contributor to the regional economy in terms of GRP and employment. Future prospects for the sector are bright given excellent prospective geology, quality infrastructure, a highly skilled local workforce and anticipated increased future demand for minerals.

Cadia Valley Operations (CVO), is one of Australia's largest gold mining operations, located near Orange. The site contains 3 mines producing predominantly gold and copper. CVO is wholly owned and operated by Newcrest Mining Limited. The majority of production from CVO mines is transported by rail to Port Kembla for shipment to smelters in the East Asia region, primarily Japan and South Korea. For further information visit:

<http://www.newcrest.com.au/our-business/operations/cadia-nsw/>

The **Northparkes mine** is located 27 kilometres north west of Parkes and is a joint venture between China Molybdenum Co., Ltd (CMOC) (80%) and the Sumitomo Groups (20%). Northparkes high-grade copper concentrate is transported by road train and rail to Port Kembla where it is primarily shipped to Japan, China and India. For further information visit: <http://www.northparkes.com/about.aspx>

Industry trends suggest continued growth in the Mining sector with a number of mines slated for development in the region. Growth will depend on commodity prices and global conditions and the availability of water.

Potential Mining sector opportunities within the Central West include:

- Exploration and mining support services is the second most prominent import in the report and a prime

candidate for import replacement.

- Strengthening of the local supply chain will help to reduce imports.
- Export growth opportunities exist as Asian economies expand and the demand for mining and energy resources increases.

<http://www.investnswcentralwest.com.au/wp-content/uploads/2015/03/Mining-Industry-Profile-2015.pdf>

A significant mine development proposed for the Central NSW region contingent on access to water is the **McPhillamys Gold Project**, located at Kings Plain near Blayney is owned by Regis Resources Ltd, an Australian gold production and exploration company. This project is currently awaiting a final investment decision for the construction phase. A key concern for the development of this mine is access to water.

While there may be a number of options to provide water needed to support the development of this new mine, one of the options that has been suggested is a pipeline from the Lithgow LGA.

An opportunity is currently under investigation to transfer water from Centennial Coal mines in the Lithgow LGA to Kings Plains in the Blayney LGA to, in the first instance, provide the water needed for development of a new mine. This project could also provide the opportunity to construct a pipeline between Wallerawang and Kings Plains with the potential for 27 mega litres of water for agricultural use.

In affect this pipeline would see the diversion of east flowing water west with the benefits detailed below. It is estimated that the Kings Plain Mine will generate approximately \$875 million spend in the local region over the 10 year construction and operational phases with the potential for an estimated \$90 million in royalties to be paid to the NSW Government over 10 years (based on current gold price of \$1,770/oz). In addition it would generate 150 direct jobs and 400 indirect jobs during the ten years of operation.

If a transfer pipeline is constructed it could create unprecedented Agriculture opportunities for Blayney, Bathurst electorate, Central West of NSW and all of NSW.

An Intensive Agricultural Precinct at Kings Plains could include; livestock feedlots, irrigated cropping, hydroponics etc.) as having a guaranteed source of water that would be available for agricultural production means the business model is not reliant on rainfall and/or impacted by climate change.

Blayney is already a key strategic Agricultural precinct, however installation of this pipeline securing a guaranteed source of water could be an Agricultural revolution for; Blayney, Bathurst electorate, entire Central West region and NSW as a whole.

Unprecedented economic opportunities and job creation would result and complement existing infrastructure already in place including; the Central Tablelands Livestock Exchange, Sealink freezer facilities, two rail sidings and intermodal facilities, close proximity to Hume Highway, close proximity to Sydney Ports (particularly if the Blayney-Demondrille Railway Line is reopened) and Canberra Airport (now international) Advice regarding this potential project has been provided to the member for Bathurst, Paul Toole.

For more detail go to:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=7592

<http://www.regisresources.com.au/General/about-regis-test.html>

Agriculture

The Agriculture, Forestry and Fishing sector contributes \$709.52 million or 7.3% of GRP, which is higher than the State average of 1.6%. This sector employed approximately 6,842 residents in 2011 representing 9.3% of the region's resident workforce.

A 2009 Western Research Institute Study on Value –add of irrigated agriculture in the Lachlan valley found that when flow-on effects are taken into account, the irrigated agriculture sector accounts for:

- 2,072 FTE jobs, including 1,294 jobs in the irrigated agriculture sector, 375 jobs in the non-irrigated agriculture sector, 54 jobs in the personal and other services sector and 41 jobs in the transport, postal and storage sector. Including flow-on effects, the irrigated agriculture sector underpins approximately 5.4 per cent of the FTE employment in the Lachlan Valley in 2009-10;
- Almost \$50 million in household income with 62 per cent of that being in the agriculture (including irrigated agriculture) sector, 6 per cent in wholesale trade and 4 per cent in the transport, postal and storage sector;
- Approximately \$143 million in gross regional product, representing approximately 2.8 per cent of the gross regional product of the Lachlan Valley in 2009-10; and
- \$493.8 million in output in the Lachlan Valley.

There are 8 jobs for every 1,000 megalitres of water used. Multiplier affect 2:4 farm gate value of agriculture impact on community GDP.

Industry trends suggest continued growth in the Agriculture, Forestry and Fishing sector. Potential opportunities within the Central NSW region have been highlighted below:

- global demand and improving trade deals with Asia are expected to drive expansion in the sector
- opportunities exist for value-added grain, meat and dairy products as well as horticulture
- opportunities for increased industry research and product development.

<http://www.investnswcentralwest.com.au/industries/agriculture-and-forestry/>

Manufacturing

The Gross Regional Product contribution from manufacturing is \$727.52 million, accounting for 7.5% of the region's GRP, equal to the State average.

The Manufacturing sector employed approximately 6,416 residents in 2011 representing 8.8% of the region's resident workforce.

Manufacturing in the Central NSW region is well developed with a legacy of large scale process based manufacturers and a move towards higher value added manufacturing utilising new technologies.

The region has a high level and diverse range of successful manufacturers in the region with domestic and global

markets including Nestle Purina, Thales, Devro, Simplot, MSM Milling, Roche, Mars Petcare, Borg and Forestry Corporation of NSW. The region also boasts a strong base in wine production.

There are niche firms in the region which are well placed to produce high value advanced manufacturing goods. An example is Thales, a manufacturer of defence, aerospace and space, security, and transport products for markets in Australia and internationally.

There are several examples of innovative, smaller scale manufacturers across the Central NSW region in Cowra, Condobolin, Lake Cargelligo and other centres.

The Manufacturing sector imported the most in terms of goods and services from outside the region indicating potential for growth in this sector and businesses servicing the sector locally.

- Food processing opportunities capitalising on the region's local food production, which may include both primary processing of broad-acre crops and livestock.
- Value-added production of local agricultural product into food for export is also a potential avenue.
- Opportunities for niche businesses producing high value advanced manufacturing goods.
- Opportunities to compete in specific niche sectors, where a competitive advantage exists.

Source: NSW Central West Region Export/Import Contribution Study, 2014, A.P. SHEERE CONSULTING
<http://www.investnswcentralwest.com.au/industries/manufacturing/>

Inland Rail Economic Opportunities

Announcement in the 2017-2018 Federal Budget of \$8.4 billion to deliver the Inland Rail project further highlights the potential for growth in the region. Having access to a freight link that directly connects to major ports will give local farmers and producers the best opportunity they can to compete in Asia and beyond.

RDA Central West has recently completed a Central West NSW Regional Economic Analysis on the Potential Impact of the Proposed Inland Rail.

The report found that overall the Inland Rail is expected to have a positive economic impact in Central West NSW both during and post construction, contributing approximately \$216 million to the regional economy over 60 years. Other key findings from the report were:

- Projected Economic benefits, including increased productivity, road safety, decreased congestion, decreased freight export cost, construction sector expansion, increased ability to capitalise on free trade agreements and potential increase in land and property value.
- Key business opportunities, including rail maintenance and provisioning facilities; the expansion of the Parkes National Logistics Hub; the development of grain handling and distribution centres; business relocations; short haul freight services; and inland container storage facilities
- Around 490 new jobs could be created in Central NSW region alone during construction phase in the agriculture, mining, manufacturing, construction, transport and finance and business sectors.
- Around 154 new jobs in those same sectors could be created in Parkes, Forbes and Lachlan LGAs post construction.
- The project has been discussed for many years and, as such, many businesses are waiting for construction to begin before considering the Inland Rail as a feasible freight option for their business.

- Moreover, the current culture of many businesses in the region is distinctly truck focused and for these businesses to change their delivery mechanisms would require significant savings in freight costs and a general change in psyche.

Download the Report: <http://www.rdacentralwest.org.au/initiatives/inland-rail/>

Infrastructure Australia Audit

The figure below from the *Australian Infrastructure Audit, 2015* by Infrastructure Australia shows projected gross regional product to 2031. The Central NSW region is slated to be in the top 7 in the nation with an estimated \$17.4 billion in gross regional product.

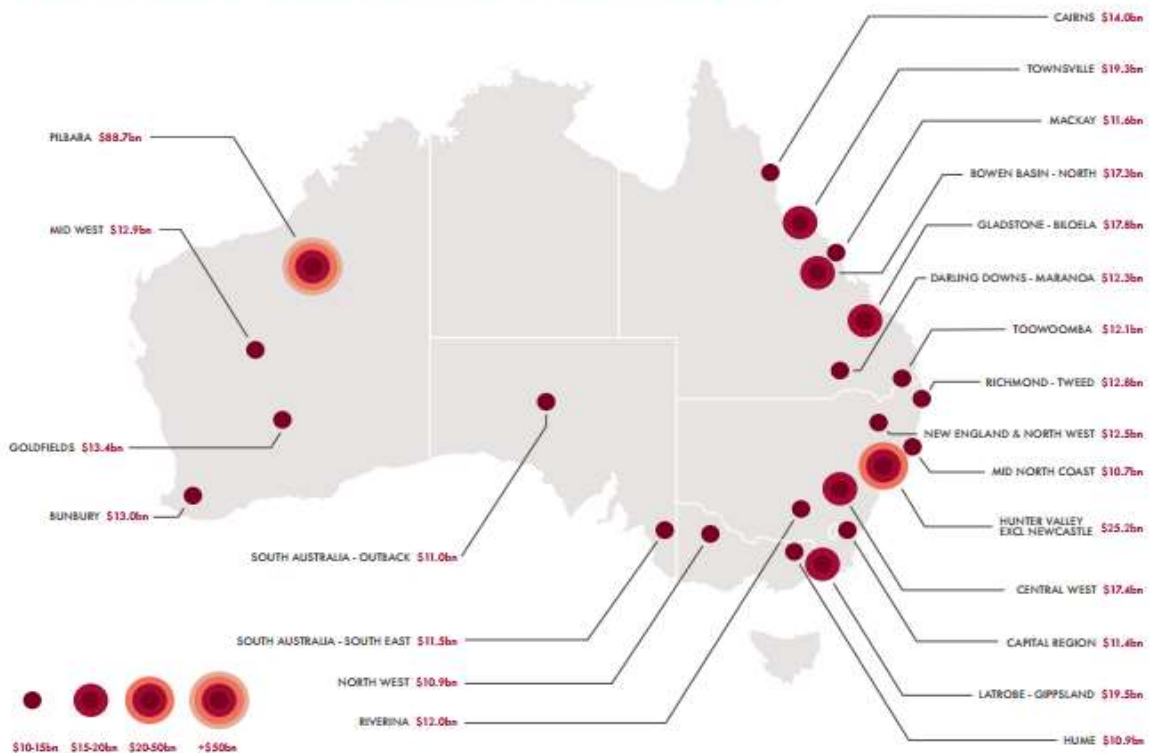
The 2016 NSW Population and Household Projections for population of the Central NSW region by 2031 is 220,250.

The average contribution to GRP per person in 2031 is estimated to be \$79,001

<http://infrastructureaustralia.gov.au/policy-publications/publications/Australian-Infrastructure-Audit.aspx>

RDA Central West estimates the current value of the Central NSW economy to be \$9.65 billion GRP. According to the 2015 ABS figures the population of the region is 206,954.

Figure 4.1: Projected gross regional product for major regional centres in 2031



Source: Australian Infrastructure Audit, 2015

2. *If Cranky Rock 2 was built, how long would it be expected to reach capacity under average rainfall conditions?*

Centroc Response:

While the 2009 Centroc Water Security Study undertook some very high level modelling of potential storage sites in the vicinity of Cranky Rock details, such as the time it would take for a dam at Cranky Rock 2 to reach capacity under average rainfall conditions, are the subject of modelling currently underway by WaterNSW through the Phase 2 Lachlan Valley Water Security Project.

A copy of the Phase 1 *Water Security for Regions: Belubula and Lachlan River Dam Investigation Report* and updates on progress of Phase 2 investigations is available at:

<http://www.waternsw.com.au/projects/belubula>

Centroc is represented on the Community Reference Group for Phase 2 investigations but is not privy to this level of technical detail of options under investigation. It is suggested that this information may be available from the WaterNSW project team.

3. *What would be the likely water share if Cranky Rock 2 was built, e.g. environmental, town/industry, general security WALs and high security WALs?*

Centroc Response:

It is assumed that as part of Phase 2 modelling of new storage options, including Cranky Rock 2, WaterNSW are considering likely water sharing arrangements and the implications of these for the Water Resource Plan currently under development by NSW Department of Primary Industry for the Lachlan Valley for both surface and groundwater.

According to advice on the NSW DPI Water website *the Water Resource Plans will include the water sharing arrangements that already exist across the NSW Murray Darling Basin area to deliver the Basin Plan objectives of balancing economic, social and environmental demands on the Basin's water resources.*

Individual water resource plans will define economic, social and environmental objectives that are relevant to that region. This means that reviews of strategies and rules will always consider the needs of the region and water users.

For more detail go to:

<http://www.water.nsw.gov.au/water-management/water-resource-plans/water-resource-plans-under-development/lachlan>

Lachlan Valley Water have confirmed that under current arrangements section 29 (1) (a) of the Lachlan Water Sharing Plan requires that the river system must be managed so that 100% of water for local water utility licences can be maintained through a repeat of the worst period of low inflows. The "worst period of low inflows" is a 2 – 2.5 year period, depending on the time of year the assessment is undertaken.

The Murray-Darling Basin Authority has openly acknowledged that the biggest issue encountered in Basin Planning previously was the lack of engagement with stakeholders representing urban water and the balance with economic and environmental needs.

Recent advocacy to NSW DPI Water, has resulted in Centroc being invited to provide a delegate for the Water Resource Plan Strategic Advisory Panel for the Lachlan Valley. The Lachlan Valley Water Resource Plan is scheduled for delivery by July 2018.

As detailed above, Centroc is also represented on the Community Reference Group for the Phase 2 Lachlan Valley Water Security investigations. Advice on the likely water share if Cranky Rock 2 was to be built or the inter-relationship between the investigation of options and the Water Resource Plan has not as yet been provided.

Significantly, the terms of reference for the current water security investigations by WaterNSW are focussed on increasing water security generally not just securing town water supplies which are of paramount importance to Central NSW Councils.

Of particular concern to Centroc is that while urban water represents only 2% of overall usage and could easily be overlooked, this 2% is essential to meet community needs and underpin confidence for continued investment and growth in the region. It is crucial for the sustainability of the region's towns that this is considered in any discussion of water sharing arrangements as part of the WaterNSW investigation or in the development of water resource plans.

Given this, Centroc has long advocated for a need to quarantine town water supplies to ensure that, as was the case in the grip of the millennium drought, communities do not find themselves faced with the prospect of hospital closure or the need to cart water to supply the needs of an entire township at an exorbitant cost. Refer to response to question 5 below.

Centroc has a history of working collaboratively with key stakeholders across the catchment to ensure an appropriate balance is struck between the needs of towns, industry, agriculture and the environment negotiating a communique with Lachlan Valley Water (representing 550 individual irrigators) and the Belubula Landholders Association (representing 60 landholders and Cadia mine) in 2015.

As the NSW Government Roadmap proposes a triple –bottom-line approach to the Murray Darling Basin Plan which puts local communities first Centroc is keen to offer support in ensuring an appropriate balance of social-economic and environmental water needs are met in any discussions regarding the water share resulting from a potential new storage at Cranky Rock 2.

4. *What would be the impact on downstream stakeholders?*

Centroc Response:

Commentary in the State Water Phase 1 report *Water Security for Regions: Belubula and Lachlan River Dam Investigation Report* (available at: <http://www.waternsw.com.au/projects/belubula>) states that the Cranky Rock 2 location:

...allows most Belubula irrigation demands to be met from the new storage and for Carcoar Dam to be applied in some part to meet other potential water security needs including town water in the Central Tablelands area.

As detailed in response to question 2, the impact on downstream users of potential new storage sites including Cranky Rock2 is the subject of more detailed modelling currently underway by WaterNSW.

It is suggested that WaterNSW would be better able to respond to this question, where currently Centroc is not privy to the details of modelling being undertaken for the Cranky Rock 2 site.

This aside, Centroc can provide the following commentary relating to the potential impact on downstream stakeholders.

In a communique between Centroc, Lachlan Valley Water and the Belubula Landholders Association it is agreed that a proposed new dam for the Lachlan Valley will provide greater surety of water over longer period of time for agriculture and the environment.

Currently around 1% (80,000 ha) of the land area of the Lachlan catchment is irrigated. In 2014/15 irrigated agriculture generated \$188,000,000 at farm gate value. Major irrigated enterprises are vegetables, fruit, cotton and dairy.

Water flow in the Lachlan River is highly variable, from 4% to 520% of average rainfall. Currently the average reliability over 110 year period is 42%. Anything higher would provide more secure, regular and reliable raw water supplies for agriculture and mining enabling the economic potential of the Lachlan valley to be realised.

In addition a new storage for the Lachlan valley will have community wide benefits through flood management in the Lachlan and Belubula River valleys with the costs to State government for the repair of flood damaged infrastructure offset by the costs of the operation of the dam.

5. What are the implications for townships downstream of the proposed Cranky Rock dam?

Centroc Response:

Further to the response to supplementary question 3, Centroc provides the following response.

Any potential benefits of a dam at Cranky Rock 2 for town water security for down- stream stakeholders is contingent on what happens to Carcoar Dam which if linked to Lake Rowlands and the current Central Tablelands network would extend the network providing back-up drought supplies and secure water to a number of towns beyond the current network.

Currently the Central Tablelands Water system is significant in providing water services to 5,700 connections in Blayney, Weddin, and parts of Cowra and Cabonne local government areas, a population of just over 12,000.

Townships in the heart of the Lachlan Catchment listed below, however, are not supplied by Central Tablelands Water or Goldenfields Water:

- Boorowa
- Cowra (with an emergency supply from CTW)
- Condobolin
- Crookwell
- Forbes
- Lake Cargelligo
- Parkes

A dam at Cranky Rock 2 supplemented by linkages between Lake Rowlands and Carcoar Dam has the potential to benefit downstream stakeholders by enhancing regional water security catering for future population growth in the region while also helping local communities improve agricultural productivity and combat drought conditions.

Critical to note is that options such as Cranky Rock 2 are for water storage principally to manage irrigation water and floods so that general security water can be made available on a reliable and regular basis to producers. Any potential benefits for town water security hinge of what happens to Carcoar Dam.

It has been suggested that if the new dam went ahead it would free up water currently required for irrigation from the existing Carcoar Dam and if linked to Lake Rowlands and the Central Tablelands network would extend the network providing back-up drought supplies and secure water to a number of towns beyond the current network. Concerns have been raised previously, however, regarding licence entitlements attached to Carcoar Dam and whether these would remain with Carcoar Dam or be transferred to the new dam.

An outline of the potential project to supplement the new dam proposal for town water needs is detailed below.

Lake Rowlands and Carcoar Dam Linkage Project

1. The Project

This infrastructure project links the two dams so as to combine their adjoining catchments and maximise the volume of stored water using existing infrastructure.

The concept works because:

- the dams are about 6 kms apart;
- Lake Rowlands overflows several times its capacity each winter/spring; and
- Carcoar Dam is rarely full, so has unutilised storage capacity.

Carcoar Dam (35.8 GL) is on the Belubula River and has a catchment of 230 kms². It is owned by WaterNSW and is used to supply water for irrigation and mining along the regulated Belubula and Lachlan River valleys.

Lake Rowlands (4.5 GL) is on Coombing Creek and has a catchment of 197 kms². It is owned by Central Tablelands Water (CTW) and is used for town water supplies to 14 towns and villages over 5 local government areas in the Lachlan valley. The confluence of the Belubula River and Coombing Creek is less than 10 kms downstream of the dams.

2. Core Concept

The basic linkage project would be to capture and store in Carcoar Dam the Lake Rowlands overflow water (on average about 18 GL of water each year) which would then be available for and allocated to:

- town water supplies (via CTW) of say 10 GL of first security allocation;
- high security water for new economic development (in particular, Regis McPhillamys mine) of say 6 GL pa (via CTW or WaterNSW); and
- irrigation water for the balance (via WaterNSW)

The two dams, thus linked, could then be managed as a single multi-purpose water storage.

It is important to recognise that this project is not an alternative to the new dam proposal. It is ancillary or supplemental to it. In order to maximise the region's potential for growth (in population and economic development) the linkage project alone would not be sufficient and may be at the expense of other users. It is just one component of the solution to make available additional storage to achieve water security for all consumers in the Lachlan valley. If the new dam proceeds, the combined storage would be available for town water security and to support new local economic development, with the irrigation component of the Carcoar dam storage sized to meet the requirements of irrigators downstream of Carcoar Dam up to the new dam.

The cost of the linkage project is estimated to be in the vicinity of \$25m to \$35m, comprising approximately 10 kms of 900 mm pipeline and pump stations.

3. Variation

The capacity of Lake Rowlands could be increased, which would increase the total combined storage capacity of the linked dams. There are 2 options:

- raising the wall of Lake Rowlands to increase its capacity from 4.5 GL to 10 GL. This was the original intended capacity; and
- augmenting Lake Rowlands by the construction of a new dam wall approximately 2.5 kms downstream. This would increase capacity to approximately 26 GL and combined capacity to 62 GL. The augmentation proposal was the key recommendation of the Centroc Water Security Study in 2009.

4. Key features of the linkage project

- Modest new investment in pipeline and pump stations.
- Innovative use of existing infrastructure.
- Environmentally sound and unobtrusive.
- Joint State /Local (and potentially Federal) Government initiative.

5. Outcomes

- Utilises built but unused storage capacity.
- Captures excess flows for new water-dependent developments: mining and intensive agriculture

- Underpins economic viability of the new infrastructure.
- Enhances water security for agriculture, industry and town water for the entire Central West of NSW.

A potential new dam aside, conveyance and water loss in this region poses significant challenges to ensuring urban water security for downstream stakeholders.

To get water to the end of the Lachlan system to provide urban water to Lake Cargelligo, substantial losses of up to 85% along the way must be borne. A logical solution is to ensure a network of pipes for urban communities thus freeing up water transfers for other purposes.

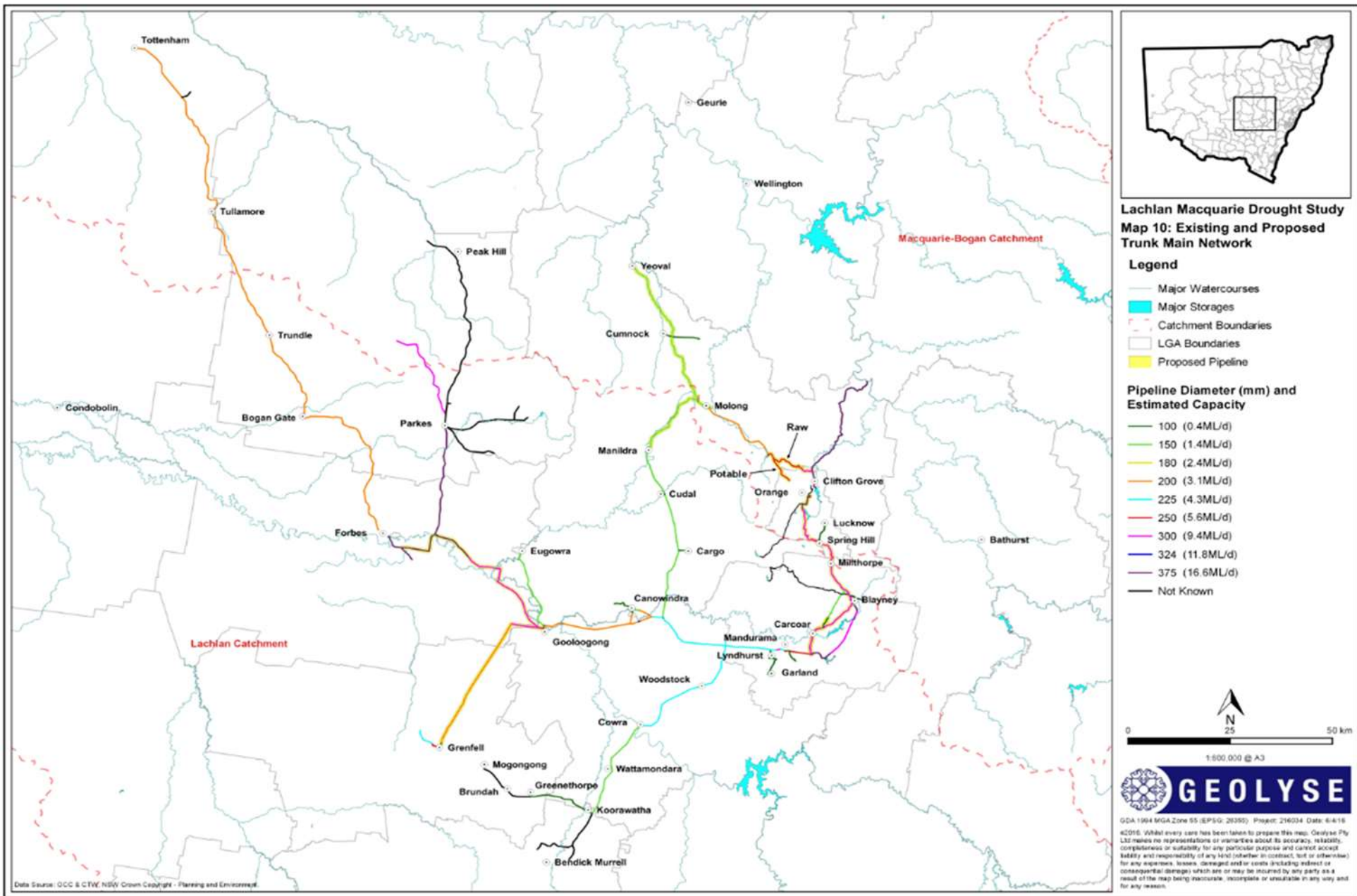
Advice from State Water to the Centroc Board in May 2005 that it would have to “pulse” the Lachlan to get water to Lake Cargelligo and Condobolin gave rise to the Centroc Water Security Study. Arguably, this “pulsing” failed which is why a variety of emergency infrastructure solutions needed to be implanted across the region.

The Centroc Water Security Study grappled with the problem of needing to leave the water in the major irrigation dams for environmental and industry purposes. It identified infrastructure solutions including a network of pipes connected to a water storage high in the catchment recognising the storage management requirements for urban water is vastly different to the storage management requirements for selling water to industry.

A number of water security infrastructure projects included in the CWSS such as the Orange - Macquarie River Pipeline (as a short term emergency solution) and the Merri-abba Pipeline at Lake Cargelligo have now been completed and work on others such as the Central Tablelands Water (CTW) to Orange and Orange to Molong pipelines are partially funded and underway.

These priority water infrastructure projects to network distribution of town water for the region, including those currently in planning, all rely on a new storage high in the catchment for the Lachlan Valley.

Map 10 on page 15 shows the Existing and Proposed Trunk Main Network.



6. *Has Centroc done any work/studies on the environmental impact on wetlands as a result of Cranky Rock dam? If so, could you please provide to the committee?*

Centroc Response:

While the 2009 Centroc Water Security Study undertook a high level preliminary screening process of potential options to improve town water supply security utilising the TBL decision –making framework to understand the economic, social and environmental outcomes associated with decisions regarding potential options, it has not done any work on the environmental impact on wetlands of a potential dam at the Cranky Rock2 site.

It is anticipated that this will be undertaken as part of detailed modelling by WaterNSW through the Phase 2 Lachlan Valley Water Security Project.

7. *Can you please provide details of water saving initiatives implemented by Centroc member Councils?*

8. *For each member Council:*

- a) *What has been the impact of these water saving initiatives?*
- b) *Please provide estimates of actual quantities of water saved?*
- c) *What is the total cost of implementing each water saving initiative?*

Centroc Response:

The Centroc Water Security Study (CWSS) (MWH, 2009), identified options to improve the security of water supplies in the region and included recommendation for the adoption of a package of water efficiency and conservation measures as the basis for a region-wide water conservation and demand management strategy as follows:

- Residential retrofit of inefficient water fixtures, including providing customer support for replacements;
- Continuation of the Water Efficiency Labelling and Standards Scheme (WELS);
- Implementation of Permanent Low Level Restrictions on outdoor water use;
- Continuation of the BASIX program for new residential developments;
- Continuation or expansion of Water Conservation Education programs to improve efficient water use;
- Audit of Non-Residential Water Users to identify leaks and potential areas for improvement in efficiency;
- System Water Loss Management which aims to identify and repair leaks in water supply and distribution system; and
- Review of water supply and sewerage services pricing structure to follow the best-practice guideline of 25:75 Fixed to Variable Charge Ratio.

In addition, it was recommended that a uniform approach to water restrictions tied to storage levels be adopted.

Through the CWSS forecasts for the expected demands for water from each of the towns for the next 50 years were developed. Forecasts took into account expected growth in each town, climate, water pricing structures and the potential to improve the efficiency of the water demand through initiatives such as water restrictions.

Using a series of specialist demand models that account for each of the factors above, daily forecasts of the

demands for households, commercial, industrial and other water users associated with each of the towns were developed.

These baseline forecasts are summarised in Table 3-2 in terms of the average annual demand. Importantly, these forecasts include the expected impact of the water efficiency programs that each of the member Council's has already committed to putting in place across the region.

Table 3-2: Summary of Water Demand Forecasts

DEMAND NODE	POPULATION SERVED WITH WATER		BASELINE AVE ANNUAL DEMAND (ML)	
	2009	2059	2009	2059
Bathurst	30,054	32,749	6,420	7,618
Blayney - Carcoar	4,143	4,464	907	1,044
Boorowa	1,075	954	178	172
Canowindra	1,519	1,637	332	385
Condobolin	2,882	3,581	883	1,291
Cowra - Koorawatha	8,837	9,687	2,836	3,494
Crookwell ^a	1,999	1,936	331	335
Cudal/ Cargo/ Manildra	1,187	1,279	260	302
Cumnock - Yeoval	601	618	177	201
Forbes	8,161	8,499	2,761	3,074
Gooloogong-Eugowra	713	768	156	180
Grenfell	2,018	2,174	441	513
Lake Cargelligo	1,397	1737	428	626
Lithgow - Portland	11,379	11,301	1,794	2,069
Molong	1,586	1769	278	387
Murrumburrah (Harden)	2,243	2,249	792	863
Oberon	2,514	2,667	839	960
Orange	36,766	42,107	5,837	7,373
Parkes ^a	11,203	14,118	6,731	8,150
Wellington - Geurie	5,245	6,304	1,348	1,946
Young	7,373	8,590	1,618	2,039

In the absence of any demand management effort the water demand in the

The expected impact of the recommended region-wide water conservation program is set out in Table 4.3. This table also illustrates the expected impact of climate change demands.

Table 4-3: Impact of Demand Management and Climate Change on Demand Forecasts

DEMAND NODE	BASELINE		AVE ANNUAL DEMAND – CURRENT DEMAND MANAGEMENT PROGRAMS IN PLACE (ML)		AVE ANNUAL DEMAND – RECOMMENDED ADDITIONAL CONSERVATION PROGRAM (ML)		AVE ANNUAL DEMAND – CLIMATE CHANGE ¹⁷
	2009	2059	2009	2059	2009	2059	2050
Bathurst	6,420	7,618	6,402	6,597	6,402	6,501	6,694
Blayney - Carcoar	907	1,044	905	1,003	905	970	1,070
Boorowa	178	172	177	162	177	157	159
Canowindra	332	385	331	368	331	357	385
Condobolin	883	1,291	880	1,116	880	1,090	1,282
Cowra - Koorawatha	2,836	3,494	2,826	3,191	2,826	3,105	3,245
Crookwell ¹⁸	331	335	330	307	330	299	300
Cudall/ Cargo/ Manildra	260	302	259	288	259	279	290
Cumnock - Yeoval	177	201	176	184	176	180	186
Forbes	2,761	3,074	2,755	2,917	2,755	2,822	3,021
Gooloogong- Eugowra	156	180	155	172	155	167	171
Grenfell	441	513	440	490	440	475	513
Lake Cargelligo	428	626	427	540	427	527	648
Lithgow - Portland	1,794	2,069	1,788	1,940	1,788	1,903	2,002
Molong	278	387	277	338	277	333	359
Murrumburrah (Harden)	792	863	790	826	790	796	849

¹⁷ The climate change demand forecasts include the impact of the additional conservation program.

DEMAND NODE	BASELINE		AVE ANNUAL DEMAND – CURRENT DEMAND MANAGEMENT PROGRAMS IN PLACE (ML)		AVE ANNUAL DEMAND – RECOMMENDED ADDITIONAL CONSERVATION PROGRAM (ML)		AVE ANNUAL DEMAND – CLIMATE CHANGE ¹⁷
	2009	2059	2009	2059	2009	2059	2050
Oberon	839	960	837	918	837	889	949
Orange	5,837	7,373	5,818	6,395	5,818	6,174	6,543
Parkees ¹⁸	6,731	8,150	6,731	7,527	6,731	7,436	7,982
Wellington - Geurie	1,348	1,946	1,342	1,754	1,342	1,718	1,889
Young	1,617	2,039	1,614	1,968	1,614	1,913	2,032

It is important to note that at the time that the CWSS modelling was done some of the elements of this program were already in place in a number of the member Council areas (compare the baseline against the current programs) and this was been taken into consideration in deriving the forecasts.

Significantly, through this modelling the CWSS found that security of water supply could not be achieved in the Lachlan catchment through demand management initiatives alone but requires an integrated program of water conservation and demand management measures, coupled with new and upgraded water supply and storage infrastructure particularly high in the Lachlan catchment.

Through the Centroc Water Utility Alliance (CWUA) formed in 2009 to deliver on the recommendation from the CWSS, Centroc member Councils have continued to build on the work of the CWSS completing Regional Demand, Drought and Integrated Water Cycle Management Plans.

The Regional Demand Management Plan finalised in 2013 defined the opportunities for regional collaboration to facilitate each member local water utility's (LWU) efficient use of water resources.

Underpinning the Regional Plan, is that each member Council has prepared a compliant Demand Management Plan based on the New South Wales (NSW) Government's Best Practice Management for Water and Sewerage Services (NSW Government, 2007). These were reviewed as part of the Plan development culminating in a regional action plan.

The objectives of the regional plan are:

- To develop a consistent regional approach, balanced against local priorities, towards cost effective water demand management, ensuring the efficient use of regional water resources.
- Demonstrate that each participating LWU has a Best-Practice Demand Management Plan to meet NSW Best-Practice requirements.

- Demonstrate leadership and self-management in regional water management approaches.

The regional action plan is reviewed every two years in parallel with reviews of each LWUs individual DMP.

The table below provides a summary of Regional Demand Management Actions and progress towards achieving these from the review completed in 2015. Comments in red highlight recent activity towards achieving these.

Table 1: Summary of Regional Demand Management Plan, Updated 2015

Action	Costs	Progress	Implementation
1. Regional Water Conservation Implementation and Demand Management Implementation Program including <ul style="list-style-type: none"> • Residential Retrofit • Permanent Low Level Restrictions (Outdoor) • Education – Water Conservation • Non-Residential Audit • System Water Loss Management • 25:75 Fixed to Variable Charge Ratio 	As allowed for in existing LWU DMPs.	CWUA had progressed the education component of this action through membership of the Save Water Alliance. As the alliance is now defunct, all components of this action require CWUA resourcing. 7 CWUA members are now members of Smart Water Advice for the delivery of a range of water efficiency resources developed specifically for use by water utilities and Councils. A unique Centroc member council landing page has been set up containing links to resources for saving water in the home, garden and business. A wise water TV commercial is in development to be run as a community service announcement over summer 2017-18 To view Smart water resources: https://www.smartwatermark.org/Centroc/	Recommended that a designated resource be hired on a fixed term contract for an initial period of 2 years in order to progress this initiative under the auspices of Centroc and replacing the funds devoted by members to Save Water Alliance. Add exploration of an annual meter replacement program to the list of actions for this new role to undertake. 2016-17 to 2017-18
2. Review the water security assessment in relation to new NOW security assessment guidelines and other updated climate change and water resource data	Order of cost: \$100,000-\$500,000	CWUA has worked with DPI Water to understand and keep abreast of changes in modelling approaches and policy requirements This is on-going	2018-2019
3. Development and implementation of a regional water security funding options assessment	Order of cost: \$100,000.	Centroc completed the Regional Priority Infrastructure Matrix for water in 2014 for the purposes of aligning with State and Federal funding opportunities. The matrix plan is currently being reviewed and updated	Complete, no need to progress further

<p>4. Regional review of policy, procedures and staff training in relation to managing council's own water demand.</p>	<p>A review of current performance is estimated to require approximately 1 Centroc staff member 8 weeks. Potential assistance could be gained through discussions with the Savewater Alliance. Implementation effort would need to be determined downstream of assessment.</p>	<p>The workshop participants identified that most councils run an in-house program to ensure staff are water efficient in conducting council activities that consume water.</p>	<p>No need to progress further</p>
<p>5. Regional program of development and consultation on levels of service commitments</p>	<p>A program to establish levels of service is estimated to require approximately 1 Centroc staff member 3 months. This effort would need to be combined with a level of support from each member council similar to that for the process of consultation on service requirements as part of development of Council's Community Strategic Plan</p>	<p>Limited progress in terms of consultation on levels of service has been achieved</p>	<p>CWUA role discussed at action 1 to support the IP&R process across the region and lead consultation on water and sewerage levels of service 2016-17</p>

<p>6. Development of a strategic relationship plan for State Water (now Water NSW)</p>	<p>Development of the plan is likely to involve a series of workshops of key Centroc participants, and the coordination efforts of 1 Centroc resource for 4 weeks. Implementation effort would be within the existing operating costs of the LWU in terms of managing stakeholders.</p>	<p>CWUA has developed relationships with Water NSW and is consulted through Customer Councils as well as invited to participate in key water planning activities such as the investigations into additional storage in the Lachlan catchment. Recent changes of staffing at Water NSW will mean new effort is required to continue to develop this relationship</p>	<p>2015-ongoing</p>	
<p>7. Regional management of records on extraction/bulk supply</p>	<p>Establishment of the records management system and initial collection of data is estimated to require 1 Centroc staff member 4 weeks to complete. Quarterly maintenance effort likely to be 1 Centroc staff member 1 week.</p>	<p>Limited progress</p>	<p>CWUA role discussed at action 1 to support the development of this records management process 2017-2018</p>	
<p>8. Regional review of customer records databases to align with NOW requirements</p>	<p>A program to align customer records databases to NOW requirements is estimated to require approximately 1 Centroc staff member 6 months. This effort would need to be combined with a level of support from each member council. It is assumed no significant database/IT related implementation or integration or similar would be required.</p>	<p>CWUA has committed to undertake an audit to review all data reported to NOW. This review will highlight all relevant data issues and once complete, should be used to determine priorities for improving data.</p> <p>A regional contract to Audit Performance Monitoring Data completed for 11 member Councils in May 2017</p>	<p>2016-2017</p>	

9. Rolling regional review program of LWU drought, IWCM and demand management plans	Establishment of the records management system and initial collection of data is estimated to require 1 Centroc staff member 4 weeks to complete. Quarterly maintenance effort likely to be 1 Centroc staff member 1 week. Annual procurement effort likely to require 1 Centroc staff member 4 weeks to complete.	Centroc resources support this ongoing effort to ensure the region remains best practice compliant. The existing processes are effective and should be maintained.	2015-ongoing
10. Regional program for facilitating the preparation and ongoing review of recycled water management plans and Section 60 Local Government Act 1993 approvals.	Order of cost: \$50,000-\$100,000	The region has invested in the development of skills and management plans for recycled water. Remaining efforts should be on a council by council basis.	No need to progress further

A copy of the Regional Demand Management Plan is available at:

<http://www.centroc.com.au/wp-content/uploads/Centroc-Regional-Demand-Report-Rev-41-1.pdf>

While Centroc member Councils continue to implement demand management strategies both locally and regionally, the modelling undertaken through the CWSS and the Regional Demand Management Plan both highlight the lack of security of supply in the Central NSW region. The valley has been subject to severe town water restrictions with long periods of little or no general security, agricultural water availability and restricted high security water.

Councils such as Orange are considered national leaders with their award winning state-of-the-art work in stormwater harvesting, while members of the Centroc Water Utilities Alliance have committed to a water-loss management program to save water and reduce energy cost.

While our Councils continue to be at the pinnacle of innovation looking at alternate water sources and savings measures we know from the extensive work done in this region that security of water supply cannot be achieved in the Lachlan catchment through demand management initiatives alone. What we need is an integrated program of water conservation and demand management, together with a new storage high in the catchment for the Lachlan valley

While the timeframe for response has not allowed for input from all Centroc Water Utility Alliance member Councils the following table provides a snapshot of demand management initiatives from across the region.

Centroc Response:

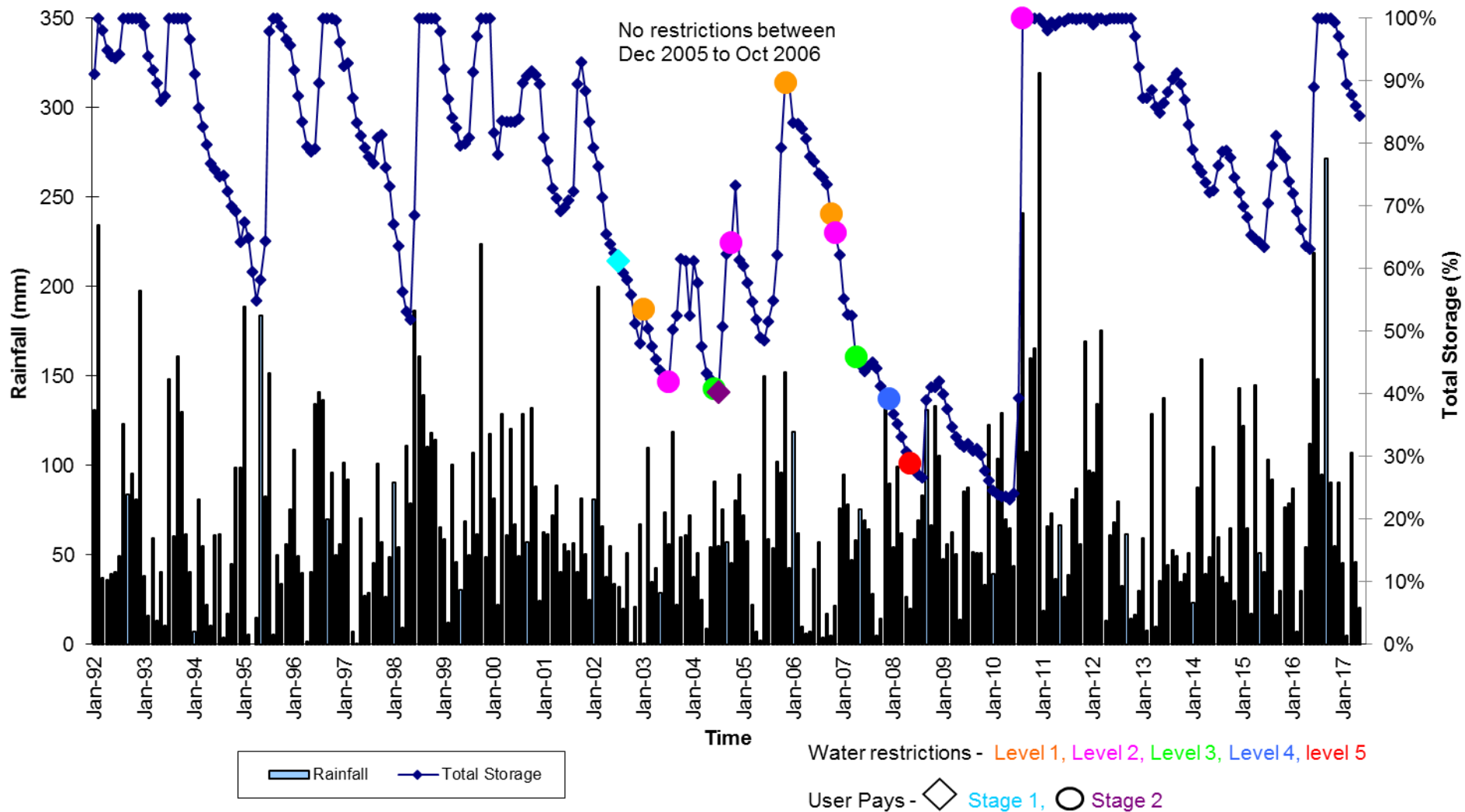
Council	Water Saving Initiative	Impact	Quantities of water saved	Total cost of implementation of initiatives
Bathurst	<ul style="list-style-type: none"> - member of Save Water Alliance for many years, now member of Smart Water Advice - development & promotion of BRC WaterWise logo many years ago, which is used in almost all promotions - summer advertising in cinemas, local papers, local radio, TV ads, social media, ratepayer news letters, on hold telephone ads, general waterwise information - BRC WaterWise branded promotional products/information used at various annual events - compliance with Best Practice Guideline pricing rule of 75% consumption charge/25% availability charge, meaning that ongoing consumption pricing changes have occurred from \$0.76/kL in 2008/9 to \$1.52 in 2012/13 to a proposed \$1.95 in 2017/18, with a 50 % step increase above consumption of 250 kL pa - BASIX requirements on new & existing properties, with all new or replacement fittings now low flow, and machines more water efficient - separate consumption charge page in rates notice envelope 	<p>The combined impact of these initiatives is that along with a growth rate of between 1 & 2 % pa for the above years, the water drawn from the Macquarie River remains between 6,00 to 7,000 ML pa (graph is close to flat since 2012/13, with the 9 year average being 6,347 ML), and this sustains a population of around 37,000 people via 15,000 connections.</p>	<p>Apart from the details provided under <i>Impact</i>, estimates of water saved are not available.</p>	<p>The cost of implementing the initiatives above is considered part of Council's ongoing operations, and is not separately recorded.</p>

Forbes	<ul style="list-style-type: none"> - introduction of meters 2001/2 - user pays pricing reducing fixed charges and increasing user charges - Weekly Water Wurgle-tool that promotes efficient water use to the community and provides a water saving tip - Annual water saving TV promotions - Publication of water wise articles bi-annually in the local press - Quarterly water accounts including water savings tips - Shower head exchange program participation over a number of years - Water efficient displays at the Local Show annually - Water restrictions to minimise usage - Participated in Savewater program and the Smartwater program which provide Council and residents access to water saving information and products 	The most effective water saving initiative has been metering and the introduction of user pays pricing.	The 5 year rolling average of total water supplied by Council has dropped from a peak of 3500ML a year to around 2200ML a year, which is a saving of 1300ML/yr or 37%.	<p>There is no cost in using the pricing initiative, except for the initial cost of metering which was around \$60,000.</p> <p>Wurgle = \$5,200 pa</p> <p>Cost of combined Water wise promotional activities on average \$5,000pa.</p>
Hilltops	<ul style="list-style-type: none"> - Member of Save Water Alliance previously, now member of Smart Water Advice. - Development and Implementation of Drought Management Plan and Demand Management Plan - Water restrictions in place and enforced during drought to minimise usage - Investigation of water loss using the Centroc Water Loss Management Toolkit - Media release for community awareness of importance of saving water during drought (related to our water security issue in Boorowa) - Reuse scheme in Young and Harden to for irrigation of sport grounds. - 	<p>Reduction in water usage for all towns. In Boorowa, due to implementation of restrictions during drought there the dry year demand went from an average of 244ML between 2009-2013 to 190ML between 2014-2017. This is a saving of 22%.</p> <p>In Young, the construction of the new state of the art Wastewater Treatment Plant (including reuse scheme) achieved saving in Council water usage as well.</p>	Do not have equipment or resources to accurately track savings	<p>\$2,500pa for smart water + each former council paid one-off costs of drought and demand management plan (consultancy works and internal)</p> <p>Future budget allocation of \$10,000 for water loss audit</p>

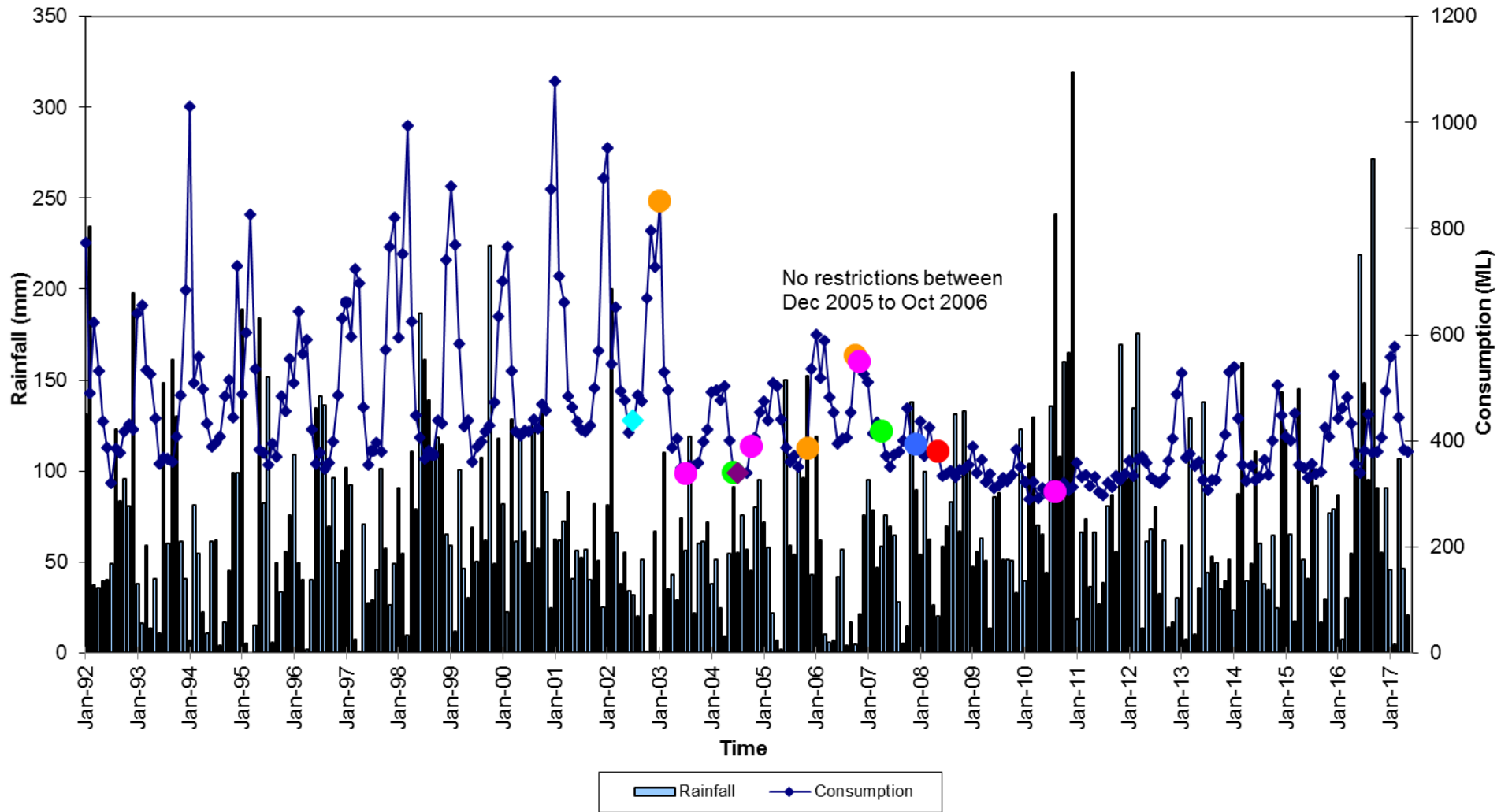
Orange	<p>Orange City Council’s integrated program of water conservation and demand management measures include:</p> <ul style="list-style-type: none"> • Water restrictions • Pricing • Water Audits (Council facilities and free household audits including showerhead replacement program) • Rainwater tank rebates • Water Loss Management (Active leak detection Programs) • Community consultation through education, advertising, fact sheets/brochures, website (SaveWater now Smart WaterMark) 	<p>Refer to Graphs (attached below). Essentially, these water saving initiatives have reduced peak demands throughout the summer periods (as shown in the Graph)</p>	<p>Refer to graphs attached below.</p>	<p>Orange City Council spent a lot more on demand management initiatives going back in time (at the height of the drought), estimate \$200k/annum over the time period when storages were reaching critical levels (2007-2010 – see Graph attached). Expenditure on the Water Audits and Rainwater Tank Programs has been reduced since storages recovered at the end of 2010.</p> <p>2013/14- \$46,531 2014/15-\$24,670 2015/16-\$5,351</p>
Upper Lachlan	<p>Water Usage Tariffs are the primary (and very effective) tool.</p>	<p>Substantial reduction in water usage since introduced.</p> <p>Hard demand management tool of higher usage charges are effective with small investment required, soft demand management tools such as rebates and promotional campaigns have a lower effectiveness and lower return on investment, particularly in the bush. Demand management tools have limited value in addressing drought water shortage, particularly where there is inadequate and inefficient storage to ‘carry</p>	<p>30% reduction</p>	<p>Negligible- however higher usage to base charge ratio increase revenue risk particularly in very wet or very dry years (if water restrictions required)</p>

		over' any saved water. Large efficient water storages are a sensible, forward looking investment with a high and ongoing return.		
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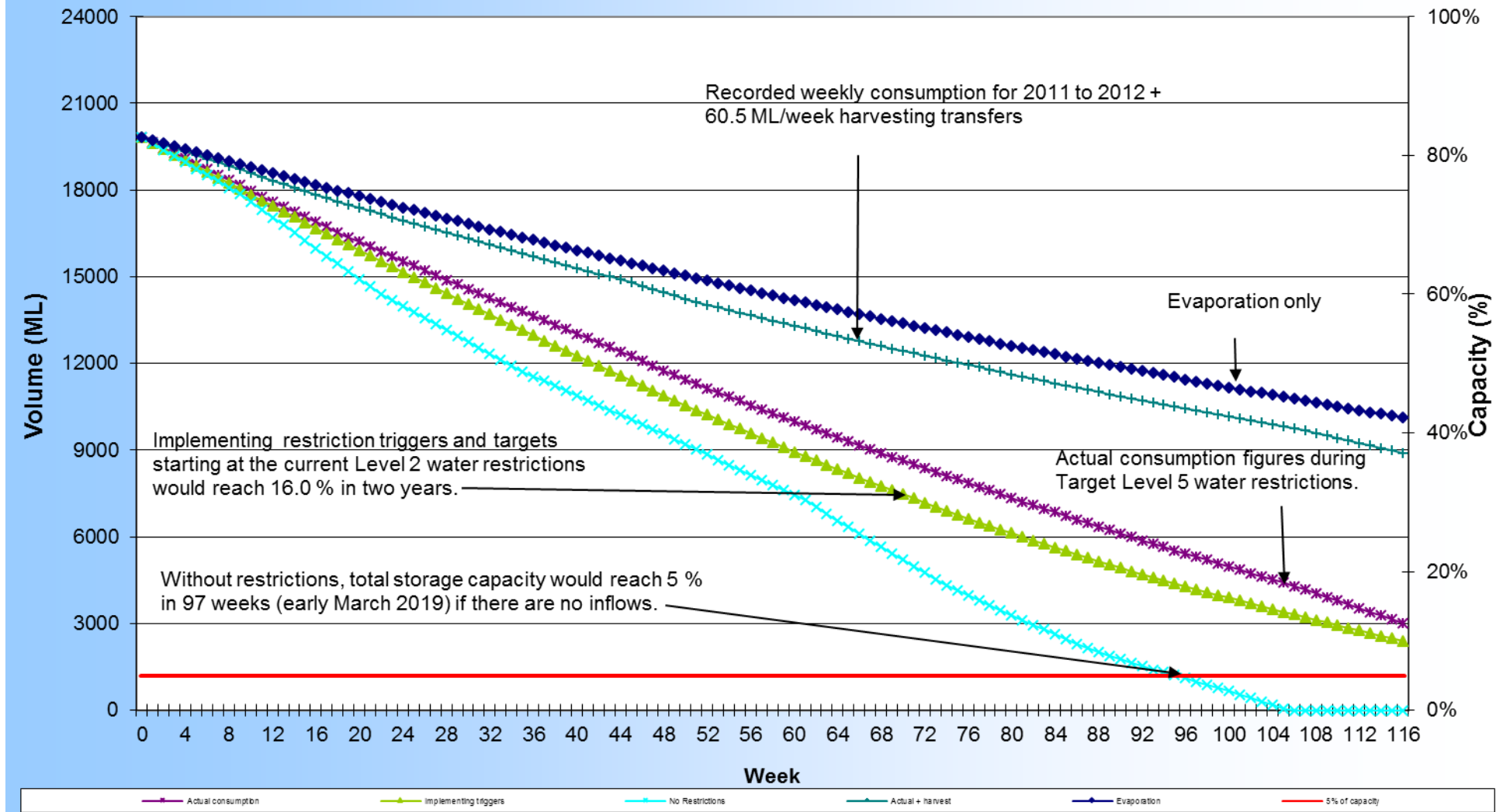
**Orange Monthly Rainfall and Total Storage vs Time
(January 1992 - May 2017)**



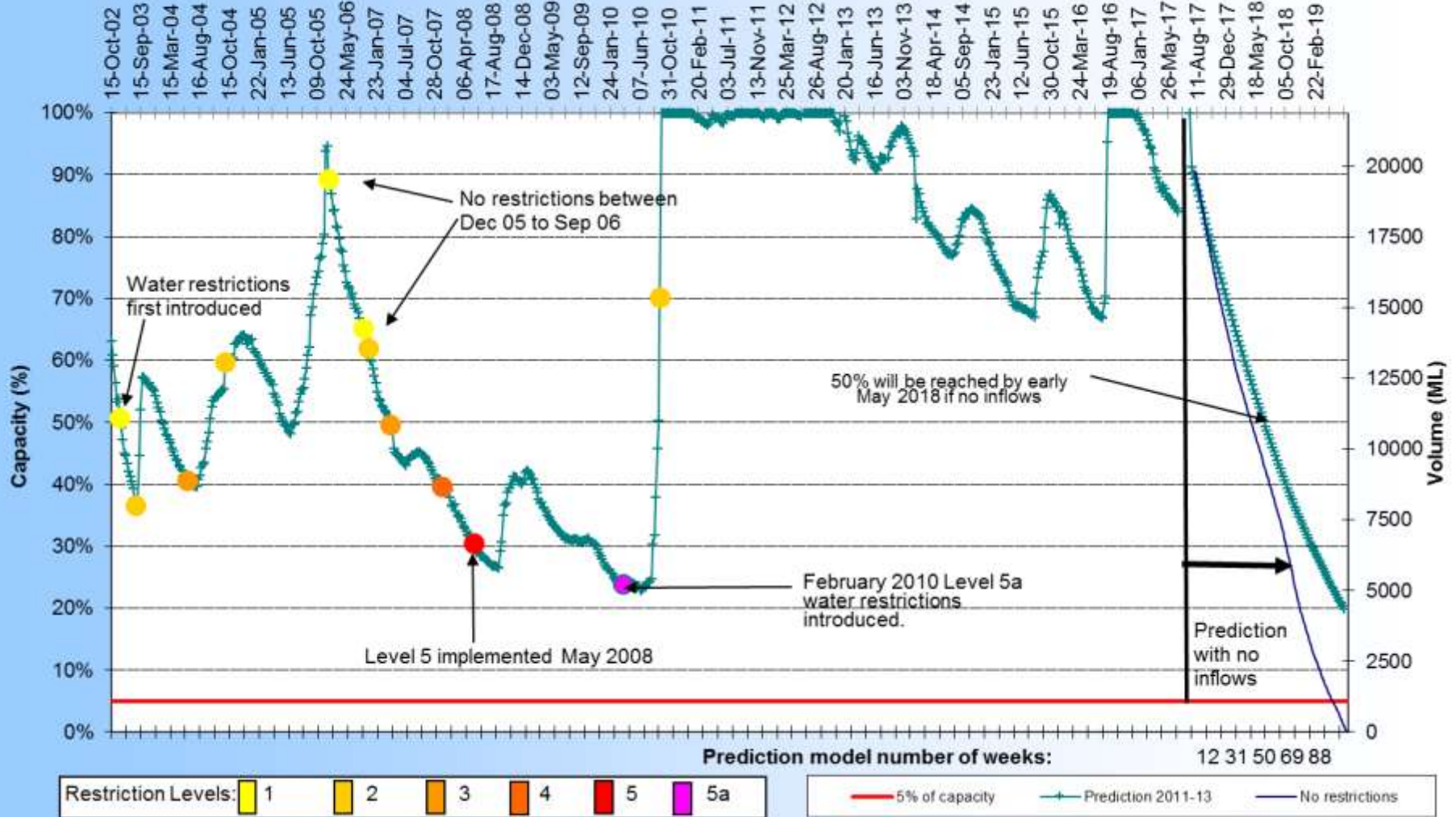
Orange Monthly Rainfall and Water Consumption vs Time (January 1992 - May 2017)



Total OCC Storage (23 468 ML):
Predicted storage volume for 24 months modelled 26 May 2017 with 84.5% total capacity (19 826 ML)



Total Orange Town Water Supply Storage (23 468 ML): Historical data from October 2002 and predicted storage volume for 24 months from 26 May 2017 with 84.5% (19 826 ML) of capacity.



It is hoped that the committee finds the additional information provided in response to the supplementary questions useful in determining recommendations for its inquiry into the augmentation of water supply as it relates to the Central NSW region.

While the best effort has been made to provide the information requested in the timeframe provided, Centroc will be pleased to clarify any of the detail included in this response.

Responses to questions on notice and a corrected transcript are provided separately.

Please contact our Executive Officer Ms Jennifer Bennett or Meredith Macpherson, Program Manager, Centroc Water Utilities Alliance if you require further information.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'a. J. Medcalf', written in a cursive style.

Cr John Medcalf

Chair

Central NSW Councils (Centroc)