The Three Waters Strategic Direction Statement – Developing a Roadmap for Sustainable Water Infrastructure in Dunedin.

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Abstract: This paper describes the process of developing a three-waters strategy for Dunedin City, highlighting the integrated and collaborative approach taken during the process. The strategy itself is published under the title of ‘Three Waters Strategic Direction Statement 2010-2060’ and outlines the principles, priorities and planning assumptions that will underpin decisions regarding three-waters infrastructure planning and service delivery in Dunedin for the next 50 years. In developing the Strategic Direction Statement, several key steps were taken to understand Dunedin’s current situation in terms of system constraints, community expectations and future strategic drivers. Bringing each of these ‘pieces of the puzzle’ together assisted in highlighting seven key strategic priorities that Dunedin City Council is taking into the future. This paper also highlights some of the benefits that have arisen as a result of the strategy development process as well as some of the lessons learned. It concludes by considering the next practical steps that are required to turn the ‘vision’ of the strategy into reality.

Key Words: Integration, planning assumptions, strategic drivers, guiding principles and priorities, stakeholder collaboration, community expectations, long-term asset management, three waters, sustainable management.

INTRODUCTION

In recent years the Dunedin City Council’s Water and Waste Services Business Unit (WWSBU) has progressed significantly in terms of planning for water, wastewater and stormwater service delivery. Specifically, the development of the ‘Three Waters Strategic Direction Statement 2010-2060’ was seen as a necessary tool to address an obvious lack of strategic planning capability and long-term guidance within the business unit. The Strategic Direction Statement outlines the principles, priorities and planning assumptions that will underpin decisions regarding water, stormwater and wastewater infrastructure and service delivery in Dunedin for the next 50 years. This paper describes the process taken to develop the Strategic Direction Statement.

THE PAST – Where we have come from

Historically the Dunedin City Council WWSBU has lacked a justified, co-ordinated approach to resource and asset management; particularly one that is warranted for the quantum of assets and resources the department is responsible for. To put this in perspective, the Council owns and manages 21,000 hectares of water catchment, 1,425km of water main, 1,232km of sewer, 12 operational water treatment plants, 7 wastewater treatment plants, 57 storage reservoirs and 124 pumping stations across the three networks. In addition to this, services are delivered to customers within a district boundary that covers a geographic area of 3,350 square kilometres, making it the largest city in New Zealand by land area.
Whilst the delivery of new capital and renewal projects has progressed over time, most of the investment in the recent past has been quality focussed – such as potable water upgrades in excess of $80m and equally significant investment in wastewater treatment. At the same time however, some capital projects have been undertaken without clear justification as to why investment was being made and what problem/s the project was addressing. In the past funding has often been sought and obtained for projects but final delivery has not been completed within the required financial timeframes. Planning for three-waters capital investment has been very much a short-term and predominantly ‘one-water’ focus, with any planning detail largely contained within one years’ timeframe - the integrated nature of the three water networks has not historically been considered to the extent required for the sustainable management of such assets.

This situation has been exacerbated by the short-term planning horizons that are inherent within municipal organisations, such as the Community Plan and subsequent Annual Plans. Whilst these documents form a necessary part of detailed budgeting for Council activities, they do not provide for planning beyond 10 years. In essence, there has been a planning and financial disconnect affecting the long-term management that is necessary for the long life-cycle of assets and resources managed by the WWSBU.

THE WAY FORWARD

Approximately 4 years ago a proposal was progressed forward which saw the start of some significant changes to the approach to planning and delivery of water, wastewater, stormwater services; as well as the team and staffing structure required to enable such changes. The intention of the proposal was to establish a framework that provided an integrated approach to the management and delivery of the three-waters services. At the same time, a short-fall in strategic planning capabilities was recognised and it became apparent that the WWSBU needed to develop a set of guiding principles and priorities for use in operational, tactical and strategic decision making. It was this realisation that initiated the development of the Three Waters Strategic Direction Statement.

The development of the Strategic Direction Statement involved (but was not limited to) the following key aspects:

- engaging a wide range of stakeholders to understand concerns and identify priorities from a community perspective,
- obtaining a detailed understanding of the technical constraints and current capability of the three-waters network through development of hydraulic models,
- understanding the challenges that the City faces in managing three waters infrastructure over the next 50 years,
- development of planning assumptions and a strategic ‘time-line’ of issues and responses.

The lifespan of three-waters infrastructure and activities means that the decisions made today have a long term impact on affordability, service delivery and community values – beyond current Council planning and election cycles. Recognising the long-term inter-generational approach required for three-waters infrastructure planning formed an important part of the way forward for the Strategic Direction Statement development.

Further detail of how each of these aspects contributed to the Strategic Direction Statement follows:

Stakeholder Engagement

An important part of strategy development was to better understand the communities concerns, values and priorities with respect to the future management of water, wastewater and stormwater. Without obtaining this understanding WWSBU would risk developing a strategy that contained principles and management strategies that the people of Dunedin disagreed with, could lead to misguided investment and/or deliver inappropriate levels of service.
As such, a comprehensive stakeholder engagement exercise was carried out, involving a variety of stakeholders to help identify areas of concern and relative priorities from a community perspective. A key part of this was early engagement – we were not consulting on a strategy document that had already been written, but instead asking the community to contribute and help develop the strategy. The timing of this interaction was important in order to move smoothly through the four main phases of strategy development: from concept; to identifying issues; to approaches/solutions; to the final product. For example, moving into the ‘issues’ phase first required the actual concept of the strategy (i.e. its structure and intent) to be accepted by upper management. As such, a comprehensive stakeholder management plan was drawn up to map out such paths, potential barriers to progress and contingency plans for any related delays.

Community engagement commenced with a series of workshops. These included stakeholders from environmental groups and social / cultural sector representatives, business advocates / key water-using businesses, and City Councillors. The workshops were facilitated by an external consultant and were designed to gain a qualitative understanding of what Dunedin’s community perceived to be important to a long-term three-waters strategy.

Fifteen key attributes were identified as being important to these stakeholders. These attributes were then used to develop a survey, which involved approximately 600 households to further ascertain the relative importance of their concerns and issues. The approach to the survey used a Max-Diff methodology, which grouped attributes together in sets of three, and asked respondents to indicate which is the most important to them, and which is the least important. This assisted to further prioritise which aspects of three-waters management are most important to residents; and was also supplemented by a review of existing feedback from previous Council consultation exercises such as the Residents Opinion Surveys and Wellbeing Forums.

An equally important component was the WWSBU and inter-departmental workshops that were run as part of the stakeholder engagement phase. These focussed on drawing out the responses and/or approaches to the issues highlighted from existing knowledge as well as community consultation – and concurrently promoted the benefits of interaction and ‘joined-up’ thinking. At the same time, specific meetings were held with key stakeholders such the Regional Council and Kai Tahu Ki Otago and other special interest groups as well as Council Community Boards. At each stage along the way, feedback notes were provided to all those who attended the workshops or meetings.

Other key data sources

In addition to the community consultation and stakeholder engagement, three other key data sources and reviews enabled the development of the Strategic Direction Statement. The are outlined below:

**The 3-Waters Strategy Project** - this phased ‘technical’ project was initiated approximately 18 months prior to the completion of the Strategic Direction Statement. Still current as of 2010, the project concentrates on gathering data to enable operational issues to be defined. Key deliverables from this include: comprehensive hydraulic network models of the water, wastewater and stormwater networks to help identify deficiencies, capital works plans for resolving deficiencies across the networks, integrated catchment management plans for Dunedin’s metropolitan stormwater catchments.

**Benchmarking** - for several years WWSBU have taken part in both process and metric benchmarking exercises. The Water Service Association of Australia (WSSA) process benchmarking exercise completed in 2008 highlighted the weaknesses within the asset management system and drove the development of an asset management improvement programme that is currently being implemented. Further to this, the Water New Zealand metric benchmarking has allowed the comparison of the WWSBU’s current service delivery with that of its peers. This has given useful context when analysing the community expectations.
Strategic Drivers Investigation - a desktop study into the three-waters ‘Key Strategic Drivers’ was also performed, as detailed below:

- Demographic change – the impacts of predicted demographic changes on three waters activities were analysed. Relationships with planning departments were greatly improved as a result and a council-wide demographics study was commissioned to give 50-year population projections.

- Climate change – the likely effects of climate change in the coastal Otago region were analysed and the specific impacts on three waters networks were investigated. These included issues such as changes to catchment yields, rainfall intensities and the impact of sea-level rise.

- Peak oil and the ETS – the consequences of issues such as peak oil and the commencing of the Emissions Trading Scheme were examined to see what allowances the WWSBU may have to make financially and/or operationally.

- Community expectations – the results from the community consultation work were tied in with the metric benchmarking information.

- Natural Hazards – the return periods of certain natural hazards as experienced in Dunedin were investigated and the likely impacts on the three waters networks were considered.

- Resource consents – the expiry dates of all current resource consents and their conditions were analysed and likelihood of consent renewals given current operations and consenting trends were determined.

Planning Assumptions

The analysis of the key strategic drivers coupled with the other data that had been gathered enabled the development and adoption of a set of planning assumptions. Whilst it was recognised that there would always be a level of uncertainty associated with the planning assumptions, it was a necessary starting point and it was recognised that these could be refined as better data became available in the future.

Timeline development

Following ‘driver’ analysis and the development of assumptions, the next step in the process was the development of a strategic timeline. Essentially this was a plot of the time period over which assumptions or known events from the strategic driver analysis were likely to occur and the subsequent decision horizon that needed to precede them. This included both discreet and general timeframes, but with each event requiring a prior mitigating action, decision or response. The next step was detailing the necessary responses to each event over the next 50 years and determining what information would be needed to make the pre-event decisions. These represented a fundamental piece of the puzzle in order to enable WWSBU to respond appropriately across the range of issues and challenges.

BRINGING THE PIECES OF THE PUZZLE TOGETHER

Combining the knowledge of existing three-waters issues and constraints with an understanding of strategic drivers as well as community priorities enabled the development of a set of guiding principles and priorities. The components and inter-related nature of the strategy development process are illustrated in the diagram on the following page, with the Key Strategic Priorities listed in the middle box. The high-level responses and commitments to these priorities are presented on the last page.
It was important that these priorities also recognised the unique situation in Dunedin, with a need to balance the City’s affordability issues with relatively slow growth, high sunk infrastructure costs and an expectation to address environmental concerns. The Strategic Direction Statement emphasises that issues and future challenges are not independent of each other, but rather are a web of interrelated problems and opportunities. As such, the strategic priorities deliver benefits across multiple issues and drivers.

Overall, the development of the Strategic Direction Statement has dealt with data requirements with a certain amount of pragmatism. It was recognised that the full suite of data afforded by a ‘blue sky’ approach would never be available in reality and therefore a line was drawn under that which was known and the assumptions there upon based at that time. This information will be refined as better data became available.

Lessons Learned

A range of benefits and lessons learned came from the development of the Strategic Direction Statement:

- The decision to make early engagement with both internal and external stakeholders meant that the strategy had a greater chance of approval and acceptance as many key stakeholders had early buy-in. Similarly, the grass roots relationships that were developed with stakeholders such as the Otago Regional Council and other City Council departments have continued to progress.

- The workshops that were held as part of the strategy development, particularly those within Council, received consistent positive feedback. The momentum of co-ordination and ‘joined-up’ thinking has been visible in the formation of other groups such as the City Strategy Co-ordination Group.

- The WWSBU is increasingly being looked upon for direction within other spatial planning projects, having input on where development could or should be encouraged. There has also been great
opportunity for staff development both within the WWSBU and throughout other departments with consideration of wider issues becoming more apparent.

- Finally, media management was an area that could have been improved upon. The key lesson learned here is that it a media plan defined from the start and considering earlier engagement may have been beneficial. Releasing information gradually throughout the strategy development may have been a better way to manage the media than allowing the opportunity for one aspect of the strategy to be mis-represented in a single article.

THE NEXT STEPS

The Strategic Direction Statement was recently adopted by Council. Water and Waste Services staff are continuing to map the next steps for implementation and further communication with other staff and stakeholders. The importance of continuous interaction should not be understated - the collaborative approach required to give effect to the principles and priorities is essential. Over the coming year, detailed implementation programmes will be developed including budgets for consideration in future annual planning processes, as well as embedding the principles into day to day operation. The diagram below illustrates this approach.

CONCLUSION

The Strategic Direction Statement is a long-term strategic planning document with the ultimate goal of providing strategic alignment to Dunedin City Council’s Water and Waste Services decision making. The statement enables a balanced assessment of the management priorities for the City’s three-waters infrastructure, recognising the economic, social, cultural, environmental and technical challenges that lie ahead. The document also aims to further embed the sustainability principles that have been adopted by Council. In developing the Strategic Direction Statement, a 50 year planning horizon has been adopted, reflecting the long life of infrastructure assets and the consequent need to plan beyond the regulatory timeframe of the Council’s current planning tools.
STRATEGIC PRIORITIES

- We will meet the water needs of the city for the next 50 years from existing water sources
  - The Council will lead the way by reducing system losses to economic levels
  - The Council will help, educate and incentivise consumers to waste less water.

- We will be able to adapt to a variety of future scenarios for climate change and fluctuations in population
  - We will increase the flexibility and resilience of our infrastructure to reduce the risk of prolonged service interruptions.
  - We will ensure that where possible, new infrastructure is scalable to allow for increases or decreases in demand.

- We will reduce our reliance on non-renewable energy sources and oil based products
  - We will prioritise the use of energy efficient technology
  - We will generate renewable energy from our network, catchments and other resources
  - We will reduce the reliance of our supply chain on oil based products.

- We will improve the quality of our discharges to minimise the impact on the environment.
  - We will resolve all known cross connections between the foul and stormwater networks by 2015 and have an ongoing programme to disconnect the systems as new issues are identified.
  - We will reduce the contaminant load in our stormwater. We will use source control where practical, or otherwise consider effective stormwater treatment.
  - We will reduce the number of foul sewer overflows arising as a result of capacity.
  - We will assess the long term feasibility of wastewater treatment plant locations prior to individual consent renewal and consider alternatives such as land-based disposal.

- We will ensure that, as a minimum, key service levels are maintained into the future.
  - We will invest adequately in renewals to maintain the performance of our infrastructure.
  - We will plan our renewals effectively to avoid sharp increases in costs.
  - We will continue with our planned programme of water upgrades and, once completed, maintain our drinking water quality at those levels.
  - There will be no increase in the number of residential or commercial properties at risk of sewer flooding, despite increasing pressure on the network.
  - We will prioritise our investment based on the community’s willingness to pay for improvements and what they are willing to sacrifice as a result.

- We will limit cost increases to current affordability where practical.
  - We will set water rates and charges that provide value for money and that ensure we can finance our services.
  - As far as possible, we will meet the investment challenges of the future by driving efficiency in our core service.
  - We will build long term visibility of investment needs to allow meaningful debate with the community on affordability.

- We will adopt an integrated approach to management of the three waters and embrace the concept of kaitiakitaka.
  - We will consider our activities in the context of the wider water cycle and recognise the inter-relationships between drinking water, wastewater and stormwater.
  - We will work more closely with other water users to understand potential conflicts and opportunities to make more efficient use of water resources.
  - We will look for opportunities to implement strategic ‘landscape-scale’ sustainable drainage schemes as well as encouraging smaller schemes that service particular homes or developments.
  - We will work with other stakeholders to simplify management of the three waters activities whilst developing and maintaining an integrated approach.
  - We will work more effectively across Council departments to align spatial and water planning processes, so that decisions on the type, design and location of new housing can be made with a good understanding of the requirements for new infrastructure.