

‘BEST FOR WAIPA’ - DELIVERING THE 2012-2015 LTP – A LEGACY FOR THE FUTURE

Lorraine Kendrick (Waipa District Council), Bilyana Podrumac (Waipa District Council), Ian Garside (CH2M Beca Ltd), Robin Walker (Opus International Consultants Ltd)

ABSTRACT

During early 2012 the Waipa District Council approved a large increase in their Long Term Plan (LTP) spend on Water Services to increase the level of service provided across the three waters, to improve resilience in their operations and to cater for future growth. Prior to this the council had a modest spend, and did not have the level of skilled resource to deliver the much larger capital works programme.

This paper describes the steps which were taken to deliver the first three year (2012-2015) of the long term plan. These steps included appropriate ‘Best for Waipa’ resourcing using a blend of in house and consultant resources, the establishment of processes for managing programme and project risk and the procurement of project management services, consultant and contractors. As part of this process tools were developed to track and encourage innovation, to ensure that appropriate review and escalation methods were available and that monthly cash flow spend was appropriately monitored.

The paper also describes the governance and management process which were developed to support the larger programme and how these processes were also used within other functional areas of Council.

Use will be made of a case study, including planning, design and construction of the Frontier Road Reservoir. The 6ML reservoir increases the water storage to 24 hours for the residents and the industrial users of water in Te Awamutu to demonstrate the effectiveness of these processes.

The paper describes lessons learnt from this exercise across the programme and will also describe how the legacy of the first three years of the 2012-2015 is being used for the 2015-2025 long term plan, which has a project capital expenditure of \$473M, a proportional doubling of the 2012-2015 spend.

KEYWORDS

Long Term Plan, Programme Management, Risk Management, Governance, Management.

1 INTRODUCTION

Waipa District Council in the Waikato region is a municipality that covers Te Awamutu, Cambridge and several small towns. The seat of the council is at Te Awamutu, with a service centre in Cambridge. The district's population at the 2013 census was 46,668, of whom approximately 35% lived in each of the main two towns. The district has a land area of 1,473.47 km². It has five wards: Te Awamutu, Cambridge, Pirongia, Maungatautari and Kakepuku and the District brand is the "Home of Champions".

The district is located south of the city of Hamilton. The region's economy is based largely on dairy farming and cereal production. The southeastern corner of the district includes the hydroelectric power plant at Karapiro.

During June 2012, Waipa District Council approved their Long Term Plan which had a total capital spend of \$83M for the following three financial years. Of this capital spend 40 % was allocated to the (three) Water Services area averaging a spend of \$12M per annum. Historically capital spend in the Water Services area had averaged at approximately \$6M, so the spend in the period 2012 – 2015 was a major step up from previous years.

The largest project within the first three years of the LTP was a new reservoir located in Te Awamutu and this project will be used as a case study throughout this paper.

Over the recent past the district has seen significant population growth, particularly in Cambridge, but also in some of the smaller settlements. With the increase in dairy production in the recent past, and having two major dairy facilities in the district, servicing the dairy industry is a key economic feature of the area.

This increased growth, predicted future growth and limited resilience in the water supply infrastructure necessitated significant expenditure being essential on the water supply systems in Te Awamutu and Cambridge.

The projects within the LTP were a mix of planning, consenting, condition assessment and physical works delivery projects.

Waipa's District's Water Services group was inadequately resourced to deliver the increased capital programme in terms of available staff and skills and decided to deliver the LTP projects under a programme structure using a combination of in-house people and external consultants.

2 PROGRAMME ESTABLISHMENT

2.1 BACKGROUND

The philosophy behind establishing the programme team was that it would have had two functions, which were

- to manage the individual projects within the programme, and
- to manage the programme of projects as a whole in terms of scheduling, resourcing, cash flow, risk, and innovation

The establishment of the programme team required resources and skills to support these functions. It was recognised that Waipa District did not have all of the necessary skills or resources to provide these functions and therefore proceeded with the recruitment of client side project managers and the procurement of external consultants to provide the programme management function.

It was determined that two core project managers would be required and they would be augmented, during busy parts of the programme by project managers from consultants or Waipa staff as appropriate.

Opus International Consultants Ltd and CH2M Beca Ltd, and specifically one individual from each organization, were appointed as programme managers in August 2012 after a procurement process which commenced in June 2012. Each of the two programme managers were each allocated a number of projects from the programme. Concurrently Waipa DC commenced a recruitment process to fill the two project manager posts. The two project managers commenced their roles in September and October 2012.

2.2 THE FIRST NINETY DAYS

As the programme commenced almost 15% into the first year of the Long Term Plan period there was the imperative to commence work and deliver the outcomes required in the first year. Due to a lack of immediately available resources it was not possible to commence all projects at the same time, therefore certain 'quick wins' using well defined projects were commenced almost immediately.

2.2.1 REVIEWING OF BRIEFS

All the projects identified as being required in the LTP had a project brief and a budget and one of the first tasks undertaken was to undertake a review of the briefs. It became clear very early on in this review that the briefs were inconsistent and that in nearly all cases, further definition of the projects was required.

There were over 50 individual projects and in order to understand the required outcomes they were placed in packages, resulting in a more manageable 10 packages.

An example of the packaging of work was that all water supply projects for Te Awamutu were packaged into one programme. This included the construction of the new reservoir in Te Awamutu, the installation of Pressure Reducing Valve (PRV) in the town and investigations into a potential new source of water for the town.

2.2.2 HIGH LEVEL PROGRAMME

A plan of works across the waters activity, termed a high level programme was developed working back from the required delivery date. This included the development of project phases for each projects which typically, although not exclusively, lead to three phases for each project being defined. Priorities were determined following this process.

The three phases were typically;

Phase 1 - Scope Definition investigations

Phase 2 – Design /Specification

Phase 3 – Construction / Implementation

Where the project brief was adequately defined a two phase approach was appropriate.

In the case of the Te Awamutu reservoir all three phases were required and after reviewing the brief for the work a priority was to scope the work which included confirming the size, location and function of the reservoir and determining these base parameters required subsequent tasks to be identified and completed. These tasks included site selection and acquisition, additional demand and modeling investigations, selection of procurement method and land designation.

2.2.3 RESOURCE MATRIX

On completion of this initial phase definition a resource matrix was developed to identify the 'Best for Waipa' delivery team. This included nomination of project sponsor (typically the functional area Team Leader), Project Manager, external technical discipline leads, reviewers and construction support staff. Resources for these roles were nominated on the basis of Best for Waipa, meaning the best available

resource from the resource pool of Waipa, CH2MBeca and Opus staff. Where the expertise required did not reside within this resource pool external support was sought, again on a 'Best for Waipa' basis. Some of the larger packages of work, due to the Waipa DC Procurement Policy required RFT process from outside this resource pool.

Having developed the resourcing matrix and the high level programme those quick wins and high priority projects were commenced.

One such high priority projects was the construction of a new 6ML reservoir in Te Awamutu and whilst this project was ear marked as being a year 2 project, it was also the largest project in the programme and the precise requirements in terms of its function, location and size had yet to be determined as described above. The selection of resources to support these investigation was carried out on a best for Waipa basis with site selection being carried out by Waipa staff supported by Opus modellers, the procurement method was developed by CH2MBeca, the land acquisition and negotiation was carried out by Opus, the preload design was carried out by CH2MBeca and the monitoring of it by Opus. The designation and land contamination investigations were carried out by CH2M Beca.

During the design process CH2MBeca provided the design, after a competitive process, with Opus providing a client advisor role and the construction management carried out by CH2MBeca. The Project Manager for the reservoir was sourced from the project managers within the Council's water services team.

2.2.4 CHARTER & KPIS

To enable a 'Best for Waipa' approach a workshop was held with the programme management team and the resource pool of Waipa, CH2M Beca and Opus staff were encouraged to behave in the manner described in the charter and these behaviours and commitments were used to measure performance of the consultant pool of resources. The text from the charter which was developed is reproduced below.

The group is responsible for delivery of the LTP Programme within the Water Services area. To assist in delivering the LTP programme, the Water Services LTP Programme Management Group will carry out its operations, based on the following values:

- *'Best for Waipa' solutions. These are solutions which:*
 - *Are best for the local people*
 - *Give the right solution, both in the short and long term*
 - *Utilise innovation where possible*
 - *Demonstrate excellence*
 - *Are efficient and add value to the community*
 - *Align with the House of Waipa*
- *Project Management Excellence*
 - *Delivery on time and within budget*
 - *Ensure stakeholder satisfaction*
 - *Proactively manage risk*
- *Key behaviours*
 - *Honesty and Openness*
 - *Collaboration and sharing*
 - *Trust*
 - *Ethical actions and decision making*

2.2.5 LTP PLANNING ASSUMPTIONS

During the review of briefs it became apparent that because the briefs had been written at different times in the past and by different people within council that some of the assumptions that had been made across the projects were inconsistent. An exercise was carried out to determine and record the assumptions to be used in the projects. These planning assumptions, then formed the basis of any

new or adhoc projects that arose during the three year period and also set the basis for the planning projects which ran parallel to the delivery projects.

3 MONITORING DELIVERY

Having established the initial programme of works, the next step was to put in place systems to monitor progress and to establish a management and governance structure.

3.1 CASH FLOW

An imperative of the programme outcomes was, as well as progressing the projects was to establish a planned budget cash flow for, (initially) year 1 of the LTP. Historically work on projects commenced at the start of the financial year, which resulted in physical works not starting until September/October at the earliest. This had led to a situation whereby spend was quite lumpy with a significant spend toward the middle or the end of the financial year.

The financial system at Waipa District Council, whilst serving the purpose of managing the council's finances did not have the functionality required for the programme in terms of forecasting spend at month by month basis and equally did not have the facility for easy interrogation across the programme in a visual form. For that reason a cash flow tool, linked to the financial system & 'owned' by Waipa's management accountant, was developed and provided the mechanism for both tracking and forecasting spend.

The intent was that project managers would update the cash flow tool monthly at the same time as they adjusted their individual programmers. The cash flow tool and its outputs were reviewed monthly by the programme management team and also by the governance group. The success of the cash flow tool in monitoring spend and forecasting it meant that whilst the tool was initially used within the water services area of the LTP, it migrated for use in the other function areas of roading and community facilities with varying degrees of use.

3.2 RISK MANAGEMENT.

The awareness and proactive management of risk at a project and across the programme was an important component of the programme. Risk management processes needed improvement to prioritise risks across the programme. For this reason a risk register was established based on the requirements of the programme. The risk register considered likelihood and consequence on a five point scale as well as an assessment of the effectiveness of risk intervention and residual risk.

Risks were assessed at both programme level and also at a project level and the risk severity was ranked in a consistent manner such that only very high or extreme risks were considered by the programme management group, in terms of escalation.

During the first year of the LTP Council prepared and adopted a risk management policy, the policy used the water services risk register as a template for the whole of council.

3.3 INNOVATION (OR OPPORTUNITIES).

Key outcomes required by the Programme Charter were to utilise innovation where possible, to demonstrate excellence and to add value to the community. For this reason an attempt was made to identify opportunities for innovation which could add value at a programme level. For this reason an innovation register was established and workshops were held to identify areas in which value could be added. This was only partially successful as the monetary value of the innovations was difficult to quantify.

3.4 PROCUREMENT

As the programme gained momentum and further resources, namely additional external project managers, consultants and contractors, were required the need to manage the procurement of these services was recognised.

The need for this was driven by a large number tenders of different sorts were being developed and had to be evaluated and awarded. There were a limited number of people experienced in tender evaluation and the need to apply the right people at the right time with the right skills to these processes without overstressing individuals.

3.5 PROGRAMME AND RESOURCE MATRIX UPDATES.

There was a need to keep the high level programme updated continually and whilst project managers were expected to update their own portion of the high level programme, a co-ordination process was undertaken monthly to identify any clashes or programme slippages.

Similarly as the programme gained momentum, additional resources were brought into the programme, project phases were complete and with staff changes the resource matrix was updated monthly.

3.6 BRINGING NEW PEOPLE INTO THE FOLD.

During the first ninety days of the programme, the number of people involved was quite small; however as new internal and external project managers, new staff members and consultancy teams came on board a major challenge was to ensure seamless growth of the team at the same time as retaining the required behaviours under the programme. As the team grew it became apparent that there was a mismatch between expectations for project managers and a lack of understanding on the part of new staff as to what the programme was seeking to achieve. For that reason a workshop was held with a wider team on a couple of occasions to bring people along the journey.

3.7 MANAGEMENT AND GOVERNANCE

3.7.1 PROGRAMME MANAGEMENT GROUP

Initially a programme management meeting was held weekly between, the water services manager and the two programme managers to establish the programme and set up the charter and systems. As the programme developed and as new staff joined, this meeting matured to including the asset management and compliance team leaders, effectively the recipients of the assets to be generated out of the programme and administration support was also provided to the group.

The main purpose of the programme management group was to provide an overview of the programme, to provide a forum for making decisions which could not be made at project level and a support mechanism for the project managers.

The meeting was held weekly and had a topic emphasis area each week on a four week rotation considering one of the following topics

- Risk
- Procurement
- Roles / Resourcing
- High Level programme / cash flow

For five week months, occurring four times a year, approximately once every two quarter, innovation/value was the topic emphasis area.

Whilst the main focus was on the topic area in each meeting, typically each project was reviewed and any issue to do with this project was discussed should it be required. Should any issue require further escalation it was referred to governance group or through line management.

The benefit of the weekly meeting was to make decisions rapidly or deal with issues which needed an urgent response.

3.7.2 GOVERNANCE GROUP.

An LTP governance group was established across the functional areas (3 waters, roading and community facilities) in council which had a role in delivering LTP projects. A written report on the major projects was produced prior to the meeting and was attended by unit managers across council and other key people. The intent of the meeting was to cross fertilise ideas across the function and for the management tools in the silos to be shared. In addition to this, topics of common interest, for example procurement and improvement of the procurement process were discussed.

4 THE FRONTIER ROAD RESERVOIR

The Town of Te Awamutu and Pirongia gets its water supply from the Te Tahi springs on Mount Pirongia to the west of Te Awamutu. Water is treated at the abstraction point and then flows directly into supply including the Fonterra dairy factory which is located on the Western Side of Te Awamutu. The dairy factory represents around 40% of the peak demand in the town. There is currently a water storage facility (6 ML) to the east of the town at Taylors Hill.

The intent of the project approved in the LTP was the provision of a reservoir to increase the treated water storage to 24 hour storage in the event of a source outage, that it was to be in the west of the town and that a budget of \$5M was allowed. The scope of the work for the reservoir in the project brief contained little more information than this, other than it was to be constructed from concrete, and had to be able to feed Pirongia, which is located to the west of the town and this was the largest project in the LTP.

Thus there was much work to do in providing a concept design, such that the reservoir could be designed and built. This concept work needed to include

- Definition of dimensions for the reservoir and use here was made of an existing hydraulic model of the water supply network with updated future demand
- A location for the reservoir had to be determined and land acquired for the facility.
- The function of the reservoir was to be determined taking due regard to existing system constraints and operation requirements for water turnover, and the desire for a partially off line facility.
- The method of procurement of the reservoir had to be determined. Early on in this process it was determined that a traditional design and construct method was appropriate, with limited opportunities for alternative procurement methods.

There was much to do!

The concept design, followed by a preliminary design commenced in October 2012 and a year's worth of planning concluded in September 2013 when the detailed design contract was commenced.

During this planning stage, the following issues arose.

The concept design confirmed that the reservoir could operate both an on line, and off line facility and a complex functional description was developed which required to the pumps to be installed to have a very wide operational range, both in terms of flow and pressure.

Initial geotechnical investigations indicated the possible risk of uneven ground settlement post construction and ground improvement was required. The options of piling and preloading the site were considered. The lower cost option of preloading the site was selected and the preload commenced in October 2013, and to allow for this additional time required for the preloading, detailed commenced in parallel to achieve the original programme.

Construction commenced in March 2014 after the preload monitoring indicated that the ground improvement was suitable.



Figure 1: Reservoir Foundation Being Prepared Following Preload

Spartan Construction Ltd was appointed as contractors under a NZS 3910 contract. CH2MBeca Ltd acted as Engineer to the Contract. In the spirit of a “Best for Waipa” outcome, CH2MBeca engineer’s representative was supported by an engineer’s representative assistant provided by Waipa District Council

Construction was completed in Early June 2015 with commission completed by the end of June. The reservoir was brought into operation in early July 2015. Figure 1 (above) and figures 2 & 3 below show the reservoir at three stages of construction.



Figure 2: Reservoir Nearing Completion



Figure 3: Reservoir complete and in operation

5 KNOWLEDGE TRANSFER

Underpinning the programme was a desire to ensure Council not only retained its knowledge and ownership of the individual projects but also enhanced its internal records, procedures and staff competences as part of the overall programme delivery.

In this regard at an individual project level the internal Council document management system was the preferred location for all project documentation irrespective of whether the project manager was internal or external to Council. At the completion of each external project ensuring all associated information in electronic and hard copy was lodged with Council and a handover undertaken with relevant assets and operations staff was a key outcome.

At a holistic level the programme managers in a “Best for Waipa” way brought not only their personal knowledge and skills to bear in influencing and guiding Council procedures and staff but also the wider resources of their respective organizations. In this way internal staff had “experts” to call on immediately for advice and guidance from both a management and technical perspective.

6 LESSONS LEARNT

6.1.1 BE PREPARED

The key learning is a simply one, spend time planning upfront so that you are in the best position possible to undertake the delivery of the programme. Council recognised this and approved a significant budget to undertake planning of projects and asset condition assessments during the first three years of the 2012 LTP. The planning work not only fed into the projects that were to be delivered in the first three years of the 2012 LTP but also set a platform for the delivery of longer term projects in future LTPs. Such work involved:

- Undertaking numerous asset condition assessments on treatment plants, pumpstations reservoirs, pipelines etc.
- Updating all operating manuals, P&IDs, SOPs and Incident management plans.
- Completing hydraulic models for the three waters, for both existing and future networks to align with Waipa 2050 growth strategy.
- Preparing master plans for water and wastewater infrastructure.
- Preparing Leak detection and Inflow and Infiltration strategies.
- Preparing a District wide Water Supply Strategy which determines how water will be supplied to the present and future communities of Waipa District to 2050, which is inclusive of water demand management seeking a change of behavior on water use to achieve a reduction on demand to defer capital expenditure and be environmental champions on our water use.

Whilst it was acknowledged planning work was progressing in parallel with the delivery of projects, the Programme Management Group identified any interdependencies and conflicts between the two work streams to ensure that the projects were aligned, utilised the best available information and would still be delivered on time and within budget.

6.1.2 QUALITY ASSURANCE AND AUDITING

Even when things are running smoothly it is still essential to be disciplined and continue with assessing the key deliverables, ensure quality is being adhered to and audits are carried out regularly to ensure compliance with project management processes.

Eighteen months into the three year programme of works, everything was going to plan, processes were in place and seemed to be becoming standard practice. As a result the Programme Management Group stepped back from monitoring the projects to concentrate on the planning

projects, however within two months this proved to be a wrong decision as projects started to go off track and simple things became an issue. As a result of this the Programme Management Group realised that imposing discipline was essential to overseeing the delivery of numerous projects that were at various stages and weekly meetings were set up to address this, with attendance being compulsory.

6.1.3 COMMUNICATIONS AND ROLE DEFINITION

Communication and understanding roles within a project group is essential, especially when a project team can consist of internal council staff across a number of departments, consultants and contractors.

Whilst following the 'Best for Waipa' ethos, Opus' geotechnical team was engaged for the foundation design for the reservoir project, whilst CH2MBeca design engineers undertook the design of the reservoir structure. It wasn't until the design needed to rely on the geotechnical information Council became concerned about risk allocation and potential liability. If Council had used the same consultant for both aspects then the risk would have been with one consultant, with that consultant being in a good position to manage risk. To address this a meeting was held with Council, CH2MBeca and Opus which defined areas of responsibility, communication avenues, and ultimately where the risk lie for each consultant this ensured that Council was not exposed to any risks and the consultants understood and their potential liabilities which were clearly communicated and documented.

7 THE FUTURE – DELIVERING THE 2015 - 2025 LTP

The 2015 – 2025 LTP sees Waipa District Council's capital works programme increase further, with \$475 million spend over the 10-year period. Council decided to set up a dedicated project delivery unit to manage the spend to ensure projects were delivered on time and budget and also see a reduction in consultancy spend across the Council by managing consultants better, advocating the 'smart client' approach. The establishment of the unit would also enable the activity owners (water, roading and community facilities) to focus on asset management, planning, compliance and customer focus in their respective areas.

The project delivery unit (major capital works) will use the foundations that were established as part of the delivery of projects for the water services during 2012 – 2015, using the majority of the processes that were established and enhancing those to deliver the capital projects across the Council.

8 CONCLUSIONS

The following can be concluded from this paper

- This paper has provided a description of the challenges of delivering the 2012 -2015 Water Services LTP programme for Waipa DC and how that challenge was responded to.
- The importance of planning the delivery of the programme has been demonstrated, not only in terms of scope definition, or tools developed along the way but also the behaviors required by all parties.
- Having set up good processes to monitor delivery, this paper demonstrates that they need to be used and underpinned with the required discipline if they are to deliver the required outcome.
- The paper demonstrates that there are challenges in demonstrating the value, in monetary terms of a hybrid in house / external delivery model and thereby was only successful as a qualitative assessment.
- A legacy of tools has been developed under the programme which will form the basis of the delivery model for the 2015-2018 LTP programme.

ACKNOWLEDGEMENTS

The authors would like to thank all Waipa District, Beca and Opus staff and staff of PDP, URS, MWH, BCD and Tonkin and Taylor and numerous contractors who made a contribution to the projects which were delivered under the programme.