Goulburn-Murray Water Connections Project Stage 2 - Mid Term Review

Department of Agriculture and Water Resources

Final Report

November 2015

Executive summary

The GMW Connections Project Stage 2 (GMWCP2 alternatively 'the project') is designed to save water by creating a world leading irrigation system to boost irrigator productivity, help communities and foster healthy waterways and wetlands.

The GMWCP2 is the most significant investment in modernising irrigation infrastructure in Australia. It is a $1 billion investment to upgrade irrigation infrastructure to ensure the future of irrigated agriculture and bolster the economy in northern Victoria.

The project is recovering water lost from system inefficiencies through channel automation and remediation, upgrading meters and realigning the historical layout of the irrigation channels.

Water savings generated from the project are being transferred by Victoria to the Commonwealth to assist in meeting environmental water recovery targets under the Murray-Darling Basin Plan.

The mid-term review of GMWCP2 has been established to:

- Evaluate the assumptions which informed the agreed outcomes for GMWCP2.
- Determine whether the project is likely to achieve its outcomes on time and budget.
- Recommend improvements to the delivery of the project if required.

The review has applied these areas to three points in time to discuss the project performance:

- **Past.** Are key assumptions on which the project is based still appropriate?
- **Present.** How is the project performing and what are the issues impacting this performance and the achievement of the outcomes?
- **Future.** What are the ways in which the project could be changed, what are the implications of these changes and what is the suggested way forward?

The scope of the mid-term review covers only Stage 2 (GMWCP2) of the Connections Project.

Past

GMWCP2 is operating in an environment which has changed significantly from what was originally envisaged during the planning stages and reflected in the business case submitted by Victoria to the Commonwealth in November 2010.

This has impacted the relevance of assumptions made and acted upon by the GMWCP2 over its history resulting in a project designed in many ways to respond to a fundamentally different environment than exists today.

The original assumptions for GMWCP2 were made during the millennium drought, a period of hardship for irrigation communities in the Goulburn-Murray Irrigation District.

A number of these assumptions have been found to no longer be valid, specifically:

- 45% of the delivery shares not connected to a reconfigured backbone will be terminated and the landowners holding these rights will voluntarily 'dry off' and leave irrigated agriculture.
- 5,272 landowner connections will need to be reconfigured by the project.
- Resource availability will not be a constraint for the project.
- 95% of landowners will ultimately choose to be engaged with the project.

- Landowner agreements will be achieved with one interaction between the project and landowner.
- Landowners will form syndicates to take a collective and proactive approach to negotiation and agreement with the project on reconfiguration options.

Implementation of the GMWCP2 is based on the Connections Implementation Plan (CIP). This plan was developed by GMW to govern the delivery of GMWCP2 in July 2012 after the transition of GMWCP2 from Northern Victoria Irrigation Renewal Project (NVIRP) to GMW following the Victorian Ombudsman's Investigation into the Foodbowl Modernisation Project, a period of significant organisational change.

This implementation plan was further revised in April 2014 to produce the Connections Implementation Plan Update (CIP2) which remains to this day the operative delivery document for GMWCP2.

A number of CIP2 assumptions have been found to no longer apply, specifically:

- Landowners will take 300 days to complete their component of Connections works.
- Landowners not on the reconfigured irrigation backbone will voluntarily participate in the project.

A number of unstated assumptions have also been carried through GMWCP2 which have significantly impacted the ability of the project to deliver as intended.

A number of these unstated assumptions have been found to no longer apply, specifically:

- Significant physical works will be undertaken during the irrigation season.
- There will be no net increase in landowners interacting with the project.
- Obtaining landowner agreements will be a straightforward process.
- Landowner-managed works will be delivered in a timely and predictable manner.
- The project will be able to adapt to a changing environment by learning from the experience of Stage 1 of the Connections Project, a project which preceded the commencement of GMWCP2.

The impact of assumptions not holding true has been compounded by external factors which have reduced the time available for GMWCP2 to deliver and adapt, including:

- Delays in commencement of the project (2010-2012).
- Investigation by the Victorian Ombudsman into the Foodbowl Modernisation Project (2011).
- Integration of NVIRP into GMW (2012).

The ability to manage the above and restructure a project on actual performance data in preference to assumptions presents a significant challenge for the project.

The extent to which the project has been able to adapt to this shifting environment to date is reflected in the present performance.

The Present

On the current performance it is apparent GMWCP2 will not achieve the outputs, outcomes and aim specified in the Project Schedule by June 30th 2018 nor with the existing budget if the project continues as it is currently being implemented.

The project is transitioning from a phase where progress can be achieved through actions solely under the control of GMW to a phase where progress is determined by GMW's ability to reach legal agreements with landowners on how they connect to a reconfigured system.

Present performance demonstrates progress in generating landowner agreements is consistently below the rate required to deliver the project on time and budget.

The ability to secure landowner agreements in a timely manner is the main factor influencing the ability of the project not being able to deliver the outcomes as originally expected.

Overall project performance in achieving KPIs is influenced by a number of more fundamental issues observed in the project at present:

- **Project aim**. Who the project is for, its aim and the prioritisation of the multiple aims between GMW, DELWP and DAWR has become unclear. This extends to a lack of clarity amongst landowners on what basis they are prioritised for involvement in the project.
- **Reporting.** GMWCP2 produces a range of progress reports shared between DELWP, DAWR (formerly DoE) and GMW for discussion and action. This reporting environment, driven by the governance structure, appears to contribute to a lack of understanding, and timely response to what is occurring in the project between GMW, DELWP and DAWR.
- **Actual water savings produced**. The actual amount of water savings the project can deliver remains unclear. There are two elements to this lack of clarity, firstly the ability to forecast savings from future project works delivered by GMW. Secondly, the transfer of water entitlements by DELWP to the Commonwealth, at times up to 12 months in advance of the verification of actual water saved as determined by an annual independent audit.
- **Forecasting**. Forecasting does not consistently or accurately portray project performance in an easily understandable way. Considerable data is available on the performance of the project, but not on underlying risks and the effectiveness of measures to address those risks. Forecasting data points to a project falling further behind month to month.
- **Project governance and communication.** The current arrangements for governance and communication in GMWCP2 between DELWP, DAWR and GMW is resulting in a situation where risk is not being adequately communicated, understood, managed, elevated and actioned between the parties in a timely manner.
- **Communication with Landowners.** Poor communication is a comment made by a selection of landowners in relation to GMWCP2. Examples of confusing, inconsistent and delayed interactions were provided to the review by external stakeholders.

The key findings of the Victorian Ombudsman's Investigation of the Foodbowl Modernisation Project in 2011 on NVIRP, the delivery agent for GMWCP2 prior to GMW, and implementation of actions are not considered within the scope of this mid-term review. The findings are assumed to have been actioned as per the Ombudsman's follow up report in February 2014.

The Future

A fundamental change in approach and delivery of GMWCP2 is required to be able to orient the project to respond to project risks as understood today. It is appropriate to 'reset' the project.

Assumptions applied in the past have not been reflected by the actual operating environment or observed performance. Present performance data shows a project forecasted to not deliver on time or budget.

Performance has been able to be managed by GMW to date because infrastructure works were on their assets and not dependent on landowner agreement.

Future performance however, is dependent on the ability of the GMWCP2 to secure agreement with landowners. Based on performance to date changes in approach will be needed as the rate of securing agreements and finalising landowner on farm works is well behind the rate needed for completion of the project in its current form.

The project assumptions are no longer valid and the project structure needs to change to reflect this. With approximately $801 million still to be spent as of June 2015, the project has an opportunity to reset.

The mid-term review has identified a spectrum of options open for the project and the implications of these options on the stakeholders:

- **Option 1**: Do nothing to change the project.
- **Option 2**: Increase duration of the project.
- **Option 3**: Increase the project budget.
- **Option 4**: More effective use of compulsory reconfiguration powers.
- **Option 5**: Outsource all or part of the project.
- **Option 6**: Change the GMWCP2 policy framework to clarify the project aims.
- **Option 7**: Abandon the project.

The selection of which option or combination of options can only be determined through a clear agreement between the Commonwealth, Victoria and GMW.

This report provides recommended actions to lead to this agreement but cannot purport to speak to the wider policy, time and budget sensitivities of the Commonwealth, Victoria and GMW.

The mid-term review does identify the following key issues which the parties must address as part of any reset of the GMWCP2:

- The basis which the project will proceed.
- The extent and basis on which some infrastructure works will proceed as per the current project arrangements and others which will not.
- The extent to which parts of the current project may not be required after a project reset.
- The extent to which outsourcing of parts of the project to increase the availability of skilled resources, in the management and delivery of large infrastructure projects is required.
- A commitment to completing actions with some degree of urgency. It is important that those involved in the process have the appropriate delegated authority to enable decision making to occur within workshops and meetings.
- A clear understanding of the forecasting risk in both infrastructure works but also the transfer of water savings and a clear shared understanding of the approaches to manage these risks.
- A change in project contracts to reflect the new project, covering performance measures and milestone payments.
- Project performance measures which more accurately measure project risks and outcome.
- A risk based approach in reporting which clearly links critical project risk with the effectiveness of measures to respond to that risk.

- A public policy for the project outlining how and when compulsory reconfiguration powers will be applied.
- An immediate need for improvement in the communications and governance arrangements between GMW, the State and the Commonwealth to emphasise timely and coordinated agreement and action between all.
- An immediate need for improvement in the external communication of the project to provide publically more detailed information on the project and its performance. Specifically, the process for resetting the project, policy, current status, project issues, and public interactions.

Recommended Actions

Table 1 below summarises the actions suggested to proceed to a reset of the project.

Table 1 Summary of Suggested Actions to proceed with a reset to the project

ID	Action	How	Led By (in consultation with other parties)	Outputs	Outcome and Performance Criteria
1	Define the Project.	A facilitated process to discuss and agree project aims and on what basis the project will proceed.	DELWP	Agreed project aim and objectives. List of principles describing what the project is trying to achieve.	Agreed understanding of the project suitable for both government and public purposes.
2	Project communication	Develop and agree on a communications strategy for communication between the project partners and the wider public.	GMW	External communication plan covering : • Project definition. • Process to reset project. • The transition from the current project to a reset project • The performance of the reset project to the project end.	Agreed process to capture and distribute messages to all stakeholders. The standard of communications particularly to the public has to be a lot better. Frequency and consistency of messaging between GMW, DELWP and CTH suitable to keep the following perspectives informed: • Public perspective • Landowner perspective (individual, groups, regions) • Project performance perspective (project status at any given point in time) • Project aims and conversion of those aims in practical and accessible terms.

ID	Action	How	Led By (in consultation with other parties)	Outputs	Outcome and Performance Criteria
3	Establish an agreed, empiric, project baseline as at November 2015.	Use data from weekly project reporting by the project management office within GMWCP2.	GMW	Comprehensive empiric statement of the project position as of November 2015 including: • Current financial situation noting any under/over spend. • Cost to date to complete works against key delivery measures. (eg, channel decommissioning, per delivery share, per meter) • Recovered water savings • Forecast water savings. • Delivery Shares recovered. • Total length of backbone noting any changes. (Termed 'backbone extension' in GMW reports) • Channel remediated. • Channel rationalised. • Legal Agreements Requested. • Legal Agreements Executed. • Status of each of the 165 SCPs, - Legal Agreements Required. - Budgetary position - Status of Landowner agreements - Cost per ML of water saved - Number of contingent agreements required. - Current scheduled order and status	Data suitable for inclusion in analysis of potential future delivery models to determine the extent to which those future delivery models have improved the project performance. Provision of this data in a short, single, simple format endorsed by all parties as an agreed baseline suitable for use as a contractual basis. Ability of a third party with no prior exposure to the project to interpret and understand the data, its context and relative importance.

ID	Action	How	Led By (in consultation with other parties)	Outputs	Outcome and Performance Criteria
4	Choose the project future.	Using project principles, determine parameters to be used to assess any project reset. Consider project reset in Multi Criteria Analysis (MCA) process with risk-based assessment Workshop. Which includes testing options against: • Policy impact • Time impact • Budget impact • Actual water savings. (what is the actual amount of savings achievable in an efficient way and what is the amount of money required to deliver these) • Transferred water entitlements • Impact on Landowners • Transition arrangements • Exception factors (incl. past representations, sunk costs, impact of overall performance) • Concessions in policy positions to date Produce new project delivery plan from now until project completion.	DELWP	Project plan which achieves the agreed project principles. Project planning documentation.	An agreed project plan and supporting project management documentation Note this is not a report, no contextual or extraneous information is required other than: • Activity • Output • Accountability • Timing • Assumptions • Risk • Risk management • Empirical basis of measuring performance in the activity.
5	Risk management of water savings	Provision of statement regarding the approach to managing risk of any underperformance in the delivery of water savings.	DELWP	Included in same performance reporting framework as overall project reporting above.	Stated position on risk in delivering water savings and approach to manage that risk. Statement should be suitable for public disclosure.

ID	Action	How	Led By (in consultation with other parties)	Outputs	Outcome and Performance Criteria
6	Project Charter and Schedule Update internal project communications	Develop revised Project Charter and Project Schedule to reflect project principles and appropriate performance measures and KPIs that reflect progress toward achieving project principles. Develop internal communication plan and obtain agreement on common process, timing and management of communications for duration of the project. Agree measures which accurately reflect project performance and risk factors against overall aims Communication should occur at a range of frequencies including: • Weekly, potentially involving a system which investors can log in and check current status at any time. (We note such a system could be as simple as shared secure online communications portal where GMW reports are uploaded weekly, or as complex as a fully integrated ERP shared between GMW, DELWP and CTH). The project produces detailed data on performance every week and this should be available to the investors. • Monthly, through a revised dashboard report that simply describes activities of the project and progress toward overall objectives as well as a briefing by GMW at a monthly SOC meeting (either in person or through videoconference) where questions can be asked.	Commonwealth (Project Charter and Schedule) DELWP (Update internal project communications)	Revised Project Charter and Project Schedule agreed between CTH and, State. Process to capture and transmit information regarding the project. (internal). Reporting framework that: • Reflects progress against project principles. • Communicates information in a timely manner. • Allows for interrogation by all three parties. • Can be easily understood by external parties not familiar with the intricacies of the project. • Reflects project risk and management options for those risks. • Identifies escalation and resolution processes. • Allows for transparency in the communication of project information.	Revised Project Charter and Project Schedule agreed between CTH and State. Agreed process to capture and distribute project information. Information should be captured in a way that allows automated reports to be requested at any time. Measures should reflect underlying risk factors and note changes to these risk factors over time as a result of specific activities.

ID	Action	How	Led By (in consultation with other parties)	Outputs	Outcome and Performance Criteria
7	Project Transition	Establish a process and timing to phase current activities into new activities. The current project still needs to continue while transitioning to the new project. GMW may need the project investors to agree to revise the current project guidelines to allow for new approaches to SCPs to ensure that the project continues to deliver while transitioning to a potential new project form. As the existing project is fully occupying the existing staff it is suggested that additional resources likely to come from contractors with experience in delivering similar large infrastructure projects be used to assist GMW. The existing project team have valuable information and experience of the current project so close interaction with the transition team will be required.	GMW (With additional external support to ensure delivery of the overall project is not compromised)	Development and implementation of transition plan.	Successful transition to delivery of the new form of the project as measured against the project baseline.
8	Project Implementation	Implement the new reset project.	GMW	Exact mechanism to be determined depending upon the form that the revised project takes.	Successful project delivery as per the Project Charter and Project Schedule. Delivery of revised project within identified KPIs.

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Appendices

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1. Introduction

1.1 What is GMWCP2?

Goulburn-Murray Water Connections Project Stage 2 (GMWCP2)[1] is the second stage of a major water infrastructure upgrade to improve irrigation efficiency in the Goulburn-Murray Irrigation District (GMID) of northern Victoria. The GMID covers 68,000 km^2 making it Australia's most extensive irrigation network. The intention is to create a network that enables productivity, protects and improves waterway health.

The project is the largest Australian Government investment in irrigation infrastructure funded under the Sustainable Rural Water Use and Infrastructure Program. The total cost of GMWCP2 is $1.1 billion, of which the Commonwealth is contributing $953 million. The Victorian Government is contributing $106 million towards the project.

The project is scheduled to deliver a total of 204GL LTAAY[2] of water savings through infrastructure works as Victoria's contribution to the Murray-Darling Basin Plan. The contribution comprises of 102GL LTAAY transferred to the Commonwealth under the Project Funding Agreement and an additional 102GL LTAAY purchased by the Commonwealth. No water contributing to the project is being purchased from the consumptive pool.

GMWCP2 is a seven year project which commenced in November 2011 and is scheduled for completion in 2018.

The Connections Program is the major component of the GMWCP2 and represents 76% ($800,274,781) of the GMWCP2 investment. The Connections Program:

- Seeks to modernise the irrigation channel backbone[3] by rationalising inefficient spur channels (the 'off-farm element') and providing new connections to properties where appropriate (the on-farm element) which includes $166,330,008 allocated for meter replacement.
- Seeks to transfer approximately 5,182 ML/d of Delivery Shares[4] (DS) to the backbone. Delivery shares are used as a proxy measure for water savings created in the program generated through infrastructure upgrades.

To fully understand what the Connections Program is, it is important to note:

- The off-farm element includes the reconfiguration of a new irrigation backbone in the GMID including meters, automation and a smaller footprint of modern channels.
- The on-farm element includes the works landowners undertake to reconfigure their farms to the reconfigured backbone.
- The installation of meters, reduction of the net area of irrigation channels and transfer of delivery share are used as proxy measures for water saved as a result of infrastructure works in the Connections Program.
- Water savings from these proxy measures are not immediately realised and are verified through an annual water audit process which can be up to 12 months after the works. Water entitlements however are transferred in advance of this verification.

[1] http://www.g-mwater.com.au/connections, formerly known as the Northern Victoria Irrigation Renewal Project (NVIRP) Stage 2

[2] Long Term Average Annual Yield

[3] The 'backbone' describes the irrigation channel system which remains after the consolidation and rationalisation envisaged by the Connections program.

[4] Delivery shares refer to the entitlement of a landowner to have water delivered to the land through the channel or piped network in an Irrigation Area. In times of rationing Delivery Shares form the basis for equitably sharing the available capacity in the system among landowners.

- An independent annual water audit forms the basis of verified water savings delivered as a result of Connections Program infrastructure works.

Two other notable components of the GMWCP2 are:

- **Backbone Modernisation** (8% of investment) to improve capacity to the backbone by upgrades including rationalising and/or replacing service points on channels.
- **Environmental Projects** (7% of investment) to use the backbone reconfiguration to generate positive environmental outcomes from projects at nominated sites subject to individually approved business cases.

1.2 Who are the parties involved in GMWCP2?

GMWCP2 is being delivered by Goulburn-Murray Rural Water Corporation (GMW) through the oversight of the Victorian Department of Environment, Land, Water and Planning (DELWP).

The Department of Agriculture and Water Resources (DAWR)[5] represents the Commonwealth as the principal financier of this project.

DELWP is responsible for the management of the funding agreement between the Commonwealth and the State of Victoria. DELWP is responsible for reporting project progress to the Commonwealth, share a role in the identification and management of risks through key project governance bodies, and has a role in offering policy based support the project requires.

An overview of the roles and current delivery structure of the GMWCP2 is provided in Figure 1.

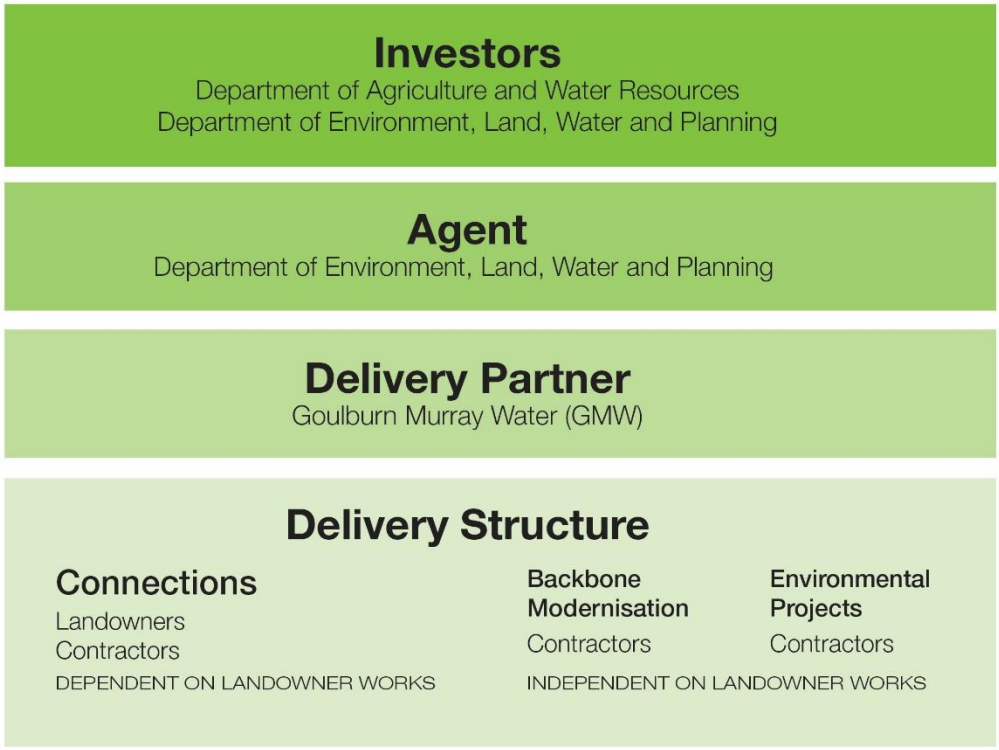

Figure 1 Delivery structure and roles within GMWCP2

The parties created the GMWCP2 through the following steps:

- A Business Case submitted by DELWP[6] on behalf of the Victorian Government in March 2010[7] created the scope of the GMWCP2.

[5] References to DAWR include all preceding Commonwealth Departments responsible for this project.
[6] At the time Department of Sustainability and Environment (DSE)

- This business case was the focus of a due diligence assessment by the DAWR[8] on behalf of the Commonwealth completed in November 2010.[9]
- GMWCP2 commenced in November 2011 through NVIRP an entity created by Victoria specifically to deliver irrigation upgrade programs of this nature.
- Following an investigation by the Victorian Ombudsman of NVIRP[10] on 1 July 2012 NVIRP was integrated within GMW becoming a business unit known as the 'Connections Project'.
- The GMWCP2 currently is scheduled for completion in June 2018, with a total budget of $1.059 billion.

1.3 How is the GMWCP2 being delivered?

The structure and delivery of GMWCP2 is explained in Figure 2 below.

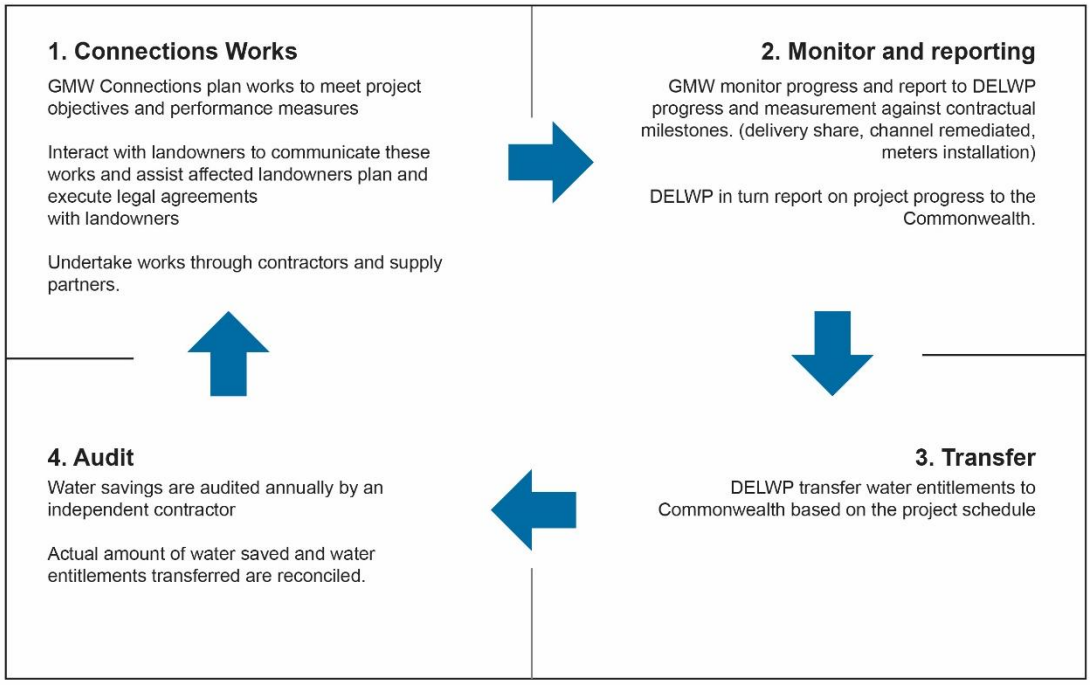

Figure 2 How GMWCP2 is being delivered

In understanding the scope of the GMWCP2 and how it is being delivered it is important to note:

- 204 GL LTAAY of water savings is to be produced as a result of infrastructure works, predominantly through:
  - A net reduction in channel length.
  - Installation of meters.
  - Upgrades to the remaining channels, the 'backbone'.
- By 30 June 2018, GMWCP2 is required to transfer 204 GL LTAAY to the Commonwealth.
- Connections Stage 1 was a separate predecessor (2008) to GMWCP2 and is expected to be completed by 30 June 2018.

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[7] The business case for Stage Two of NVIRP (now GMWCP2) was received by the Commonwealth from the Victorian Government on 1 March 2010. The document has since been classified as a cabinet in confidence by the Victorian government and as such not a public document.

[8] At the time Department of Environment, Water, Heritage and the Arts (DEWHA)

9 Northern Victoria Irrigation Renewal Project Stage 2 Due Diligence Assessment Report Department of Sustainability, Environment, Water, Populations and Communities 1 November 2010

[10] https://www.ombudsman.vic.gov.au/getattachment/0c328751-ed2d-438e-88a4-a218bbabcc79

- Stage 1 is intended to generate 225 GL LTAAY of water savings split evenly between landowners, the environment and Melbourne urban water users using many of the same approaches to infrastructure upgrades as included in Stage 2.
- The joint aims of Connections Stage 1 and GMWCP2 is to modernise the GMID channel system and save up to 429 GL (LTCE) of water losses.
- A complete list of the project aims is included in Appendix B. This list is drawn from Project Schedule, the contractual agreement between the DAWR and DELWP that governs GMWCP2.

1.4 What is the mid-term review?

The Project Schedule between the Commonwealth and Victorian Governments requires DAWR and DELWP to undertake a joint review of GMWCP2 in mid-to-late 2015 to assess the project's performance and improve delivery outcomes. (the 'mid-term review').

The review is commissioned by the Commonwealth and Victorian Governments, with funding provided by the Commonwealth. GMW, Victoria and the Commonwealth all provided information to the review.

This report forms the outcome of this mid-term review.

This mid-term review focuses on GMWCP2 only. Stage 1 is outside the terms of reference. The full scope of the mid-term review is defined in the Terms of Reference (Appendix A).

The Terms of Reference raise three focus areas for the mid-term review:

- Evaluate the appropriateness of the key assumptions which were the basis for the agreed outcomes in the Project Schedule (contract) between the Commonwealth and Victoria.
- Determine whether the GMW Connections Project is likely to achieve the outputs, outcomes and aims specified in the Project Schedule within the allocated resources (financial and human) and timeframe.
- Recommend corrective actions and improvements to the delivery of the project (if required).

The Terms of Reference also put forward a series of related questions.

The review was undertaken under the oversight of a Working Group established in April 2015 and comprising representatives from DAWR and DELWP. GMW was an observer on the Working Group. The Working Group was responsible for overseeing the project at key delivery points and was chaired by DELWP.

1.5 How is this report structured?

GMWCP2 is a project with a long history, complex issues and wide reaching outcomes. To paint a comprehensive picture of the project and its current performance, this report is structured into three sections:

- **Past** – How has the project got to where it is and how has the past informed the performance we see today?
- **Present** – How is the project currently performing; what are the ongoing challenges and successes?
- **Future** – What will happen in this project moving forward if the project continues with no change; how can the project change and what may be the outcomes of such changes?

1.6 How was this review approached?

GHD delivered the GMWCP2 mid-term review in a manner consistent with our Program Monitoring and Evaluation Foundation Method. Two of the key outputs produced using our Program Monitoring and Evaluation Foundation Method, the Logic Model and Evaluation Framework are included in Appendix C and Appendix D respectively.

- The Logic Model produces an agreed scope and understanding of the project, GMWCP2, to be reviewed by the Evaluation Framework. (what you're trying to achieve and why)
- The Evaluation Framework explains how the review approached each of the questions in the Terms of Reference. (what we looked at and why)

In contrast to an audit the mid-term review relies heavily on information provided to the review, primarily in the form of reports and interviews with key stakeholders and does not have the resources to independently verify data provided to the review.

GHD's approach to this mid-term review emphasised:

- **Engagement.** Making sure people are open about contrasting views. Understanding that large programs change quickly and having an open dialogue is the best way to respond to these challenges. Meeting frequently with DELWP, DAWR and GMW putting our thinking forward openly.
- **Practicality.** Making sure acronyms, data and complexity do not get in the way of an agreed understanding, saying what you mean, meaning what you say and drawing examples where ever possible to communicate the point. In this case putting the issues forward as simply as possible.
- **Reality.** Making sure our evaluation is not just a report, rather it provides people with the tools they need to influence the changes required. In this case assessing all the options in front of the program.

2. The past

This section summarises how the GMWCP2 got to where it is, and how the past is influencing performance in the present.

2.1 Original business case assumptions are no longer appropriate

The original business case on which GMWCP2 was founded was produced in November 2010 towards the end of the millennium drought. Assumptions in this business case were derived during conditions of hardship for the irrigation communities of northern Victoria.

A number of these assumptions have subsequently been found not to be valid. A summary of these business case assumptions and their continued relevance to the project today is shown in Table 2.

Table 2 Assumptions made in the 2010 Business Case and their impact on GMWCP2 in 2015

Assumption	Observation	Appropriateness	Impact
45% of landowners[11] not on the backbone will 'dry off' and leave irrigated agriculture.	The end of the drought and improvements in agricultural conditions has led to a dry off rate of closer to 14%.	No longer appropriate.	This means there are more physical connections and works required by the project increasing cost and complexity.
Resource availability will not be an issue.	Resources availability has been a challenge for the project.	No longer appropriate.	Restrictive availability of suitably qualified personnel in the GMID and plant, equipment and supplies.
95% of landowners will be involved in the project delivery.	100% of landowners are being sought be involved in the project.	Appropriate but project has moved away from this assumption.	It is appropriate to engage with 100% of landowners in some capacity; in this engagement however 100% may not elect or be required to participate in the project. The 100% target distorts other policy objectives for the project.
Landowner agreements will be achieved with only one interaction between the project and the landowner.	Landowner interactions have proven to be more complex and interdependent than envisaged.	No longer appropriate.	Many interactions between the landowner and the project required before agreement is reached often with significant periods of time between interactions.
Landowners will form syndicates to take a collective and proactive approach to negotiation and agreement with the project on reconfiguration options.	Syndicates are very rare in the project.	No longer appropriate.	Almost all landowner interactions are with individual landowners with no efficiencies gained through interactions with multiple landowners at a time.

[11] The business case actually notes non-backbone delivery share here, GMW advise however the relationship between delivery share and landowners is roughly 1:1 and presents a more practical way to discuss this assumption.

Assumption	Observation	Appropriateness	Impact
A landowner's initial interaction with the project would be through a contracted farm designer.	Following GMW responses to the Ombudsman's report on NVIRP, the first one on one discussion with landowners are held with GMW staff rather than a contracted farm designer.	No longer appropriate.	Delays in interacting with landowners.
The planned backbone would extend to facilitate connections and retract to balance out the extensions.	Backbone retention to facilitate new connections has exceeded retractions.	No longer appropriate.	Approximately 550 km of channel retention have been forecast, which will result in 50-54 ML/km less water savings.
Stage 2 will build on Stage 1 to complete the modernisation of the GMID irrigation system.	Stages 1 and 2 are running concurrently with low visibility of the differences between the two from a landowner perspective. Lessons learnt in Stage 1 were to be used in the planning of Stage 2.	No longer appropriate.	No opportunity to apply the learnings from stage 1 to stage 2. Concurrent delivery creates complexity in the reporting of water savings given separate contracts exist for both stages as well as complexities in organisational structure and communications. There has been no ability to take lessons from Stage 1, particularly the experience with landowner interactions.

2.1 Implementation assumptions are no longer appropriate

Following the investigation by the Victorian Ombudsman of the Foodbowl Modernisation Project the project transitioned from NVIRP to GMW in July 2012. Consequently a Connections Implementation Plan (CIP) was produced by GMW to govern the delivery of GMWCP2.

CIP carried forward assumptions from the original business case to delivery.

CIP was updated in April 2014 to produce CIP2 a revised approach to implementation of GMWCP2 taking into account the two years data and learnings GMW had generated.

CIP2 remains the operative document governing delivery for GMWCP2. A number of assumptions made by CIP2 have been found to no longer be valid. A summary of these assumptions and their continued relevance to the project today is shown in Table 3.

Table 3 Assumptions made in the 2014 updated implementation plan for GMWCP2 and their impact on the project in 2015

Assumption	Observation	Appropriateness	Impact
Landowners will take 300 days to complete their component of Connections works.	The average duration for a landowner to complete their component of the works is 402 days, ranging from 96 days to over 962 days.[12]	No longer appropriate.	The increased time it takes landowners to complete works will increasingly shift overall project delivery back. Outliers have a significant impact given the dependency of multiple agreements before works can proceed, one outlier can therefore delay many landowners who have completed their works in a timely manner.
Landowners not on the 'backbone' would voluntarily participate in the project.	CIP2 identified a voluntary approach is not likely to meet the objectives of the project and a voluntary approach impacts the affordability and deliverability of the program.	No longer appropriate.	A solely voluntary approach to the delivery of GMWCP2 is resulting in increased timelines.

2.2 There is less time for delivery than originally envisaged

A range of factors have reduced the amount of available time to deliver the works required of GMWCP2 placing pressure on the project to deliver by June 2018.

These factors and their impacts are included in the sections below in chronological order.

Delays in commencement of the project (2010-2012)

The commencement of the project was delayed by two years.

- The Water Management Partnership Agreement (WMPA) between the Commonwealth and the State of Victoria was signed in January 2010.
- The first version of the Business Case was submitted to DAWR in March 2010 and an updated version was provided in June 2010.
- The Project Schedule between DAWR and DELWP was signed in October 2011.
- The Funding Agreement between GMW and DELWP was not signed until April 2012.

[12] GMW written response to GHD question 26 August 2015

The consequence of this has been:

- A project with performance measures created drawing on 2010 numbers assuming a 2018 completion which instead started in 2012.
- A project commencing in 2012 relying on a 2010 business case that included several assumptions using 2008 information.

Investigation by the Victorian Ombudsman (2011)

The Victorian Ombudsman commenced an own motion investigation of the Foodbowl Modernisation Project (GMWCP2 predecessor) under section 14 of the Ombudsman Act 1973.

- On 1 February 2011, Mr Peter Walsh MP Minister for Water requested the Ombudsman investigate GMW and NVIRP's implementation of the Foodbowl Modernisation Project.[13]
- The Ombudsman's report was released in November 2011 identifying several governance issues and recommending NVIRP become a business unit of GMW.
- On 1 July 2012 NVIRP was integrated with the operations of GMW and became a business unit within GMW known as the 'Connections Project'.
- The Victorian Privacy Commissioner investigated NVRIP following a referral from the Ombudsman[14] and found a number of breaches to the provisions of the *Information Privacy Act 2000* in relation to private landowner information.[15]

The consequence of this has been:

- A 10 month period when no landowner interactions took place.[16]
- A requirement to treat each landowner interaction as private. Landowners cannot factor neighbouring landowners' decisions into their decision making, this has increased the time it takes landowners to form decisions.

Integration of NVIRP into GMW (2012)

Integration of NVIRP2 into GMW commenced in December 2011 following the Victorian Minister for Water's direction in November 2011 as a result of the findings of Ombudsman's Report.

- On taking over the project from NVIRP GMW report that little data was available to guide GMW on the performance and challenges of the program.

The consequence of this has been:

- Time needed to be invested in establishing these processes; a 2013 Audit[17] estimated the immediate impact of this delay as six months.

Connections Implementation Plan 2 (2013-2014)

A review of the Connections Implementation Plan (CIP) commenced in July 2013 resulting in the development of CIP 2 was approved by the State in April 2014.

The aim of CIP 2 was to better focus the project using historical information from the first year of its implementation.[18]

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[13] https://www.ombudsman.vic.gov.au/Publications/Parliamentary-Reports/Investigation-into-the-Foodbowl-Modernisation-Project

[14] CIP2 Section 7.3.3

[15] Section 45 of the Executive Summary of the Victorian Ombudsman's Report into the Victorian Foodbowl Project. https://www.ombudsman.vic.gov.au/Publications/Parliamentary-Reports/Investigation-into-the-Foodbowl-Modernisation-Project

[16] GMW written response to GHD question- 23 July 2015

[17] Ernst and Young Audit (2013)

[18] GMW written response to GHD question – Impact of delays to Connections delivery 23 July 2015

The consequence of this has been:

- CIP 2 and the implementation of a new plan for the project caused delays in the rollout of GMWCP2 while an agreed position on key issues included in CIP2 was agreed by DELWP, DAWR and GMW. The duration of this delay is difficult to quantify.
- Assumptions on forecasting which GMW advises were developed in January 2013 were operative in a document endorsed in April 2014.

2013 Audit

In December 2012 DAWR contracted Ernst and Young (EY) to perform an assessment of GMWCP2.[19]

This audit made a number of recommendations relating to the management and reporting of the project, including:

- DAWR and DELWP work more closely with GMW to assist delivery of GMWCP2.
- GMW develops project schedules and resource plans covering activity to the project end.
- All parties formally reassess whether the current funding model remains appropriate.
- Improve reporting and communications between the parties.

The consequence of this has been:

- The EY audit required some refocusing of effort and redesign of procedures such as reporting, the duration of project delays resulting from this is difficult to quantify before being fully actioned by March 2015.

Stage 1 and Stage 2 running concurrently

There is no ready identification of the differences between Stage 1 and GMWCP2 in the view of the landowners.

- Stage 1 of the project was initially scheduled to finish before GMWCP2 commenced, it is now scheduled to complete at the same time as GMWCP2.
- Learnings from a completed Stage 1 were meant to be available to provide useful information to the management and implementation of Stage 2.

The consequence of this has been:

- Additional resources are still required for Stage 1, thus putting pressure on resources available for Stage 2. The exact impact on Stage 2 progress is difficult to quantify.
- Lessons from the small landowner interaction component of Stage 1 may have been available to guide the much larger landowner interaction component of Stage 2 rather than these lessons being learnt in Stage 2.
- Stage 1 is still being completed and as such the two programs are running in parallel so the ability of Stage 2 to profit from the experience of Stage 1 has been limited.

Winter works

The amount of works that can be implemented outside of the winter works period has been less than anticipated and almost all major works can only be constructed while irrigation flows are not being delivered through the system.[20]

[19] GMW written response to GHD question – Impact of delays to Connections delivery 23 July 2015
[20] Interview with GMW Connections Project Team 17 July 2015

- It was originally assumed a mix of works could be carried out at any time of the year with the exception of in-line structures and channel lining which will be generally carried out during the winter works season (from mid-May to mid-August).
- The availability of landowners to undertake their works required for delivery of the on-farm component of the GMWCP2 is limited; given this is the period when they are undertaking their own works. For example a Connections Agreement can be executed in October but often landowners begin works in April after cropping, a delay of 180 days on paper, but also potentially pushing off-farm works into subsequent winter works periods.
- The project schedule requires water transfers to the Commonwealth on 1 July each year, essentially at the mid-point of each winter works period. Any KPI performance achieved after 1 July will not be captured until the following year. The Project Schedule can and has been varied.

The consequence of this has been:

- A reduction in the available time for which works can be undertaken throughout the lifetime of the project.
- An additional problem of delivery of contractual KPIs against the requirements of the project schedule.

Resource availability

Resource availability, both human and otherwise, has been a challenge for the project.[21]

- The project has had and continues to have difficulty in attracting suitably qualified people to move to the north of Victoria.
- New staff need to be trained over a six month period prior to being able to independently manage projects and/or consultation.
- GMW reported to GHD that in early 2014 the project did not have sufficient available resources, despite several recruitment campaigns, to continue to roll out all the SCPs.[22] Landscape planning works continued but the initiation of SCPs with landowners was delayed.

The consequence of this has been:

- These resource availability issues have had an impact on project progress and appear to have contributed to issues with the ability of the project to manage the large consultation process it faces.

2.3 There are more landowners and consultation is more complex than originally envisaged

The performance of the project to date reveals the number and complexity of stakeholder interactions exceeds what was originally envisaged.

Increase in number of landowners

Under GMWCP2 two possible scenarios for landowners were envisaged:

- Landowners could either be transferred to the modernised backbone.
- Landowners would be compensated and terminated from the GMW system (dried off).

[21] Interview with GMW Connections Project Team 17 July 2015
[22] GMW written response to GHD 12 August 2015

The 2010 Business Case from which GMWCP2 anticipated:

- 95 percent of delivery shares associated with landowners would fall into one of the two situations above.
- Delivery shares to be addressed were estimated at 5,272 with 2,364 (approximately 45 percent) terminations and 2,908 new connection to the modernised backbone.
- Actual delivery shares requested to be terminated are currently 14 percent, significantly less than the 45 percent envisaged.[23] This translates into the equivalent of approximately 1,630 additional landowners according to GMW that GMWCP2 had not anticipated within its works program.

To assist in understanding the scope of this risk:

- The project is dependent on approximately 5,200[24] individual landowners each of whom can have influence on the ways in which sub-projects can be delivered.
- GMW report 80 percent of GMW customers hold five percent of delivery shares.
- In addition to the landowners that hold delivery shares, the project also requires interaction with landowners who may not own a delivery shares, and as such may not be a customer of GMW. These landowners may have an easement (existing or required) that needs to be accessed to ensure the project delivers to another landowner. This group of landowners includes public bodies such as VicRoads and VicTrack where irrigations assets may be required to cross roads or railway tracks respectively.

The consequence of this has been:

- The number of landowners the program was designed to interact with has increased with approximately 40 per cent more delivery shares to be dealt with by the project.
- A comparatively smaller rate of terminations means a much larger number of connections require on-ground works and associated activities such as designs, engineering works, easements, meters and connections that need to be provided by the project.
- These additional requirements increase complexity, cost, human resources to deliver and potentially quality.

Reaching agreement with landowners

GMWCP2 relies heavily on reaching contractual agreements with landowners in a timely manner. The increase in time to secure agreement reflects the complexity of the program and the corresponding communications and stakeholder management. As of 30 June 2015:[25]

- Agreements contingent upon other landowners take an average of 268 days from request to execution compared with 146 days for agreements that are not contingent.
- There are 929 customers who had reached agreement with the project however these were not finalised as they are contingent upon agreements with other landowners.
- Contingent agreements constitute 22 percent of the legal agreements requested.
- No agreements have been reached where contingent upon 12 or more landowners.
- Additional delays and complexities exist when landowners sell their properties resetting the process of agreement negotiation with the landowner.[26]

[23] GHD interview with GMW project staff 17 July 2015

[24] The EY report mentioned over 5,000 landowners but the Business Case for stage 2 discusses delivery shares. Many landowners have less than a delivery share or DS so the total number of landowners to be included in the project is 7,383

[25] GMW written response to GHD question 3 July 2015

No simple mechanism exists for GMW to secure easement-only agreements.[27] This includes a situation where one landowner can influence the ability for another landowner, often a neighbour, to proceed with their preferred connection to the upgraded system by denying the creation of a required easement on their property. Easement only agreements:

- Include 55 agreements executed to date.
- Include another 52 easement-only requests yet to be executed. These requests had been outstanding for an average of 320 days with an extreme of over 1,000 days.
- Take an average time of 146 days from request to execution.

The consequence of this has been:

- The complexity of reaching interdependent agreements relating to water delivery in a system which serves over 7,383 landowners appears to have been underestimated.
- Significant portions of time are passing by before agreements are reached between GMW and landowners.

Once landowner agreements are reached then the landowner may be required to complete on farm works in order for the project to complete off farm works. This typically takes place during the winter when landowners themselves are undertaking works to improve their land. When a landowner does not complete works in a timely manner then delays can be introduced into the program. The project has no mechanisms for influencing the timing of the landowner's on farm works.

2.4 Conclusion: The operating environment has fundamentally changed

The operating environment has changed so significantly that only a fundamental change in delivery of GMWCP2 would be able to orient the project to respond to project risks as understood today.

Performance measures, budget, timing, risk management, governance structures and delivery methodology are designed to manage a project fundamentally different from the current one.

The present performance of the project, in the section below, is a reflection on the ability of GMW, DELWP and DAWR to effectively adapt to a fundamentally different delivery environment than was anticipated in the business case and planning documents.

[26] GMW written response to GHD question 3 August 2015
[27] GMW written response to GHD question 3 August 2015

3. The present

This section summarises how the GMWCP2 is currently performing, including ongoing challenges, opportunities and successes.

3.1 Reports on project progress are difficult to interpret

Understanding the current status of the project is not clear in the reporting and governance frameworks setup between DELWP, DAWR and GMW which rely on:

- Monthly Dashboard Reports.
- Quarterly Progress Reports.
- Reports to the Connections Committee of the GMW Board.
- Annual Progress Reports.
- Water Audits.
- Stage 2 KPI Reports.

The number and complexity of reports presents a challenge to understanding the true status of the project. Despite volumes of data being produced a clear understanding of project performance is not evident. Reporting tends to focus instead on contractual KPI measures not suited to conveying overall program risk. The reports are not consistent in the way information is presented and do not clearly state the progress toward achieving the identified objectives of the project.

The governance and reporting arrangements also appear to be resulting in time delays in the sharing of information between GMW, DELWP and DAWR and contributing to difficulty in the three groups establishing a shared view on the project based on the most current data. For example, the July 2015 monthly dashboard report was provided to the Commonwealth in September 2015.

The GMWCP2 governance environment between GMW, DELWP and DAWR appears to be contributing to this. The formal structures for the groups to discuss progress based on the reporting are:

- Regular SOC meetings, typically quarterly, in which representatives from GMW, DELWP, Department of Treasury and Finance (Vic) and DAWR participate.
- Monthly progress meetings between DELWP, GMW and DAWR.
- Sharing of performance reporting by DELWP who are responsible for interpreting, communicating and discussing performance information from GMW with DAWR.

3.2 Governance arrangements are not identifying and responding to project risks efficiently

Risks to the overall program are mentioned in reporting but there is no assessment of the risks provided, nor mitigation measures, nor are the success of mitigation measures discussed.

While risk mitigation measures have been implemented by GMW (described in the Quarterly Reporting[28]) these are not explicitly linked to the risk in the reporting nor is there any analysis of how these measures may influence progress toward the overall targets of the project.

[28] GMW Connections Project Integrated Quarterly Milestone Report Quarter 3 FY 2014-15 Final issued 7 May 2015

The April Dashboard Report[29] provided from GMW to DELWP records three 'Catastrophic' program risks that were considered 'very likely' to occur. As at 30 June 2015 the number of 'catastrophic' program risks that were considered 'very likely' to occur had reduced to one[30] following feedback from DELWP and DTF with no explanation. The governance arrangements between GMW, DELWP and DAWR appear to allow for the removal of risks unilaterally.

The extreme risks in the April dashboard report include:

- Poor outfall efficiency in some areas across the GMID.
- Failure to manage external stakeholders of the Connections Project effectively (and also non-investor stakeholders, e.g. PowerCor, Shires).
- Failure to manage landowners through the connections process especially those through to compulsory reconfiguration.
- Failure to adequately resource the Connections team, thereby preventing the delivery of the Connections project.
- Failure to maintain sufficient cash to resource project going forward.
- Failure to meet 2014/15 milestones.
- BackBone Extension (BBE) modelling undertaken by Planning has projected that the CIP2 BBE of 550 km may be exceeded.
- Failure to prioritise productive land; in worst case project closure before all landowners modernised.

In the June Dashboard Report[31] only one risk was considered extreme:

> *"Failure to manage landowners through the connections process especially those through to compulsory reconfig (sic)"*

The EY Audit Report recommended a one-page monthly dashboard report.[32] The dashboard reports do not conform to a one-page format and did not clearly and unambiguously state the current status of the project against overall project timeframes. The Dashboard Reports contained references to other documents and an agreed version were not provided in a timely manner to all project parties contributing to an inability for DELWP, GMW and DAWR to form an agreed position.

The specific findings of the Ombudsman's initial report[33] into the Foodbowl Modernisation Project Report had been actioned by February 2014.[34] The key findings of the Ombudsman's Report specifically address categories not considered within the scope of this mid-term review such as:

- Procurement including whether prices were fair and competitive.
- Probity processes are in place.
- Incentives paid to landowners are appropriate and consistent.

[29] GMW Connections Project Monthly Milestone Report as at 30 April FY 2014-15
[30] GMW Connections Project Monthly Milestone Report as at 30 April FY 2014-15.
[31] GMW Connections Project Monthly Milestone Report as at 30 April FY 2014-15
[32] Recommendation R-C3 of the EY audit Report
[33] https://www.ombudsman.vic.gov.au/getattachment/0c328751-ed2d-438e-88a4-a218bbabcc79
[34] https://www.ombudsman.vic.gov.au/getattachment/8f968fdd-91b1-4566-aefe-a24319e97231 see page 12

3.3 Securing landowner agreement and completion of on-farm works is the largest single risk to project performance

Water savings to be generated by GMWCP2 from this point onwards are heavily reliant on landowner-dependent works and agreements (on-farm).

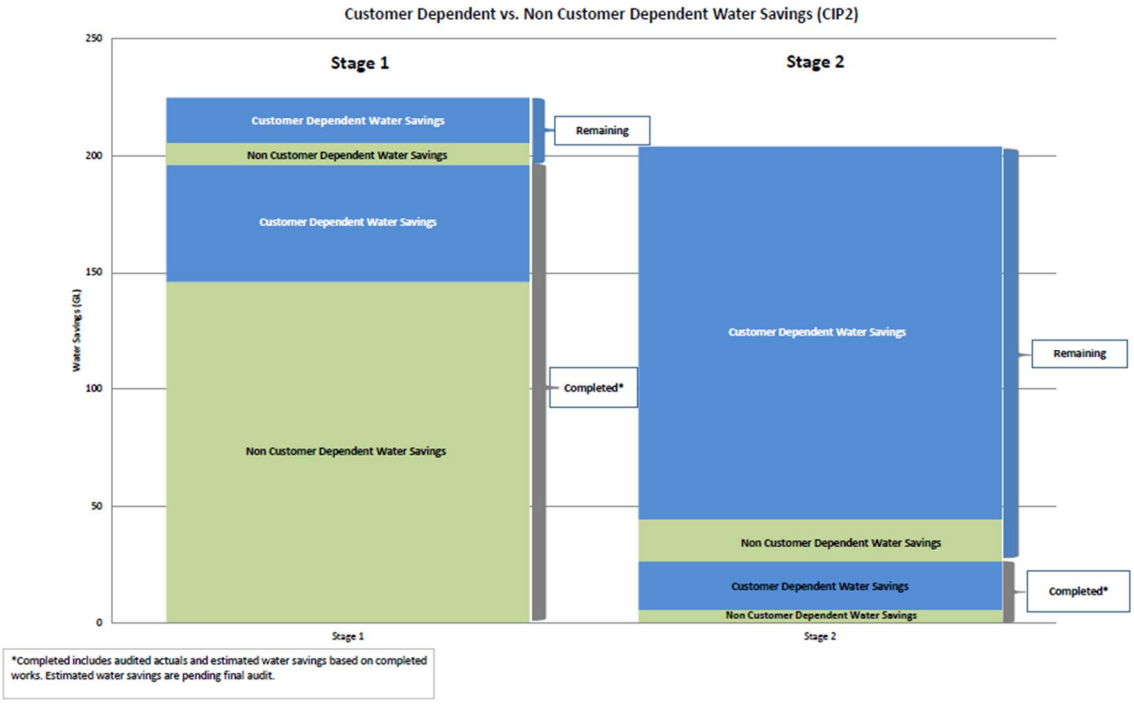

Figure 3 This Figure, provided by GMW, shows the ability to reliably produce water savings generated from landowner dependent works is the largest risk to project performance from this point onwards due to the difficulties in executing landowner agreements

Reaching agreements with remaining landowners (in time for works to be completed within the overall timeframe of the project) requires a significant increase in the rate at which landowner acceptance occurs.

The Connections Project has introduced a number of initiatives to mitigate and respond to issues raised by the change in the nature of the project. There appears to be an identified issue at this stage that approximately 30 GL LTAAY of water savings may not be achieved largely due to forecasted extensions to the irrigation backbone not anticipated.

As this figure of 30 GL LTAAY is based on a significant ramping up of landowner agreements this number may be at risk of increasing.

Performance to 30 June 2015 is approximately $213 m below the budgeted spend, the project had spent approximately $258 million with a remaining $801 million funds available This suggests that the rate of sign up and delivery of the program is falling behind with the largest issue appearing to be the rate at which channel decommissioning works can proceed which are dependent on the execution of landowner agreements and completion of on-farm works.

The overall time to complete the SCP process was reported by GMW in CIP2 to be 820 days, with the landowner component of the works taking 300 days. The average duration for a landowner to complete his or her component of the works is 34 percent greater than anticipated (402 days), ranging from around 96 days to over 962 days.[35] The extreme of over 900 days presents a serious obstacle to the completion of the project within current project timelines.

3.4 The rate at which agreements with landowners are executed is below what is required to complete project by 30 June 2018

The 2014/15 target for legal agreements was 2,124, while the actual to 30 June 2015 was 1,383, leaving a shortfall of 741 legal Agreements to be requested.[36] Therefore, the landowners are not progressing through the system at a rate that would see the project completed on time.

GMW has tried a number of initiatives to decrease the timeframe for the delivery of the project. (detailed in 3.11 below) These initiatives have seen an improvement in project performance however the overall risk to the project through reliance on landowner agreements still remains.

At the current rate, it will take most of the 2015/16 financial year just to make up the 2014/15 shortfall of 741 legal agreements.

- GMW reports an actual of 80 landowners[37] against a target of 177 for the month of June 2015.
- GMW reports that the number of legal agreements per month has increased from around 40 per month to the current figure of around 70 per month, but has explained this is inadequate if project targets are to be met.
- The legal agreements must be executed well before the project deadline as sufficient time needs to be left for the works to be designed, costed, approved and implemented. Given the restrictions of the winter works window, there is insufficient time available to meet the required water savings target.

There are a large number of legal agreements that are being held up as a result of the requirement for additional landowners to also reach agreement. As at June 2015, 963 legal agreements are in this category.[38]

- These contingent agreements require from between one and 29 other landowners to reach agreement before the contingent agreement can be executed.
- Under this category 22 percent of agreements are at risk because of the requirement for other agreements to be concluded.
- No contingent agreements reliant on 12 or more other agreements to be signed have been able to be concluded. Although this category represents only 12 in number there must be doubt as to whether any would be taken to conclusion within the project timeframe.

As progress of the project in any particular SCP can be held up by just one landowner, the extremes of delays in the signing of agreements are problematic.

- The average time from the Board approval of landholder schedule to when a landowner agreement is issued is 158 days with the range being two to 776 days.[39]

[35] GMW written response to GHD question 26 August 2015
[36] GMW Connections Committee 19 Item 6.1B Section 2.2 Planning and Support
[37] GMW Connections Committee 19 Item 6.1B Section 2.2 Planning and Support
[38] GMW written response to GHD question 5 August 2015
[39] GMW written response to GHD question 27 August 2015

- The average time taken for a landowner to sign is 46 days from the date of issue of their agreement although the range is from zero days through to 266 days.[40]

The average time taken can be reduced but if there is no change to the longer extremes of signing times then SCPs may not be processed in a shorter timeframe.

3.5 Forecasts shows a project that is increasingly falling behind

The forecast performance included in the monthly dashboard reporting demonstrates the difficulty for the project to be able to accurately and consistently forecast project performance.

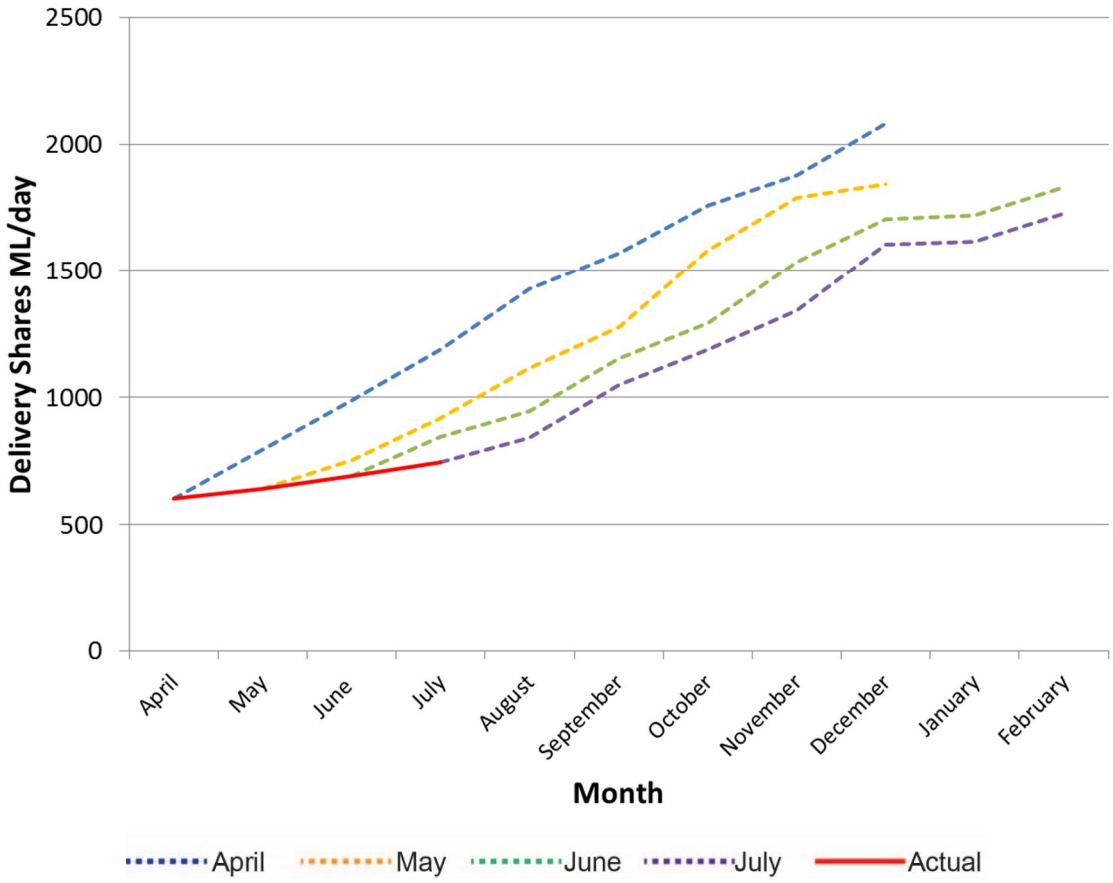

Figure 4 Forecast and actual performance for Delivery Shares (from monthly reports April 2015 to July 2015).[41]

Figure 4 shows the forecasting of Delivery Shares to be gained by the project over a four month period from April 2015 to July 2015 with actual performance and the monthly forecast performance. Each month as actual falls behind forecast, largely as a result of factors discussed in section 3.4 the forecast changes with a pattern of falling further behind target requirements.

An analysis of forecasted performance included in reporting shows almost all measures running behind budget to 30 April 2015, and falling further behind by the end of June.[42] The spending within the project also indicates that the project is falling behind the CIP2 schedule with expenditure being below budget. The June Dashboard Report states that:

[40] GMW written response to GHD question 27 August 2015
[41] GMW Connections Project April 2015. Dashboard Report Performance as at April 2015
[42] GMW Connection Project June Dashboard Report. Table entitled Budget as at 30 June 2015

[The project has] "Net Cash of $120.7 m. This is equivalent to >10 months of expenditure based on current spend rates".[43]

"*Expenditure is below budget. This is primarily due to Connections Works being behind target*".[44]

In order for the project to meet its targets by 30 June 2018 shortfalls against CIP2 budgets need to be made up at the same time as future works are being progressed. For example the 2014/15 Delivery Shares target will be met in December 2015 and the 2014/15 target for channels rationalised will not be met until February 2016, nine months after target.

Works for the 2015/16 year will have to occur simultaneously to those ongoing works for the 2014/15 year requiring at least a doubling of effort. If not the 2015/16 works will not start until February 2016 and the project would be at least nine months behind.

3.6 The basis of forecasting the costs of works is producing misleading results

Modified Historic Cost (MHC) is the historical average cost to connect a property developed by NVIRP and is used as a basis by GMW for forecasting likely expenditure in GMWCP2.

MHC is split into segments based on the Delivery Share held and distance of a property from a backbone channel with the costs captured from a specific time and subset of the GMW customer database.

Experience with the project has shown that these costs are no longer relevant and are consistently producing underestimations of the cost to undertake works in an SCP.[45]

The use of Modified Historic Cost (MHC) as a basis for calculating project costs was seen by GMW as a significant impediment to the project. Some illustrative examples of this include:

- MHC does not deal well with the underlying assumptions involving new solutions.[46] New solutions are being implemented in the project such as remediation activities on non-backbone channels as well as project management costs, easement compensation, and pumping.
- MHC has no direct link to water savings and as such does not consider the GMWCP2 objectives. Use of MHC could encourage investment in a project with minimal water savings.
- MHC utilises discrete categories to assume likely costs; the largest category is constrained to *in excess of three km from the backbone and three delivery shares held*. As a result, SCPs with properties in excess of three km and properties with greater than three delivery shares are likely to have cost significantly underestimated.
- MHC does not take into account particular difficulties; for example where a property may have topography dissimilar to the base case properties on which costs were estimated. Particularly for those properties where pumping was required, or coring of an asset such as a rail line needs to be made to VicTrack standards, or where soil types are different.

[43] GMW Connection Project June Dashboard Report. Table entitled Budget as at 30 June 2015, , note the net cash figure is for stage 1 and 2.
[44] GMW Connection Project June Dashboard Report. Table entitled Budget as at 30 June 2015
[45] Interview with GMW Connections Project Team 17 July 2015
[46] GMW written response to GHD Document DM#3505649v3 26 August 2015

3.7 Risk management in water savings produced and transferred is not clear

The processes used to manage the risk of a water savings shortfall are not clear. The process for addressing this risk and managing shortfalls should they occur is also not clear.

As at 1 July 2015, 120.7 GL LTAAY[47] water shares have been issued to the Commonwealth.

The last water savings audit available (2013/14) indicates at 30 June 2014 only 12.3 GL LTAAY have been achieved by GMWCP2.

The process of issuing water shares to the Commonwealth for GMWCP2 occurs in advance of water savings generated by the modernisation works program. On this process GMW advise:

> *Actual Stage 2 water savings are less than the transferred amount [of water entitlements], with the balance of the transfer being met by GMW from its modernisation water account. The process for temporary borrowing is fully consistent with the contractual requirements set out in item E.2.3 of the Project Schedule.* [48]

Water shares are issued by the State to the Commonwealth by reducing GMW's bulk entitlement loss provisions by the equivalent volume up to 12 months in advance of actual water savings being independently audited.

The risk management process associated with the generation of water savings therefore occurs through two independent processes.

- GMW manages the risk that infrastructure works will not deliver the water savings as per the Project Schedule. As discussed in the preceding sections the project has reached a point where future water savings derived from the infrastructure project are forecasted to not be able to be delivered by the project on time and in budget in its current state.
- DELWP manage an independent risk that the water shares transferred to the Commonwealth in advance of water savings produced by the infrastructure works are greater than what is actually delivered according to the independent water audit.

GMW risk management processes appear well documented in day to day delivery where the risk is flagged, reported, elevated and managed. The degree to which these risks communicate and respond to bigger picture of the program, for example the ability to achieve the aim with the existing time and budget using the current approach are less well developed and the subject of the preceding sections. On this management of the bigger picture risk the following is noted:

- Reported forecasts on water savings generated from infrastructure works is not consistent although all reporting agrees water recovered by Stage 2 of the project is behind schedule.
- The water savings target for GMWCP2 is at high risk. Current estimates provided by GMW show a shortfall in water savings of approximately 30 GL LTAAY as at 30 June 2018.

DELWP advises the following are the key elements of their risk management process:

- Water shares are issued by the State to the Commonwealth by reducing GMW's bulk entitlement loss provisions by the equivalent volume to ensure no net increase in entitlements, through the use of a modernisation offset account.
- In the instance in a given year losses required to run the irrigation distribution system are greater than the volume allowed for under GMW's bulk loss provision allowances GMW

[47] Transferred using the LTCE water measurement, but DAWR advises that LTCE and LTAAY measurements are comparable.
[48] Goulburn-Murray Water Connections Project Stage 2 Annual Progress Report No. 5 FY 2014-15 – 15 May 2015 Final

has the ability on an interim basis to access water allocation, not shares, held within the modernisation offset account.

- Audited water savings from Stage 1 of the Connections Project are allocated to modernisation offset account annually. One third of the audited actual Stage 1 savings[49] is allocated to the modernisation offset account following the annual audit.
- This process has always been part of GMWCP2 to allow milestone payments from the Commonwealth to DELWP in advance of water savings to ensure the project has the funds available to proceed with the infrastructure works. This process has resulted in a significant amount of cash on hand held by both DELWP and GMW as noted in Section 3.3 above, which together corresponds to approximately three times GMW's actual annual expenditure in the GMWCP2.
- The greater the time difference between audited savings and actual works the more difficult it becomes to manage this risk. DELWP advise the 2014/15 audit is expected to be published in January 2016.

The short term risk exists that a combination of under delivery of the works program and a decrease in the available water in the offset account may produce a situation where more water has been transferred to the Commonwealth than has actually been saved.

The longer term risk is that the works program continues to fall further behind the State will not be able to transfer the water shares to the Commonwealth.

3.8 The basis on which the project is prioritising investment in the GMID is unclear

Prioritisation of investment in the GMWCP2 is the means by which the project aims may be met, for example, investment criteria targeting sites which offer the greatest water savings or productivity boosts.

The basis on which the project is prioritising investment is unclear. Ambiguity in the GMWCP2 on the appropriateness, interpretation and application of a 100 percent connection target is a significant contributor to this lack of clarity on how the project should prioritise investment.

The only mention of the 100 percent connections target is in the Project Charter[50].

A 100 per cent connection target produces some unintended consequences for the project, specifically:

- The 100 percent connections target does not allow for the application of any prioritisation in project decision making.
- Works must be undertaken no matter the cost to the project in terms of budget or water savings or time.
- The project moves from voluntary to involuntary as 100 percent must be connected.

The lack of clarity in the application of any100 percent connections target appears to stem from the following observations:

- The concept became part of the project through the Due Diligence Report where it is stated: "*The return of water requires 100 percent participation from all 5,000 plus serviced properties and delivery of all proposed connections.*"

[49] Stage 1 savings when delivered are intended to allocate 75GL LTAAY each to: GMID landowners, Melbourne Water through the north south pipeline and the environment.
[50] GMW Connections Project 2 Project Charter Version 3.0 23 March 2015

- The Project Charter for GMWCP2 makes reference to the "100 percent connections target" when discussing the scope of the review.
- The Project Charter which refers to "*approximately [emphasis added] 5,182 Delivery Shares*" and the Project Schedule that mentions "*up to [emphasis added] 5,192 ML/d of Delivery Shares*".
- The Stage 2 Business Case anticipated that 95 percent of existing connections would either be terminated or transferred to the modernised backbone. A small number of delivery shares were expected to remain outside the project for a variety of reasons and that these landowners would be widely scattered around the GMID.

A clear, prioritised ranking of the factors and basis on which landowners are prioritised for involvement in the GMWCP2 was not available. Although recent efforts by GMW have begun to produce such a list for discussion with DELWP and DAWR.

3.9 The process of ranking and prioritising works is unclear

The ability to communicate simply the criteria on which SCPs are selected for progress is unclear. This is consistent with the view that the basis on which people are prioritised for involvement in the GMWCP2 is unclear. On the SCP prioritisation process GMW provides the following:

> *"The Connections project introduced a prioritisation ranking model in 2015 that uses qualitative and quantitative information to rank SCPs ("Projects") in order of priority. This ranking is used to determine the order in which SCPs are commenced by the project. The Prioritisation Ranking Model is also used to evaluate and optimise the portfolio of active projects with respect to the achievement of funding milestones."*[51]

Expenditure to 31 March 2015 shows that only 15.7 percent of SCPs were at the stage where payments were made to landowners, and most were in the planning stages.[52]

GMW also reports that there are a number of SCPs for which no resources are currently allocated. These SCPs are known as inactive SCPs.[53] GMW reports that as of July 2015 there are 29 percent of landowners with agreements in place that are in approved SCPs that are currently inactive. There is no current timeframe provided for the moving of these Inactive SCPs to Active.

GMW[54] reports that of the 165 SCPs currently in the project:

- 74 SCPs (44.8% of total) have been Approved, Committed or Expended (of these 64 have been approved in full and 10 partially approved) at an average cost of $5.071 million per SCP.
- 91 SCPs (55.2%) are at the Stage of Planned expenditure with an average cost per SCP of $3.436 million per SCP.

The potential for undesirable outcomes does exist in the current KPI framework between DELWP and DAWR which governs GMW's approach to delivery.

There is an incentive to deliver infrastructure works to produce water savings. Some of these works, such as the installation of meters, are low risk and the project to date has been able to deliver such works easily.

[51] GMW answer to GHD request for information dated 23 October 2015
[52] GMW Connections Committee 19 Item 6.1B Section 3.2 Connections Works Expenditure Profile
[53] GMW written response to GHD question Document DM#3505649v3 5 August 2015
[54] GMW Connections Committee 19 Item 6.1B Section 3.1 Project Life Budget Status

The current KPI framework creates a potential to incentivise works which may not be required. As an example meters that are not required may be installed in order to receive a progress payment. No evidence of the foregoing has been identified.

3.10 Landowner interaction is proving more complex than envisaged

Ambiguity around the prioritisation of investment in GMWCP2 is evident in landowner feedback. Specifically, there is a lack of understanding by the landowners in terms of clear information on who the project is for and why. The absence of this information is preventing landowners from understanding the project and where they fit into the process.

A summary of the current landowner perspective drawn from discussions with the external stakeholders of the project can be summarised as:

- In general landowners, as communicated through the external stakeholder interviews viewed the ability to connect to the modernised system favourably.
- Those landowners who had been connected reported significant positive impacts on their businesses, whilst those who were not connected were keen to have their connections resolved as soon as possible.
- The landowners without connections report that lack progress of the project has caused hardship and stress as without a connection they are unable to plan for the business, they are unable to access finance both for additional government on farm programs and from other lenders, and they are at a disadvantage to those landowners who have been connected.
- There was a concern from those that were not connected that they would not be connected before the project ran out of money and it would be through “no fault of their own”. The specific concern was that there would be properties connected that were seen as not as appropriate as theirs when considering the aims of the GMWCP2.
- For those not connected there were presented examples of significant delays between discussions with GMWCP2 representatives (ModCos) in some cases years and conflicting positions being put to landowners when the interactions did occur.
- GMW has initiated surveys of its customer service including that provided on the Connections Project. GMW advise this process has identified multiple opportunities for improvement and has increased communications resources in response.[55]
- A specific concern is the interdependence of the GMWCP2 with other Commonwealth support available in the GMID, specifically the Victorian Farm Modernisation Project, where access to that support program requires that the landowner have an executed Connections agreement. This gave rise to concerns that there is a two tiered economy being created in the GMID.

The external stakeholder interviews found some dissatisfaction with the communication from the Connections project. Although this consultation was with a limited number of stakeholders, the message was consistent around.

- A lack of a clear policy framework around the Connections Project such that landowners could not understand why decisions were being made.
- Inconsistency in the messages delivered by the ModCos particularly where different ModCos met with an individual landowner over the life of the project.

[55] GMW response to GHD questions 22nd October 2015

- Long periods of time between interactions with the project – sometimes months and years – and that these lags caused a lack of trust. Consistent with the results of GMW's Customer Survey results, landowners reported that they would like more meetings regarding the Connections Project, but they added the qualifier, "only if the information is relevant and specific".
- ModCo's knowledge of the irrigation industry. The lack of irrigation experience in many of the ModCos was identified by the external stakeholders as an impediment to negotiations with a number of landowners.

3.11 Improvements have been implemented in the project to date

GMWCP2 has initiated a number of actions to speed up progress of the project listed below. No detail has been provided as to the impact of these actions. In most cases there has been insufficient time to fully evaluate their effectiveness although GMW reports they have helped to reduce costs in the program.

GMW reports that its overhead costs are below budget. These initiatives have also reduced the timeframes for delivering particular components of the project. Many of the non-landowner dependent components have been delivered faster than was anticipated at the commencement of the project. However, there remains risk to the project due to the remaining components that are dependent upon landowner interactions. Within the current policy framework of the project, the scope for GMW to significantly change the rate of success of the landowner take up of the project remains limited.

Of the major initiatives to find efficiencies and save time the following are of particular note.[56]

- **End to End Program Managers.** GMW has employed End to End Program Managers (E2EPMs) to handle the delivery of the SCPs from start to finish, replacing a two-stage process with different interfaces between the landowner and the GMW at different phases of an SCP's journey through the project. E2EPMs have been assigned to all active SCPs (approximately 80 in-progress SCPs).[57]
- **GMW Shared Connections.** Shared Connections is designed to allow landowners to be connected through GMW-owned and operated assets as an alternative to privately owned individual connections. Up to 40 km of Shared Connections were expected to be constructed in 2014-2015.
- **Outsourcing SCP delivery.** GMW has initiated a trial to outsource the delivery of eight SCP projects. This process involves an external supplier taking on the management of an SCP from start to finish including all aspects of the project such as landowner engagement, engineering design (concept and detailed), approvals and construction. GMW reports that the initial results from outsourcing show that the timeframes for SCP delivery can be "significantly compressed"[58] although no detail on the time savings is given. Outsourcing of SCP delivery was specifically mentioned by some of the external stakeholders as an attractive solution to some of the issues with the project that they saw, particularly with what they perceived as a lack of continuity in the consultation process.
- **GMW Direct delivery of on-farm works.** This action involves the contractor employed by GMWCP2 undertaking on-farm works rather than the landowner. As landowners are not paid cash for the on-farm works, they are left to deliver the actions themselves, often with delays which go on to cause further delays in other parts of the project.

[56] Connections Project Quarterly Report May 2015
[57] GMW Integrated Quarterly Report Q2 2014-15
[58] GMW Integrated Quarterly Report Q2 2014-15

- **Least cost methodology.** Each engagement with a landowner is a negotiation based on landowner requirements. Some landowners demand oversized meters, and separate connections for each separate property title, even though this is not required. These negotiations have been slowing down the project. The program has introduced a 'least cost methodology' to ensure meter sizes are based on historic flow rates. The program has implemented a policy to design infrastructure based on historic water use not future use. No information was available as to how successful least cost methodology has been.
- **SCP Prioritisation.** A process known as SCP Prioritisation has been undertaken by the Connections Project to rank all SCPs.[59] GMW advises that this model has been set up in two components, these being:
  - Primary Model with the focus on water savings, milestones and value for money.
  - Risk Model which considers the status of the SCP, reputation and environmental issues.
  - These models currently assume all SCPs will be completed within the project. No detail was presented as to the impact of SCP prioritisation on project timeframes, or the fate of those SCPs which remain inactive.
  - The Prioritisation Ranking Model was developed by the Connections Planning Unit and the Program Management Office (PMO). The model draws on multiple data and information sources to consolidate key project metrics into one environment, the information sources and weightings have been endorsed by key subject matter experts within the project.
- **Communications.** GMW has recognised that there are issues with communications in the project and have increased the communications team significantly as well as:
  - Implemented initiatives such as End to End Program Managers which means that landowners have a consistent point of contact on the project.
  - Outsourced some SCPs to external service providers to assist in providing a consistent point of contact for the landowner and the project in the delivery of a program.

3.12 Performance against the other components of the project varies

The issues identified in previous sections largely focus on the Connections Program which comprises 76% of the total investment in the GMWCP2. Other smaller components of GMWCP2 and their current performance are discussed in the following sections.

Water Savings and Environmental Projects

All required Business Cases for the water savings and environmental projects have been completed and assessed by the Commonwealth. Some projects were scaled down or put on hold after the completion of feasibility assessments and due diligence. At present, there are two projects, the Kerang Lakes Bypass Project and Gunbower Lagoons Modernisation Project, which are currently undertaking environmental approvals.

Subject to these final environmental approvals, there is $15 million unallocated in the Special Projects fund to achieve a further 3.2 GL of water savings.

[59] GMW written response to GHD questions Document DM#3505649v3 12th August 2015

Overall, it appears there is an expectation by GMW that the reduced scale of the environmental projects will reduce savings by 4 GL – from 204 GL to 200 GL LTAAY – but the reasons for this are not clear.

In such a situation there would still be a requirement on Victoria to deliver 204GL. An additional 4 GL LTAAY would need to be sourced from elsewhere.

There are three options for this component of GMWCP2 including:

- Option 1: Remaining funding is reallocated to the overall Connections Program, noting that this will require the Connections Program to recover further water.
- Option 2: An additional Water Savings and Environmental Project Business Case is provided to the Commonwealth for assessment.
- Option 3: Determine the viability of any additional projects and if they are not viable then it may be necessary to vary the contract, reduce the water savings target of the environmental water savings project and reallocate the funds.

Approval of any additional projects will need to consider if they can be delivered within the existing program deadline of 2018 and what the benefits may be.

Research Investigations

The research and water savings investigations budget of $855,647 has largely been unspent. No projects have been approved under this component of GMWCP2. The research programs are not mentioned in the monthly or quarterly progress reports that were viewed by GHD for this project. Given the observed challenges with meeting delivery it is worthwhile to consider the use of this allocation to investigate new ways of delivering water savings through the project.

If further research activities are required:

- DELWP have advised they will consider providing in-kind support only. DELWP has advised that if no further studies are identified; it would support the funds being re-allocated within Stage 2 of the project.
- The Commonwealth have advised that one-third of the requested value of the research investigations budget will be funded by the Commonwealth with the expectation that the remainder would be matched by Victoria and GMW from funds outside of the GMWCP2 budget.[60] Should these additional funds not be provided, the Commonwealth share of the research investigations budget may be withdrawn.

Other project components

There are many other components to this project, the challenges noted above extend into some of these other aspects of the project and are summarised in Appendix G.

Auditing and compliance framework, including financial, risk, fraud control, environmental, OH&S and water savings audits appears appropriate:

Following the 2011 report of the Victorian Ombudsman significant effort was put into the governance of the overall project and financial management. In particular:

- The project now has access to Victorian government procurement panels for provision of goods, services and contractors services.
- The project can draw upon GMW's Engineering and Scientific Technical Services Panel.

[60] As noted in the Northern Victoria Irrigation Renewal Project Stage 2 Due Diligence Assessment Report, Department of Sustainability, Environment, Water, Populations and Communities (1 November 2010)

- Winter works are put to public tender with evaluation processes weighting heavily toward price. Flexible packages are offered to encourage competition and GMWCP2 understands that no provider can offer all services or solutions.
- The project has a Change Management Committee where all variations to cost, time and scope are considered and a due diligence report is prepared which is provided to the Connections Project Board.
- The project has a Connections Cost Control Committee which is responsible for managing the costs within the budget framework. This committee has external independent members from EY is managing the review of cost drivers, driving cost savings initiatives, and monitoring budgets.
- The Project Management Office of the project does not manage procurement activities, aside from minor consultancies or procurement of equipment. Where procurements are made the GMW procurement process is followed and is consistent with GMW Financial Delegations.
- Audits of water savings are conducted by an independent auditor following the Victorian government water savings protocol.
- The auditing and compliance framework, including financial, risk, fraud control, environmental, OH&S and water savings audits are appropriate.
- The Victorian Ombudsman revisited the assessment of the project in February 2014 and found that of the 34 recommendations in the original report, none remained outstanding.[61]

Overheads appear reasonable for a project of this size and the appropriate rates have been paid for goods and services based on the information provided to the review.

- The corporate project management overheads have a budget of $69.1 million. This figure which represents 6.25 percent of the total project cost of $1,059,024,000 is considered reasonable.
- These costs cover the general operation costs of managing the project, including labour, office expenses, general operating (audits consultants) and property plant and equipment (for example computers, office lease and office furniture).

3.13 Conclusion: The project is unlikely to achieve the desired outcomes on time and budget

Project Progress

GMWCP2 is unlikely to achieve the outputs, outcomes and aim specified in the Project Schedule with the allocated timeframe and resources (financial and human). This conclusion is consistent with project reporting in April from GMW noting an extreme risk:

> *"Failure to deliver 1. Stage 1 and 2 Water Savings. 2. Within Budget; and 3. Connections Program by 2018."* [62]

The main contributing factor is the heavy reliance over the remainder of the project on landowner interactions (landowner agreements and landowner works). Landowners are not signing up at the required rates, pointing to persistent challenges in communicating the intention of the project and the process for selection and prioritisation of landowners for involvement in the project.

[61] https://www.ombudsman.vic.gov.au/getattachment/8f968fdd-91b1-4566-aefe-a24319e97231
[62] GMW Monthly Dashboard report April 2015

- The project has reached a point where the majority of water savings that remain to be delivered will be as a result of executed landowner agreements and the associated decommissioning of channel.
- The project is entering a new phase of delivery where a risk that the project has carried (landowner agreements) is about to be tested.
- The ability of the project to execute landowner agreements remains the single largest risk to project completion with the current project budget and timelines.

Other Issues

- **Project aim**. Who the project is for, its aim and the prioritisation of multiple aims between GMW, DELWP and DAWR remains unclear. This extends to a lack of clarity amongst landowners regarding on what basis landowners are selected for involvement or not.
- **Actual water savings produced**. The actual amount of water savings the project can deliver remains unclear. There are two elements to this lack of clarity, firstly the ability to forecast savings from future project activities which are dependent on landowner agreements and associated works. Secondly, the transfers of water entitlements by DELWP to the Commonwealth occur in advance of the annual independent audit.
- **Improvement approach**. GMW has delivered many improvements in the project since the transfer form NVIRP. The improvements delivered to date are best described as tactical (relating to the efficiency and effectiveness of the project as it is understood) not fundamental (is the project as it is currently understood working). The opportunity to step back and evaluate what GMWCP2 and specifically the Connections Program is trying to achieve should have happened some time ago, that it hasn't suggests an opportunity to improve the governance and communication between DELWP, GMW and DAWR.
- **Reporting.** Reports on performance shared between DELWP, DAWR and GMW do not consistently or accurately portray project performance in an easily understandable way.
  - Project reporting of risk registers change month to month with no explanation of what happened to those risks. Forecasted performance fluctuates significantly month to month.
  - The reporting environment appears to contribute to a lack of understanding, agreement, communication and response to what is occurring in the project between GMW, DELWP and DAWR.
  - Reporting formats shared between DELWP, GMW and DAWR does not reflect common standards in large infrastructure projects where the link between risk and observed performance is the primary focus.

It is important to emphasise that in planning for the future this assessment of the present is taken into account.

- Considerable data is available on the performance of the project, but not on the underlying risk and the effectiveness of measures to address that risk.
- For the purposes of this review more data on projected progress will not change the conclusion that the project will not be completed on time or on budget under a business as usual scenario, and that something needs to change.
- The project is at a stage where a fundamental challenge exists which cannot be addressed by one project stakeholder in isolation.
- The project is moving from a phase where progress can be achieved through actions under the control of GMW to a phase where the progress is determined by signed

landowner agreements and the completion of the landowners obligations on these agreements in a timely manner.

- GMW has implemented initiatives to speed up project delivery; however these actions alone will not be sufficient to deliver the project goals by 30 June 2018.

4. The future

Enough information on performance exists now to confirm the project needs to change.

The three parties involved in the project, the Commonwealth, the State of Victoria and GMW needs to discuss and agree how the project will change.

4.1 The options for change

Seven options designed to cover the spectrum of all available options for GMWCP2 are:

Option 1: Do nothing to change the project

Option 2: Change the timeframe

Option 3: Change the amount of funding

Option 4: Make use of compulsory reconfiguration powers

Option 5: Outsource all or parts of the project

Option 6: Formulate policy responses

Option 7: Abandon the project

These options are discussed in the following sections (see Table 4 for summary).

The options are provided to demonstrate each of the positions available to GMWCP2.

In any future project reset a spectrum of all seven options is likely to be drawn upon to provide the pathway forward.

Any decision over which of these options to adopt will be influenced by:

- **Policy.** Who is the project for then and what is the ranking and priority of the many outcomes it is intending to influence?[63] This applies to considerations including, but not limited to:
  - Productive agriculture. Should the project preferentially involve enterprises based on location, current use of irrigation water and likely future use?
  - Sustainability of the system. Should the project emphasis the most cost effective infrastructure over a long period of time to maintain, for example, fewer meters and fewer channels. Alternatively should the system emphasise short term water savings at the cost of long term sustainability and the possibility of higher costs in the system.
  - Co-contribution. Should the project preferentially involve those landowners who are committed to co-contributing towards meters where those meters are offering significantly more capacity than they have historically used? Should the project preferentially involve those landowners with multiple connections who are content to consolidate those multiple connections into a single connection?
- **Time.** The project is scheduled to complete on 30 June 2018. The information put to the review indicates the project will not achieve all its intended targets by this time. Flexibility to increase the project delivery timeframe needs to be clarified.

[63] For a summary of these outcomes see the Project Logic Model in Appendix C.

- **Budget.** What can the project deliver with the available funds? On what basis will those funds be allocated to different works within the project? Can the funding available to the project be increased? Can the basis on which the already allocated funds have been set aside be changed, for example to a 'earned value' model?[64]
- **Previous representations.** It is important to acknowledge any existing representations the project has made to landowners and any good faith steps they have already undertaken on the basis of those representations.
- **Clear agreement.** This report provides suggestions based on the information presented, but cannot purport to speak to the wider policy, time and budget sensitivities of the Commonwealth, Victoria and GMW. Specifically, the final agreed basis on what types of landowners are involved in the program and why.
- **Updated measures of performance.** KPI measures need to change to accommodate significant departures in the assumptions on which the current contract was based. In particular easier to monitor KPIs that are relevant to the overall delivery of the aims of the project and better allocation of risk to all parties.
- **Urgency.** Decisions on the way forward are urgent. Project completion is currently scheduled in 32 months at the time of writing. If no decision on action is agreed between the Commonwealth, State and GMW it is considered that Option 1 will have been selected by default.

Option 1: Do nothing to change the project

GMW has undertaken some preliminary modelling which shows continuing the project without change will involve a significant budget and time overruns and will not produce the project outcomes.[65]

If the project was to reach the 30 June 2018 deadline without all objectives being met, it is likely:

- The project would deliver a modernised system to only a proportion of the GMID.
- The project would not connect a large number of landowners to the modernised system.
- There would be a shortfall in the water savings from the project available to be transferred to the Commonwealth.
- Funding for the project to be paid to Victoria and GMW would be at risk as the payments made by the Commonwealth are contingent upon works being completed and water savings transferred.
- Victoria may be "*required to cover any expenditure in excess of the project cost that is required to complete this priority project*" [66]
- Two classes of landowners could exist in the GMID receiving different levels of service, one connected to a modernised system and the other to the existing system.
- The project may not be able to fulfil agreements currently in progress.

Renegotiating the contractual basis of the GMWCP2 so that the project objectives are adjusted to reflect the likely outcomes would only remove the risk that payment would not be made.

[64] An earned value model consists of three key elements: 1) A project plan that identifies work to be accomplished; 2) A valuation of planned work, called Planned Value; and 3) Pre-defined 'earning rules' to quantify the accomplishment of work
[65] GMWCP2 April Dashboard Report
[66] Project Schedule Section D.1.3

Issues with the delivery of the project which would remain are:

- Time risk to deliver works in the remaining winter construction seasons.
- Heavy reliance of landowner interaction for most of the remaining water savings puts at risk the ability to sign up sufficient landowners to allow for completion of the project to meet the required targets.
- The 100 percent connections focus may mean connections are made in totally unsuitable situations with large costs for minimal water savings, potentially at odds with the other aims of the project.
- Landowners who remained not connected may fall into that category through no fault of their own (e.g., as a result of a neighbour refusing to sign an agreement) or miss out by chance, (e.g., as a result of the project not reaching their geographic area).

Option 2: Increase duration of the project

Under this scenario, the timeline for the project is increased beyond 30 June 2018 without any change in other parameters such as funding.

As the project progresses, the overhead costs would continue to accrue so less money would be available for on-ground works or additional sources of funding would be required.

The amount of additional time required to reach the project target remains unclear as any time extension would still be subject to the ability of the project to negotiate with the landowners.

As time progresses the landowners left may be, for whatever reasons, the most difficult to obtain agreements with, further extending the time horizon for completion for the project.

The Commonwealth appropriation for the project budget expires on 30 June 2019 so alternative funding would be required after this date.

If the time period was increased beyond 30 June 2018 – without any other alteration to the requirements and targets for the project – then it is possible that:

- More of the system will likely be modernised and more landowners will be connected as a result of the extra time available to complete additional works.
- Additional time may allow the best solution to be identified and implemented. The current program drives the implementation of works to milestones, at times resulting works may not be the best solution. (e.g., long term sustainability, desired service life and minimum whole of life costs).
- The added expenditure required through additional time would alter the cost per ML of water savings in an adverse manner.
- The risk of failure to complete the project remains as the completion of the works will still require timely negotiation with all landowners.
- Any extension of time will not assist in achieving the 204 GL water savings as some projects may remain infeasible.
- Victoria may be required to fund the project beyond 30 June 2019 when Commonwealth appropriation runs out.
- Failure to reach the water savings and other KPIs by the dates identified in the Project Schedule will put at risk the existing project funding from the Commonwealth through the remainder of the current project life.

Option 3: Increase budget

The project is underspent to date, availability of funds does not appear to be a constraint for project progression.

The largest identified risk to the project is the requirement for landowner negotiations to secure agreements. This is largely budget independent, more money will not necessarily speed this up.

The original works package was envisaged to be delivered for an agreed budget. Increasing that budget for the same water savings target will increase the cost per ML of water savings.

Increasing the budget may mean that more SCPs would be completed. Some SCPs are being held up at the GMW board level because they are over budget ($/ML) so increased budget would allow some or all of those SCPs to proceed but at an increased cost per ML of water savings.

Increasing the budget still does not deliver certainty about completing the project on time.

Option 4: More effective use of compulsory reconfiguration powers

Compulsory reconfiguration powers exist under the Water Act (1989) such that infrastructure changes can be made unilaterally by GMW.

The project has always had a policy of connecting landowners on a voluntary basis and as such has not made use of these powers except in one instance which was not finalised at the time of writing.

An increase in the use of compulsory reconfiguration may assist project delivery in certain circumstances such as when one landowner is holding up works on an entire SCP for reasons that might be deemed unreasonable by the other landowners.

The project will need to communicate the policy and process on how compulsory reconfiguration powers would be used if an increase in the use of these powers to assist the project is required.

Use of compulsory reconfiguration powers alone are unlikely to see the project completed within the timeframes of the Project Schedule.

Option 5: Outsourcing

One of the issues raised during the interview process was the lack of suitable resources available to implement the project, outsourcing may alleviate these issues.

Outsourcing the project could be undertaken either:

- **In part**. For example, for specific SCPs only, specific tasks only or to bring additional private infrastructure industry expertise into the delivery team at GMW.
- **As a whole of project solution.** Using an external supplier or other resources within the Victorian government with experience in the delivery of projects of this size.

This option would assist in the delivery of the remaining components of the project. Currently there is partial outsourcing of activities within the project.

- An outsourced managing contractor currently oversees some works and in turn makes use of subcontractors.
- Increased outsourcing could involve altering the arrangement with existing project partners to enhance the delivery process and allow them to make improvements to expedite the delivery.

- Pilot projects (RPS Aquaterra and Retic Water) and consortium projects (Transcom, Jacobs, RPS) are being trialled and have been reported to be successful in expediting negotiations and delivering construction.[67]
- The whole of project solution through outsourcing has been attempted to some extent already. The project commenced life as a wholly outsourced entity, NVIRP, separating the entire project delivery role from GMW. This situation was not deemed to be satisfactory and the project was brought in under GMW's control. Outsourcing to a private entity, as opposed to a State owned agency, may overcome these issues.
- Outsourcing the entire project would require a tendering process for identifying outsourcing partner, this would run the risk of causing more project delays. There still would remain a risk that any outsourced agency may fail to deliver on agreed KPIs. Even if there are onerous contract conditions which may shift onus onto the agency, failure to deliver would still put water savings at risk as well as the other project objectives.

GMW has been trialling outsourcing of project activities for a particular SCP. Initial reports are that savings in time are likely to be achieved through this mechanism. There may be merit in partially outsourcing components of the project.

Option 6: Change the policy framework of GMWCP2

Given it is likely the project will not reach all or some of its stated goals there is a need to revisit the policy framework to guide the project through the remaining time and money available.

- A 100 percent connections target does not allow for prioritisation of one particular SCP over another.
- Consideration has to be given to the recognition that the project will not be able to connect all landowners within the current resources available.
- A method for allowing project components to be ranked according to their ability to deliver project policy outcomes needs to be developed and implemented within the project.

GMW, DELWP and DAWR need to agree on the policy objectives of the project, their relative priority and how they will be applied to the project. Policy outcomes for discussion may include:

- Impact to agricultural productivity created by the project in the GMID.
- Sustainability of the infrastructure left for GMW to manage.
- Value for money for the water savings delivered to the Commonwealth.

The foregoing measures are not currently identified in GMWCP2 in a manner that would allow them to be measured and prioritised.

These factors were all considered in the Due Diligence Assessment of the Business Case however they need to be brought into the project's decision making process.

Following from this restating of objectives, the framework for shaping project decisions can be developed by all three parties.

This policy framework needs to be understood and well communicated both within the project and outside the project. The remainder of the actions in the project need to be delivered by the Commonwealth, State of Victoria, GMW and Landowners. If the landowners who interact with the project cannot understand the policy framework under which decisions are being made, then there is likely to be an erosion of the trust between the project and the landowners further exacerbating the pressure on timelines and project completion.

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The landowners also have a role in delivering the project by endorsing the desired outcomes, advocating and suggesting alternatives and through active involvement in the group discussions needed to finalise SCP designs.

Option 7: Abandon project

A seventh scenario is to abandon the project altogether. Such an approach would mean that:

- The Project would be left with approximately $801m of unspent project funds to reallocate.
- GMWCP2 would certainly remain unfinished.
- The modernisation of the GMID would remain incomplete.
- There would be two classes of landowners; those that are connected to the modernised system and those that are not connected.
- GMID tariffs would likely increase putting pressure on the sustainability of the system.
- Landowners who had started the process of becoming connected would remain unconnected, and may seek restitution for losses incurred in the process.
- Water savings would not be realised.
- The ability of Victoria to meet their commitments under the Murray-Darling Basin Plan may be affected.
- Other programs such as on-farm water savings projects that require the landowners to be connected to the modernised system would be compromised.
- Two classes of landowners could exist in the GMID receiving different levels of service, one connected to a modernised system and the other to the existing system.

4.2 The recommended approach to change

The seven options are provided to demonstrate each of the positions available to GMW, Victoria and the Commonwealth. In any future project reset a spectrum of all seven options is likely to be drawn upon to provide the pathway forward.

Eight actions are outlined in the sections below to deliver a project reset as shown in Figure 5.

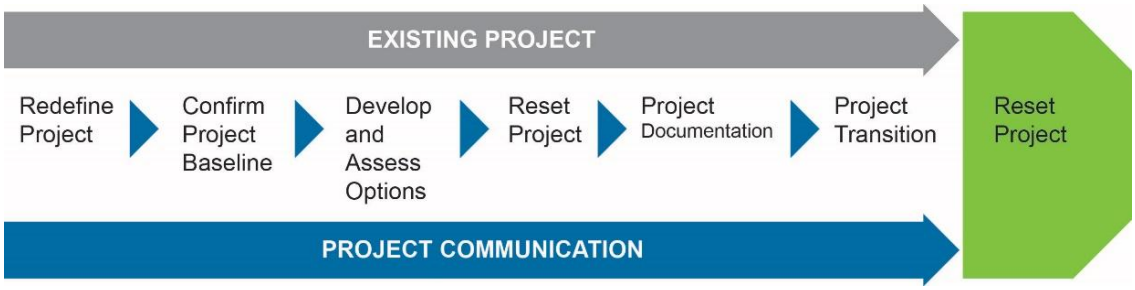

Figure 5 Flow chart of the actions required to reset the project

There is a sense of urgency in delivering this project reset. Taken together the suggestions put forward in this review fall into two categories:

- **Improvement opportunities**, those actions to improve the efficiency and effectiveness of the program within the current operating environment.
- **Fundamental challenges**, requiring agreement, support and direction in a timely manner from all the parties involved in the success of GMWCP2.

If challenges raised by this review which fall into the latter category are not addressed no amount of improved efficiency and effectiveness in the program will produce a desired outcome for the Commonwealth, State, GMW and landowners.

It is imperative a decision on the future of the project is made immediately. It is clear the project as a whole cannot proceed as business as usual. If the project is not reset then:

- The project will likely run out of money having not delivered the desired outcomes.
- Landowners who would otherwise have been involved in the program will miss out on being connected largely by chance.

The reset of the project requires a mix of solutions incorporating both the options discussed in the previous section and options developed by GMW. These options will likely include:

- Changes in policy specifically the abandonment of the 100% connections target.
- Some SCPs that will proceed as per the current project arrangements and others which will not.
- Some parts of the project may not be consistent with the aims of the project and may need to be abandoned as part of GMWCP2.
- Time extensions.
- Additional funding requirements.
- Changes in project delivery options (such as minimum shared pipelines).
- Outsourcing of parts of the project.
- Compulsory powers applied to particular situations.

In order for the project to be able to assess which options and mix of options provide the best future for GMWCP2 the following actions are required (see Table 5 for summary).

Action 1: Define the Project

A clear statement from all three project parties on what the project is intended to achieve is an essential first step in planning the future for GMWCP2.

In order for the project to be reset, the aims of the project need to be restated and agreed by the Commonwealth, the State of Victoria and GMW.

- This is not to say that the aims of the project will have changed. This action is an essential basis for the governance and communication both within and outside the project.
- Clearly defining the aims of the project allows for the actions of the project to be focussed toward delivery of those aims and also allows for communication of the project to be based around the defined aims.
- The aims need to be specific not just broad aspirations. Performance against these aims needs to be able to be measured as does the relative priority of those aims.
- The aims need to be consistently communicated by all project stakeholders and formed into an official position through Ministerial Delegation in the case of DAWR and DELWP and Board ratification in the case of GMW.
- The Project Charter and Project Schedule will need to be modified to reflect the agreed basis on which the project will proceed.

Specific changes to be discussed include:

- Currently discussion and messaging which either explicitly or implicitly promotes a 100 percent connections target overrides all other policy objectives and needs to be replaced with the clearer restated aims.
- Water savings is one of the main outcomes of the project but other outcomes are not specifically mentioned in the current Project Charter or Project Schedule such as:
  - Agricultural productivity in the GMID.
  - Sustainability of the infrastructure left for GMW to manage.
  - Value for money for the water savings.
  - Sustainability of the GMW irrigation system.

How is this action to be achieved?

The Commonwealth, State of Victoria and GMW (ideally through the SOC) need to define the project objectives at a workshop of one day duration.

Attendees at this workshop must have the delegated power to agree to the project outcomes.

The project has been running for a number of years and the aims of the project should already be clear to all parties. The aims just need to be agreed, restated and prioritised as the focus for all future actions in the project.

This workshop should be externally facilitated to ensure a balanced position can be reached.

Action 2: Communicate the project aim

The success of any revised form of the project will be determined by how well is it understood and embraced by those who may be impacted by GMWCP2.

The ability to reset the project and the success of the project in whatever form it takes after the reset will be critically reliant on the success of the communications strategy.

A clear strategy to manage the individual stakeholder groups both 'internal' (within the Commonwealth, State and GMW) and 'external' (those outside the project including landowners) must be established early and clearly.

The project needs all stakeholders to understand the aims of the project, the policy objectives and the mechanisms via which these objectives are implemented.

There are a range of stakeholders not just the landowners who need to feel part of the process and these may include but may not be limited to:

- Local government
- Catchment Management Authorities
- Farmer organisations such as the VFF
- Industry groups such as the dairy and horticulture industries
- Large water customers
- Local environment groups
- Federal Ministers and Members of Parliament
- State Ministers and Members of Parliament
- Water services committees

A stakeholder engagement plan needs to be developed to address the revised project.

The content of the stakeholder engagement plan will include (and not necessarily limited to):

- Introduction to the project background and objectives of the strategy.
- Agreed key project positioning statements and messages.

- Identification of stakeholders and the issues that link these stakeholders to GMWCP2.
- Approach and method(s) of engagement.
- Detailed stakeholder engagement delivery plan.
- Monitoring and evaluation processes for the implementation and performance of the strategy.
- Preparation of a separate detailed work breakdown structure and costs to deliver the plan.
- Develop communication protocols and complaints management procedures.

Specific elements which need to be included are:

- What needs to be communicated.
- Which stakeholders should be part of the communication (maybe several levels appropriate for different stakeholders).
- Methods of communication.
- Timeliness of communications.
- Owner of communications.
- The process by which feedback is actioned to improve.
- Governance structure to review and ensure the quality of communications is maintained to an agreed standard.

How is this action to be achieved?

Given the critical importance of the communication strategy, the requirement for all project parties to be involved and the current distrust external stakeholders have with the current project, the communication plan should be developed under the auspices of the SOC.

Action 3: Establish an agreed project baseline as at November 2015

For any decisions about the future of GMWCP2 to be made, a baseline needs to be set with an agreed project status between the Commonwealth, State and GMW.

This recommendation is not a review or an audit but simply a clear statement of the current position of the project.

Current reporting mechanisms are not suitable for this purpose. A specific, unambiguous and unqualified statement of the position of the project as of November 2015 will provide a baseline with which to work in determining the future of the project.

Establishing the project's present position should not be difficult given the large amount of data available on project performance through the Project Management Office for GMWCP2 which produces weekly reports on project status.

The position needs to be determined with respect to:

- Current financial situation including any under/over spend
- Water savings both audited water savings and the best estimate as to the current situation prior to the release for the annual water savings audit
- Delivery Shares recovered
- Infrastructure installed
- Backbone extension

- Channel remediation
- Legal Agreements Requested
- Legal Agreements Executed
- Status of each of the 165 SCPs
  - Budgetary position
  - Status of Landowner agreements
  - Cost per ML of water saved
  - Progress along pathway

How is this action to be achieved?

GMW, using the information that is collected weekly about the performance of GMWCP2, should produce a project status report for presentation to the SOC.

Action 4: Choose the Project Future

Develop a range of scenarios as feasible alternatives for project completion that can be modelled and tested. There are three parts to this action:

1. Choosing which options may be considered in assessing the future direction of the project
2. Analysing these options
3. Agreeing the chosen option as the way forward for the project

A range of options have been presented for consideration of the future of GMWCP2 both by this review and by GMW before and during the review process.

Information on the potential impacts of various project scenarios is required to make informed decisions about the future of GMWCP2.

The first step in this process is agreement on which scenarios can be developed and analysed. GMW has already commenced developing a number of scenarios as alternatives to the business as usual approach for managing the remainder of the project's time and money.

The Commonwealth, State and GMW need to agree which options or mix of options will be considered in an analysis of the project's future.

This process is best undertaken through an independently facilitated workshop with attendees having delegated authority to make decisions about the outcomes of the workshop.

This process needs to be externally facilitated to ensure transparency, independence and timely completion of this task.

All options will need to be tested through a risk-based Multi Criteria Assessment (MCA) process against:

- Policy impact
- Time impact
- Budget impact
- Actual water savings
- Transferred water entitlements
- Transition (incl. past representations, sunk costs)
- Level of outsourcing appropriate
- Communication strategy
- Concessions required
- More effective use of compulsory reconfiguration

Specifically the assessment will test how the options would apply to the ranking of SCPs based on ability to deliver project outcomes agreed in Action 1 above. These should include:

- Value for money
- Forecast cost to complete
- Contribution to productive agriculture in the GMID
- Co-contribution from landowners
- Anticipated water savings
- Impact on GMW's operating costs including financial situation and water tariffs
- Level of service for landowners
- Life cycle costs of the assets

In providing this assessment the review notes:

- A risk-based approach is standard practice for construction projects of this nature.
- Having an accurate as possible prediction of the position of the project at scheduled completion will be vital to assist with decision making regarding changes to the project and an accurate assessment of the potential success of proposed interventions.

How is this action to be achieved?

This is the most complex component of the project reset. The Commonwealth, State of Victoria and GMW need to be involved in all stages to ensure a balanced approach. The project options to be analysed and selected by all three parties and the analysis of options can be assessed using the MCA process that GMW has already commenced to assess the project's future.

Action 5: Reach consensus on water savings

One of the biggest risks to the project and its position in the management of water in the Murray Darling Basin is the risk of being unable to generate the water required to be transferred to the Commonwealth.

If the project itself is unable to generate the water savings then the mismatch between water transfers and actual savings could have serious consequences for the viability of the GMID.

The project needs to clearly establish where the water is coming from, risk, repeatability of savings, sustainability and overall impact to water system.

How is this action to be achieved?

DELWP to provide a clear understandings of the situation with respect to water savings following the development of the options and suitable for inclusion in the revised project documentation.

Action 6: Update the project documentation

Following identification of any revised aims and objectives of the project - and the mechanism for delivery of these revised aims and objectives - the project documentation needs to be updated and communicated.

The Project Schedule and Project Charter need to be updated to reflect any changes in the project and to reflect milestones and payment schedules that drive progress toward the stated aims of the project as defined in Action 1.

Project reporting needs to be structured around the measures in the Project Schedule. Reporting must be:

- A clear and unambiguous statement of the project status.

- Timely, the Project Management Office of GMWCP2 meets every Monday evening to assess project progress. Reporting should be able to be provided the next day.
- Open to the Commonwealth, State and GMW. A system which investors can log in and check current status at any time. (We note such a system could be as simple as shared secure online communications portal where GMW reports are uploaded weekly, or as complex as a fully integrated ERP shared between GMW, DELWP and CTH).
- Information should be captured in a way that allows automated reports to be requested at any time.
- Measures should reflect underlying risk factors and note changes to these risk factors over time as a result of specific activities.

Currently there is a range of reports that are not consistent in presentation or the data they contain. These reports do not document current risks to the project accurately. Project reporting must identify risks to the overall project completion and identify actions and escalations to address these risks. Clear actions to address risks need to be identified and reported in the project reporting.

How is this action to be achieved?

The project reporting template needs to be developed under the auspices of the SOC which should meet monthly for the life of the project to receive reports and discuss and address project risks.

Action 7: Plan the transition

Transitioning the new process and timing onto the existing project which needs to continue delivering current commitments will take considerable effort and skill.

Additional support will be needed for the project team. Currently GMW is already delivering the project and through this review it has been identified that resource constraints is an issue which compromises successful project delivery.

Adding the requirement of designing and delivering a transition strategy to the project team that is already dealing with an existing project is likely to compromise both current delivery and transition processes. It is recommended that external assistance be provided to GMW to assist in the transition process once the project reset process is initiated.

Action 8: Implementation

Once the transition process has been completed project implementation will continue the work in delivering the reset project.

The exact nature of the final project delivery team and mechanism will depend on the options chosen in the process outlined above.

Table 4 Summary of project future options

Option	Scenario	Likely outcomes against objectives	Risk to project objectives	Impact			
				Stakeholder	Contract / Certainty / Legal	Financial / Commercial	Policy / Outcomes
Option 1	Do nothing – project proceeds under current arrangements with no change at all	• Many (but not all) landowners would be connected to a modernised system. • Many new meters would have been installed. • Channel remediation would have been undertaken. • Shortfall in water savings. • Project likely to remain incomplete at 30 June 2018. • Final payment from Commonwealth may not to be made. • Other KPIs such as system efficiency may still be at risk as the system is only partially modernised. • Likelihood of landowners missing out on being connected.	• Extreme risk of shortfall in water savings. • Risk of failing to meet system efficiency target. • Risk that landowners remain unconnected if project fails to reach connections target by 30 June 2018. • Risk to State of being required to pay for completion of project as per Project Schedule. • Water actually saved may not equal that transferred to the Commonwealth so the GMID is forced to operate with less available water.	**Commonwealth** • Risk that the water savings may not be achieved which may have implications for the whole of Basin Plan. • Increased risk to other programs such as the on-farm program from failure to complete connections. • Continued opacity in reporting and communication with project delivery agency (GMW). **Victoria** • High risk of failing to meet target water savings therefore some payments from Commonwealth may be at risk. • May be required to pay for completion of project if fails to complete KPIs. • Victoria also needs to recover the water saved from GMWCP2 to meet its obligations under the Basin Plan. **GMW** • Payments to GMW from the state may be at risk. • KPIs place emphasis on potentially inappropriate investment. • Projects not given sufficient time to be developed properly. • High risk of failing to meet target water savings therefore payments from Commonwealth may be at risk. • May be works that need to be implemented to complete project after GMWCP2 funding ceases. • GMW may be left with an incompletely modernised system. **Landowners** • If project does not meet KPIs there may be two groups of landowners those connected to the modernised system and those not connected to a modernised system. • Being connected or not connected at the end of the project may be due to chance alone • Future costs may be higher as tariff costs go up as no reduction in footprint of GMID (original aim was reduction in backbone)	• Water savings measures remain at risk. • Full payment may not be made as payment relies on KPIs being met. • Partial certainty over some other measures. (e.g. meters installed). • High reliance on very intensive works program in only two winter works periods with resource availability posing a real threat to the ability to compete targets.	• No certainty on financial cost to complete. • Sunk costs in SCP identification, selection and delivery may not be converted into works. .	• GMW incentivised to install infrastructure which has a significant impact on their whole of life cost base to meet contractual aims (eg, channel decommissioning = putting in GMW owned pipelines; installation of meters). • The pressure to accommodate all landowners will remain. • The money will likely run out before the project can be complete and there will be a partially upgraded irrigation network. • If water savings are not met there may be a shortfall in Victoria's contribution to overall basin level water savings. • There may be a flow on effect to on-farm programs which are waiting on landowners to be connected before they can commence on farm works. Thus more water savings may be at risk. • Payment linked to KPIs continues to drive outcomes which may not be consistent with project objectives.

Option	Scenario	Likely outcomes against objectives	Risk to project objectives	Impact			
				Stakeholder	Contract / Certainty / Legal	Financial / Commercial	Policy / Outcomes
Option 2	Change timeframe Extend deadline past 30 June 2018	• Water savings may still be at risk • Other KPIs still at risk	• Risk to cost effectiveness of the project the additional expenditures required through additional time as overhead expenses will continue as at present. • The State of Victoria may be required to fund the project beyond 30 June 2019 when Commonwealth procurement runs out. • Failure to reach the Water Savings and other KPIs by the dates identified in the Project Schedule will put at risk the existing project funding from the Commonwealth.	**Commonwealth** • Work has to be delivered under the current appropriation. Appropriation expires on 30 June 2019. No surety the funds can be reapplied to GMW Connections in preference to other basin projects / priorities. • Water Savings will likely not be provided by required dates. **Victoria** • Additional time means additional funding may be required with still no certainty that all the water savings may be met. • Victoria may have to provide the additional funding required to complete project KPIs. **GMW** • Allows for better consideration of the options for each SCP as more time available. **Landowners** • Landowners may see some positive that all properties may be included in the project. • Timelines to connect those landowners not yet connected may have be extended.	• May require alteration to Project Schedule including payments and KPIs. • Commonwealth appropriation for project expires on 30 June 2019 and there is no surety the funds can be reapplied to GMW Connections in preference to other basin projects / priorities.	• Additional time likely means more money will be required. • May allow for better use of resources over the remaining time period. • Lowers risk of resource constraints on construction program. • Additional planning and negotiation time may improve project outcomes (total $ and $/ML).	• Would require alteration to project schedule.
Option 3	Change amount of funding	• Additional project funding may have to be supplied by the State, Commonwealth or GMW. • Existing risks to the project likely to remain with risk that KPIs will not be met. • Likely insufficient resources to complete the project by 30 June 2018. • Project requires legal agreements to be executed at a rate many times faster than has been the case. • Water savings will cost more as overall budget increased whether through additional funds applied to the entire project or a smaller project for the same funds. • The fact that the project is currently not expended the funds forecast to date suggests that funding is not a constraint.	• Risk of failure to complete project will still remain. • The current trend line for water savings against time provides no certainty of outcome even with additional funds. • Risk that even with unlimited funds that the project could not be delivered within the timeframe available.	**Commonwealth** • Water savings likely to be delivered at higher cost than originally programmed. **VIC** • Additional funding likely to be met by Victoria as per Project Schedule. **GMW** • Likely that with so many more tasks to be completed within the timeframe that inefficient and inappropriate projects could be approved. **Landowners** • May result in higher costs that may have to be absorbed by landowners.	• Project Schedule needs to change to reflect additional funding and relationship between KPIs and funding.	• Without increase in time likely to be resource constraints to increasing effort in the last winter construction season. • Greater time pressure on projects increasing the risk of inadequate planning and poor outcomes.	• Cost of water savings will increase as additional funds will be applied to the same quantum of water savings.

Option	Scenario	Likely outcomes against objectives	Risk to project objectives	Impact			
				Stakeholder	Contract / Certainty / Legal	Financial / Commercial	Policy / Outcomes
Option 4	Make use of compulsory reconfiguration powers	• Unlikely to be an overall solution except in particular circumstances. Even if all landowners were forced to become part of the project through compulsory reconfiguration then the project may still not be completed as per CIP2 program • May be useful in situations where one of a few landowners are holding up progress on the project	• Landowners will have to the through the process with its appeals which is time consuming and may still result in project delays • Many landowners will be unhappy to be forced into a compulsory situation when others have been able to negotiate better outcomes.	**Commonwealth** • May assist faster completion of SCPs which results in lower risk of not achieving water savings targets. **VIC** • May assist faster completion of SCPs which results in lower risk of not achieving water savings targets. **GMW** • May assist faster completion of SCPs which results in lower risk of not achieving water savings targets. • May assist with acquisition of easements. • Timeframe for appeals means that there is still a risk that the KPIs will not be met. **Landowners** • May allow faster rate of completion of project as may help with problem of one or a few landowners holding up a whole SCP. • Many landowners may be unhappy to be forced into a compulsory situation when others have been able to negotiate better outcomes.	• Process and policy for compulsory reconfiguration in GMWCP2 needs to be well communicated.	• Should improve the predictability of negotiation timeframes and may expedite delivery. • May decrease risk of financial uncertainty within the project.	• Powers already exist through the Victorian Water Act. • Likely would not be sufficient alone to achieve current project KPIs.
Option 5	Outsource	• New perspective available to solve project. • Potential acceleration of customer negotiations and execution of works. • Continuity with landowner engagement	• Still a risk that any outsourced agency may fail to deliver on agreed KPIs. Even if there are onerous contract conditions which may shift onus onto the supplier the fact would still remain that a contractor failure would be a project failure.	• Provides additional resources to complete project. • Transfers some risk to the private sector. • Landowners see this as a positive providing continuity through the project.	• May not increase certainty as organisations taking on responsibility may still fail to reach KPIs. • May take time to find service providers, arrange tendering and contracting.	• Increases financial certainty for project overall as organisations who take on the component of the project take the risk of cost escalations. • May increase resource availability for construction periods.	• Has already been trialled with some SCPs with promising results. • May require policy change depending of level of outsourcing.

Option	Scenario	Likely outcomes against objectives	Risk to project objectives	Impact			
				Stakeholder	Contract / Certainty / Legal	Financial / Commercial	Policy / Outcomes
Option 6	Policy / Framework	• After changes that have impacted project since 2010 this option allows for a readjustment to better reflect priorities of Commonwealth, State and GMW • Better focus project to meet stated outcomes.	• Risk that there may be no agreement on policy changes and as such the project does not get reset in time.	**Commonwealth** • May achieve better value for water savings if selection of SCPs are better targeted. • Also allows better targeting of funds. **VIC** • Criteria may better reflect stated goals of the project as may allow focus to be put onto landowners who are productive landowners. **GMW** • May allow prioritisation of SCPs to lower risk to GMW of life cycle costs and assets that GMW will have to maintain. **Landowners** • Gives a transparent approach to selection of SCPs.	• Would require variation to Project Schedule to accommodate alternative KPIs.	• Increases likelihood that project will select value for money options. • Recognise realistic outcomes and avoid unacceptable consequences from the current agreement provisions.	• Criteria may better reflect stated goals of the project. • Better acceptance of project by all stakeholders.
Option 7	Abandon program	• Water savings targets will not be met. • All KPIs will also not be met. • Modernisation of the GMID will remain incomplete. • Two categories of landowners will exist; those connected and those not connected. • The GMID will be running a hybrid system (part connected part not connected) that increases inefficiency. • Other water savings projects that are partially depended on GMWCP2 would not progress. • The price paid for water savings already in place will be high as costs for uncompleted works will need to be considered in the overall costs of the program. • The project will have to reconcile agreements with landowners that are partially through the process but not yet to the state of legal execution.	• Project Objectives will definitely all not be fully met. • Continued high water losses in the parts of the GMID channel system. • High risk to on farm water savings project that rely on connections. • Two classes of landowners will remain those connected by the project and those not connected but whom wish to be connected with no pathway for the latter to progress to a connection. • Landowners that are partially through the process of obtaining a legal agreement with the project may seek compensation for lost time and the lost ability to become part of the connected system. • Risk to the overall Basin Strategy as significant water savings will not then come from Victoria. • Risk of loss of trust with the landowner community.	**Commonwealth** • Water savings targets will not be met with flow on impacts to other water savings project such as on farm that are dependent upon connections proceeding. **Victoria** • Modernisation of the GMID will remain incomplete. The State will be required to provide water to meet its commitments. **GMW** • Modernisation of the GMID will remain incomplete and GMW will be required to complete activities such as meter rationalisation at its own cost and pay for a partially complete modernisation. GMW may be forced to work with less water on a partially modernised system. **Landowners** • There will be two service levels for landowners, those with modernised connections and those with existing supply arrangements.	• The obligation to recover 204 GL of water from the State for the Commonwealth still remains without any clear mechanism to deliver this water through works.	• Costs sunk in preliminary work for SCPs and other works and actions that are not completed will be lost. • The cost of the water saved to date would be very high as the costs for the incomplete works would be added to the costs incurred to deliver the water already saved. • Landowners that are partially through the process of obtaining a legal agreement with the project may seek compensation for lost time and the lost ability to become part of the connected system.	• Water savings targets will not be met. • Modernisation of the GMID will be incomplete. • Landowners who have not been included in the program will not be happy. • Cost of water saved so far would be very high. • Large component of sunk costs for which no benefit would be realised. • The requirement to recover 204 GL of water from the State for the Commonwealth still remains but alternative sources of water recovery would need to be identified for the overall Basin Strategy. • Additional water savings from on-farm projects would also be at risk as, under current arrangements, many need to be connected prior to being able to participate. • GMID would be left with only partially modernised system.

Table 5 Summary of recommended actions

ID	Action	How	Led By (in consultation with other parties)	Outputs	Outcome and Performance Criteria
1	Define the Project.	A facilitated process to discuss and agree project aims and on what basis the project will proceed.	DELWP	Agreed project aim and objectives. List of principles describing what the project is trying to achieve.	Agreed understanding of the project suitable for both government and public purposes.
2	Project communication	Develop and agree on a communications strategy for communication between the project partners and the wider public.	GMW	External communication plan covering : • Project definition. • Process to reset project. • The transition from the current project to a reset project • The performance of the reset project to the project end.	Agreed process to capture and distribute messages to all stakeholders. The standard of communications particularly to the public has to be a lot better. Frequency and consistency of messaging between GMW, DELWP and CTH suitable to keep the following perspectives informed: • Public perspective • Landowner perspective (individual, groups, regions) • Project performance perspective (project status at any given point in time) • Project aims and conversion of those aims in practical and accessible terms.
3	Establish an agreed, empiric, project baseline as at November 2015.	Use data from weekly project reporting by the project management office within GMWCP2.	GMW	Comprehensive empiric statement of the project position as of November 2015 including: • Current financial situation noting any under/over spend. • Cost to date to complete works against key delivery measures. (eg, channel decommissioning, per delivery share, per meter) • Recovered water savings • Forecast water savings. • Delivery Shares recovered. • Total length of backbone noting any changes. (Termed 'backbone extension' in GMW reports) • Channel remediated. • Channel rationalised. • Legal Agreements Requested. • Legal Agreements Executed. • Status of each of the 165 SCPs, - Legal Agreements Required. - Budgetary position - Status of Landowner agreements - Cost per ML of water saved - Number of contingent agreements required. - Current scheduled order and status	Data suitable for inclusion in analysis of potential future delivery models to determine the extent to which those future delivery models have improved the project performance. Provision of this data in a short, single, simple format endorsed by all parties as an agreed baseline suitable for use as a contractual basis. Ability of a third party with no prior exposure to the project to interpret and understand the data, its context and relative importance.

ID	Action	How	Led By (in consultation with other parties)	Outputs	Outcome and Performance Criteria
4	Choose the project future.	Using project principles, determine parameters to be used to assess any project reset. Consider project reset in Multi Criteria Analysis (MCA) process with risk-based assessment Workshop. Which includes testing options against: • Policy impact • Time impact • Budget impact • Actual water savings. (what is the actual amount of savings achievable in an efficient way and what is the amount of money required to deliver these) • Transferred water entitlements • Impact on Landowners • Transition arrangements • Exception factors (incl. past representations, sunk costs, impact of overall performance) • Concessions in policy positions to date Produce new project delivery plan from now until project completion.	DELWP	Project plan which achieves the agreed project principles. Project planning documentation.	An agreed project plan and supporting project management documentation Note this is not a report, no contextual or extraneous information is required other than: • Activity • Output • Accountability • Timing • Assumptions • Risk • Risk management • Empirical basis of measuring performance in the activity.
5	Risk management of water savings	Provision of statement regarding the approach to managing risk of any underperformance in the delivery of water savings.	DELWP	Included in same performance reporting framework as overall project reporting above.	Stated position on risk in delivering water savings and approach to manage that risk. Statement should be suitable for public disclosure.
6	Project Charter and Schedule Update internal project communications	Develop revised Project Charter and Project Schedule to reflect project principles and appropriate performance measures and KPIs that reflect progress toward achieving project principles. Develop internal communication plan and obtain agreement on common process, timing and management of communications for duration of the project. Agree measures which accurately reflect project performance and risk factors against overall aims Communication should occur at a range of frequencies including: • Weekly, potentially involving a system which investors can log in and check current status at any time. (We note such a system could be as simple as shared secure online communications portal where GMW reports are uploaded weekly, or as complex as a fully integrated ERP shared between GMW, DELWP and CTH). The project produces detailed data on performance every week and this should be available to the investors. • Monthly, through a revised dashboard report that simply describes activities of the project and progress toward overall objectives as well as a briefing by GMW at a monthly SOC meeting (either in person or through videoconference) where questions can be asked.	Commonwealth (Project Charter and Schedule) DELWP (Update internal project communications)	Revised Project Charter and Project Schedule agreed between CTH and, State. Process to capture and transmit information regarding the project. (internal). Reporting framework that: • Reflects progress against project principles. • Communicates information in a timely manner. • Allows for interrogation by all three parties. • Can be easily understood by external parties not familiar with the intricacies of the project. • Reflects project risk and management options for those risks. • Identifies escalation and resolution processes. • Allows for transparency in the communication of project information.	Revised Project Charter and Project Schedule agreed between CTH and State. Agreed process to capture and distribute project information. Information should be captured in a way that allows automated reports to be requested at any time. Measures should reflect underlying risk factors and note changes to these risk factors over time as a result of specific activities.

ID	Action	How	Led By (in consultation with other parties)	Outputs	Outcome and Performance Criteria
7	Project Transition	Establish a process and timing to phase current activities into new activities. The current project still needs to continue while transitioning to the new project. GMW may need the project investors to agree to revise the current project guidelines to allow for new approaches to SCPs to ensure that the project continues to deliver while transitioning to a potential new project form. As the existing project is fully occupying the existing staff it is suggested that additional resources likely to come from contractors with experience in delivering similar large infrastructure projects be used to assist GMW. The existing project team have valuable information and experience of the current project so close interaction with the transition team will be required.	GMW (With additional external support to ensure delivery of the overall project is not compromised)	Development and implementation of transition plan.	Successful transition to delivery of the new form of the project as measured against the project baseline.
8	Project Implementation	Implement the new reset project.	GMW	Exact mechanism to be determined depending upon the form that the revised project takes.	Successful project delivery as per the Project Charter and Project Schedule. Delivery of revised project within identified KPIs.

Appendices

Appendix A – Terms of Reference for the Review

TERMS OF REFERENCE FOR THE 2015 REVIEW

OVERVIEW

The Project Schedule of the GMWCP2 requires a joint review of the Project to be undertaken in mid-to-late 2015 to assess the Project's performance and improve delivery of outcomes.

Since start of the Project in 2011 a number of audits and reviews, looking at both performance and processes, have been undertaken to determine whether the project has in place good governance arrangements and is delivering scheduled project outputs. These audits and reviews will provide a reference for the 2015 review of the GMWCP2.

The 2015 review (originally scheduled for 2014), initially intended to examine the Connection Program component only. However, to evaluate the ability of the GMWCP2 to meet its intended aim within the current timing and funding profile the entire project is now included in the scope of the review.

These terms of reference (ToR) define the aim and timing of the independent review, and outline the roles and responsibilities of the parties involved in the review.

THE AIM OF THE REVIEW

The aim of the review is to:

- evaluate the appropriateness of the key assumptions outlined in the 2010 business case and reflected in the Project Schedule to the Water Management Partnership Agreement between the Commonwealth and Victoria, and subsequent updates included in the CIP2 finalised by GMW in October 2013 in achieving the agreed outcomes;
- evaluate the performance of the GMWCP2 and determine whether it is likely to achieve the outputs, outcomes and aim specified in the Project Schedule within the allocated resources (financial and human) and timeframe; and
- recommend corrective actions and improvements to the delivery of the Project (if required).

EVALUATION QUESTIONS

The review will focus on the following aspects of the various project components:

a) Connections Program

- An assessment of progress towards meeting the 100 per cent connections target and of the alternative reconfiguration solutions (including compulsory reconfiguration) considered by GMW in terms of average time and cost.
- An evaluation of water savings predicted against savings verified in annual audits and of the ability of the Program to deliver the expected water savings within the specified timeframe and budget.
- An analysis of the factors likely to influence landowner's preference to connect or terminate supply under GMWCP2, including fluctuations in water prices.

- An analysis of incentives paid by GMW to landowners and whether these are consistent with the budget for the Connections Program.
- A review of GMW stakeholder engagement and communication strategy, and landowner feedback on the connection process (based on information gathered by GMW).
- An assessment of GMW's strategy for recovering any forecast water saving shortfall from the Connection component of the project and whether this can be implemented within budget and timeframe.
- Recommend any corrective action required.

b) The Backbone Modernisation Program

- An assessment of progress towards meeting the Program's targets.
- Recommend any corrective action required.

c) Water Savings and Environmental Projects

- An evaluation of the progress of each approved project against targets and of the likelihood that the projects will be delivered on time and within budget.
- An assessment of the ability of the entire group of projects to deliver the estimated water savings of at least 13.96 GL, considering the reduction in scope and cancellation of some projects.
- Recommend any corrective action required.

d) Research and Water Savings Investigations

- An assessment of whether investigations funding will be required over the remaining life of the project and, if so, of DELWP's and GMW's intention to match Commonwealth's funds.
- Recommend any corrective action required.

e) Planning and Compliance Projects

- Evaluate the appropriateness of the auditing and compliance framework, including financial, risk, fraud control, environmental, OH&S and water savings audits.
- Recommend any corrective action required.

f) Corporate and Project Management Overheads

- Evaluate whether overheads are reasonable and the appropriate rates have been paid for goods and services.
- Recommend any corrective action required.

g) Other

- Evaluate the overall contractual framework between parties including the overall expenditure profile, KPIs and milestones. The review should assess if the funding arrangements provide an appropriate level of flexibility in the management and governance of the project.
- Recommend any corrective action required.

TIMING OF THE REVIEW AND SCHEDULE

The GMWCP2 review will commence in the first half of 2015. The following factors have been taken into consideration in selecting the most appropriate timing for the review:

- the completion of two full annual cycles of planning, works, savings, audit and water share transfers under GMWCP2;
- a full year of post implementation of the CIP2;
- the removal of the 4 per cent trading cap in July 2014; and
- the release of the Basin Plan (2013).

Thus, it should be possible to effectively evaluate how the GMWCP2 is proceeding and is projected to proceed, whilst allowing enough time for any corrective actions to be implemented over the remaining time of the project.

The review is to start in May 2015 with the final report to be completed later in 2015 and endorsed by the SOC.

APPROACH AND METHODOLOGY

The review is to take on an evaluative approach in assessing the appropriateness of method and key assumptions outlined in the 2010 business case, and the subsequent updates of assumptions during the project including the CIP2. Focus and effort should be prioritised according to the materiality of threats or opportunities to the project.

The review will be based on interviews with Project personnel and analysis of relevant documents and project reports.

DoE, DELWP and GMW will provide the reviewer with all relevant information/documents required to assess the status of the Project and formulate any recommendations on the future conduct of the Project. This may include funding agreements, existing audits, reviews and reports undertaken since the commencement of the project, with additional information being collected by the reviewer if an information gap is identified. Key documents to be made available to the reviewer comprise, but are not limited to:

- Water Management Partnership Agreement between the Commonwealth and the State of Victoria
- Project Schedule for the GMWCP2
- Project Charter for the GMWCP2
- Funding Agreement between DELWP and GMW
- Commonwealth audit of the Connections Program, Ernst and Young (2012)
- Connections Implementation Plan 2 (2013)
- Stage 2 Annual Reports
- GMW Connections Quarterly Reports
- Review of Contract and Reporting for the GMW Connections Project (2014)
    - Industry standard reporting review (Ernst and Young 2014)
- Independent Audit of Water Savings
- GMW annual customer survey results

The review is to be delivered in accordance with the *Commonwealth Privacy Act 1988* and the *Victorian Information Privacy Act 2000*.

DELIVERABLES

The outputs of the review will be a report covering the requirements listed under Evaluation questions. Upon completion of the review, the consultant will prepare and submit a draft report to the Working Group. The draft report will then be reviewed and comments provided to the consultant within a timeframe to be specified. The consultant will then review and revise the report based on all comments received. The report is to be tabled at the first SOC meeting held after the finalisation of the report. This may require holding an exceptional SOC Meeting.

GOVERNANCE AND ACCOUNTABILITY

The review will be undertaken under the oversight of a Working Group to be established in April 2015 and comprising representatives from DoE and DELWP. GMW will be an observer of the Working Group.

The Working Group will be chaired by DELWP and will be responsible for overseeing the project at key delivery points.

The selection and engagement of the independent reviewer will be undertaken by the DoE in accordance with the Commonwealth Procurement Rules (CPR). DELWP will be part of the Evaluation Committee responsible for the selection of the successful supplier.

The roles and responsibilities of each organisation are provided in Table 1 below.

Table 1 – Roles and responsibilities of DoE, DELWP and GMW

Organisation	Roles and responsibilities
DoE	Manage the procurement of the independent reviewer, including acting as Chair of the Evaluation Committee selecting the independent reviewer in line with the scope of the ToR. Participate in the Working Group overseeing the review as a member. DoE will have the opportunity to comment on and respond to findings and recommendations of the review.
DELWP	Participate in the Evaluation Committee as a member for the selection of the independent reviewer. Chair and provide secretariat support for the Working Group overseeing the conduct of the review at key delivery points to ensure the review is being delivered in accordance with ToR. DELWP will have the opportunity to comment on and respond to findings and recommendations of the review.
Goulburn-Murray Water	Participate in the Working Group overseeing the conduct of the review as an observer. Provide information and support as requested by the independent reviewer in-line with the ToR. Work with the independent reviewer to ensure that information provided is interpreted appropriately. GMW will be provided with the opportunity to comment on and respond to findings and recommendations of the review.
Independent reviewer	Undertake the 2015 project review in accordance with the ToR.

Appendix B – Extract from Project Schedule for GMWCP2 identifying key aims

- Transferring to the Backbone and/or retiring up to 5,182 ML/d of delivery shares.
- Achieving uniformity of flow through automated meters +/- 10 per cent for 90 per cent of time.
- Installing up to 4,993 new compliant meters (including D&S) that are 100 per cent compliant.
- Remediating up to 77 km of channel pool.
- Rationalising up to 2,259 km of channel.
- Delivering remote control operation of the automated system for 24 hrs/day during the irrigation season target to 95 per cent compliance.
- Having water available and delivered within 24 hours of ordering – 95 percent of time.
- Achieving positive salinity outcomes arising from removal of irrigation.
- Setting aside sufficient mitigation water to ensure no net impacts on high environmental values.

Appendix C –Goulburn-Murray Water Connections Project Stage 2 Logic Model

Program logic element	Strategy *What are you trying to do?* *What are the drivers behind the project?*	Inputs *Inputs sought by the program to deliver the program outcomes.*	Activities *Activities undertaken to produce outputs from the inputs to produce outcomes over time.*	Outputs *What was/will be produced as a result of the activities?*	Short Term Outcomes *The outcome being targeted through the production of the listed outputs.*	Long Term Outcomes *The outcome being targeted through the production of the listed outputs.*
Description	**A. Produce water savings** • Undertake activities producing water savings between 2013 and 2018. - Assist in bridging the gap between current diversions (baseline diversion limits) and the sustainable diversion limits in the Basin Plan. - Advance the implementation of the National Water Initiative. - Enhance the sustainability of rural water use in Murray Darling Basin. **B. Improve productivity in irrigation communities** • Assist irrigation communities in the Goulburn-Murray Irrigation District to adapt to a future scenario of more variable water availability due to climate change. - Produce a secure and stable long term future. - Improve standard of service to productive farms to create greater on farm productivity. - Accelerate the development and uptake of smart technologies and practices in water use across Australia. - Advance the implementation of the National Water Initiative. **C. Improve environment in irrigation communities** • Improve environmental conditions and connected ecosystems across the GMID.	**A. Project Plan** • Project budget as per Project Schedule and Project Charter. • Collaborative delivery arrangements between GMW, DoE and DELWP to manage the project schedule, charter and budget. • $952,8 million from CTH and $106.2 million from Victorian State Government. **B. Project Legacy** • NVIRP legacy policies and stakeholder communications and deals. • Legacy outcomes from NVIRP projects. **C. Existing Project Infrastructure** • Connections Program Management Office (PMO) and reporting. • GMW client management systems. • GMW tariff structure. • Compulsory reconfiguration process. • GMW Existing asset base. • GMW policies **D. Audits and Recommendations** • Ombudsman Recommendations. • EY Recommendations. • Environmental Audit Recommendations. • Water Savings Audit Recommendations.	**A. Delivery** • Establish Strategic Connection Projects (SCP) Zones for project delivery. - Capital Works (On farm and Off farm). - Backbone improvements (SCADA upgrades, capacity augmentation works). - Meter installations. - Channel water loss remediation. - Decommissioning and rationalisation of channels and service points. - Environmental improvement works • Delivery of backbone works during Winter (3 months). **B. Stakeholder Management and Communications** • Negotiation with landowners. • Program Communications. • Approvals and regulatory compliance. • Compulsory Reconfiguration. **C. Program Management** • Planning process. • Engagement process (incl. Communications process). • Agreement process. • Construction process. • Master Schedule Reporting. - Water savings measures. - Environmental impact measures. - Community engagement measures. • Continuous Improvement. - Value Engineering process. - Change management process. **D. Reporting and Governance** • Government (Vic) to Government (CTH) • GMW to Government (Vic) • GMW committees and board reporting • GMW to Community (Local Gov. & CMAs) **E. Business Continuity** • Maintain customer supply during works. • Maintain Connections infrastructure. • Board reporting. • Financial management of GMW enterprise.	**A. Design Plans** • Irrigation Servicing Designs. • Regulatory approval of designs. **B. Landowner Agreements** • Signed agreements with landowners. **C. Commissioned Infrastructure** • New on-farm assets. • New off-farm assets. • New GMW assets. • New landowner assets. • New related infrastructure. - Power supply. - Council assets. - Government assets, eg, culverts under roads. - Insurance agreements. **D. Operation and Maintenance** • Delivery of the project as per Project Schedule and Project Charter: - Water Savings of 204 GL by 30 June 2018 using $1,059,024,000. - Transfer or retire up to 5,182 ML/d of DS. - Installation of up to 4,993 compliant meters. - Remediate up to 84 km of channel pool. - Rationalise up to 1,845 km of channel. - Construct Kow Swamp-Box Creek Fishway. - Implementation the Torrumbarry Services Enhancement Project - Delivery of Swan Hill Modernisation Project Gunbower Lagoon Modernisation Project Central Goulburn 1-4 Rationalisation Project. Goulburn 19/12 Rationalisation project. Kerang Lakes	**A. Produced Water Savings** • 204 GL of water savings. - 204 GL LTAAY total savings. - Including 102 GL LTAAY to be transferred to the CTH as part of the infrastructure project. - 102 GL LTAAY to be purchased by the CTH under the Water Purchase Agreement 2011. **B. Improved Productivity in Irrigation communities** • Priority outcomes monitored for compliance: - Long term system efficiency of 85% - Uniformity of flow through automated meters +/- 10%, 90% of time. - Remote control operation of the automated system 24 hrs/day 95% compliance. - Water available and delivered within 24 hrs of ordering 95% of time. **C. Improved environment in irrigation communities** • Priority outcomes monitored for compliance: - Positive salinity outcomes. - Continued setting aside mitigation water to ensure no net impacts. - Creation of agreed environmental watering plans.	**A. Produced Water Savings and Efficiency** • Provide a modernised irrigation system providing a fast, automated delivery of water with increased water use efficiency. **B. Improved Productivity in Irrigation communities** • Increased productivity, profitability and water use efficiency in the GMID. • Increased resilience, viability and certainty of irrigation communities in the GMID. • Increased regional development and food security. • Sustainable future for irrigation communities in the GMID in the context of reduced water availability and climate change. **C. Improved environment in irrigation communities** • Reduce environmental footprint of the irrigation system. • Reduced nutrient and salt content and improved environmental water regimes of waterways in the GMID. • Improve ecological health of waterways in the GMID.

Program logic element	Strategy *What are you trying to do?* *What are the drivers behind the project?*	Inputs *Inputs sought by the program to deliver the program outcomes.*	Activities *Activities undertaken to produce outputs from the inputs to produce outcomes over time.*	Outputs *What was/will be produced as a result of the activities?*	Short Term Outcomes *The outcome being targeted through the production of the listed outputs.*	Long Term Outcomes *The outcome being targeted through the production of the listed outputs.*
Information Available	• Water Management Partnership Agreement (2010). • Stage 2 Project Charter (versions 1-3). • Sustainable Rural Water Use and Infrastructure Program (CTH). • Our Water Our Future Policy (Vic). • Relevant documents on program objectives, policy underpinnings and any changes. • GMW, CTH and VIC comments on the strategy and driver. (stakeholder consultation).	• Commonwealth due diligence report (2011). • Stage 2 Project Schedule (Variations 1-3). • Stage 2 Project Charter (versions 1-3). • Delivery agreement between State and GMW (2012). • Review of Project Schedule and Project Charter (and versions). • Reporting for the GMW Connections Project 2 (2014). • Connections program status room reporting methodology and approach.	• EY audit (extract)(2013). • NVIRP Stage 2 Due Diligence Assessment Report Final (2010). • Information on the risk profile of Connections 2 as compared with Connections 1. - Specifically information focused on the challenges of a program with significant on-farm works. (risk, likelihood, impact). - Progress reports (monthly, quarterly and annual reports). - GMW Corporate reporting requirements. - GMW Customer Charter and approach.	• Stage 2 Project Schedule (Variations 1-3). • Stage 2 Project Charter (Versions 1-3). • Water savings audits of work undertaken to date. • Requested/commissioned on project performance other than agreed progress reports. • Information on the link between reporting and the outcomes specified in the contract. • Information on water savings which clearly distinguishes Connections 2 savings.	• Stage 2 Project Schedule (Variations 1-3). • Stage 2 Project Charter (Versions 1-3). • Water Purchase Agreement 2011. • Forecasted trend of savings to date in Connections 2 from now to program end.	• Strategy for Reporting on the Wider Benefits of Irrigation Modernisation (DELWP). • Sustainable Rural Water Use and Infrastructure Program Outcomes. • Investment Logic Map (DELWP).
Assumptions **Assumptions (continued)**	• The 'Information Available' listed above is the best information available and there are no material gaps in reasoning to support each point in the description above. **A. The program objective is clear.** • Program objective is clear. - Administration of the program has changed and it has been subject to direct Ministerial direction and guidance. - The stated objectives of the project are what are listed above. Other guidance relates to what the GMWCP2 program should aim to achieve but is not required to achieve. - Small changes in the text of stated objectives will influence the scope of this program evaluation. - As the project is funded under the Sustainable Rural Water Use and Infrastructure Program (SRWUIP) project funding will need to be expended by June 2019. - Any policy changes will not manifestly impact the ability of the program to deliver the result as originally scoped. - The program (stage 1 + stage 2) would connect 100% of irrigation customers who wished to retain water supply. **B. Stakeholders will react as predicted.** • The benefit to all landowners would be the same and be driven solely by commercial factors. • Farmers would form syndicate and be willing to own off-farm assets. (All appropriate insurances and approvals would be available) • All key social drivers relevant to program delivery were accessed. • Compulsory reconfiguration powers will be available to use as required. **C. A capital works program focused on irrigation efficiency will deliver water savings.** • Automation and more efficient infrastructure is the most cost effective way of saving water. • Risks to connections project will be adequately controlled through high levels of participation, adaptive management and the large number of alternate investment strategies together with market signals through tariffs. • Backbone modernisation as defined in the business case for Stage 1 has been delivered • External approvals will not manifestly impact program • The program will be able to proceed with its capital program throughout the entire life of the funding agreement without significant disruption. • Stakeholder reaction will not manifestly impact	• The 'Information Available' listed above is the best information available and there are no material gaps in reasoning to support each point in the description above. **A. External events will assist the program deliver the outcomes.** • Private landowner syndicates would form and be a significant supply option. • Syndicates would base responses solely on commercial drivers. • There will be a 50 % reduction in irrigation footprint. • Whole of life costs of the GMID irrigation system will be reduced by 50% because 50% of the assets would pass into private hands. (owned, operated and maintained by landowners / syndicates). • There will be a 50% consolidation of farms according to market forces producing a reduction in the number of landowners or connection points. • 45% of non-backbone delivery share would be "dried off" and lead to a reduction in connection points. **B. The business planning process for delivery of the program accurately reflected the reality of delivery.** • Program will last for 5 years and all forecasting and indexation assumptions hold true over the life of the program. • There will be a mix of works which can be carried out at any time of the year with the exception of inline structures and channel lining which will generally be carried out during the winter when irrigation supply is not required. • Weather and access to site will not manifestly impact ability to deliver works. • There will be a 6.2% cost escalation based on June 2010 dollars which has been included in the overall project budget. • CPI calculated at 2.5% on June 2010 dollars has been applied to labour related costs (work overheads and corporate costs). • Budget includes contingent and inherent risks. • Overheads include planning and investigation and approvals. • Related infrastructure and approvals to commission works will be approved and installed in a reasonable timeframe. (eg, Approvals and works required from Shire, Vicroads, Powercor, environmental and cultural heritage approvals etc). • A consultative/ voluntary approach to connecting landowners is a requirement of the program. • The most efficient way to deliver the program outcomes is by interacting with 100% of landowners with delivery shares.	• The 'Information Available' listed above is the best information available and there are no material gaps in reasoning to support each point in the description above **A. The program has adapted to changing conditions with no impact to delivery.** • Monitoring and reporting of program performance will remain largely consistent over the life of the program. • Funding requirements will not change over the life of the program. • Experience from the delivery of Stage 1 will assist the delivery of Stage 2. • Implementation policy from the delivery agency (NVIRP then GMW) would not manifestly change, including: - Technical approach. - Commercial Policy. - Specification policies. • The program management by NVIRP would be easily transferred to GMW. • Only up to 100 km backbone extensions will be required in 2012, up to 445 km additional by 2014. • Economies of scale would be found through delivery. • The existing approach is the most appropriate to guarantee the program objectives are met by 30 June 2018. • Timing of program funding approvals and payments aligns efficiently with program delivery. • The governance arrangements, systems and processes in place are the most effective and efficient way of delivering the program. • Audits and reviews will not manifestly impact the delivery of the program. • Locations of the backbone on which remediation works can be applied have been identified by applying a soil type decision process to the channels. **B. The level of effort required to deliver the program will not change.** • Landowners will be willing and able to own on-farm assets. • Landowners will be willing and able to own off-farm assets. • Connections program would be a catalyst for the consolidation of farms. (would reduce cost. – less consultation, less impediment, faster works, more water reduction). • Farmers would be receptive to the offer. Farmers would form syndicates, Delivery agent (NVIRP now GMW) would only need to interact with the syndicate once to obtain approval.	• The 'Information Available' listed above is the best information available and there are no material gaps in reasoning to support each point in the description above **A. Interpretation of key contractual elements and understanding of delivery progress is clear.** • Contractual measures specified above are not absolute and are considered 'up to', with the exception of the specified water savings which are absolute. • 100% of spur channels will be decommissioned or transferred resulting in 100% of delivery shares being transferred or retired. • Transferring delivery shares will save water through channel abandonment. • Completed projects and associated savings associated with NVIRP delivery will not be evaluated following change of program management to GMW. • Key performance measures in reporting templates used in the program are the most appropriate measures to communicate program performance, improvements and delivery risk. • The only work undertaken predominantly for environmental outcomes not for water savings are to Construct Kow Swamp-Box Creek Fishway and One and Two Tree Swamp and Woolshed Swamp. • There is no counting of Connections 1 water savings against Connections 2 targets. • 100% of irrigation customers who wish to retain water supply will be connected as a component of delivering required water savings under the program. • Key definitional elements of program performance (eg, Water Savings) will not change. **B. Program impact to GMW is clearly understood and will not significantly impact GMW operations after program completion.** • A significant proportion of channels and related infrastructure would no longer be owned by GMW, (decommissioned or transferred). • GMW Whole of Life Costs will be lower as a result of this program. • Existing non-backbone landowners should be reconnected to the backbone and backbone extension allowances would need to be made to accommodate this. • Water transfer to the Commonwealth will occur prior to the works and an audit being completed.	• The 'Information Available' listed above is the best information available and there are no material gaps in reasoning to support each point in the description above. **A. The link between contractual delivery and achieving the specified program outcomes (short term) is guaranteed.** • Calculated water savings and the associated program outcomes only consider water savings to GMW, not to the catchment. • Definitions of water saving will the same between documents, strategies and reporting and calculated in the same fashion over the life of the program. (Long Term Average Annual Yield, 'LTAAY'). • There will be a clear owner for all assets installed as a part of the program at the conclusion of the works and there are appropriate processes in place to ensure those assets remain operational and in place until all program outcomes are delivered. • There are appropriate risk mitigation practices in place to deal with any shortfall in delivery measures which may arise after delivery of the program to ensure all savings are protected until all short term and long term objectives are met. • All program works will remain in place to guarantee all water savings and associated environmental outcomes over the 0-3 year period and there is no significant risk of their failure, removal or reconfiguration.	• The 'Information Available' listed above is the best information available and there are no material gaps in reasoning to support each point in the description above **A. The link between contractual delivery and achieving the specified program outcomes (long term) is guaranteed.** • The goals at setup are the appropriate goals. • There are broader benefits of modernisation (regional productivity /GDP). • There are appropriate risk mitigation practices in place to deal with any shortfall in delivery measures which may arise after delivery of the program to ensure all savings are protected until all short term and long term objectives are met. • All program works will remain in place to guarantee all water savings and associated environmental outcomes and there is no significant risk of their failure, removal or reconfiguration.

Program logic element	Strategy *What are you trying to do?* *What are the drivers behind the project?*	Inputs *Inputs sought by the program to deliver the program outcomes.*	Activities *Activities undertaken to produce outputs from the inputs to produce outcomes over time.*	Outputs *What was/will be produced as a result of the activities?*	Short Term Outcomes *The outcome being targeted through the production of the listed outputs.*	Long Term Outcomes *The outcome being targeted through the production of the listed outputs.*
	capital program. **D. The market will react as predicted.** • Indexation of cost forecasts will hold true over the life of the program and the program timeline for delivery will not alter. • Infrastructure identified and the costs of that infrastructure will not change other than in line with the forecasted indexation. • Market will be able to meet supply without significant fluctuations in price or availability. • Market supply will be available when needed and the program will not influence resource availability and pricing (e.g., pipe and farm designers). • All infrastructure associated with the program (e.g., meters) will be based on historic flows not forecasted flows or landowner negotiations.	• The program will be delivered through negotiated agreements with landowners and syndicates not by landowners and groups putting bids to the program. • Commercial terms associated with any delivery share owner's involvement in this program will remain consistent over the life of the program. • Commercial terms for the program put to landowners will remain commercially competitive against open market prices for water sale available to landowners. • Any delays in funding and funding approvals for Stage 2 will not require any changes to milestones or delivery timeframes. • Landowners responsible for on-farm works. • Creating a backbone is the most cost effective way of rationalising infrastructure and meeting GMW long term sustainability. • Compulsory reconfiguration will be used as required to ensure timely delivery of the program.	• Policy will consistent and not manifestly impact response of stakeholders. • There will be adequate human resources to deliver the project • Pipe and meter manufacturers can adequately scale up to meet demand **C. Reporting communicates key program delivery risks to all program partners.** • Reporting is appropriate and clearly addresses key performance indicators in GMWCP2. • Alignment of program management and reporting with contractual obligations and OVERALL obligations / objectives. • The risk profile of stage 1 savings is the same as stage 2 savings • Stage 1 involves approximately 20% 'on-farm' works and 80% 'off-farm' works. • Stage 2 involves approximately 80% 'on-farm' works and 20% 'off-farm' works • Lack of granularity in overall performance will increase program delivery risk.			
External factors	• Broader policy framework (and associated activities) to which the program is contributing, including: - Murray Darling Basin Plan - Sustainable Rural Water Use and Infrastructure Program (SRWUIP) - Climate conditions (at time of establishment were drought has progressed to plentiful rainfall) • Changes to State and Federal government focus.	• Key third party enablers of the program: - Councils - Environmental approvals - Associated infrastructure • Market conditions including any shifts in commodity prices of key farm outputs in the region and the price of water. • Stakeholder interaction from related programs, for example, On Farm Efficiency Program.	• Factors which influence availability of sites for works, for example Weather and Irrigation Seasons. • Program restructuring - Integration of NVIRP into GMW - External policy changes associated with restructuring such as the ability to buy water or not buy water to deliver savings • External Audits, including: - Ombudsman Investigation (2011) - 77 environmental audits - 6 annual Water Audits - VAGO performance Audit (2009-2010) - Commonwealth spot audits (planned) - Other audits (eg, EY)	• Changes to funding agreements - Funding initially for June 2010. - Funding rephrased until June 2011. - Rephrased again until June 2012 • Definition of elements from third parties, such as LTAAY water savings.	• Any change in factors to the left after delivery of the program of works which may impact the outcomes specified above.	• Any change in factors to the left after delivery of the program of works which may impact the outcomes specified above.

Appendix D –Goulburn-Murray Water Connections Project Stage 2 Evaluation Framework

Context		Key Questions		Information	Process to answer
Relevance of questions to contracted requirements and overall outcome.	*Link between the questions and the Program Logic Model.*	*The questions specified by the terms of reference.* *In essence:What is the fundamental aim and drivers of the project in your words? What is the relative progress and risk? Are you going to achieve the outcomes? What are the opportunities to improvement or alter to achieve the outcome? With no intervention what will happen?*	*A non-exclusive list of questions to offer insight into specific areas of interest to give light to the key questions and the issues which influence any answer to them.*	*The information relied upon to answer the question.*	*Describes the steps of reasoning in answering the question, including how the Information specified is being used.*
Overall Program Delivery • Delivery of the project as per Project Schedule and Project Charter. - By completing activities in 6 project components - To achieve water savings totalling 204 GL LTCE, including 102 GL to the Commonwealth - To deliver outcomes 1 to 14 detailed in Project Schedule - The GST exclusive Project Cost is $1,059,024,000	• Test the extent to which the assumptions listed in the assumptions section of the PLM have impacted, or continue to impact the ability of the program to meet the agreed outcomes. • Through addressing the questions in this section those assumptions will either be held to be still operative on performance or considered no longer relevant to current program performance.	• Are there key assumptions in the historical or current delivery of the program of works that may impact the ability of GMWCP2 to achieve the agreed outcomes? • To what extent are external programs influencing delivery of this program? (eg, On-Farm Efficiency)	• For each of the 6 project components, which of the assumptions listed in the PLM above have had the most significant impact on the ability to deliver the outcomes? • How do you measure the impact of this assumption on program performance? • What is the forecasted impact of this assumption? • What are the risk mitigation measures in place? What has been the success of these risk mitigation measures to date? • In what ways has the contract and measures of performance under the contract changed over time to reflect any observed changes of assumptions underpinning the original program design?	**Documents** • Assumptions (stated and unstated) as reflected in: - Project schedule - 2010 Business case - Water management partnership agreement between CTH and Vic - Progress reporting from GMW including **Stakeholders** - Interviews with Project personnel CTH, - VIC, - GMW •	• Review documents to form a list of assumptions and document these (see PLM) • Focus on assumptions which may have an enduring and manifestly important impact to achieving the outcomes. • Discuss the ongoing impact of these assumptions, the degree to which they impact performance and potentially impact communication of issues and reporting. • Focus on tangible/empiric measures to communicate the impact in preference to subjective commentary. •
	• Compare measures of the outputs and outcomes from the PLM and relative performance to date and forecasted. • Use the strategy, inputs, activities, assumptions and external events sections of the PLM to identify critical relationships ('heat map') between those parts of the PLM and performance.	• Based on current performance is GMWCP2 likely to achieve the outcomes specified in the Project Schedule within the allocated resources and timeframe? • Are the current metrics appropriate for measuring the success of the project? • Is there scope for unintended consequences in pursuing the current approach to measuring success? •	• What is the current estimated expenditure by 30 June 2018 compared to the budget of $1,059,024,000? What are the notable features of these estimates? • • What is the current expenditure to 30th June 2015 compared to budget? What are the notable features of this expenditure? • What is the programmed expenditure by 30th June 2018 compared with the component budget? - Transfer or retire delivery share. - Installation of up to 4,993 compliant meters. - Remediate up to 84 km of channel pool. - Rationalise up to 1,845 km of channel. - Delivery of special projects including (Construct Kow Swamp-Box Creek Fishway, Implementation the Torrumbarry Services Enhancement Project, Swan Hill Modernisation Project, Gunbower Lagoon Modernisation Project, Central Goulburn 1-4 Rationalisation Project, Goulburn 19/12 Rationalisation project. • What is the proposed approach to monitor and ensure compliance with those outcomes which must be monitored over time? Specifically: - Long term system efficiency of 85% - Uniformity of flow through automated meters +/- 10%, 90% of time. - Remote control operation of the automated system 24 hrs/day 95% compliance. - Water available and delivered within 24 hrs of ordering 95% of time. • Under the forecasted timeframe in the Master Schedule will the program be delivered by 30 June 2018? • Within the program management process created by G-MW (Planning, Engagement, Agreement, Construction, Master Schedule Reporting) where are the major risks to delivery? • What are the interventions in place to address this risk and the impact of those interventions historically? • What are scenarios for delivery or improvements which may address any issues in resourcing or timeframe?	**Documents** • KPI methodology for long term measures (working draft) • KPI report 2014 (GMW) • Annual Progress Report N 5 (2015) • CIP1 (2012) (to be provided) • CIP2 (2013) (to be provided) • Selected documents and reporting from the GMW Program Management Office. • Quarterly progress reports • Monthly Dashboard reports **Stakeholders** - Interviews with Project personnel	• Understand how is the project tracking from a budgetary point of view • Form an understanding of any risk factors which may be impacting timing or budget. • Adopt a 90/10 rule in this discussion, namely that 90% of the impacts on timing and resources can be attributed to 10% of the issues, to avoid any undue diversions in discussions to issues which while important have a smaller relative impact in the overall scheme of delivering to time and budget. • Understand how ownership of the outcomes (for example, ownership of the project charter and schedule) is managed and communicated between all Stakeholders (CTH,VIC, GMW) to ensure alignment of expectations and rapid communication, assessment and response to issues which may impact delivery.

Context		Key Questions		Information	Process to answer
	• Compare measures of water savings related outputs and outcomes from the PLM and relative performance to date and forecasted. • Use the strategy, inputs, activities, assumptions and external events sections of the PLM to identify critical relationships ('heat map') between those parts of the PLM and performance.	• Based on current performance is GMWCP2 likely to achieve the water savings specified in the Project Schedule within the defined period? (expressed as Long Term Average Yield, 'LTAY, not LTCE where possible) • What, if any, corrective actions would you recommend? • What are the critical interdependencies between outputs and outcomes of the program? • How would applying different scenarios impact the broader benefits of the program? •	• What are programmed water savings at 30 June 2018 and the components of those savings compared to the project schedule expectations of 204.0 GL. • What are the forecasts over time for the delivery of these savings as of 30 June 2015? • What water savings can be delivered by 30 June 2018 and 2019 respectively? • To what extent have water savings from Stage 1 been used to mitigate any water saving shortfalls? • If Stage 1 savings have been used in what way does this impact delivery under the Connections 2 contract? • What processes and procedures are in place to avoid double counting between stages 1 and 2 in terms of works, costs and water savings? • What is the relative contribution (in GL) towards overall savings of individual delivery approaches to date and forecasted? (eg, physical connections, physical terminations, non-physical terminations, meter replacements, channel lining etc). • Forecasting those individual approaches based on current impact what's going to happen? • Under the following scenarios what do you believe might be the impact on water savings, timeframe and resource requirements: - Scenario A: No change to current delivery model - Scenario B: Policy changes, including GMW goes through compulsory reconfiguration with everyone right now and a confirmed design is agreed by December 2015. - Scenario C: Policy changes, including GMW focusing only on large users (ie, not peri-urban) as of July 2015. - What other types of scenarios can be undertaken to deliver the water savings?	**Documents** • Annual Water Audits (2013, 2014) • Forecasted water savings from Project Schedule: • Water savings projections reports and models • Water transfer impact reports and models • Forecasted Water Allocation Accounts **Stakeholders** - Interviews with Project personnel	• Understand progress to date in water savings which breaks out - The relative risk of issues impacting performance against the types of works which are delivering savings. (for example, access to farms does not impede the installation of meters on the backbone - Measures undertaken to address and the impact of those measures to date. • Understand the degree to which reporting, governance and communication accurately aligns to contracted requirements • Understand the appropriateness of risk mitigation measures and the timeliness with which these measures have been impacted. • Understand what the final water savings if project proceeds without change. • Understand what the final water savings allocations and impacts may look like under a range of forecasted scenarios.
Connections Program • 76% of investment ($800,274,781 including $166,330,008 for meter preplacement): - Transfer to the Backbone of up to 5,182 ML/d as removal of delivery share from the non-backbone Rationalise of up to 1845 km of channel. - Covering both closure and transfer to private ownership. - Installation of up to 4993 meters - Remediation of up to 84 km of channel pool. • Contributing to: - Long term system efficiency of 85% - Uniformity of flow through automated meters +/- 10%, 90% of time. (uniform flow impacted by how well the landowner has maintained their infrastructure) - Remote control operation of the automated system 24 hrs/day 95% compliance. - Water available and delivered within 24 hrs of ordering 95% of time. - 204 GL LTAAY total savings.	• The degree to which the strategy, inputs, activities, assumptions and external events have impacted the ability to deliver these elements specified in the Outputs section (and in turn the Outcomes): - Water Savings of 204 GL by 30 June 2018 using $1,059,024,000. - Transfer or retire up to 5,182 ML/d of DS. - Installation of up to 4,993 compliant meters. - Remediate up to 84 km of channel pool. - Rationalise up to 1,845 km of channel. • The degree to which the current activities are positioned to deliver the outputs noted above and accurately address any risks. • In particular: - Long term system efficiency of 85% - Uniformity of flow through automated meters +/- 10%, 90% of time. (uniform flow impacted by how well the landowner has maintained their infrastructure) - Remote control operation of the automated system 24 hrs/day 95% compliance. - Water available and delivered within 24 hrs of ordering 95% of time.	• Based on current performance is GMWCP2 likely to achieve the 100 per cent connections target? • What, if any, corrective actions would you recommend? • Are the current metrics for payments and progress reporting appropriate for measuring the success of the Connections project?	• What is the progress of the development of SCPs and execution of the resulting landowner contracts? What is the strategy driving SCP selection or modification? • • Is the number of SCPs that are required finalised or subject to change? Describe this process? • Where is the 100 per cent connections target specified in the policy underpinnings of this program, project charter and project schedule? • What was the context for the inclusion of this 100 per cent connection target and to what extent does it rely on assumptions which have not held over the delivery of the program? • What is the current number of compliant meters programmed to be completed by 30 June 2018 • Has policy on number of meters, the extent of connections, and preference for "drying off" changed at a State level during delivery? Has this changed cost and mechanisms of delivering water savings outcomes? • Why was private extension of connections revised to substitute increased G-MW asset extension? What is the impact on this change to the total cost of ownership for GMW beyond this program? • Based on current performance when is GMWCP2 likely to deliver all alternative reconfiguration solutions (including compulsory reconfiguration) considered by GMW to be necessary at this point in time? • Based on current performance how much is the preferred model for delivering the 100 per cent connections target above forecasted to cost? • Given the time, cost and program risk implications of the foregoing questions are there any recommended or corrective actions required in your opinion? • To what extent are water savings in the Connections Program linked to water savings in the Backbone Modernisation program? • Is the use of the terminology 'up to' in describing empiric measures in the project schedule, eg, "transfer or retire up to 5,182ML/d of DS" consistent with current payment and reporting measures applied to the Connections project?	**Documents** • Monthly / Quarterly and Annual Progress Reports from GMW • Progress Reports from State to Commonwealth • Selected documents and reporting from the GMW Program Management Office. • Northern Victoria Irrigation Renewal Project Stage 2 Due Diligence Assessment Report (2010), pg41 (s3.5.3) - 100% connection **Stakeholders** - Interviews with Project personnel	• Understand the definitional basis, history and risks behind the 100 per cent connection target. • Understand the relative risks of the different parties and syndicates involved in the 100 per cent connections target. For example, peri-urban vs large scale landowners. • Form an understanding of progress towards the 100 per cent target under a range of scenarios and recommendations.

Context		Key Questions		Information	Process to answer
	• The extent to which the External Events and Assumptions sections have influenced the way landowners view and interact with the program. • The degree to which the Activities have adapted to respond to landowner feedback and risks to the generation of the Outputs and in turn Outcomes.	• What are the major factors likely to influence landowner's preference to connect or terminate supply under GMWCP2? • What, if any, corrective actions would you recommend?	• What policy has GMW been implementing in signing up landowners? • What are the limiting factors within the individual stakeholder groups impacting program delivery? (eg Peri-Urban vs Larger landowners). How has GMW policy impacted these issues? • Why has there been a focus on peri-urbans? • What % of delivery shares are needed to be included in executed connections agreements to achieve the required savings in the program? • Describe the ways in which the GMW stakeholder engagement and communication strategy have changed over time? • GMW – sub-contractors terms on contract. • What has been the landowner feedback on the Connection process? How is this information collected and how has this feedback been applied? How successful have changes in approach been? • To what extent do fluctuations in water and commodity prices contribute to landowner's preference to connect or terminate to supply under GMWCP2? • Describe the approach to incentives paid by GMW to landowners and how these have changed over time? What measures have been undertaken to respond to this? • What risks to program delivery, if any, are generated by the approach to incentives, both economically, socially and technically? • What is the relative split between water savings derived from 'landowner-dependent' and 'landowner independent' works between Stage 1 and Stage 2 of this program? • To what extent is the reliance on 'on-farm' works a risk to delivery of water savings?	**Documents** • Monthly / Quarterly and Annual Progress Reports from GMW • Progress Reports from State to Commonwealth • Selected documents and reporting from the GMW Program Management Office. **Stakeholders** - Interviews with Project personnel	• Understand the complex social dynamic to this program and its relationship to delivery of the outcomes within the timeframe. • Use scenarios for landowner behaviour to forecast time, cost and program delivery outcome implications. • Attempt to quantify the extent to which this change in behaviour coupled with any external events may have impacted program delivery as a means to quantify the risk to the program in landowner behaviour.
	• The extent to which the Activities provide a risk management, continuous improvement process.	• What is GMW's strategy for recovering any forecasted water savings shortfall from the Connection component of the project? • Can this strategy implemented within budget and timeframe? • What, if any, corrective actions would you recommend?	• What contingencies have been considered to "make up" any shortfall? • What is the process for assessing the viability of contingency projects? • To what extent do contingency projects make use of empirical measures drawn from program data to validate them? • If a greater emphasis was given to water savings alone could the target be achieved? What would be the impact on other project outcomes? • What are the implications of backbone extensions for water savings and achieving the program outcomes? • At what point is the decision made to install GMW owned infrastructure to service connections beyond the backbone? • Have there been constraints on the period of time each year when work can be done that has impacted upon delivery of program? • How many delivery shares will be retired or transferred to the backbone system? • What are the long term implications for GMW costs and operation of the changes to backbone extent and number of connections and meters that are programmed to be delivered? • What is the expected length of G-MW system predicted at the project completion compared to initial forecasts?	**Documents** • Monthly / Quarterly and Annual Progress Reports from GMW • Progress Reports from State to Commonwealth • Selected documents and reporting from the GMW Program Management Office. **Stakeholders** - Interviews with Project personnel	• Understand the process for the creation of contingency projects. • Understand each of the contingency projects and the triggers for their implementation. • Pay particular attention to time implications, for example if Contingency Plan A was implemented right now would the program be able to address the present shortfall and any forecasted shortfalls in total to ensure program delivery on time and to budget?

Context		Key Questions		Information	Process to answer
Backbone modernisation program • 8% of investment ($89,062,759) • Deliver the works required in the Connections program noted above to produce water savings. Ensure that infrastructure has a long term impact in modernising the Backbone to produce: - Produced Water Savings and Efficiency, - Improved Productivity in Irrigation communities - Improved environment in irrigation communities Including: • In particular: - Long term system efficiency of 85% - Uniformity of flow through automated meters +/- 10%, 90% of time. - Remote control operation of the automated system 24 hrs/day 95% compliance. - Water available and delivered within 24 hrs of ordering 95% of time. • Contributing to: - 204 GL LTAAY total savings. (102 GL transferred to the CTH as part of the infrastructure project. - 102 GL LTAAY to be purchased by the CTH.	• The Outputs listed in the PLM contribute to this measure of the modernisation program. • There is some degree of overlap as some measures will be tested for their ability to produce water savings and in so doing modernise the backbone. • This section tests the linkage between the Outputs which collectively produce modernisation and the Short term and Long Term Outcomes sections, in particular those Outcomes which relate to long term. • The section also tests some of the complex interrelationships between those elements identified in the Outputs section and the Outcomes section. • For example to what extent do changes in delivering of the Outputs influence the Outcomes? In particular: the relative ratios of the listed Outputs in the Commissioned Infrastructure section (New on-farm assets, New off-farm assets, New GMW assets, New landowner assets).	• To what extent has the backbone modernisation program been delivered? • What differences are there in the relative risk profiles of the Backbone Modernisation Program and the Connections Program? • What, if any, corrective actions would you recommend? • Based on current performance is GMWCP2 likely to achieve the broader benefits beyond water savings intended by this program? For example, regional productivity, long term efficiency, environmental outcomes?	• How is relationship between Backbone modernisation (and any extensions) and the connections program managed? • What is current assessed performance of automated meters in delivering uniform flow within 10 %. What is the % of time that automated meters will deliver uniform flow within 10% by 30 June 2018? • What is the current GMW water delivery system efficiency and what is the projected water efficiency at 30 June 2018? • What is the length of channel that is remediated now and what length will be remediated by 30 June 2018? • What are the CAPEX and OPEX costs per / km of channel remediated, decommissioned or new GMW owned pipelines respectively? • What is the interdependence with Connections program of work to achieve long term system efficiency of 85% and other long term savings related measures? How many landowners need to be involved in the Connection program to achieve this? • What is the interdependence with third party infrastructure, for example on-farm infrastructure, to achieving long term measures such as uniformity of flow? • What is the interdependence with Connections program of work to achieve other long term savings related measures?	**Documents** • KPI methodology for long term measures (working draft) • KPI report 2014 (GMW) • Annual Progress Report N 5 (2015) • Backbone Modernisation Plan Business Case (to be provided) • Selected documents and reporting from the GMW Program Management Office. **Stakeholders** - Interviews with Project personnel	• Understand the complex relationship between extending the backbone, modernising the backbone (installation of meters, lining etc) and water savings. • In particular, how uncertainty in the rate of connecting to landowners impacts backbone extension, modernisation and the overall program aims of long term system efficiency, net reduction of channel footprint and lower overall cost of ownership to GMW.
Water Savings and Environmental Projects • 7% of investment ($73,860,803) • Deliver the works specifically included for their focus on environmental outcomes and the extent to which the works noted above within the Connections Program contribute to positive environmental outcomes. • Includes delivery of: - Kow Swamp-Box Creek Fishway, Torrumbarry Services Enhancement Project, Swan Hill Modernisation Project, Gunbower Lagoon Modernisation Project, Central Goulburn 1-4 Rationalisation Project, Goulburn 19/12 Rationalisation project and Kerang Lakes.	• Those Outputs and Outcomes which are flagged as specifically included to achieve an Environmental result. This includes the Outputs listed to the left (Agreed 'Special Projects') and the longer term outcomes noted below - Priority outcomes monitored for compliance: Positive salinity outcomes, Continued setting aside mitigation water to ensure no net impacts. Creation of agreed environmental watering plans. - Reduced environmental footprint of the irrigation system. - Reduced nutrient and salt content and improved environmental water regimes of waterways in the GMID.	• What is the likelihood each approved Environmental Projects will be delivered on time and within budget? • What is the progress in these environmental projects against their target of delivering estimated water savings of at least 13.96 GL? • Has the reduction in scope and cancellation of some projects influence the ability of this group of projects to deliver water savings of at least 13.96 GL? • What, if any, corrective actions would you recommend?	• What is the status of each the sub-projects specified in this project component? • For each sub-project, detail any key assumptions in the project business cases which have changed and may impact on the value for money assessment (i.e. cost estimates, outcomes, risks) • What environmental projects have been identified as contingency measures if current projects prove to be not feasible during investigation? • What separate reporting and delivery arrangements are in place for the delivery of these environmental projects? • What is the current state of planning for the monitoring of priority outcomes for compliance beyond 30 June 2018? • What is the relative resource allocation between projects within this category, compared to projects being delivered under the Connections or Backbone Modernisation elements of the program?	**Documents** • G-MW Connections Project Integrated Quarterly Report Q2 2014-15 • Progress Reports from State to Commonwealth • Master Schedule • Selected documents and reporting from the GMW Program Management Office. **Stakeholders** Interviews with Project personnel from GMW and State	• Understand any specific elements or risk or issues associated with this grouping of projects as distinct from those which comprise the Connections and Backbone Modernisation components of this program.
Research and Water Savings Investigations • 0.08% of investment ($855,647) • Projects or activities with the primary focus on the application of scientific research to improve water savings through the program.	• Any efforts towards this aim are captured within the Activity section of the PLM within those Activities which describe Continuous Improvement.	• What activities have been undertaken to deliver against this Research and Water Savings Investigation project? • What has been the use and impact of this research? • Will any remaining funding be required over the remaining life of the project? • To what extent will there be a matching of Commonwealth funds by either DELWP or GMW?	• What is the process for identifying and delivering these types of research projects? • In what ways is this process separated from core delivery of the program? • In what ways have the findings from this work been implemented within the program and what type of impact have they had?	**Documents** • Project Charter • G-MW Connections Project Integrated Quarterly Report Q2 2014-15 • Progress Reports from State to Commonwealth • Selected documents and reporting from the GMW Program Management Office. **Stakeholders** - Interviews with Project personnel from GMW and State	• Determine if they are regarded as useful to program performance as distinct from the Program's continuous improvement and value engineering components. • Determine how they are identified and implemented. • Measure how effective they have been to overall program performance.

Context		Key Questions		Information	Process to answer
Planning and Compliance Projects • 2% of investment ($25,853,471) • Projects or activities with the primary focus on influencing approaches to planning and compliance, in particular in interactions with third party regulators, to improve water savings through the program.	• Any efforts towards this aim are captured within the Activity section of the PLM within those Activities which describe Program Management.	• How effective are the governance arrangements and processes in place for delivering the auditing and compliance components of this program? • Describe the governance arrangements and processes involved in managing financial, risk, fraud control, environmental, OH&S and water savings audits. • In what way have planning and compliance activities, environmental planning, water saving audit, environmental management etc, changed over the life of the program? • What, if any, corrective actions would you recommend? • *Improvement, trying to get project wide approvals not property based approvals.*	• Describe how each of the EY Recommendations were implemented in 2013? How has success of these recommendations been monitored? What has been the impact of implementing these recommendations? • How would you describe the process of discussing and actioning risk management between all the governance groups involved in program delivery? • How does this compare with other similar water savings programs? • How does this compare with other Capital Works programs of this size (regardless of focus)?	**Documents** • CIP 1 (2012) • CIP2 (2013) • Project Charter (all versions) • Project Schedule (all versions) • EY audit Report • NVIRP2 Due Diligence Report • GMW Strategic Alignment Framework **Stakeholders** - Project Stakeholder Interviews	• Use the EY recommendations list (which largely pertains to program management) as a starting point to understand the Programs approach to planning and compliance. • Benchmark these processes and governance arrangements where possible to provide a means of demonstrating any unique challenges this program is exposed to.
Corporate and Project Management Overheads • 7% of investment ($69,116,539) • The ongoing costs of managing the program split between VIC Government, GMW and CTH.	• Efforts towards this aim are included within each point within the Activity section of the PLM.	• What processes are in place to determine whether overheads are reasonable? • What processes are in place to determine whether appropriate rates have been paid for goods and services? • Do the existing funding arrangements provide an appropriate level of flexibility in the management and governance of this Program? • How effective is the current contractual framework between parties? • Is the way expenditure profile, KPIs and milestones monitored and reported appropriate? • How does this compare with other similar water savings programs? • How does this compare with other Capital Works programs of this size (regardless of focus)? •	• What are the overheads and project management costs? • Do these costs include TransCom costs? • How do they compare to budget? • Are there changes you know of that could be implemented to improve performance in this area? • What is the process for destemming value for money for goods and services procured for the project? • How is the progress of contractors and service providers monitoring to ensure that they are providing services consistent with their contracts? • Does the timing or reporting and receiving funds create a constraint to the project delivery? • What improvements do you think could be made? • How well does project reporting align to contracted performance and a mutual understanding of what constitutes success in this program? • Describe the process for the approval of payments to this program under the contract? Who is the owner of the delivery of the contracted targets for this program within CTH, GMW and VIC respectively? Are there any opportunities to improve this process?	**Documents** • Project Charter • EY Audit Report • Monthly / Quarterly and Annual Progress Reports from GMW **Stakeholders** - Interviews with Project personnel from the PMO	• Understand the allocation of Corporate and PM overheads grouped against different elements of program delivery. • Understand the practicality of the current way GMW, CTH and VIC groups interact to deliver the program aims. • Receive feedback on any suggested improvements.

Appendix E – Documents Received and Reviewed

Document	Description	Source	Date Received
EY Audit Report	Audit of GMWCP2 in 2013	DoE	28-May-15
NVIRP Stage 2 Due Diligence Report FINAL	Due diligence of original business case	Dept. of the Environment	28-May-15
NVIRP Program Charter Final 2011	NVIRP Program Charter Final 2011	DELWP	28-May-15
NVIRP Stage 2 Funding Agreement Final	Commonwealth and State agreements that provides detailed information about the subcomponents, auditing and expected costs of the project.	DELWP	28-May-15
Project Charter Version 3 23rd March 2015	Commonwealth and State agreements that provides detailed information about the subcomponents, auditing and expected costs of the project.	DELWP	28-May-15
Project Charter April 2013	Commonwealth and State agreements that provides detailed information about the subcomponents, auditing and expected costs of the project.	DELWP	28-May-15
Project Charter SEWPAC adjusted 2012	Commonwealth and State agreements that provides detailed information about the subcomponents, auditing and expected costs of the project.	DELWP	28-May-15
NVIRP2 Final Project Schedule Signed 2011	Commonwealth and State agreements that provides detailed information about the subcomponents, auditing and expected costs of the project.	DELWP	28-May-15
Deed of Variation Stage 2 Project Schedule 2013	Commonwealth and State agreements that provides detailed information about the subcomponents, auditing and expected costs of the project.	DELWP	28-May-15
Deed of Variation Stage 2 Project Schedule Final sent to Victoria 25 March 14	Commonwealth and State agreements that provides detailed information about the subcomponents, auditing and expected costs of the project.	DELWP	28-May-15
Water savings audits	Annual independent audit of water savings for both Stage 1 and Stage 2	From GMW website	28-May-15
Delivery agreement between State and GMW (2012)	Back to back agreement with NVIRP for the delivery of the project	DELWP	28-May-15
Project Schedule 03 Annexure A Final	Commonwealth and State agreements that provides detailed information about the subcomponents, auditing and expected costs of the project.	DELWP	28-May-15
Project Schedule 03 Annexure B Final	Commonwealth and State agreements that provides detailed information about the subcomponents, auditing and expected costs of the project.	DELWP	28-May-15
Project Schedule 03 Signed Agreement Final	Commonwealth and State agreements that provides detailed information about the subcomponents, auditing and expected costs of the project.	DELWP	28-May-15

Document	Description	Source	Date Received
DEPI GMW Project Contract/Reporting Outputs (redacted)	Information on reporting arrangements between GMW and the State	DELWP	28-May-15
GMW Strategic Alignment Framework	A high level process map as to how the selection of project options/corrective actions will be determined; and a broad strategic framework within which a common project nomenclature can be developed.	GMW	9-Jun-15
Connections Program Implementation Plan Final 31st July 2012	Plan for the delivery of Stage 2 of the Connections program developed by GMW following handover of project from NVRIP	GMW	11-Jun-15
Connections Implementation Plan Update Including Part B	Plan for the delivery of Stage 2 of the Connections program developed by GMW following handover of project from NVRIP including Part B the Consolidated Strategic Actions	GMW	11-Jun-15
Monthly Milestone Report 30th April	Monthly Dashboard Report	GMW	11-Jun-15
Monthly Progress Report February 2015	Monthly Progress Report pre-dashboard reporting	GMW	11-Jun-15
Monthly Progress Report January 2015	Monthly Progress Report pre-dashboard reporting	GMW	11-Jun-15
GMW Customer Service Survey Results	One page summary of the results of GMW's customer survey held annually since 2011	GMW	11-Jun-15
GMW Landowner Connections Booklet April 2014	Consultation material to advise landowners about the project	GMW	11-Jun-15
GMW Connections Strategic Stakeholder Engagement and Communications Framework June 2015-2018	Document that outlines GMW's Connections Stakeholder Engagement Strategy and Communications Framework that will see the Project through until closure in June 2018.	GMW	11-Jun-15
Integrated Quarterly Milestone Report Quarter 2 FY2014-15	Quarterly progress report for both Stage 1 and Stage 2	GMW	11-Jun-15
Integrated Quarterly Milestone Report Quarter 3 FY2014-15	Quarterly progress report for both Stage 1 and Stage 2	GMW	11-Jun-15
Integrated Quarterly Milestone Report Quarter 1 FY2014-15	Quarterly progress report for both Stage 1 and Stage 2	GMW	11-Jun-15

Document	Description	Source	Date Received
Written Response from DELWP	Budget and payments (actuals) Commonwealth to State	DELWP	20-Jul-15
Written Response from GMW Q 12	Cumulative Stage 2 Water Savings as at 30th June 2018 with graph showing cumulative water recovery to date and forecasted to June 2018 assuming CIP2 work schedule DM4022382	GMW	5-Aug-15
Written Response from GMW Q 13	Stage 1 and 2 cumulative water recovery that can be delivered by 30th June 2015 and 30th June 2018 respectively DM4022380 and 4022382	GMW	5-Aug-15
Written Response from GMW Q 14	Definition of Phase 1,2, 3 and 4 water savings DM4022380	GMW	5-Aug-15
Written Response from GMW Q 15	Forecast water recovery volumes for both Stage 1 and Stage 2 in separate diagrams DM4022380 and 4022382	GMW	5-Aug-15
Written Response from GMW Q 21	forecasts over time for water savings as of 30th June 2015 DM 4020827, 4022380 and 4022382	GMW	5-Aug-15
Written Response from GMW Q 28	Relative contribution in GL towards overall savings of individual delivery approaches to date and forecasted. DM 4021345, 4021317, 4019411 and 4019407	GMW	5-Aug-15
Written Response from GMW Q 32	Number of SCPs that are required finalised or subject to change	GMW	5-Aug-15
Written Response from GMW Q 33	What extent water savings in the Connections program is linked to water savings in the Backbone Modernisation Program. DM4021345, 4020966, 4020953 and 4021317	GMW	5-Aug-15
Written Response from GMW Q 35	What is the relative split between water savings derived from "landowner dependent" and "landowner independent' works between State 1 and Stage 2 of this program. DM4022380, 4022382,	GMW	5-Aug-15
Written Response from GMW Q 3	Data on observed duration to uptake on farm works	GMW	5-Aug-15
Written Response from GMW Q 2	Statistics regarding types of changes considered as part of the change management process	GMW	5-Aug-15
Written Response from GMW Q 4	Details of the 227 outlets that do not exist but were included in the original 2008 meters dataset and any meters that were not included in 2008 but now need to be included.	GMW	5-Aug-15
Written Response from GMW Q 5	Reasons why meters treated is better than meters installed as a metric	GMW	5-Aug-15
Written Response from GMW Q 7	The process of discussing and actioning risk management between all the governance groups involved in project delivery.	GMW	5-Aug-15
Written Response from GMW Q 8	Data (general not specific) on easement only customers with respect to times taken for agreements to be achieved	GMW	5-Aug-15

Document	Description	Source	Date Received
Written Response from GMW Q 9	Data (general form only) on contingent agreements	GMW	5-Aug-15
Written Response from GMW Q 11	Process for determining value for money for goods and services procured for the project	GMW	5-Aug-15
GMW Connections Project Issues and Risks Management Framework May 2015	Issues and Risk Management Framework	GMW	5-Aug-15
Written Response from GMW Q25	Answer to question do overhead costs include TransCom costs?	GMW	12-Aug-15
Written Response from GMW Q29	Forecasting individual approaches based on current impact on future activities	GMW	12-Aug-15
Written Response from GMW Q30	Details of what extent water savings from Stage 1 have been used in Stage 2	GMW	12-Aug-15
Written Response from GMW Q34	What percentage of delivery shares are needed to be included in executed connections agreements to achieve the required water savings in the program	GMW	12-Aug-15
Written Response from GMW Q45	Estimation of delays in engaging landowners during ombudsman's review	GMW	12-Aug-15
Gateway Recommendation Action Plan	Actions from the Gateway review	GMW	12-Aug-15
Written Response from GMW Q 31	Extract from Board Sub Committee papers re resources allocated to SCPs	GMW	17-Aug-15
Written Response from GMW Q 41	Breakdown of landowners by average water use	GMW	17-Aug-15
Written Response from GMW Q10	Details on overhead / management costs	GMW	26-Aug-15
Connections Committee 19	Extracts from material presented to the Connections committee 21 July 2015	GMW	26-Aug-15
Written Response from GMW Q23	Extent to which water price fluctuations contribute to an landowners preference to connect or terminated supply under GMWCP2	GMW	26-Aug-15
Written Response from GMW Q38	Interdependence with the connections program of work to achieve long term system efficiency of 85% and other long term savings related measures.	GMW	26-Aug-15
NVIRP Business Case Support report Water Savings 2010	Supporting information for the business case	GMW	26-Aug-15
Written Response from GMW Q42	Percentage of property sales per year within GMW's customer base	GMW	26-Aug-15

Document	Description	Source	Date Received
Written Response from GMW Q43	Simplified Engagement Process Chart	GMW	26-Aug-15
Written Response from GMW Q44	Perverse outcomes that MHC and $/ML can cause	GMW	26-Aug-15
Written Response from GMW Q49	GMW Connections Project Annual Report #5	GMW	28-Aug-15
Written Response from GMW Q50	Connections Project Monthly Milestone Report for June 2015	GMW	28-Aug-15
Written Response from GMW Q51	2012/13 KPI report	GMW	28-Aug-15
Written Response from GMW Q1	General information on landowner agreements and durations including landowner dependent agreement rate and rates at which customers and signing agreements	GMW	3-Sep-15
Written Response from GMW Q19	Project Budget Forecast	GMW	3-Sep-15
Written Response from GMW Q22	Project Budget Forecast	GMW	3-Sep-15
Written Response from GMW Q24	Pitcher Partners Internal Audit Report	GMW	3-Sep-15
Written Response from GMW Q26	Risk mitigation measures	GMW	3-Sep-15
Stage 2 Annual Progress Report	Annual Progress report for FY 2014-15	GMW	3-Sep-15
Written Response from GMW Q37	CAPEX /OPEX costs per km of channel remediated	GMW	3-Sep-15
Written Response from GMW Q40	Number of compliant meters	GMW	3-Sep-15
Written Response from GMW Q20	Project Budget Forecast	GMW	3-Sep-15
Connections Implementation Plan Update 2014	CIP2	Dept. of the Environment	8-Sep-15
Written Response from GMW Q 53	Draft GMW Connections Project Stage 2 Annual progress report 2014-15	GMW	14-Sep-15
Written Response from GMW Q53	KPI Report for Irrigation Season 2013/14	GMW	14-Sep-15
2011 Audit	Victorian Ombudsman (2011) **Investigation into the Foodbowl Modernisation Project and related matters.** https://www.ombudsman.vic.gov.au/getattachment/0c328751-ed2d-438e-88a4-a218bbabcc79	Dept. of the Environment	

Appendix F – Glossary of Terms and Abbreviations

Term / Abbreviation	Definition
Allocation	The water that is actually in the dam in any given year is allocated against water shares
Backbone	A large capacity water supply channel (carriers and trunks). The backbone forms the nucleus of a modernised and automated water supply system to efficiently transport large volumes of water to customer service points.
Bulk entitlement	A right to use and supply water in a waterway, water in storage works of a water corporation, and groundwater. The bulk entitlement sets out the amount of water that can be taken or stored under specific conditions or specifications, up to a maximum volume
Channel Remediation	A water savings intervention comprising the lining of the bed and banks of water supply channels, pipelining or the rebuilding (remodelling) of channel banks to reduce water loss. Impermeable membranes or compacted clay may be used to line channels.
CIP	Connections Implementation Plan
CIP2	Connections Implementation Plan 2, a new implementation plan for GMWCP2 developed following the handover of the project from NVIRP to GMW in 2013.
CMA	Catchment Management Authority
COAG	Council of Australian Governments
Concept Connections Plan	A plan developed in consultation with landowners for a Strategic Connections Project that provides a connections solution for all properties involved.
D&S (Stock and Domestic) Water	Stock and Domestic water entitlements; that is, water used for non-potable domestic house, garden and stock use. This water share volume is generally less than a water share of 10 ML. This includes customers who have just a Stock and Domestic water entitlement which is a water share less than 10 ML and more often less than 2 ML.
DAWR	Commonwealth Department of Agriculture and Water Resources
DELWP	Victorian Department of Environment, Land, Water and Planning
DEPI	Victorian Department of Environment and Primary Industries a predecessor of DELWP
DoE	Commonwealth Department of the Environment
DS	Delivery Share. An entitlement to have water delivered to land in an irrigation area. It gives access to a share of the available capacity in the channel or piped network that supplies water to the property. Delivery share is defined by a rate of megalitres per day, which establishes how deliveries will be shared if everyone on the channel or piped network wants water on the same day. Delivery share also includes an annual delivery allowance, which is based on the delivery share in megalitres per day, multiplied by the number of days in the irrigation season. Delivery share is tied to the land and stays with the property if it is bought or sold. It also stays with the property if the water share is sold separately
Entitlement	A right to have water delivered
EY	Ernst and Young, the auditors for the 2013 audit of GMWCP2.

Term / Abbreviation	Definition
Foodbowl Project	A $2 billion project designed to generate water savings for Melbourne, landowners and the environment http://www.victoriasfoodbowl.com.au/irrigation/project-stages
GDP	Gross Domestic Product
GMID	Goulburn-Murray Irrigation District
GMW	Goulburn-Murray Water
GMWCP2	Goulburn-Murray Water Connections Project Stage 2
Irrigation Season	The irrigation season in the GMID is from 15th of August to 15th of May the next year
KEQ	Key Evaluation Question
LTAAY	Long Term Average Annual Yield
KPI	Key Performance Indicator
LTCE	Long Term Cap Equivalent water volume. LTCE is the expression of short term water volumes (e.g. deliveries, water losses and water savings) in terms of the volumes, from longer term climatic sequences. It is the equivalent volume of water determined by modelling the same climatic sequence as was used to determine the long term High and Low Reliability Water Shares for the basin in question. CAP computer models determine the potential contribution to the long term average flows after applying any agreed caps on diversions in the relevant river basin. This volume is determined using over 100 years of data and is consistent with the sequence used to determine Bulk Water Entitlements.
MHC	Modified Historic Cost
Modco	GMWCP2 project officer responsible for individual communication with landowners.
Non-backbone Channel	Smaller spur channels located below the backbone network of channels, which G-MW Connections Project is attempting to decommission to create a more efficient system.
NVIRP	Northern Victorian Irrigation Renewal Project
PMO	Project Management Office of GMWCP2.
Property Consolidation	The process of purchasing neighbouring properties and consolidating into a single enterprise.
Reconfiguration:	A process incorporated in the Water Act that would allow in some circumstances a developed concept connections plan agreed by the majority of landowners to be implemented through a compulsory process.
SCADA	Supervisory Control and Data Acquisition a telemetry system for controlling remote control for irrigation infrastructure
SCP	Strategic Connections Project: a project focussed on a defined channel or section of channels. G-MW Connections Project, landowners and a designated arm designer develop a Concept Connections Plan for this area that provides options for all properties in the area to connect to the project backbone.
SEWPaC	Department of Sustainability, Environment, Water, Populations and Communities Former name of Commonwealth Department of the Environment

Term / Abbreviation	Definition
Spur Channels	A channel downstream of the Backbone. These channels will be targeted for rationalisation through them being replaced by new customer owned connections to the Backbone channels.
Steering Committees	Local committees established for each Strategic Connections Project to assist with the development of the Concept Connections Plan and address landowner issues as they arise.
Standard of Service	Nominated level of service is a quantification of flow rate, flow rate consistency, command, water ordering time, water delivery period, reliability and water delivery season length.
Termination	An option available to landowners who wish to exit irrigation whereby the landowner no longer is connected to the Goulburn-Murray Water System.
Water Savings	Water that is available for allocation (that is, no longer accounted for as system losses) as a result of works.
Water Share	A legally recognised, secure share of the water, in storage or yielded in the catchment, available for use from a declared water system.
Water Services Committee	A WSC is a group of customer representatives in a particular geographical area. They provide GMW with advice and recommendations on a range of operational matters. See more at: http://www.g-mwater.com.au/general-information/wsc#sthash.kXECDxLH.dpuf
Water Use Licence	Allows the landowner to use water at a particular hydraulic load for irrigation on a particular parcel of land. The Water Use Licence includes an annual water use limit and recognises existing approved drainage.

Appendix G – Progress with other KPIs

Table G1 Notes on other performance measures of the project

Project Outcome	Comment	Progress
Long-term system efficiency of 85%.	Based on delivery of 100% of allocation in that year and long term cap equivalent deliveries up to 2004/05 (NVIRP base year).	This outcome is not able to be reported on at this time, the reporting for this project is programmed after the completion of GMWCP2.
Uniformity of flow through automated meters of +/- 10% for 90% of time.	Based on statistically valid representative sample of irrigation events through automated meter outlets installed under this agreement where on-farm restrictions do not impede flow. Note, not all meter outlets will be automated.	The 2012/2013 KPI report states that for a sample of meters the average seasonal uniformity was 91%.
Construct the Kow Swamp – Box Creek Fishway.	Construct Box Creek Fishway in 2015.	Project has been delayed due to cultural heritage issues which have since been resolved, project is on schedule for completion 2016.
Environmental Delivery to One and Two Tree Swamps.	Assess capacity of Wanalta Creek and undertake works in 2015.	The project has been unable to get agreement between all surrounding landholders at One and Two Tree Swamps, despite extensive consultation and negotiation. The project will, therefore, not proceed to implementation.
Decommission Mitchells flume and upgrade alternate supply channels.	Decommission flume and upgrade alternate supply channels in 2014.	In channel works were completed during the 2014 winter works period. Outer channel remediation works including fencing completed. Installation of 2 regulators to complete project planned for winter works and operational by 30th June 2015.
Increase capacity of Torrumbarry Channels 1 and 6/1 and regulation water down Channel 1 and upgrade Pigatto's outfall.	Decommission flume and upgrade alternate supply channels in 2014. Upgrade channel structures and Pigatto's outfall in 2014.	In-channel works were completed during the 2014 winter works period. Outer channel remediation scope of works has been completed. Testing of flow in channels and outfalls revealed another section of bank requiring 'spot' remediation. This was planned to be completed by the end of April 2015. GMW reports that the completion of these works will effectively close out the construction schedule for this project.

Project Outcome	Comment	Progress
Water available and delivered within 24 hours of ordering95% of the time.	Based on a statistically valid representative sample of customer orders through irrigation meters installed under this agreement where the delivery of the order is not impacted by capacity constraints in the channel system. The sample size will be based on AS 3565.4, 'Meters for Water Supply in Service Compliance Testing'.	The 2012/3013 KPI report states that for the full dataset 91% of orders were delivered within 24 hours of the requested time. The expectation is that this will increase as more of the system is modernised and operated under TCC.
Positive salinity outcomes arising from initiatives supported by GMW Connections Project – Stage 2 which resulted in the removal of water and Delivery Shares together with associated Water Use Licences from those properties identified as not having a long term future in intensive irrigation. Delivery Shares and Water Use Registration to support the stock and domestic needs of each property may remain.	A report at the conclusion of the project that would use basin modelling to demonstrate a positive salinity outcome under the Basin Salinity Management Strategy.	This outcome is not able to be reported on at this time, the reporting for this project is programmed after the completion of GMWCP2.

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